REDD PROJECT IN BRAZIL NUT CONCESSIONS IN MADRE DE DIOS

Document Prepared By BOSQUES AMAZÓNICOS SAC

Project Title	**REDD Project in Brazil Nut Concessions in Madre de Dios**
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1 PROJECT DETAILS

1.1 Summary Description of Project

The "REDD Project in Brazil Nut Concessions in Madre de Dios", proposed by Bosques Amazonicos SAC (BAM), is located within the political boundaries of the Provinces of Tambopata and Tahuamanu, Department of Madre de Dios.

The department of Madre de Dios, considered Peru's richest in biodiversity, runs the risk of losing its wealth of forest resources and biodiversity primarily due to the deforestation caused by ranchers and farmers. The project proponent and its implementation partner, the Departmental Federation of Brazil nut Producers of Madre de Dios, are committed to reduce emissions that deforestation could produce within the project areas, and implement a socio-environmental management plan that will also contribute to the economic development of the Brazil nut concessionaires.

Using the Deforestation Model developed by BAM, in collaboration with Carbon Decision International and AIDER, the deforestation rate in the Madre de Dios department was estimated. This model was based on the analysis of three Landsat satellite images of from the years 2000, 2005 and 2008, which revealed different deforestation rates in the department. In the project area, approximately 1.23% of forested land will be lost per year.

The Brazil Nut Concessions associated to the Project make up the Project Area, which initially was 290,714.25 ha and after the inclusion of new members is now 308,757.31 hectares, make up the Project Area. Approximately 34% of this forested area would be lost by the end of year 2041, according to the deforestation model; so a number of activities were established to avoid this scenario and achieve the main objective of "Considerably reduce greenhouse gas emissions caused by deforestation agents in the Concessions within the project area and mitigate project leakage".

In a Baseline scenario, the total emissions in the Project Area during the first 3 years would have been 7,755,174.6 tCO2-e equivalents; nonetheless, after monitoring said years we have estimated that the ex-post emissions are equal to 1,924,857.15 tCO2-e, which means a total emissions reduction of 5,830,317.5 tCO2-e because of the project activity.

The design and monitoring of the proposed REDD Project was based on the modular methodology developed by Avoided Deforestation Partners, approved by VCS on December 3, 2010. The steps defined for each of the mandatory modules were followed, in accordance with Module REDD-MF for unplanned deforestation.

1.2 Sectorial Scope and Project Type

Indicate the sectorial scope(s) applicable to the project, the AFOLU project category and activity type (if applicable) and whether the project is a grouped project.

According to the decision tree presented in the Methodology Framework, the project qualifies under the VCS category Avoided Unplanned Deforestation.

Table 1: Methodological Framework

Is the forest land expected to be converted to non-forest land in the baseline case?			
YES		NO	
Is the land legally authorized and documented to be converted to non-forest?		Is the forest expected to degrade by fuel wood extraction or charcoal production, in the baseline case	
YES	**NO**	YES	NO
Avoided planned deforestation	**Avoided unplanned deforestation**	Avoided forest degradation	Proposed project is not a VCS REDD activity currently covered by the module framework

Source: REDD Methodology Framework (REDD-MF)

The REDD Project in Brazil Nut Concessions in Madre de Dios is classified as a grouped project as it includes many forest units (Brazil nut concessions) managed individually but with similar conditions. More concessions are expected to join the project

1.3 Project Proponent

Bosques Amazónicos (BAM)

Bosques Amazónicos is a Peruvian company established in 2004, whose mission and vision is to lead the value maximization of forests in Latin America by the recovery and sustainable management of said forests, thus contributing towards biodiversity conservation and creating real benefits for the population and for the company.

The company is in charge of developing forest carbon projects, such as Reduced Emissions from Deforestation and Forest Degradation (REDD) and carbon sequestