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

AIDER
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Document prepared by the Asociación para la Investigación y Desarrollo Integral - AIDER
Contact information: Jaime Nalvarte Armas
Calle Las Camelias 174 Piso 6, Lima 27 – Perú
Teléfono (511) 5956644

Project Title	Reduction of deforestation and degradation in Tambopata National Reserve and Bahuaja-Sonene National Park within the area of Madre de Dion region –Perú
Project ID	**1067**
Version	**1**
Report ID	
Date of Issue	**June-2018**
Project Location	**Perú, Madre de Dios**
Project Proponent(s)	**Principal Proponent of the project:** **Asociación para la Investigación y Desarrollo Integral – AIDER** **Contact: Jaime Nalvarte Armas** **Address: Calle Las Camelias 174, Piso 6 - San Isidro. Lima**

	Telephone: (511) 5956644 **Email: lima@aider.com.pe**
Prepared By	**Asociación para la Investigación y Desarrollo Integral - AIDER**
Validation/Verification Body	
GHG Accounting/Crediting Period	**July 1, 2010 – June 30, 2030; 20 years**
Monitoring Period of this Report	**July 1, 2015 – June 30, 2017**
History of CCB Status	**CCB Verification statement: July 27, 2016**
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 (Chrysocyon brachyurus) and the deer of the marshes (Blastocerus dichotomus). 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 1250 ha of agroforestry systems and a total of 358 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.	945227.1 tCO2-e generated by the project (period 2015-2017).		2440376 tCO2-e generated by the project (period 2010-2017).
2) Hectares of reduced forest loss in the project area, compared to the scenario without a project.	2154.3 hectares avoided from deforestation (period 2015-2017).		5885 hectares avoided from deforestation (period 2010-2017).
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

<table>
<tr><th>Category</th><th>Metric</th><th>Achievements during Monitoring Period</th><th>Section Reference</th><th>Achievements during the Project Lifetime</th></tr>
<tr><td rowspan="2">GHG emission reductions & removals</td><td>Net estimated emission removals in the project area, measured against the without-project scenario</td><td>No data available</td><td>-</td><td>No data available</td></tr>
<tr><td>Net estimated emission reductions in the project area, measured against the without-project scenario</td><td>
<table>
<tr><th rowspan="4">Period</th><th>*Ex post* net anthropogenic GHG emission reductions</th></tr>
<tr><td>annual</td></tr>
<tr><td>$\square REDD_t$</td></tr>
<tr><td>tCO_2-e</td></tr>
<tr><td>2015-2016</td><td>765062</td></tr>
<tr><td>2016-2017</td><td>180165</td></tr>
<tr><td>Total</td><td>945227</td></tr>
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</td><td>3.2.4</td><td>
<table>
<tr><th rowspan="4">Period</th><th>*Ex post* net anthropogenic GHG emission reductions</th></tr>
<tr><td>annual</td></tr>
<tr><td>$\square REDD_t$</td></tr>
<tr><td>tCO_2-e</td></tr>
<tr><td>2010-2011</td><td>165992</td></tr>
<tr><td>2011-2012</td><td>270079</td></tr>
<tr><td>2012-2013</td><td>270079</td></tr>
<tr><td>2013-2014</td><td>370903</td></tr>
<tr><td>2014-2015</td><td>418096</td></tr>
<tr><td>2015-2016</td><td>765062</td></tr>
<tr><td>2016-2017</td><td>180165</td></tr>
<tr><td>Total</td><td>2440376</td></tr>
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<table>
<tr><th>Category</th><th>Metric</th><th>Achievements during Monitoring Period</th><th>Section Reference</th><th>Achievements during the Project Lifetime</th></tr>
<tr><td rowspan="2">Forest[1] cover</td><td>For REDD[2] projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario</td><td><table><tr><th>Periodo</th><th>Superficie (ha)</th></tr><tr><td>2015-2016</td><td>827.2</td></tr><tr><td>2016-2017</td><td>1327.1</td></tr><tr><td>Total</td><td>2154.3</td></tr></table></td><td>3.2</td><td><table><tr><th>Periodo</th><th>Superficie (ha)</th></tr><tr><td>2010-2011</td><td>424.3</td></tr><tr><td>2011-2012</td><td>573.5</td></tr><tr><td>2012-2013</td><td>788.1</td></tr><tr><td>2013-2014</td><td>907.8</td></tr><tr><td>2014-2015</td><td>1036.6</td></tr><tr><td>2015-2016</td><td>827.2</td></tr><tr><td>2016-2017</td><td>1327.1</td></tr><tr><td>Total</td><td>5884.6</td></tr></table></td></tr>
<tr><td>For ARR[3] projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario</td><td>Not applicable</td><td>-</td><td>Not applicable</td></tr>
<tr><td>Improved land manag.</td><td>Number of hectares of existing</td><td>Not applicable</td><td>-</td><td>Not applicable</td></tr>
</table>

[1] Land with woody vegetation that meets an internationally accepted definition (e.g., UNFCCC, FAO or IPCC) of what constitutes a forest, which includes threshold parameters, such as minimum forest area, tree height and level of crown cover, and may include mature, secondary, degraded and wetland forests (*VCS Program Definitions*)
[2] Reduced emissions from deforestation and forest degradation (REDD) - Activities that reduce GHG emissions by slowing or stopping conversion of forests to non-forest land and/or reduce the degradation of forest land where forest biomass is lost (*VCS Program Definitions*)
[3] Afforestation, reforestation and revegetation (ARR) - Activities that increase carbon stocks in woody biomass (and in some cases soils) by establishing, increasing and/or restoring vegetative cover through the planting, sowing and/or human-assisted natural regeneration of woody vegetation (*VCS Program Definitions*)

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	production forest land in which IFM[4] practices have occurred as a result of the project's activities, measured against the without-project scenario			
	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	386	4.3.2	386 families benefited from the agroforestry project, as part of the project's REDD strategy. Farmers have been trained for sowing, maintenance and harvesting activities.

[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
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	64	4.3.2	64 women trained in issues of Agroforestry Systems with Cocoa, members of COOPASER.
Employment	Total number of people employed in of project activities,[5] expressed as number of full time employees6	Not data available	-	Not data available
	Number of women employed in project activities, expressed as number of full time employees	Not data available	-	Not data available
Livelihoods	Total number of people with	386	4.3.2	386 families, family's members of COOPASER, as

[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])

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	improved livelihoods[7] or income generated as a result of project activities			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	64	4.3.2	64 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-project scenario	Not applicable	-	Not applicable
Education	Total number of people for whom	Not applicable	-	Not applicable

[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
	access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario			
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	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	Not applicable	-	Not applicable

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario			
Well-being	Total number of community members whose well-being8 was improved as a result of project activities	386	4.3.	386 familias, socios de la Cooperativa de Servicios Múltiples Tambopata Candamo.
	Number of women whose well-being was improved as a result of project activities	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
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 TAMBNR 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, 2015 - June 30, 2017; 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, 2015 to June 30, 2017, and it has managed to avoid 945,227.1 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
Address	Calle Las Camelias 174, Piso 6 - San Isidro. Lima
Telephone	(511) 5956644
Email	lima@aider.com.pe

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 Nº 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 TAMBNR, 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 TAMBNR.
Contact person	Luis Guzman Barron Sobrevilla
Title	Rector of PCUP
Address	Universitaria avenue 1801- San Miguel. Lima, Peru
Telephone	(51 1) 626-2000
Email	www.pucp.edu.pe

2.1.5 Project Start Date (G3.4)

The start date of the project 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.

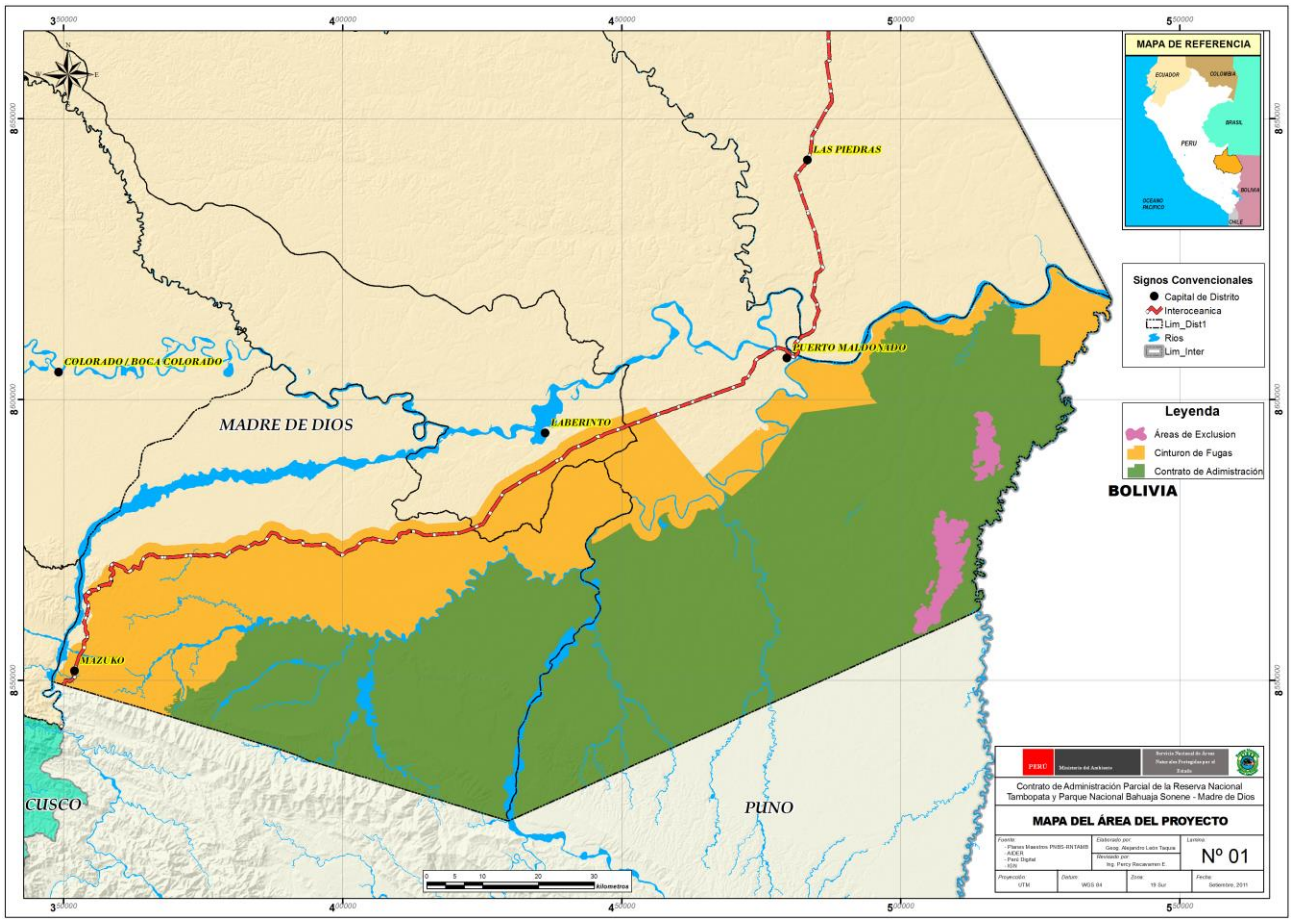


Figure 1. Location map of the project area

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, 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 of the REDD project

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 - field of Madre de Dios (initially only for 7 years).
October 26, 2010	Extension of the Administration Contract for a period of 20 years (2018).
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).

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 base[12], 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 valoration 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 for the period 2015-2017

Category	Description of the risk	Mitigation measures
Climate	Alteration of agroforestry production cycles; decreased productivity of agroforestry and chestnut systems; alteration of the reproduction patterns of fish and game fauna; decrease in food available for wildlife; all this, as a consequence of climate change.	Support activities are being implemented to maintain the agroforestry plots (4 hectares with cacao chuncho), with a vision of food security in the native communities of Palma Real and Sonene. Census of river wolf populations in the Reserve area and the PNBS-MDD in the sector of the Azul river, sector of the La Torre river and the coconuts Cocococha and Tres Chimbadas, sector of the Palma Real river, Sandoval cocha, Chuncho river and in the Alto Tambopata river, with the aim of contributing to a better understanding of the population dynamics of this species. The fishing carried out by the native communities was monitored in the sectors of Palma Real, Sonene, Infierno and La Torre, who develop these activities ancestrally within ANP and its buffer zone (ZA), as well as settlers living in the PCV area Sandoval, with the purpose of reporting the use of the fish resource for its monitoring and sustainable use.
Lands and resources	Invasion of land by migrants.	Preparation of a socioeconomic diagnosis of the buffer zone of the REDD + project, can be seen: the effect of illegal mining in the different economic activities that are carried out in the area, such as fishing and organic production of copoazú and chestnut; the extension of tomb and burn agriculture in the population groups of the study area; the increase of the production and sowing of papaya using synthetic fertilizers; the degree of misinformation on the part of the inhabitants regarding the activities promoted by the RNTAMB; the problem of the invasions to the forest concessions, that generates legal problems by the possession of these spaces and scams to settlers in search of lands; among others.

Category	Description of the risk	Mitigation measures
	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.	Quantification of mining concessions with respect to the areas of the Administration Contract and Leakage Belt, in order to know its extension and take the appropriate actions for its conservation.

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 Pariamanu) with the aim 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 (Pteronura brasiliensis) 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. Castañales (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 (Harpia 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-Amboró 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.

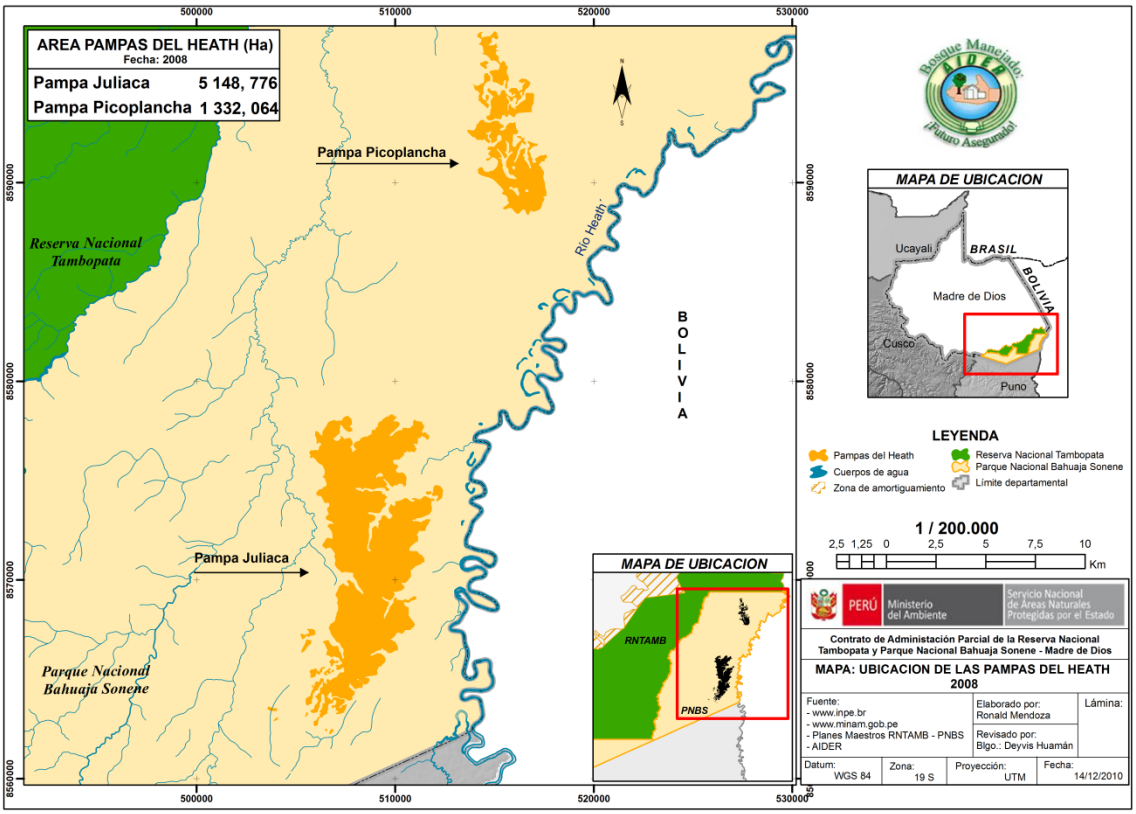


Figure 2. Location of “Pampas del Heath” – 2008
Source: Own elaboration

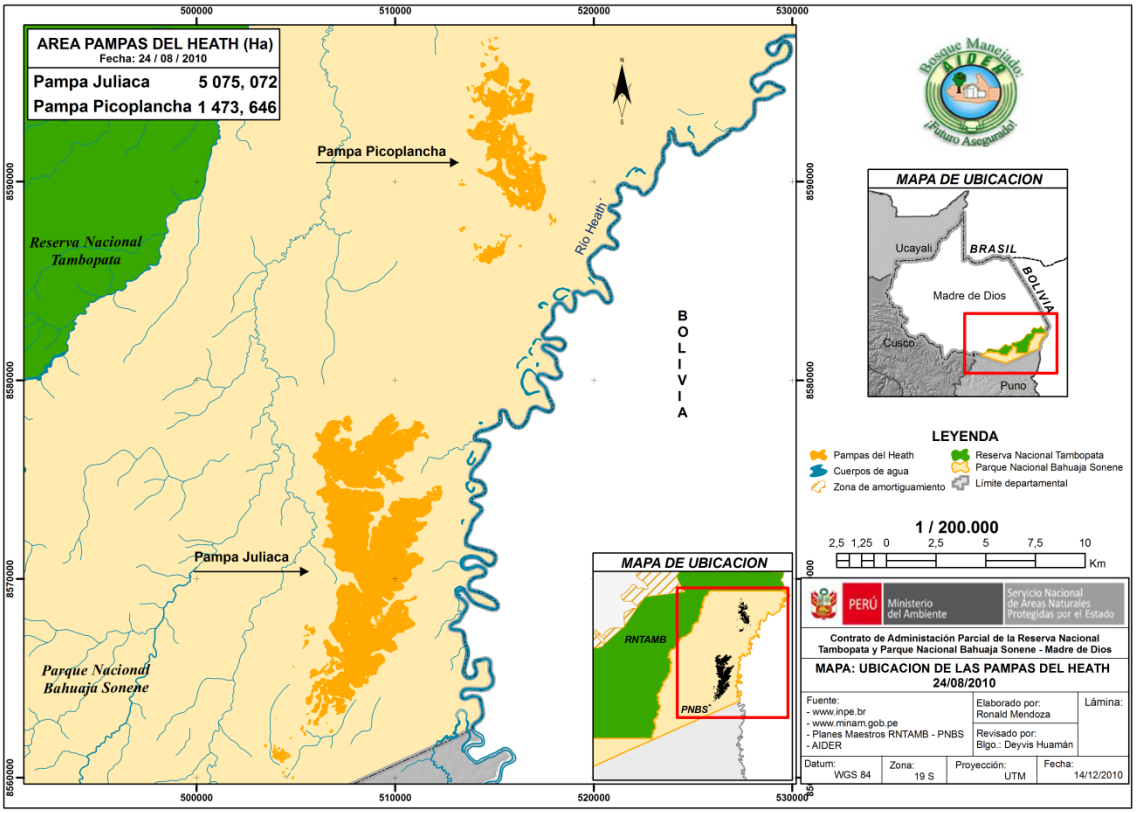


Figure 3. Location of "Pampas del Heath" – 2010
Source: Own elaboration

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

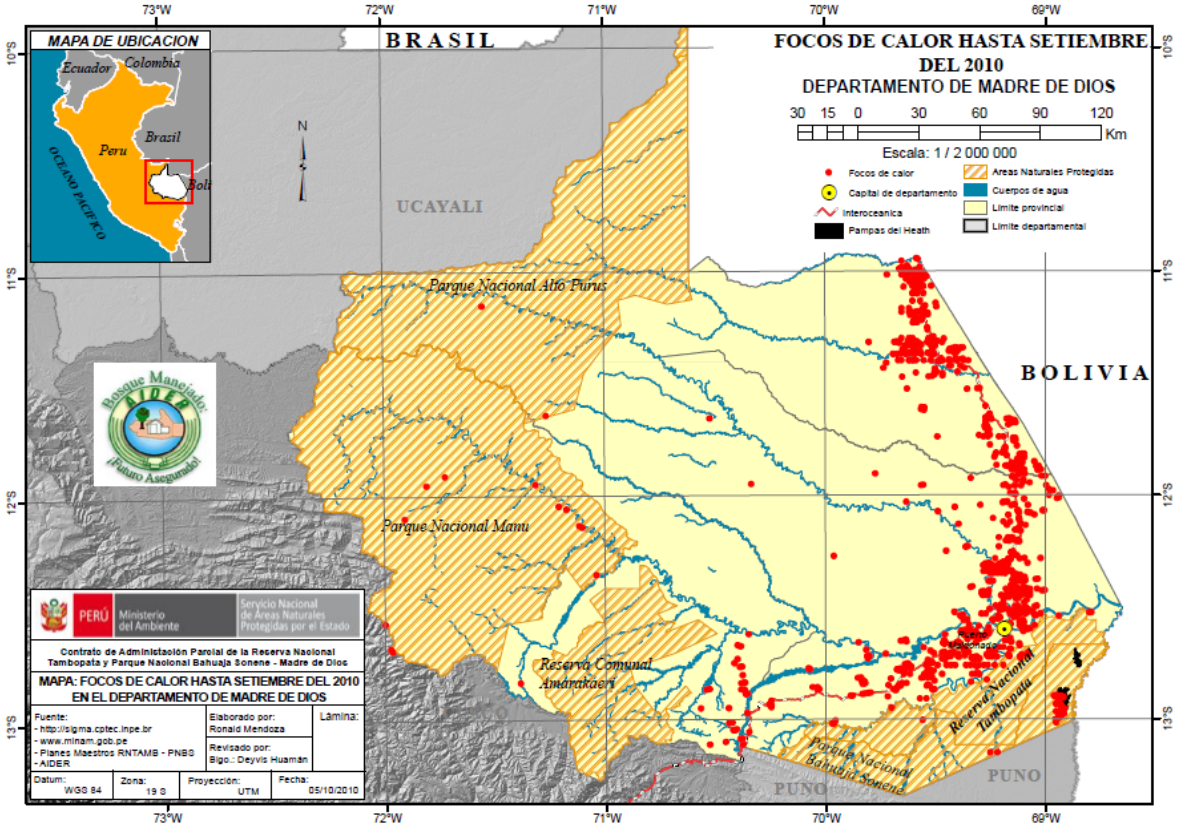


Figure 4. Map of Map of heat hot spots in Madre de Dios until September 2010
Source: Own elaboration

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 demonstrated.

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 reported in the previous PIR, 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 2)

2.3.4 Conflicts and Grievances (G3.10)

In order to continue supporting the management and resolution of conflicts in communities and/or surrounding towns, 40 technical sheets have been prepared corresponding to localities located in the buffer zones of the RNTAMB and the PNBS. Each technical sheet contains relevant information, including the issue of conflicts.

On the other hand, the Sonene and Palma Real Native Communities were supported in the opening of their respective boundaries and spaces for dialogue were provided, seeking in this way to resolve the conflicts of territorial limits between the mentioned communities and their adjoining ones.

Likewise, and as part of the programmed activities of the Project "Initiative for the Conservation of the Andean Amazon (ICAA)" (funds leveraged by AIDER), the physical and legal sanitation of the Infierno, Palma Real and Sonene Native Communities was supported. Delimitation, opening and signage of the boundaries in the Palma Real and Sonene Native Communities, and the establishment of dialogue spaces to resolve the conflict with the RNTAMB.

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	Responsibility	Skills
Management and Monitoring	Jaime Nalvarte Armas	Forestry Engineer	Management of AIDER	With training in politics, legislation and forest administration. Extensive professional experience in conducting the design and management processes of conservation projects, management and sustainable use of forest resources, with special emphasis on Forest Management with participatory approach. Active participation in the design and implementation of REDD projects and national policies.
	Marioldy Sánchez Santivañez	Forestry Engineer	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 and Carbon Team	Percy Recavarren Estares	Renewable Natural Resources Engineer (mention in Forestry)	Direct and assist technically in the formulation and implementation and monitoring of the project	Experience in community territorial 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 studies of environmental impacts (EIA) in the exploitation of natural resources. 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	Forestry Bachelor	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 the implementation of FSC certification and PDD design under the CCB standard. Advanced knowledge of CCB methodologies and their tools.

	Aristóteles Vásquez Ascarza	Bachelor of Science in Forestry	Biomass evaluation of the project area, leakage belt	Experience in biomass assessment following IPCC requirements, inventories of forest degradation and field validation of deforestation maps.
Geographic information system	Luis Campos Carrera	Geographer Engineer	Geographer Engineer	Advanced knowledge in the management, analysis and interpretation of Remote Sensing and Geographic Information Systems.
Biodiversidad	Juan Carlos Lara Rivas	Forestry Engineer	Responsible for biodiversity monitoring and HCV	Work experience in zoology and ecology research in Protected Areas, with topics related to the implementation of research plans, management documents, monitoring, and wildlife management.
	Vanessa Hilares	Forestry Bachelor	Monitoring of biodiversity and research	Experience in biological studies, entomology, wildlife monitoring and management, management of statistical programs and SIG.
Social	Jorge Luis Sánchez Vidal	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 and financial	Berenice Brizuela	Business management engineer	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	Forestry Engineer	REDD Strategy	Experience in forest management, scientific data collection, monitoring, logistics and technical assistance.
	Paola Coronado Werner	Forestry Bachelor	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 four 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:

- 03 Capacity building workshops were developed for official park rangers of the Tambopata National Reserve, which included the participation of the official park rangers of the RNTAMB and specialists of AIDER (trainers).
- Support in the activities of the environmental education program in the buffer zones of the RNTAMB, through the execution of training campaigns in schools and primary schools and in the involvement and participation of activities organized by COPREDAM at the provincial level of Tambopata.
- Training course "Evaluation of fauna in linear transects of the Tambopata National Reserve (RNTAMB)", aimed at volunteers.
- Training of farmers for the sowing, maintenance and harvesting activities of all the agroforestry species considered in the agroforestry system. They also received training so that they know the procedures to take into account in the production of organic cocoa.
- Communal Monitors Committees have been strengthened for control and surveillance of the three native communities, training community members in the use of GPS.
- Course - workshop; Use of Smart as a tool to improve the management of the RNTAMB.
- Course - Capacity building workshop for official park rangers of the RNTAMB.
- Induction of Biological Monitoring and Research in Protected Natural Areas for volunteer Rangers of the RNTAMB.
- Course - Workshop on Linear Transect Information Analysis Using the Distance 6.2 Program.
- Training course in Monitoring of Wetlands.
- Use and storage of prohibited supplies, filling out SIC forms and the socialization of the Action Plan for non-conformities of the external audit.

As part of the strategy to promote new research, it is proposed to establish agreements with scientific and academic entities, as well as the organization of events such as congresses, symposiums and courses; in natural, environmental and conservation sciences; and the participation and / or training of CA staff in scientific events. (See Annex corresponding to this section).

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.** 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 worker's income (for new workers) or from the date of the 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.

- ✓ **Update of risk activities. Through Supreme Decree No. 043-2016-SA, the list of risk activities is expanded, so that they are included in the coverage of the Supplementary Work Risk Insurance (SCTR).** It should be noted that this insurance is intended to cover those contingencies of workers caused by accidents at work and occupational diseases in cases where the activity of the company is classified as risky.

- ✓ **Use of technology in the signing of labor documents.** The Legislative Decree N ° 1310 establishes that in all types of labor documents, the employer can substitute his signature ographer and the manual sealing by the following options: digital signature, electronic signature and micro forms.

- ✓ **Implementation of virtual media for the delivery of tickets and proof of payment.** The same device provides that when the payment of economic labor obligations is deposited in an account

through companies of the financial system, the employer can substitute the printing and physical delivery of the tickets or proof of payment for the provision of said documents 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 term must be observed in its actions by the administrative, inspecting, judicial and arbitration instances. 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 aforementioned entity.

- ✓ **Delimitation of the intervening faculty of the National Authority of the Civil Service for affectations to the principle of probity.** One of the attributions of the National Authority of the Civil Service is the intervening one, in case of detecting irregularities in the administration or management of the human resources in matter of contests. 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 intervener will be appointed who will act as the administrative body of the disciplinary administrative procedure that motivated the intervention.

- ✓ **Disabling the civil servant to provide services for five years.** 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 N ° 1295, people with conviction and / or execution conviction, for any of the crimes provided 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, can´t 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 Project Security Plan, which was later complemented by the Labor Security Policy of AIDER, as an institutional measure to ensure compliance with these documents (See appendix 3).

Likewise, work has been done to identify 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 the information needs required (See appendix 3).

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 Nº 038-2001-AG)
- SINANPE 2009 Master Plan
- The Master Plan of the RNTAMB
- Law No. 27308, Forestry and Wildlife Law
- Resolution of Intendance 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.

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 AIDESEP, 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.

For period 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.

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_2e
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	*fj (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 *et al.* Research Institute of the Peruvian Amazon. 2006. Environmental Services Storage and Carbon Sequestration Ecosystem Aguajal in the Pacaya Samiria National Reserve - Loreto. Technical Document. Nº 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 *et al*. 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. Oecologia 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* (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*
Data unit	Dimensionless
Description	Combustion emissions factor for *i* stratum and *g* 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_2O).
Value applied	6.80 for CH_4 and 0,20 for N_2O 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*
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*
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:	541,562.06
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 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 annex 1 of the corresponding section.
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:	186,762.64
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 annex 1 of the corresponding section.
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	*ADefPA,iu,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	Image interpretation done using geographical information systems.

applied	
Frequency of monitoring/recording	Annual
Value monitored:	704.7
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 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 annex 1 of the corresponding section.
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	$ADefLB,i,u,t$
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:	5212.5
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 annex 1 of the corresponding section.
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	$A_{DegW,i}$
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:	12,963.01 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.
Comments	-

Data / Parameter	$A_{DistPA,q,i,t}$
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	$C_{DegW,i,t}$
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* at time *t*
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 annex 2 of the corresponding section.
Purpose of the data	Estimating project emissions
Calculation method	Allometric equations used to calculate aerial biomass (Brown, 1997, as quoted by Pearson *et al*., 2005) and underground biomass (Source: Cairns *et al.*, 1997, as quoted by IPCC, 2003).
Comments	-

Data / Parameter	*Aburn,i,t*
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:	14.4
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 annex 3 of the corresponding section.
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 annex 2 of the corresponding section.
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	*PROTFOR*
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	*MANFOR*
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	*PROPIMM*
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	$PROP_{RES}$
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	-

For information in this section, See appendix 4.

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 CO_2 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 5.

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.

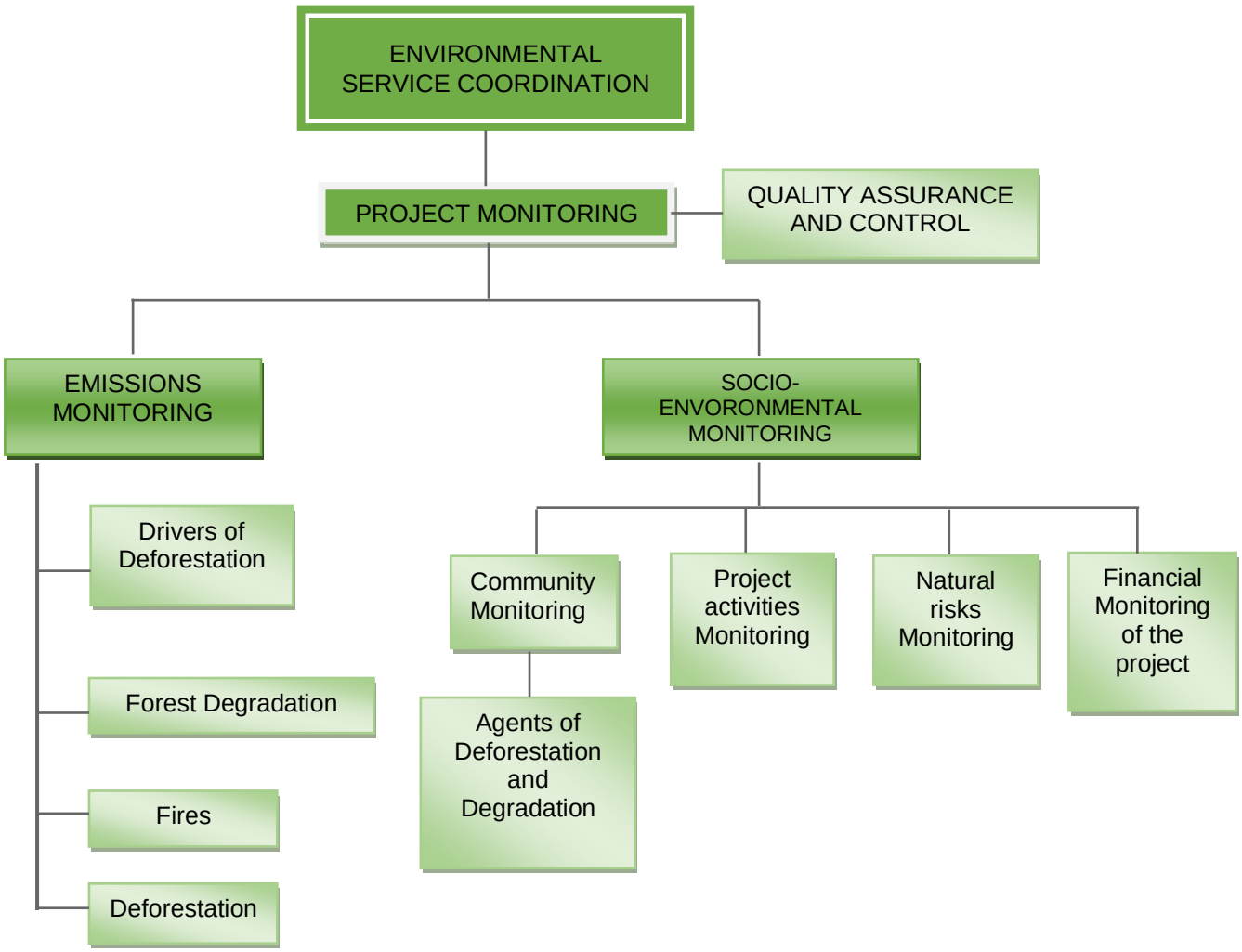


Figure 5. Monitoring organization chart

- **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". 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 Annex 2 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	540184.94	704.71
Leakage belt	17956815	5212.54

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 (2015-2017), running from July 1, 2015 to June 30, 2017. The estimate was developed following the applicability of the VMD0015 M-MON module, v2.1.

Emissions produced due to deforestation

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

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; tCO_2-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

Strata	$A_{DefPA,u,i,t}$	$\Delta C_{pools,P,Def,u,i,t}$	$\Delta C_{P,DefPA,i,t}$
Mixed Aguajal	-	267.6	-
Alluvial floodplain	291.59	401.4	117,033.54
Strong High Hill	-	541.7	-
Soft High Hill	-	474.6	-
Strong Low Hill	-	628.4	-
Soft Low Hill	-	803.6	-
High Terrace	-	474.9	-
Low Terrace	395.30	531.7	210,176.11
Strong Dissected Terrace	17.83	487.2	8,686.06

Soft Dissected Terrace	0.0	377.5	-
	704.7		**335,895.7**

Calculations are detailed in the "REDD project emissions (period 2015-2017).xls" spreadsheet and "Equations 3 and 4" sheet.

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

$\Delta C_{P,DefLB,i,t}$= 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; tCO_2-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 11. Net changes in carbon stocks in the leakage belt

Strata	$A_{DefLB,u,i,t}$	$\Delta C_{pools,P,Def,u,i,t}$	$\Delta C_{P,DefLB,i,t}$
Alluvial floodplain	484.4	401.4	194,433.1
Strong High Hill	566.4	541.7	306,828.7
Soft High Hill	79.6	429.7	34,193.9
Strong Low Hill	112.8	583.4	65,792.6
Soft Low Hill	18.5	803.6	14,880.5
High Terrace	274.4	474.9	130,333.4
Low Terrace	2,578.0	531.7	1,370,677.0
Strong Dissected Terrace	617.5	487.2	300,846.7
Soft Dissected Terrace	480.9	377.5	181,571.9
	5,212.5		**2,599,557.7**

Calculations are detailed in the "REDD project emissions (period 2015-2017).xls" spreadsheet and "Equations 3 y 4" sheet.

Changes in carbon content due to deforestation

$$\Delta C_{pools,Def,i,t} = C_{BSL,i} - C_{P,post,i} - C_{WP,i} \quad \textbf{(M-MON Equation 5)}$$

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 CO_2-e ha^{-1}.

$C_{BSL,i}$= carbon stocks in all reservoirs for the baseline scenario, i stratum; t CO_2-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.

$C_{WP,i}$= sequestrated carbon in wooden products extracted from i stratum; tCO_2-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 12. Net changes in carbon stocks for the project area, per stratum

Year	Strata	$C_{BSL,i}$	$C_{P,post,i}$	$C_{WP,i}$ (*)	$\Delta C_{pools,Def,i,t}$
2015-2017	Mixed Aguajal	267.6	-		267.6
	Alluvial floodplain	401.4	0.00		401.4
	Strong High Hill	541.7	-		541.7
	Soft High Hill	474.6			474.6
	Strong Low Hill	628.4			628.4
	Soft Low Hill	803.6			803.6
	High Terrace	474.9			474.9
	Low Terrace	531.7	0.00		531.7
	Strong Dissected Terrace	532.2	44.98		487.2
	Soft Dissected Terrace	422.5	44.98		377.5

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

Table 13. Net changes in carbon stocks for the leakage belt, per stratum

Year	Strata	$C_{BSL,i}$	$C_{P,post,i}$	$C_{WP,i}$	$\Delta C_{pools,Def,i,t}$
2015-2017	Alluvial floodplain	401.4	0.00	0	401.4
	Strong High Hill	541.7	0.00	0	541.7
	Soft High Hill	474.6	44.98	0	429.7
	Strong Low Hill	628.4	44.98	0	583.4
	Soft Low Hill	803.6	0.00	0	803.6
	High Terrace	474.9	0.00	0	474.9
	Low Terrace	531.7	0.00	0	531.7
	Strong Dissected Terrace	532.2	44.98	0	487.2
	Soft Dissected Terrace	422.5	44.98	0	377.5

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

Calculations are detailed in the "REDD project emissions (period 2015-2017).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; tCO_2-e ha^{-1}.
$C_{AB\_tree,i}$=	carbon stocks in aerial tree biomass in i stratum; tCO_2-e ha^{-1}.
$C_{BB\_tree,i}$=	carbon stocks in underground tree biomass in i stratum; tCO_2-e ha^{-1}.
$C_{AB\_nom-tree,i}$=	carbon stocks in aerial other vegetation biomass in i stratum; tCO_2-e ha^{-1}.
$C_{BB_{nom}-tree,i}$=	carbon stocks in underground other vegetation biomass in i stratum; tCO_2-e ha^{-1}.
$C_{DW,i}$=	carbon stocks in dead wood in i stratum; tCO_2-e ha^{-1}
$C_{LI,i}$=	carbon stocks in dead leaves in i stratum; tCO_2-e ha^{-1}.
$C_{SOC,PD-BSL,i}$=	post-deforestation average carbon content in the organic carbon in the soil, i stratum; t CO_2-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:

$$C_{post,u,i} = C_{AB\_tree,i} + C_{BB\_tree,i} + C_{AB\_nom-tree,i} + C_{BB_{nom}-tree,i} + C_{DW,i} + C_{LI,i} + C_{SOC,PD-BSL,i}$$

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

$$\mathbf{C_{post,u,i} = 44.98\ tCO_2\text{-}e}$$

For further detail see "Post-deforestarion.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. Such systematization allowed us to refine the area potentially

subject to degradation ($A_{DegW,\,i}$).

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 Annex 2 of the 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.

$$B_{i,t} = \left(C_{AB\_tree,i,t} + C_{DWit} + C_{LI,I,t}\right) * \frac{12}{44} * \left(\frac{1}{CF}\right)$$ **(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 CO_2-e ha^{-1} (estimated using CP-D)

$C_{LI,I,T}$= Mean carbon stock in litter for stratum i, at time t; t CO_2-e ha^{-1} (estimated using CP-L)

$\frac{12}{44}$= Inverse ratio of molecular weight of CO_2 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 14. Average aboveground biomass stock before burning for stratum

Strata	$C_{AB_{tree,i,t}}$	C_{DWit}	$C_{LI,I,T}$	$B_{i,t}$
Low Terrace	531.7	0	0	308.5
Strong Dissected Terrace	532.2	0	0	308.8
Soft Dissected Terrace	422.5	0	0	245.2

Calculations are detailed in the “REDD project emissions (period 2015-2017).xls” spreadsheet and “Equation - burned” worksheet.

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

(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)

$A_{burn,i,t}$= 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 dioxide1, 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 15. Emissions de GEI due to the burned biomass

Strata	$A_{bum,i,t}$	$B_{i,t}$	$COMF_I$	$G_{g,i}$	GWP_g	$E_{BiomassBurn,i,t}$
Low Terrace	0.7	308.5	0.5	6.80	25	18.7
				0.2	298	6.5
Strong Dissected Terrace	-	308.8	0.5	6.80	25	-
				0.2	298	-
Soft Dissected Terrace	6.2	245.2	0.5	6.80	25	129.8
				0.2	298	45.5
						200.5

Calculations are detailed in the “REDD project emissions (period 2015-2017).xls” spreadsheet and “Equation - burned” worksheet.

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

(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 CO_2-e

$E_{FC,i,t}$= Emission from fossil fuel combustion in stratum i within the project area in year t; t CO_2-e

$E_{BiomasBurn,i,t}$= Non-CO_2 emissions due to biomass burning in stratum i in year t; t CO_2-e

$N_2O_{direct-N,i,t}$= Direct N_2O emission as a result of nitrogen application on the alternative land use in stratum i within the project area in year t; t CO_2-e

i= 1, 2, 3 …M strata

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

Table 16. Emission GEI from activities of the project

$E_{FC,i,t}$	$E_{BiomasBurn,i,t}$	$N_2O_{direct-N,i,t}$	$GHG_{P,E,i,t}$
0	200.5	0	**200.5**

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 2015-2017).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 2018, so the results of this process will be informed in the next monitoring report.

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions

Net emissions for the reference scenario and monitoring period of 2015 – 2017 are of 1´294,806.9 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

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

Where:

ΔC_P = Net GHG emissions within the project area under the "with project" scenario, tCO_2-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 CO_2-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 CO_2-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 CO_2-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 CO_2-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; tCO_2-e.

i= 1, 2, 3,...M stratum.
t= 1, 2, 3,… t* years since the implementation of the REDD project.

Table 17. Net GHG emissions within the project area under the "with project" scenario

Net changes in the carbon stocks due to deforestation (tCO_2-e) $\Delta C_{P,DefPA,i,t}$	Net changes in the carbon stocks due to degradation (tCO_2-e) $\Delta C_{P,Deg,i,t}$	Net changes in the carbon stocks due to natural disturbances (tCO_2-e) $\Delta C_{P,DistPA,i,t}$	GHG emissions due to project activities (tCO_2-e) $GHG_{P-E,i,t}$	Net changes in the carbon stocks due to forest growth and carbon sequestration (tCO_2-e) $\Delta C_{P,Enh,i,t}$	GHG emissions within the project area (tCO_2-e) ΔC_P
335,895.7	**13,684.10**	**0**	**200.5**	**0**	**349,579.8**

Emissions produced due to forest degradation were 13684.10 for the period 2015-2017 in the project area. For further details is reached annex 2 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 2015-2017, 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 2015-2017.

The emissions of fires is 200.5 tCO2-e, these are considered insignificant for representing less than 5% of the net benefits of the project for the 2015 - 2017 period, so they have not been considered in the final calculation (see "REDD project emissions (period 2015-2017).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 349,579.8 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:

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

Where:

$\Delta C_{P,LB}$= Net GHG emissions in the leakage belt in the case of the project; t CO_2-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 18. Net GHG emissions in the leakage belt in the case of the project

Year	Net GHG emissions in the leakage belt (tCO_2-e) $\Delta C_{P,LB}$
2015-2017	2,599.557.7

Calculations are detailed in the "REDD project emissions (period 2015-2017).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

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

Where:

$\Delta C_{LK-ASU-LB}$= Net CO_2 emissions due to unplanned deforestation displaced from the project area to the leakage belt; t CO_2-e.

$\Delta C_{P,LB}$= Net GHG emissions within the leakage belt in the "with project" scenario; tCO_2-e.

$\Delta C_{BSL,LK,unplanned}$= Net CO_2 emissions in the baseline scenario due to unplanned deforestation in the leakage belt; t CO_2-e.

Table 19. Net CO_2 emissions due to unplanned deforestation displaced from the project area to the leakage belt

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) $\Delta C_{LK-ASU-LB}$
2,599,557.7	**7,387,655.4**	**-4,788,097.7**

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

$\Delta C_{LK-ASU-LB}$	0

Calculations are detailed in the "REDD project emissions (period 2015-2017).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.

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

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 20. 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) $A_{LK-IMM,T}$
2015-2017	0.187	2,859.0	534.6

Calculations are detailed in the "REDD project emissions (period 2015-2017).xls" spreadsheet and "LK-ASU Equation 7" worksheet.

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

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

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 21. 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)[13] $A_{DefPA,i,t}$	Deforested area registered for the leakage belt (ha)[14] $A_{DefLB,i,t}$	Deforested area due to immigrants in the project area and leakage belt (ha) $A_{LK-ACT-IMM,t}$
2015-2017	0.187	704.7	5,212.5	**1,106.5**

Calculations are detailed in the "REDD project emissions (period 2015-2017).xls" spreadsheet and "LK-ASU Equation 8" worksheet.

[13] Source: Annex III
[14] Source: Annex III

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

$$A_{LK-OLB,t} = A_{LK-IMM,t} - A_{LK-ACT-IMM,t}$$ **(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.

$A_{LK\text{-}ACT\text{-}IMM,t}$ = 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 …t** years since the implementation of the REDD VCS project

Table 22. Deforested area due to immigrants outside of the project area and leakage belt

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)** $A_{LK\text{-}ACT\text{-}IMM,t}$	**Deforested area due to immigrants outside of the project area and leakage belt (ha)** $A_{LK-OLB,t}$
534.6	1,106.5	**-571.9**

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:

$\Delta C_{LK-ASU,OLB} = 0$ **(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 CO_2-e.

Calculations are detailed in the "REDD project emissions (period 2015-2017).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)

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

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

$\Delta C_{LK-ASU-LB}$= Net CO_2 emissions due to unplanned deforestation displaced from the project area to the leakage belt: t CO2-e.

$\Delta c_{LK-ASU-OLB}$ = Net CO_2 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 23. Net GHG emissions due to leaks for displacement of activities.

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)** $\Delta C_{LK-AS,unplanned}$
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 2015-2017).xls” spreadsheet and “LK-ASU Equation 13 “” worksheet.

Calculation of net emissions due to leaks

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

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).

$\Delta C_{LK-AS,desrad-FW/C}$= 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 24. Net GHG emissions due to leaks

Emissions due to leaks for AUD projects $\Delta C_{LK-AS-unplanned}$	**Emissions due to degradation leaks (coal and firewood extraction)** $\Delta C_{LK-AS,desrad-FW/C}$	**Emissions due to market effect leaks (*)** ΔC_{LK-ME}	**Net GHG emissions due to leaks (tCO_2-e)** ΔC_{LK}
0	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 2015-2017).xls" spreadsheet and "REDD-MF Equation 3" worksheet).

3.2.4 Net GHG Emission Reductions and Removals

$$C_{REDD,t} = \Delta C_{BSL} - \Delta C_P - \Delta C_{LK}$$ **(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 25. Net GHG Emission Reductions and Removals for 2015 – 2017 vintage

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2015-2016	629,415.2	174,789.9	-	**454,625.3**
2016-2017	665,391.7	174,789.9		**490,601.8**
Total	1,294,806.9	349,579.8	-	**945,227.1**

The amount of Voluntary Carbon Units (VCUs) can be seen in Table 25. 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 6.

Table 26. Voluntary Carbon Units

Year	**Net GHG emissions reduction (tCO_2-e)**	**AFOLU pooled buffer account (13%)**	**Voluntary Carbon Units**
July 1, 2015 – June 30, 2017	945,227	122,879	822,347

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.

Based on this, it is expected to initiate coordination with Civil Defense in order to implement the early warning system that is useful in preventing risks in these most vulnerable areas.

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:

- AIDER is part of the subcommission for the update / implementation of the Regional Plan for the prevention of burning and forest fires of the Regional Environmental Commission (CAR) -Madre de Dios, however, this commission in the last two years has not had the activity of previous years, the same has been sent as part of our contribution to the region, dissemination materials. Likewise, during the year 2017 the Manuals of Fire Management have been delivered to the farmers, to the members of the COOPASER, farmers located in the Buffer Zone of the Tambopata National Reserve.
  A spot for fire prevention was prepared, the same ones that were broadcast in the radio media (See appendix 7).

- 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.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CM1.1)

The activities implemented for the period 2015 - 2017 are described below:

a) Association of agricultural producers

The establishment of agroforestry plots for food security purposes was promoted in the native communities of Palma Real and Sonene. We designed, in coordination with the beneficiaries, 03 agroforestry systems, which were subsequently implemented in 04 ha distributed equally between both native communities.

Awareness workshops were held regarding the environmental problems generated by the implementation of non-sustainable economic activities (migratory agriculture, mining and selective extraction of some species).

The socio-economic diagnosis of 42 organizations was elaborated, among associations of producers, hamlets, human settlements and housing associations, located in the area of the buffer zone where agroforestry plots with cocoa are being installed as part of the REDD + Project strategy, among km 1 and 83 of the road Puerto Maldonado - Cusco.

The process of organic certification and fair trade began with the participation of 99 producers who have 283.8 ha of agroforestry cocoa plots installed and 5 ha in production.

The first external audit was carried out to the members of the cooperative COOPASER-Tambopata. Said process was in charge of ECOCERT, a company accredited by IFOAM to certify organic products.

b) Chestnut producing families

The sustainable use of chestnuts was promoted in the Palma Real and Sonene CCNNs, through the construction of a chestnut collection or storage facility for each community and training aimed at the chestnut committees of both communities.

c) Native Communities

- Strengthening of community surveillance in the Sonene, Palma Real and Infierno CCNN; support for physical-legal sanitation and organizational strengthening of these communities, which were implemented by leveraging funds through the project "Initiative for the Conservation of the Andean Amazon (ICAA)". Through the leveraging of these funds, these communities have been strengthened through activities of:

  - ✓ Trainings conducted for an approximate of 100 community members, in the three native communities, regarding the preparation and management of management documents (minutes, offices, obituaries, petitions, memorials and accounting documents). In order to improve the management of their assets and resources.
  - ✓ Meetings for the approval of management documents such as: Statutes (03), regulations (03), life plans (03) and internal communication strategies (03). In addition, environmental education and fire prevention plans were approved in support of the conservation of natural resources. All these management documents were developed participatively with the authorities, leaders and the population in general, and approved by agreement in a community assembly (PLARS).
  - ✓ Preparation of documents related to: Territory planning (socioeconomic and environmental diagnoses, zoning, land use strategy, tourism strategy in Palma Real), Governance (governance analysis, pedagogical package, fire prevention plan for NC and centers) villages, plan of critical routes of natural resources, educational stories) and livelihoods (design of agroforestry plots).
  - ✓ Capacity building for the representatives of the native communities that participated in the preparation of the PNBS master plan.

- Promotion of sustainable productive initiatives with the local populations settled in the buffer zone and within the ANP. Further; A total of 04 hectares of agroforestry systems were implemented in native communities, benefiting 09 community members from Sonene and Palma Real.

- Community Surveillance Plans of the Sonene, Palma Real and Infierno CCNN have been strengthened through the creation of Committees of Communal Monitors for control and surveillance, composed of 10 people in each community, and training in: the use of GPS, thus obtaining knowledge that contributes to the proper handling of said instrument and proper filling of the field file, which in turn was prepared with them; systematization of the field files through the creation of a database in the Excel program.

- Support was given to the Sonene and Palma Real CCNNs in the opening of their respective boundaries and spaces for dialogue were provided, seeking in this way to resolve the conflicts of territorial limits between the aforementioned communities and their neighbors. In addition, as part of the legal physical sanitation work, the boundaries in the critical sectors of the Sonene, Palma Real and Infierno CCNN have been marked.

- Support was given to the strengthening of the Sonene, Palma Real and Infierno CCNNs, which focused on: preparation and management of management documents; plans for environmental education and fire prevention; updating of statutes, regulations, life plans and internal communication strategies; socio-economic and environmental diagnoses, zoning, land use strategy, tourism strategy in Palma Real, governance analysis, pedagogical package, fire prevention plan for NC and population centers, critical routes plan for RR.NN, educational stories and design of agroforestry plots.

- With the income from the commercialization of the Carbon Bonds of the Tambopata-Bahuaja REDD + Project, 02 sustainable productive activities have been promoted:

  ❖ Community Rural Tourism in the Palma Real:
  - A consultancy was carried out to determine the tourist circuits within the communal area and the construction of a staircase for tourists.
  - The community was supported in the fulfillment of the tourism activities established in its investment plan. Also, after agreement between the tourism committee and the committee of artisans of the community, support was given to the committee of artisans for the construction of a local in Puerto Maldonado in which they can sell the crafts they produce and thus obtain higher income, the same that will benefit the families of the community.

- Two meetings were held with the CCNN Palma Real and Sonene, together with the National Forest Conservation Program for climate change mitigation - PNBCBMCC MINAM, to prioritize activities in favor of community needs and prepare the Protocol of Monitoring and Surveillance in Native Communities of Madre de Dios.

- With the purpose of supporting the CCNN Palma Real and Sonene in the execution and implementation of their investment plans within the framework of the TDCs delivered by the MINAM through the Forests Program, they participated as a strategic partner for the fulfillment of the activities of control and surveillance and rural community tourism, through meetings and training organized by this program.

d) Tour operators

- Monitoring of tourist trails in the Tambopata Middle Sector; Lakes Cocococha, Sachavacayoc and Condenado I:
  From the evaluation carried out in May 2015, it was obtained as a result that the total width of the gauge on average has been maintained at less than 2.80 m for all the sections evaluated. The

"depth" for each section evaluated was recorded in less than 15 cm on average; being 14 cm on the access trail to Lake Cocococha, 10.5 cm and 12.9 cm on the access routes to Lake Sachavacayoc and 12.9 cm on the access routes to Lake Condenado I.

During this first evaluation, 3 bridges were also identified in poor condition and one was dropped on the entrance path (Harpía) to Lake Sachavacayoc. As for the indicator "solid waste", 8 pieces were found on the entrance trail to Lake Cocococha, 4 pieces on the access roads to Lake Sachavacayoc and 1 pieces on the access trails to Lake Condenado I.

From the second evaluation carried out in November 2015, the average total width of the tourist trails in the Medio Tambopata sector was less than 2.73 m, the average depth less than 10 cm. In the access roads to Lake Sachavacayoc, greater leaf litter coverage was recorded than in the rest and in the access path to the Cocococha lake, greater regeneration, in the access trails to Lake Condenado I, there was less regeneration and leaf litter coverage than in the the rest.

During the month of June 2016, the monitoring of these trails was carried out again. The results for the middle sector Tambopata, for the indicator "width of the trail", the highest value of average width was recorded in the entrance trail to Lake Condenado I (2.72 m) in trails No. 04 and 01. Greater average "depth" was recorded in the entrance trail to Lake Cocococha (9 cm). The highest average value of "Litter cover" was registered in the access roads to Lake Sachavacayoc, with an average of 67.5% in the Harpía - Ñejinal trails and 69.5% in the Renacal trail, having a percentage of 100% and 96.6 % in the witness respectively. And the highest average value of "natural regeneration" occurred in the entrance trail to Lake Cocococha (47.4%) and 93.5% in the control sample.

- Monitoring of the use of the Sandoval Lake tourist trail:
  In 2015, in constant coordination with the Headquarters and the tourism specialist of the RNTAMB, the tourist trail was monitored during the rainy season (April) and the dry season (December). In order to obtain data on the status of the access trail to Lake Sandoval with respect to the indicators: width, depth, generation of solid waste, litter cover and natural regeneration.

  The trail to Lake Sandoval has two well-marked sections; the section A-B, which comprises from 0 m to 2600 m, where an average total width of 5.06 m was recorded, and the B-C section comprising from 2600 m to 4000 m.

  Among the main results obtained from the evaluation in the rainy season; the average of the total width for the section A - B, was registered in 4.88 m and in the section B - C, it was registered in 2.27 m. The average depth was recorded in 24.1 cm in section A - B and 19 cm in section B - C, 8 points were identified very critical with respect to the state of the trail, in which it was evident up to 12 m wide and 61 cm deep. In terms of solid waste, 138 pieces were registered in total, being the point of greatest accumulation in the 2600 m (71 pieces found) and the most abundant waste of plastic type and bags (94 pieces registered).

  The evaluation corresponding to the dry season was carried out in the month of December 2015, during which the following results were obtained; the average total width of the trail was recorded in 5.06 m for section A - B and 2.63 m for section B - C. The depth was recorded in 19.6 cm on average in section A - B and 14.6 cm in section B - C. 10 points were recorded in a very critical condition with respect to the entire trail, in which it was evidenced up to 10.22 m wide and 60 cm deep. In terms of solid waste, 115 pieces were registered in total, with more abundance at 300 m (on the 140 m bridge) and on the access pipe to Sandoval Lake (2600 m) with 16 pieces registered in each one. The type of solid waste found in greatest abundance corresponds to plastic and plastic bottles (94 pieces).

- Systematization of wildlife sighting success sheets, temperature in the RNTAMB (for tourist guides):
  They are specifically applied to the sectors of Sandoval, Cocococha, Sachavacayoc, Colorado and Chuncho. The collected information will allow to know the number of species seen and heard, the presence of footprints, common and scientific name of the species, place of sighting, as well as other events that occur during the tourist activity.

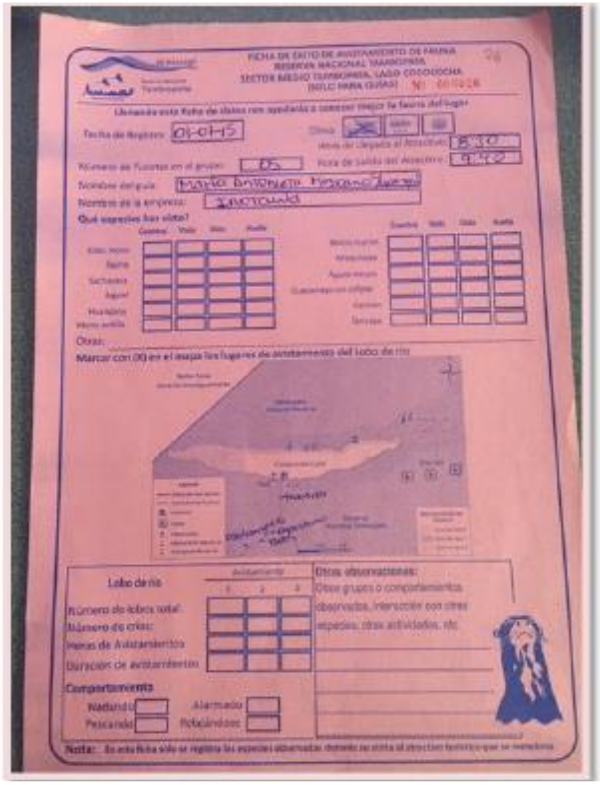


Figure 6. Model of success record of fauna sighting for tourist guides.

- Systematization of files. Registration form for animals in the RNTAMB for tourists:
  The fauna registration cards that are filled by national and / or foreign tourists and are provided by the park rangers (PCV) are being systematized. These cards are filled after the tourist has visited the ANP with the support of a guide; It is presented in English and Spanish, with images of the species (in colors) that could possibly be observed during the visit.

Figure 7. Animal registration form for tourists.

See appendix 8.

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 it responds to the objectives of the methodology applied and based on the Manual for the Social Impact and Biodiversity Assessment (EISB) of REDD + projects.

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.

Support was given to the Sonene and Palma Real CCNNs in the opening of their respective boundaries and dialogue spaces were provided, seeking in this way to resolve the conflicts of territorial limits between the aforementioned communities and their adjoining communities. In addition, as part of the legal physical sanitation work, the boundaries in the critical sectors of the Sonene, Palma Real and Infierno CCNN have been marked.

40 technical sheets have been prepared corresponding to localities located in the buffer zones of the RNTAMB and the PNBS. Each technical sheet contains information on: i) territory, ii) infrastructure and communication, iii) governance, iv) demography, v) conflicts, vi) economic activities, vii) institutions and projects and viii) gender.

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:

- The facilities of agroforestry plots to the associations of producers of the low Madre de Dios, Loero, Jorge Chávez and Nueva América, benefiting to date 326 farmers, who have been trained for the activities of sowing, maintenance and harvesting of all the agroforestry species considered in the system. The goal in the 2016 work plan was to involve 100 farmers, which has exceeded 226%, as a result of the interest and willingness of the inhabitants to be part of the project, evidencing the results and progress obtained by the first beneficiaries involved in the project. the project and also the dissemination campaign carried out by the AIDER team and COOPASER.

- Carrying out awareness workshops in population centers and producer associations that are located within the scope of the project, regarding the environmental problems generated by the implementation of non-sustainable economic activities (shifting cultivation, mining and selective extraction of some species).

- Strengthening Cooperativa de Servicios Múltiples Tambopata Candamo (COOPASER). In 2016, the process of organic certification and fair trade began with the participation of 99 producers who have 283.8 ha of agroforestry cocoa plots installed and 5 ha in production. Although it is true that organic certification 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 regulations on which the organic / fair trade program of the cooperative is based.

- Implementation of the strategic alliance with CORBIDI, a national scientific institution that deposited biological material, within the framework of the implementation of the Integral Monitoring System of the RNTAMB and the PNBS-MDD.

4.3 Community Impact Monitoring

4.3.1 Community Monitoring Plan Development (CM3.3)

According to what is proposed in the Monitoring Plan, we have the following:

Governance:

- Support was given to the strengthening of the Sonene, Palma Real and Infierno CCNN and the Tambopata Candamo Agrarian Cooperative of Multiple Services.

- The strengthening of native communities focused on: development and management of management documents; plans for environmental education and fire prevention; updating of statutes, regulations, life plans and internal communication strategies; socio-economic and environmental diagnoses, zoning, land use strategy, tourism strategy in Palma Real, governance analysis, pedagogical package, fire prevention plan for NC and population centers, critical routes plan for RR.NN, educational stories and design of agroforestry plots.

- The strengthening of the cooperative, which is part of the implementation of the project "Reduction of deforestation and promotion of sustainable development in Madre de Dios", was supported in its legal creation and organizational and institutional strengthening. In addition, activities related to the strengthening of COOPASER in technical aspects have been supported to ensure the articulation of the cocoa market that it collects, the environmental education program of the RNTAMB has been supported, and events and dissemination campaigns directed to key stakeholders have been developed. With the purpose of knowing the objectives and activities of the REDD + project.

- Likewise, 326 farmers were legally committed to the project, which has been trained for the sowing, maintenance and harvesting of all the agroforestry species considered in the system.

- On the other hand, an average of 100 community members were trained in the three native communities, regarding the preparation and management of management documents (minutes, offices, obituaries, petitions, memorials and accounting documents), in order to improve the management of your assets and resources.

- Meetings were held for the approval of management documents such as: Statutes (03), regulations (03), life plans (03) and internal communication strategies (03). In addition, environmental education and fire prevention plans were approved in support of the conservation of natural resources. All these management documents were developed participatively with the authorities, leaders and the population in general, and approved by agreement in a community assembly (PLARS).

- Capacity building was carried out for the representatives of the native communities who participated in the preparation of the PNBS master plan.

- 40 technical sheets were drawn up corresponding to localities located in the buffer zones of the RNTAMB and the PNBS. Each technical sheet contains information on: i) territory, ii) infrastructure and communication, iii) governance, iv) demography, v) conflicts, vi) economic activities, vii) institutions and projects and viii) gender.

- In order to support the sustainable management of the lands of the ZA involved in the project, 70 family life plans were elaborated and it was supported in the strengthening of organic and fair trade certification programs of COOPASER.

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 Jun. 2017								
Monitoring Objective: Compile and generate information that allows permanent guidance of management actions and decision making by the coordination of AIDER, relevant to compliance with the positive net effects proposed in the PDD.								
Component	**Indicator**	**Responsible**	**Frequency**	**Sampling places**	**Methodology**	**Base Line 2015**	**June -17**	**Observations**
Governance	# of directors boards improve and strengthen their relations with local authorities	AIDER	Annual	Palma Real, Sonene, Tres Islas	Participatory workshop, report of meetings and agreements	0	2	Palma Real has managed to improve its relations with the Municipality and with FENAMAD. He has participated in the economics contest of MINAM-CAF. Cooperativa COOPASER is participating in the various activities organized by the regional and municipal government. It is consolidating as the most significant experience in cooperativism in the Region.
	# of directors boards participate in organizational strengthening workshops	AIDER	Annual	Palma Real, Sonene, Tres Islas	Review of workshop reports on project activities	0	2	During these two years there have been meetings with the Palma Real board and support has been given on tourism. COOPASER has participated in two cycles of organizational strengthening workshops by sectors.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	# of directors boards develop and implement roadmap for their governance	AIDER	Annual	Palma Real, Sonene, Tres Islas	Workshop for the review of the roadmap	0	0	This indicator will be changed by development and implementation of the life plan.
	# of directors boards receive training in document filing methodology	AIDER	Annual	Palma Real, Sonene, Tres Islas	Review of training course reports on project activities	0	1	COOPASER is strengthening its capabilities through monthly workshops and meetings.
	# of directors boards are duly registered in Public Registries	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with directors boards	0	3	The registration of the new directors boards of Sonene, Palma Real and COOPASER has been motivated and facilitated.
	# of directors boards make decisions in a participatory and democratic manner	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	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 and COOPASER.
	# of directors boards receive business training	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with boards of directors, review of project reports	0	1	COOPASER.
	# of directors boards incorporate women in their government team	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Workshop with the board of directors	0	2	Palma Real and COOPASER.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	# of assemblies make decisions democratically about the development of their life plans	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Participatory workshop	0	2	Palma Real and COOPASER.
	# of assemblies are strengthened organizationally	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Participatory workshop	0	2	It can see more participation in Palma Real and COOPASER.
	# of assemblies decide democratically on the incursion in new productive activities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Participatory workshop	0	2	Ecotourism in Palma Real and transformation of cocoa in COOPASER.
	# of directors boards update statutes of their communities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with directors board and review of their document	0	1	Palma Real is reviewing its statutes.
	# of directors boards promote the development or revision of the life plan of their communities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with directors board and review of their document	0	1	Palma Real is implementing and reviewing.
	# of committees created to improve the management of the productive activities of the community	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Review of community documents	0	1	Palma Real is implementing forestry oversight in its community.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	# of directors boards participate in coordination meetings in the Management Committee of the RNTAMB and the PNBS Management Committee	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with the Management Committee of the RNTAMB	0	2	Palma Real and COOPASER, mainly due to the process of updating the Tambopata Reserve Master Plan.
Economic	# of committees receive training in resource management	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Participation in training workshops and review of reports on project activities	0	0	They have not been reported for this period.
	# of committees participates in workshops on product processing	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Review of project reports	0	1	COOPASER.
	# of committees participates in workshops on market research	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Review of project reports	0	1	COOPASER.
	# of producers families have been benefited with new sustainable productive activities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Review of project activity reports and visit to plots	0	386	Partners of the Cooperativa de Servicios Múltiples Tambopata Candamo.
	# of producers families are trained in the process of a productive chain	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with boards of directors, review of report of workshops on project activities	0	386	Partners of the Cooperativa de Servicios Múltiples Tambopata Candamo.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	# of producers families receive new income for sustainable productive activities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Workshop with directors boards	0	0	There is still no income report for agroforestry activities (cocoa).
	# of directors boards receive training on new technologies	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Workshop with associations	0	1	COOPASER.
	# of families that work with chestnuts have been trained to give added value to their raw materials	AIDER	Annual	ASCART	Review of project activity reports	0	0	There is no report for this period.
	# of directors boards receive training on sustainable alternative productive activities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Review of project activity reports	0	1	COOPASER.
	# of tourism companies committed to training families that have initiatives related to tourism	AIDER	Annual	Low and medium Tambopata	Meeting with charge of tourism theme in project of landscapes	0	1	Condor Travel is working with Palma Real.
	# of initiatives receives better income for the promotion of tourism activity within the project area	AIDER	Annual	Low and medium Tambopata, CN Infierno	Meeting with charge of tourism theme in project of landscapes	0	0	There are still no reports.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
Environmental	# of committees participate in awareness-raising workshops on climate change	AIDER	Annual	Palma Real, Sonene, Tres Islas,	Participation in the workshops and review of project reports	0	7	This has been done with all the assemblies, including the committees of the three communities. Palma Real: wood, fishing. Sonene: wood. Three Islands: wood, agriculture, mining. COOPASER
	# of directors boards participate in training workshops in REDD +	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Review of workshop reports made by project activities	0	1	COOPASER.
	# of assemblies aware of climate change and its consequences	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Participatory workshop	0	4	Since 2013, work has been done with the assemblies and the issue of climate change has been deepened. COOPASER is added.
	# of directors boards implement burn control in their communities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with directors board	0	1	COOPASER A fire prevention and management manual has been distributed to the partners.
	% of families committed to the sustainable management of chestnut	AIDER	Annual	Palma Real, Sonene, Tres Islas, Loero, Jorge Chávez, Nueva América, Las Mercedes, etc.	Participatory workshop	0	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.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	Board meetings aware of mercury contamination threats and their impacts on the environment	AIDER	Annual	APAYLOM, AMATAF	Workshop with directors boards	0	0	
Gender	# of directors boards promote the development of sustainable productive activities in their communities, within the framework of gender equality	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with the directors boards and review of productive activities report	0	4	Sonene, Tres Islas, Palma Real and COOPASER.
	# of committees are made up of men and women	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Meeting with the committees	0	4	Sonene, Tres Islas, Palma Real and COOPASER.
	# of women officially recognized as leaders in their communities	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Participation in workshops and review of reports on project activities	0	3	Nina (Palma Real), Vilma and Juana (Tres Islas)
	% of women is aware of the importance of women's contribution in the context of climate change	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	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.
	# of women participates in decisions for the distribution of	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Workshops with the assembly	0	0	There is still no benefit report. But there is already awareness about the benefits distribution

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	benefits							processes in COOPASER.
	# of women exercises roles that were previously recognized as only for men	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Workshop with the women of the community	0	0	It has not been reported for the period.
Social	% of population with access to basic services	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Surveys, meetings	30	50	The Palma Real Community has managed to have potable water and build a small dam.
	# of communities with enough water for all	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Surveys, meetings	0	1	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 suitable for human consumption	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Surveys, meetings	0	1	Tres Islas.
	Decrease in diseases and parasites caused by water consumption	AIDER	Annual	Sonene, Palma Real, Tres Islas	Surveys, meetings	0	0	There is no report for the period.

Matrix for monitoring social impacts in the REDD + project area of the RNTAMB and the PNBS - MDD Jun. 2017								
	% of the population with access to basic education	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	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.
	% of the population improves their health	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	Surveys, meetings	0	0	This indicator is under evaluation, because the project has no major impact.
	# of families have improved their homes	AIDER	Annual	Palma Real, Sonene, Tres Islas, COOPASER	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 2018, so 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

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 annex in section 2.3.2)

5.1.2 High Conservation Value Protection (B1.2)

The activities carried out in the framework of the project are compatible with the conservation of Biodiversity and therefore do not negatively affect any high conservation value identified in the project.

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.

On the other hand, the Integrated Monitoring System of the Tambopata National Reserve and the Bahuaja-Sonene National Park, which is being executed by AIDER, includes the monitoring of the conservation objects of these ANP (in which it includes the monitoring of the pampas of the Heath). Additionally, monitoring and research activities are carried out that do not respond directly to the indicators of this system, but provide important information about biodiversity and the status of some high conservation values.

The variations of the abundances and densities of animal and plant populations are evident through periods of time corresponding to the biology of each species; In the case of large mammals, which are the majority of the conservation objects monitored according to the Monitoring Plan, longer periods (years) are required, such as the jaguar (Panthera onca), whose effective periodicity to show changes would be by at least after three to five years (Kirkby, pers., 2016), however, these changes do not necessarily correspond to net increases or decreases in populations due to anthropogenic factors, but rather to natural oscillations of each species.

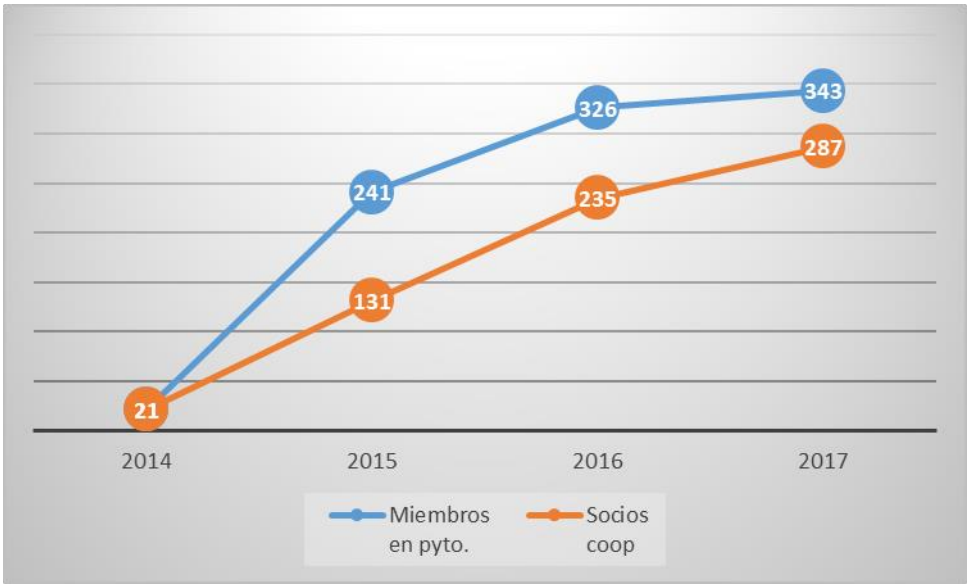
5.1.3 Invasive Species (B1.3)

The project "Reduction of Deforestation and Promotion of Sustainable Development in Madre de Dios" has been carried out since 2014. This project aims to reduce the pressure on the forests surrounding the Tambopata National Reserve, under the installation of agroforestry systems whose main crop is cocoa. It is important to point out that these systems are worked in areas that have been deforested in the past, complying with the recovery of degraded areas. Within the framework of this project, the Agrarian Cooperativa de Servicios Múltiples Tambopata Candamos was created in October 2014, with 21 founding members. During 2015 it began with the registration of new partners affiliated to the project making a total between both years of 131 partners. During 2016, 104 members and 52 partners joined in 2017, making a total of 287 members between the three years (See appendix 9.-section 1). Also, for the farmer who wants to be part of the project, he must belong to the cooperative, have a land tenure document, and have a commitment to work at least three hectares (which meet the conditions specified above).

On the other hand, it is worth mentioning that in the project there are a total of 343 producers working; the difference between the number of registered partners and producers in the project is due to the fact that they are regularizing their documentation to date.

Then, in the graph, you can see the growth in the number of partners per year.

Figure 8. Flow of producers over time.



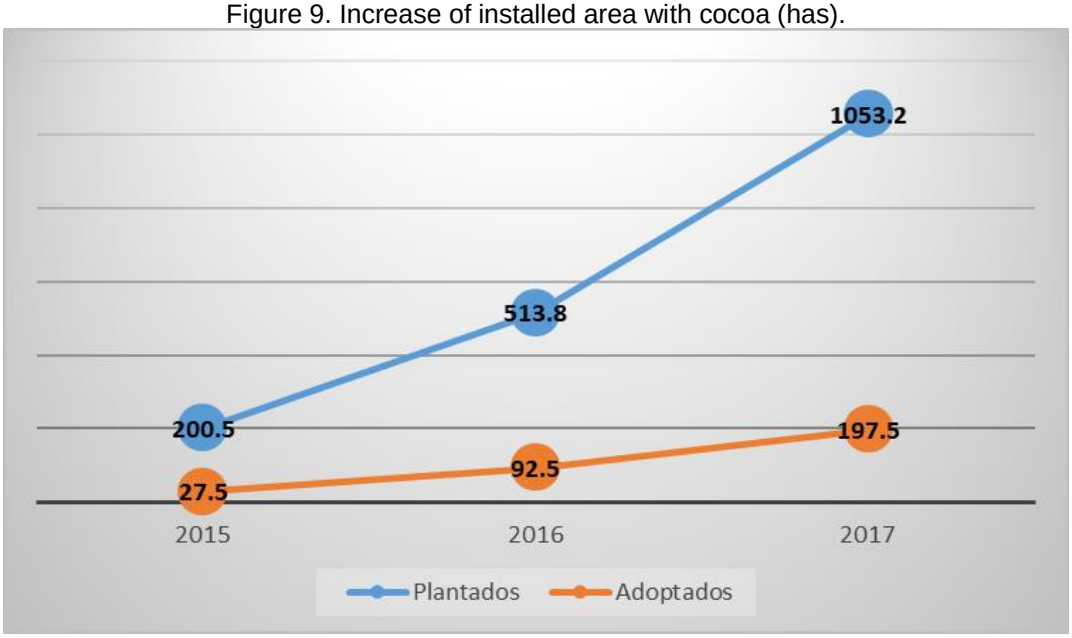
In the reporting period, the following population centers have been working within the Buffer Zone and Influence Zone.

Table 27. Populated centers within the project with Agroforestry Systems with cocoa.

Sector 1	Sector 2	Sector 3	Sector 4	Sector 5	Sector 6	Sector 1A
Alto Loero Bajo Madre de Dios Bajo Tambopata Chonta Infierno Isuyama Jorge Chávez La Torre Loero Nueva América Nuevo Sol Naciente Tres Chimbadas	Alto Cachuela Alto Chorrillos Bajo Cachuela Cachuela Castañal Centro Cachuela Centro Pastora El Prado Fitzcarrald Monte Sinaí Rompe Olas Tres Estrellas Túpac Amaru Unión Chonta	Aguas Negras Huantupac Las Mercedes Los Cedros San Bernardo Tahuantinsuyo Víctor Raúl	Aguas Blancas Baltimore Florida Baja Manantiales Nueva Esperanza Santo Domingo Tahuantinsuyo	Florida Alta Quispicanchis Vírgenes del Sol	El Progreso Paraíso San Juan Unión Progreso Yanaoca	La Novia Alto Loboyoc Bajo Loboyoc Bajo Madre de Dios Bello Horizonte El Triunfo Las Piedras Madama Mavila Micaela Bastidas Monterrey Nuevo Pacarán Planchón Primero de Mayo San Francisco Santa Teresa Shiringayoc Sudadero

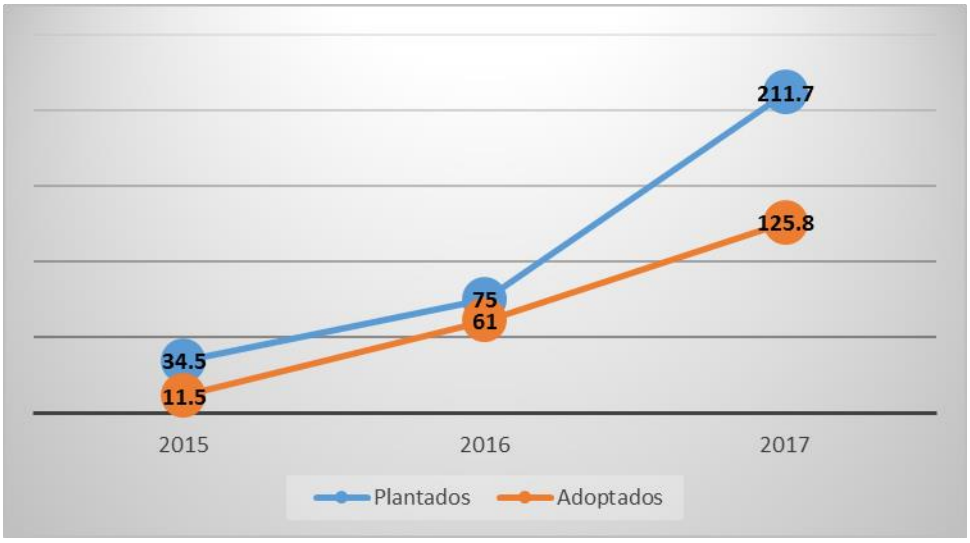
Regarding the coverages worked on, the project is flexible in terms of the first coverage available to the producer. In this period to report, we have worked basically with the crops of papaya, banana, yucca, palo beans, as a temporary shade.

Figure 9. Increase of installed area with cocoa (has).



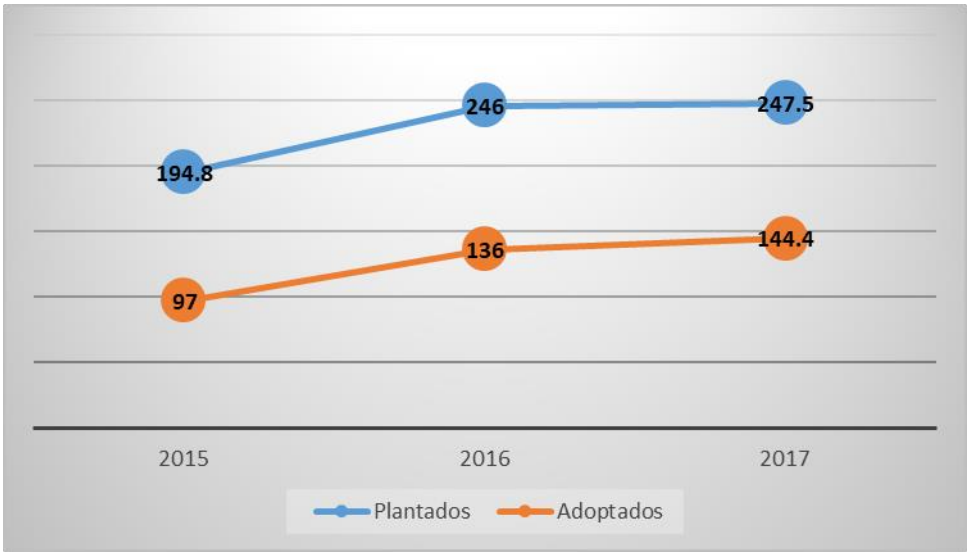
On the other hand, regarding the sowing of guava (*Inga edulis*), the plantation progress is shown in the following graph.

Figure 10. Installation of guaba (*Inga edulis*) in hectares.



On the other hand, at the beginning of the project, for those who did not have a cover as a temporary shade, they were given banana shoots, with the commitment of returning triple the amount received to be able to give to other producers. In that understanding, the flow of banana installation has been the following.

Figure 11. Banana installation in the project.



Each farmer plans his activities in his 'Plan de Chacras Integrales' an agroforestry model (SAF) (See appendix 9 – section 2), where they associate for the different strata, timber and non-timber forest species. It is important to clarify that to date not all partners have a plan, they continue to be developed for the other partners in the following years.

Table 28. Species used in the period 2015-2016

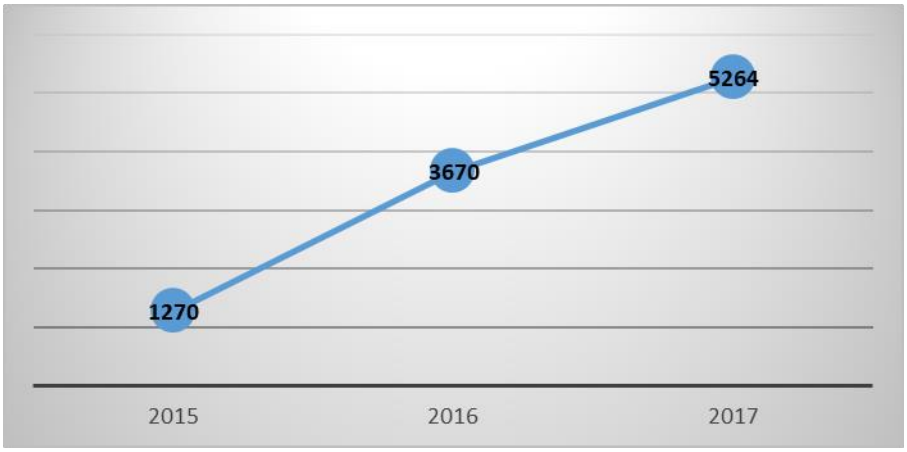
Common name	Scientific name
Timber forest species	
Caoba	*Swietenia macrophylla*
Cedro	*Cedrela odorata*
Tornillo	*Cedrelinga catenaeformis*
Pashaco blanco	*Schizolobium amazonicum*
Moena	*Ocotea sp*
Amasisa	*Erytrina sp*
Laurel	*Nectandra rediculata*
Non-timber forest species-NTFP	
Castaña	*Bertholletia excelsa*
Copoazu	*Theobroma grandiflorum*
Naranja	*Citrus sinensis*,
Amasisa	*Erytrina sp*
Cacao chuncho	*Theobroma cacao L.*

Common name	Scientific name
Agricultural crops	
Shaina	*Colubrina glandulosa Perkins.*
Yuca	*Manihot esculenta*
Plátano	*Musa paradisiaca*
Piña	*Ananas ananas*
Frejol de palo	
Coverages	
Mucuna	*Mucuna preta*
Kudzu	*Pueraria phaseoloides*

Limón rugoso	*Citrus x jambhiri Lush*
Guaba/pacay	*Inga edulis*

Regarding the progress of installation of forest species, it has been as follows:

Figure 12. Increase in forest species installed over time (Nro).



It has taken into account the use of species that provide organic matter, avoid erosion and favor the labeling of the soil, among other benefits that allow crops planted to have a greater adaptation to changes in temperature and humidity that may occur.

The following is a brief description of the main species that contribute to the system:

- Kudzu and mucuna: They provide organic matter, prevent soil erosion and help to conserve moisture
- Guaba, provides organic matter, helps to clear the soil to promote aeration, thus avoiding compaction, provides nutrients (nitrogen), generates a microclimate regulating the temperature (shade), dampens the impacts of the friages that could affect the production of the crop and serves as wind breaks curtains.
- The forest species that will be used as permanent shade are compatible with cocoa plantations, in addition to presenting straight stems as the main morphological characteristic. The species that have been selected are mentioned below:
    - Tornillo (*Cedrelinga catenaeformis*)
    - Bolaina (*Guazuma crinita*)
    - Pashaco colorado (*Macrobrachium aceceineifolium*)
    - Shaina (*Colubrina glandulosa Perkins*)
    - Copaiba (*Copaifera langsdorffii*)
    - Caoba (*Swietenia macrophylla*)
    - Cedro (*Cedrela odorata L.*)
    - Laurel (*Nectandra rediculata*)

- Forest species avoid soil erosion because they act as containment barriers and generate shade to reduce impacts due to extreme temperatures (high and low).

- Cocoa: a crop that adapts to grow under shade, attracts fauna and coexists in harmony with other arboreal, shrub and herbaceous species.

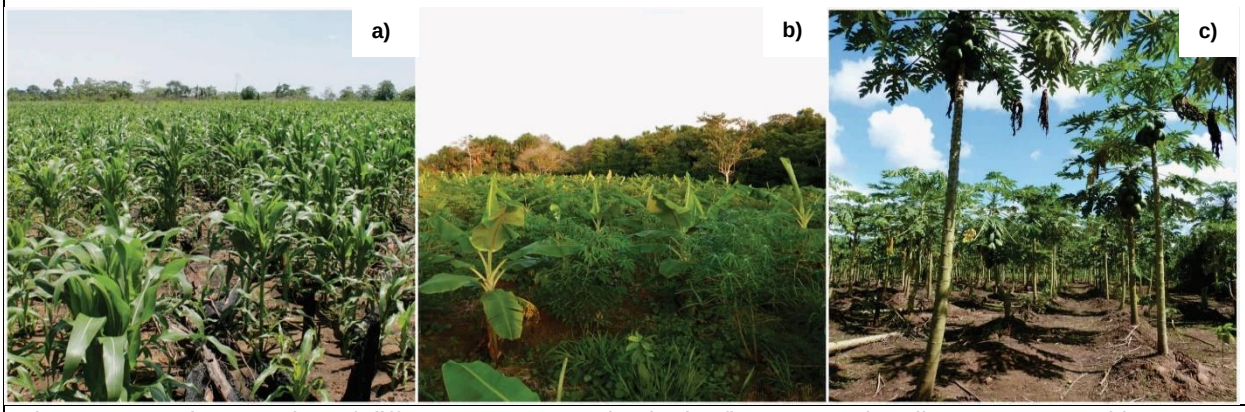


Figure 13. Implementation of different SAF scenarios in the first years: a) Yellow corn crops, b) cassava and plantain crops, d) papaya crops.

Figure 14. Cocoa plots associated with a SAF: d) second year of installation in an area with papaya, e) third year of installation of SAF plots, f) plots with production and management.

It should be noted that efforts have been made to use native species of the region. In the case of introduced species, such as kudzu and mucuna, the time of use they have in the region has been considered and they do not represent invasive species that could affect the native flora of the area and the project area.

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

Species	Kudzu
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.
Adverse Effect	None adverse effects is expected

Species	Mucuna
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.
Adverse Effect	None adverse effects is expected

Species	Citrus
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.
Adverse Effect	None adverse effects is expected

5.1.5 GMO Exclusion (B1.5)

The project does not consider forest or other plantations to generate verifiable GHG removals. In addition, the activities proposed by the project are based on the management of local biodiversity (Timber forest management, management and marketing of non-timber products) and production systems already validated (Agroforestry), not considering the use of Genetically Modified Organisms. The agroforestry plots and the cocoa value chain are in a process of certification in fair trade (fairtrade) and organic certification (See appendix 10).

5.2 Offsite Biodiversity Impacts

5.2.1 Negative Offsite Biodiversity Impact Mitigation (B2.2)

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, such as agroforestry systems (SAF). For the 2015 period, 200.5 hectares have been installed and for the 2016 period, 513.8 hectares have been installed with cocoa agroforestry systems in deforested and degraded areas located between Km 1 and 83 of the Interoceanic Highway.

On the other hand, the Department of Madre de Dios has great potential for the development of ecotourism and sustainable tourism. What represents an alternative to generate sustainable activities in the region that promote forest conservation and generate economic benefits for the population. In this sense, AIDER, since 2017, supported the formulation of an economic plan "Improvement of the productive chain and marketing of handicraft products of the Native Community of Palma Real" at the request of the Native Community of Palma Real in order to present Competitive initiatives with the Peruvian State (Executing Unit 004 - Natural Resources Management (UE 004 - GRN) and other initiatives (See appendix 11).

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 REDD + 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 12).

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/assets/sistintegmonit.pdf .

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 periods 2015 and 2016, 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 Tab. 3, are described in the SMI-2015 report (See appendix 13) and in the 2016 SMI available at http://www.tambopata-bahuaja.info/assets/reporte-del-sistema-de-monitoreo-integrado-2016- final.pdf (See appendix 13).

The reported results on biodiversity and human activities correspond to the period January - December 2015 and 2016, respectively, since these data are collected annually. However, for the corresponding data in the report "Estimation of deforestation in Madre de Dios", the forest loss in the management contract was calculated in 3710.97 hectares and the loss of forest in the leakage belt for the 2016 period was 77523 has. As a complement to the anthropic deforestation analysis process, the area of forest cover that remains to be managed, harvested or conserved is determined, with a total of 182077.11 ha within the leakage belt and 561411.14 ha within the administration contract for 2017 (See appendix 13).

Table 29. Conservation objects and indicators during the period 2015 and 2016 (See Annex 1 and 2 of the corresponding section)

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
Jaguar (*Panthera onca*)	# of individuals sighted and signs found per year	50	5	12	RNTAMB	Direct count in routine patrols
		29	30	28	AIDER	Linear transects
	Abundance: # of ind. avist./km	0.001	0.002	0.052	AIDER	Linear transects - Relative abundance
	Density: # of jaguars / 100km2	-	-	-	AIDER	Linear transects - Distance program
	Distribution area	9 (de 9)	9 (de 9)	7(de9)	RNTAMB/AIDER	Patrolling and linear transects
Giant Otter (*Pteronura brasiliensis*)	Distribution: # of bodies of water with presence of river wolf	7 (de 9)	7(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	SZF with support from AIDER	Direct count
		Tres Chimbadas: 5	Tres Chimbadas: 2	Tres Chimbadas: 6		
		Cocococha: 7	Cocococha: 5	Cocococha: 7		
	# of signs of presence per year per cocha	Sandoval: 16	Sandoval: 12	-	SZF with support from AIDER	Direct count

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
		Tres Chimbadas: 8 Cococha: 11	Tres Chimbadas: 2 Cococha: 11			
	# of pups per year per cocha	Sandoval: 0 Tres Chimbadas: 0 Cococha: 0	It is not reported	It is not reported	SZF with support from AIDER	Direct count
	# of individuals in the groups sighted in Lake Sandoval	6	7	6	SZF with support from AIDER	Direct count
	# sightings (groups, individuals and signs) in patrols	33	6	5(+)	RNTAMB	Patrol – Direct count
Maquisapa (*Ateles chamek*)	# sample locations with maquisapa sighting per year	2 (de 8)	3 (de 9)	2(de7)	RNTAMB/AIDER	Routine patrols and linear transects
	# of maquisapa groups sighted	0	3	1	RNTAMB	Patrol – Direct count
	Average # of individuals per group per year	0	7.3	3	RNTAMB	Patrol – Direct count
	Abundance: # of groups sighted/km of sample transect per year	0.006	0.03	0.004	AIDER	Linear transects – relative abundance

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
	Abundance: # average of individuals / group	3.5 ind/groups	4.3 ind/group	3 ind/group	AIDER	Linear transects – relative abundance
	Density: # of individuals / km2 by location per year	-	-	-	AIDER	Linear transects – Distance programe
Harpy Eagle and crested eagle (*Harpia harpyja* & *Morphnus guianensis*).	# of eagles' nests found per year	-	-	-	RNTAMB, nut gatherers, others	Direct count of nests (active and inactive)
	# of sightings of individuals of harpy eagle and crested eagle per year	6	1	3	RNTAMB	Patrols - Direct count
		1	2	2	AIDER	Linear transects
Macaws (*Primolius couloni, Ara ararauna, A. macao y A. chloropterus*)	Distribution area: # of localities with sighting of macaws (P. couloni and A. spp.)	8 (de 8)	9 (de 9)	8(de9)	AIDER	Linear transects
	# average number of individuals sighted in key clay licks per year	P. couloni: 3.36	P. couloni: 2.02	P. couloni: 0	Macaw project	Direct counting Include in large Ara count
		A. ararauna: 3.23	A. ararauna: 3.48	A. ararauna: 11		
		A. chloropterus: 3.23	A. chloropterus: 3.84	A. chloropterus: 66.25		
		A. macao: 3.3	A. macao: 3.94	A. macao: 8.83		
	# of individuals sighted per year	A. ararauna: 2247	A. ararauna: 366	A. ararauna:	RNTAMB	Patrols - Direct count

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
		A. macao: 670	A. macao: 114	A. macao:		
		A. chloropterus: 1341	A. chloropterus:116	A. chloropterus:		
		P. couloni: 22	P. couloni: 30	P. couloni:		
	Annual record of the presence of macaws	180	Chuncho: 987 (X:329 ind); Heath: 1512 (X:583ind)	Chuncho: 1167 (X:556); Heath: 1113 (X:	Operators that are within the RNTAMB (at least) RFE, Sandoval, Explorer's Inn and Inkaterra, Collpa monitoring by CA-AIDER	Presence registration. Include other Ara
	Abundance: # average number of individuals per point per year	Similar to # average of individuals sighted in key clay licks per year	Similar to # average of individuals sighted in key clay licks per year	Similar to # average of individuals sighted in key clay licks per year	Macaw project	Counting points
Alluvial, hilly and terrace forests	Degradation: # tons of carbon released by degradation	2013-2014 ton co2 -e	2014 - 2015 ton co2 -e	2015 - 2016 ton co2 -e	AIDER	Remote sensing and field validation
	# of hectares deforested annually by type of forest	2013 - 2014	2014 - 2015	2015 - 2016	AIDER	Remote sensing and field validation
		Mixed swamp: 0	Mixed swamp: 0	Mixed swamp: 0.07		
		alluvial flood: 0	alluvial flood: 0	low terrace 347.5		

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
		hill high strong: 0	hill high strong: 0	Soft dissected terrace: 23.9		
		Soft high hill: 0	Soft high hill: 0	high terrace: 1.02		
		low hill strong: 0	low hill strong: 0	terrace dissected strong: 1.10		
		soft low hill	soft low hill	tropical savanna: 0.37		
		high terrace: 0	high terrace: 0	alluvial flood: 99.6		
		low terrace: 0	low terrace: 0.2	lagoons: 9.7		
		terrace dissected strong: 0	terrace dissected strong: 0.3	Rivers: 75.5		
		Soft dissected terrace: 5.2	Soft dissected terrace: 19.5	agricultural activity / forest secu *: 12.5		
		Total: 5.2	**Total: 32.3**	**Total: 571.18**		
Castañal	# of dead trees reported annually within the terraced forest	-	-	-	RNTAMB Castañeros	Direct observations and report to park rangers
	# of chestnut-producing trees killed per year	-	-	-	a. RNTAMB b. Castañeros (ASCART 1 and 2)	a. Inspection, every time there is a complaint. b. Report to the park ranger

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
Pampas del Heath	Annual area: # of ha of pampas.	4261.86	4226.56	5374.09	AIDER	Remote perception and GIS.
	# heat sources from unplanned burnings per year.	0	0	0	AIDER	Remote perception and GIS.
	# of ha of pampas traced back to the year.	-70.56	-35.3	913.4	AIDER	Remote perception and GIS.
Collpas	# Colpas in activity affected by some human activity (tourism, agriculture, land use, etc.)	4 (Chuncho, Heath, Sandoval y Colorado)	4 (Chuncho, Heath, Sandoval y Colorado)	4 (Chuncho, Heath, Sandoval y Colorado)	AIDER con apoyo del Proyecto Guacamayo, Proyecto Guacamayo	Observación directa - Caracterización de cada collpa.
	Diversity and abundance of birds in colpas monitored annually	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 Fisher alpha: 2.56	Macaw project / AIDER	Direct count of large Ara in clay licks and record of other birds present in the area.
	Presence / absence of mammals in key colpas annually	Maquisapa Coto mono Red deer Añuje Porcupine Ronsoco Huangana	It is not reported	Mammals: Squirrel and Coto mono	Guacamayo project	Record of presence of mammals, noting species sighted

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
	Presence / absence of human activities in colpas found per year	Chuncho: Tourism	Chuncho: Tourism	Birds: Pavas	AIDER with support from Proyecto Guacamayo, RNTAMB	Record of presence of human activity, noting type of activity
		Heath: Tourism	Heath: Tourism	Chuncho: Tourism		
		Sandoval: Tourism	Sandoval: Tourism	Heath: Tourism		
		Colorado: Tourism	Colorado: Tourism	Sandoval: Tourism		
Brasilian nut (Bertholletia excelsa)	# of chestnut-producing trees killed per year	-	-	Trees with plate: 64 Trees without license plate: 22	RNTAMB and nut gatherers	a. Inspection, every time there is a complaint. b. Report to the park ranger
	# of seedlings (10cm - 10m tall) chestnut per ha	- -	- 10	377(*) -	Report of harvest / nut gatherers AIDER	Harvest report Inventory
	Annual chestnut production reported in the PCV	334568 kg / 4460.91 barrel	346688 kg / 4622.5 barrel	117580 kg / 5879 barrels	RNTAMB	PCV registration
	Abundance: # of individuals of añuje sighted for each km walked by location per year	San Antonio:0	San Antonio:0.02	San Antonio: 0.14	AIDER	Linear transects - Relative abundance
		Huisene:0.13	Huisene:0.05	Huisene: 0.14		
		Briolo: 0.13	Briolo:0.06	Briolo: 0.14		
		Sandoval:0.09	Sandoval: 0.05	Sandoval: 0.08		
		Jorge Chávez: No se evaluó	Jorge Chávez:0.03	Jorge Chávez: 0.016		

Object of conservation	Indicator	2014	2015	2016	Responsable	Methodology
	Density: # of individuals per km2 per location per year (añujes)	5.2573 ind/km^2	19.673 ind/km^2	13.202 ind/km^2	AIDER	Linear transects - Distance
Huangana (Tayassu pecari)	# of herds sighted per year	34	15	17	RNTAMB	Patrullajes - Direct count
	# of sampling locations with huangana sighting per year	8 (de 8)	9 (de 9)	8 (de 9)	AIDER	Linear transects
	Abundance: # of groups sighted per km transect sampled per year	0.02 groups/km	0.02 groups /km	0.083 ind/km	AIDER	Linear transects
	Abundance: # of individuals sighted per km of transect sampled per year	0.44 ind./km	0.38 ind./km	0.083 ind/km	AIDER	Linear transects
	# average number of individuals per group	26.75 ind. / group	23.5 ind. / group	17 ind./ group	AIDER	Linear transects
	Density: # of individuals per km2 per location per year	-	169.19 ind/km^2	-	AIDER	Linear transects - Distance
	# of huanganas hunted per year	37	21	211	RNTAMB	Registration of hunting and fishing from PVC
Wetlands, rivers and swamps	# of bodies of water with presence of river wolf	7 de 9	7 de 20	7 de 2	SZF with support from AIDER	Population census.
	# of individuals (adults and offspring) sighted per year by cocha	Sandoval: 6 Tres Chimbadas: 5 Cococha: 7	Sandoval: 7 Tres Chimbadas: 2 Cococha: 5	Sandoval: 6 Tres Chimbadas: 6 Cococha: 7	SZF with support from AIDER	Direct count

5.3.3 Monitoring Plan and Results Dissemination (B3.3)

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 periods 2015 and 2016, this includes all the information referred to in the monitoring plan published on the website (http://www.tambopata-bahuaja.info/index.html#home), as well as additional information which is considered important for long-term biodiversity monitoring. 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.

The reported results on biodiversity and human activities correspond to the period January - December 2015 and 2016, respectively, since these data are collected annually. This results have being presented to the specialist and chief of both PNA in meeting and periodical reports, and the SMI 2016 in uploaded in the web page of the Partial Administration Contract (http://www.tambopata-bahuaja.info/assets/reporte-del-sistema-de-monitoreo-integrado-2016-final.pdf), where it can be consulted by all the people interested in the subject.

6 ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

There is no additional information

7 ADDITIONAL PROJECT IMPACT INFORMATION

In this section we will proceed to include the information for the gold criterion for biodiversity:

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

The Jaguar (Panthera onca), Giant Otter (Pteronura brasiliensis), the maquisapa (Ateles chamek) and the huangana (Tayassu pecari) are species that have suffered hunting pressure in the past. That is why these species are sensitive behavior to human presence. Within the RNTAMB and the PNBS, the presence of these species is permanently supervised, with a control and surveillance program established by the SERNANP and there are monitoring programs to monitor their populations. All this in the Management Contract Framework on the research and biological monitoring components that AIDER conducts on these protected areas.

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

Jaguar (Panthera onca): 4 indicators were reported for the 2015-2016 monitoring.

Number of individuals sighted and signs found per year: With the methodology of routine patrols, there are 35 records (2015) and 30 records (2016) and with the data of linear transects, there are 58 records of two years. Observations are maintained in the total number of records with respect to previous years (to 2014), it seems to be related to their decrease in the effort of both patrolling (patrolling in illegal mining is prioritized) and linear transects. This does not necessarily indicate that the jaguar population has increased or decreased, but it has remained stable since the beginning of the project; the increase in records can respond to several factors, such as; maintenance of conditions for jaguar populations within the project area, jaguars may be getting used to human presence and transit, jaguars from areas with greater impact take refuge inside the ANP, among others.

Abundance and Density: During the assessments of fauna in trails, in two years, a total sampling effort of 985.05 km recorded (2015) and 774.28 km recorded (2016) was made. However, due to the evasive behavior of most of the older mammal species and even felines, it was not possible to obtain enough sightings (> 40) to perform the density calculations with the DISTANCE 6.2 program (Buckland et al. 2004). In the years 2012 to 2014, they were not able to obtain enough sightings either.
The relative abundance for the jaguar was calculated in 0.002 individuals sighted (2015) and 0.052 individuals sighted (2016) for each 4 km traveled.

Distribution area: According to the distribution map of the IUCN (Red List), the jaguar is distributed throughout the Madre de Dios region.

According to a linear regression analysis it is observed that the coefficient of determination is 0.98%, the influential observations have a large effect on the regression equation, representing greater evidences of # traces (footprints, feces) in the PVC Sandoval (10), La Torre (9), Jorge Chávez (7), Huisene (4), Malinowski (3) and minor signs in the PVC Briolo and San Antonio (Figure 19). Trace records for this species are a good indicator. Regarding the distribution area, the information of the patrols and linear transects was used, obtaining that the number of areas with jaguar presence of 7 in 2016 is maintained (PVC: Briolo, Huisene, Jorge Chávez, La Torre, Malinowski, San Antonio and Sandoval).

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 giant otters 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 occasions the same bodies of water are not evaluated, which 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 since 2015.

Of these 13 bodies of water proposed, in 2015, 07 were monitored, almost all of them correspond to the RNTAMB and one to the RNTAMB and the PNBS. Of these, at least in 07 the presence of giant otters was recorded

Number of individuals sighted by cocha: For this indicator four lakes (Sandoval, Sachavayoc, Tres Chimbadas and Cocococha) are taken into account, all within the RNTAMB and its ZA. The baseline of the year 2008 shows that the total number of individuals sighted for giant otters in these four lakes was 15 individuals, for 2012 there are 26 individuals, 24 for 2013 and finally 18 for 2014, although in this case The last period was not evaluated Sachavacayoc. For the 2015 period, 37 individuals were registered in 21 bodies of water, for the 2016 period 32 individuals were registered in 08 bodies of water.

The number of individuals is obtained from specific censuses in different months. The giant otters is a species that can move from one lake to another, even move long distances in the forest (SZF 2014), this makes the sighting of giant otters is very varied for the different oxbow lakes, but show that family groups keep their presence.

Number of signs of presence per year per cocha: The indications refer to burrows or camps used by giant otters. For this indicator, four lakes (Sandoval, Sachavayoc, Tres Chimbadas and Cocococha) are all considered within the RNTAMB and its ZA. Presenting 6 signs in Sandoval, 06 in Tres Chimbadas and 7 in Cocococha.

Number of offspring per year per cocha: According to the information provided by the SZF, during the years 2012 and 2013 there were no hatchlings in the oxbow lakes: Sandoval, Tres Chimbadas and Cocococha. In 2014, no broods are recorded in the ponds considered, however, does not mean that the species is declining population because it merits another methodology to study the behavior and its reproduction.

Number of individuals in the groups seen in Lake Sandoval: The number of individuals in Lake Sandoval for 2008 was 06, 08 in 2012, 08 in 2013 and finally 06 in 2014, 07 in 2015 and 6 in 2016. This indicates that the number of family members may vary, but the family remains.

Number of sightings (groups, individuals and signs) in patrols: For the present year there were 33 sightings with an effort of 3990.94 km. Comparing it with previous years (24 in 2012 and 22 in 2013) has increased the number of sightings, but also the effort of patrols. Additionally, in 2015

and 2016, the detectability of this species increased due to new monitoring sites in the Heath River area of the Bahuaja Sonene National Park. For the 2016 period, a total of 80 individuals distributed in 12 family groups and 2 solitary groups were registered. Approximately 60% of the giant otters observations were made in the Heath River, while in the Palma Real, La Torre and Azul rivers during the present study no giant otters sightings were recorded. Being the body the river Heath presented 48 individuals and 07 family groups providing greater detectability of the species unlike other years.

Maquisapa (Ateles chamek):

Number of sampling locations with maquisapa sighting per year: With the patrolling and linear transect methodology, maquisapa was registered in the Malinowski and Otorongo PCVs. In the previous years (2012 and 2013) no findings of this species were made in any of the PCV, arriving to consider it as locally extinct in that area. The fact that now two locations are reported with their presence, indicates that the species is recovering. The monitoring during the patrols carried out by the park rangers of the RNTAMB, recorded the presence of 3 groups of Maquisapas in 2016, with an average of 3 individuals per group. The methodology of linear transects in permanent trails shows an abundance of AR = 0.004 individuals for each km traveled for 2016, showing a decrease with respect to 2015. Likewise, there are new reports in the field of PVC Pamahuaca being four sites with detection of this species.
The deforestation in the buffer zone and in the scope of the native communities, Jorge Chávez and Loero where the forest is fragmented and hunting is more frequent for this species.
Number of groups of maquisapa sighted per kilometer traveled per year: Routine patrol carried out by RNTAMB park rangers and transect monitoring did not register the presence of groups of maquisapas in any of their routes, similar results were reported in 2012 and 2013.

Number of individuals per average group per year: Similar to the previous indicator, in 2014 no groups of maquisapas were reported, therefore, neither individuals in them.

Abundance: # of groups sighted / km of transect sampled per year: The methodology of linear transects in permanent trails, shows 04 groups of maquisapas sighted in 723.10 km traveled during the year, yielding an index of 0.006 for 2014. In 2012 and 2013 no groups were registered, so the index was equal to 0. Likewise, the presence of 4 groups of Maquisapas was recorded in 2016-2015, with an average of 3 individuals per group. The methodology of linear transects in permanent trails shows an abundance of AR = 0.004 individuals for each km traveled for 2016, showing a significant decrease with respect to 2015.

Abundance: # average of individuals / group: In the 04 registered groups were observed 03, 05, 02 and 04 individuals respectively, resulting in an average 3.5 ± 3.0 ind / group.

Density: # of individuals / km2 per location per year: During wildlife assessments in trails, in 2014 a total sampling effort of 723.10 km / census, 985.05 km / census (2015) and 774.28 km / census (2016), respectively. However, due to the evasive behavior of older mammal species, it was not possible to obtain enough sightings (> 40) to perform the density calculations with the DISTANCE 6.2 program (Buckland et al., 2004).

b. Vulnerability: **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), Suppressed Decree 04-2014-MINAGRI and Red Book of the Endangered Wild Fauna of Peru (SERFOR 2018).

Table 30. **Vulnerable species present in the project area**

Scientific Name	Common Name	IUCN threat status 2014	IUCN threat status 2015-2016	State of threat Supreme Decree 004-2014[15]	Red Book of the Endangered Wildlife of Peru 2018[16]	Presence in the project area	Source
Tapirus terrestris	Sachavaca	Vulnerable (VU)		Casi amenazado (NT)	Almost threatened(NT)	X	Trail monitoring record sheets / Patrolling sheets
Primolius couloni	Guacamayo de cabeza azul	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	Trail monitoring record sheets / Patrolling sheets
Blastocerus dichotomus	Ciervo de los pantanos	Vulnerable (VU)	Vulnerable (VU)	Vulnerable		X	SZF
Podocnemis unifilis	Taricaya	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	Patrolling sheets
Geochelone denticulata	Motelo	Vulnerable (VU)	Vulnerable (VU)	-		X	Log records of monitoring in trails
Lagothrix lagotricha	Mono choro	Vulnerable (VU)	Vulnerable (VU)	En peligro (EN)		X	
Dinomys branickii	Picuro mama / pacarana	Vulnerable (VU)	Almost threatened	-		X	
Priodontes maximus	Armadillo gigante	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X	Log records of monitoring in trails
Tinamus osgoodi	Perdiz	Vulnerable (VU)	Vulnerable (VU)	Vulnerable		x*	Log records of monitoring in trails
Vampyressa melissa	Murciélago de orejas amarillas	Vulnerable (VU)	Vulnerable (VU)	Vulnerable		X**	
Ara militaris	Guacamayo militar	Vulnerable (VU)	Vulnerable (VU)	Vulnerable	Vulnerable (VU)	X***	
Coryphaspiza melanotis	Pinzón enmascarado	Vulnerable (VU)	Vulnerable (VU)	Vulnerable		X	
Myrmecophaga tridactyla	Oso bandera		Vulnerable (VU)			X	

Ateles chamek	Maquisapa		In danger of extinction		In Danger (EN)	X	Trail monitoring record sheets / Patrolling sheets
Pteronura brailiensis	Giant Otter		In danger of		In Danger (EN)	X	
Tayassu pecari	Huangana		Vulnerable (VU)		Almost threatened(NT)	X	Trail monitoring record sheets / Patrolling sheets
Pionites leucogaster	Chirricle		In danger of			X	
Panthera onca	Otorongo/jaguar				Almost threatened(NT)	X	Trail monitoring record sheets / Patrolling sheets
Puma concolor	Puma				Almost threatened(NT)	X	Trail monitoring record sheets / Patrolling sheets

***** 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).

[15] https://www.serfor.gob.pe/wp-content/uploads/2016/09/DS-N004-Especies-amenazadas-de-fauna-silvestre.pdf
[16] https://www.serfor.gob.pe/wp-content/uploads/2018/10/Libro-Rojo.pdf

c. 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 Moxos Plains, 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 his presence over the past years. While the deer of the swamps shows evidence of having vigorous populations, since there 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 and AIDER), mainly. It consists of the study of fauna (birds, mammals, insects, amphibians and reptiles), flora and vegetation made 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 addictions 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 savanna, however, studies that show the diversity of mammals in the Pampas del Heath are scarce, with only three evaluations from 1977 to the present. 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 fog 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 analysis 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 (See appendix 14).

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 2016 period (See appendix 14).

APPENDIX :

- Appendix 1 – Risk to the proyect
- Appenidx 2 – Project information: Activity report
- Appenidx 3 – Occupational Safety assesment
- Appenidx 4 – Data and parameters monitored
- Appenidx 5 – Monitoring plan
- Appenidx 6 – Non permanent risk calculation
- Appenidx 7 – Spots for fire prevention
- Appenidx 8 – Community impacts
- Appenidx 9 – Cooperative member list and integrated plan farms
- Appenidx 10 – Fair trade and organic certification
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- Appenidx 12 – Net offsite biodiversity impacts
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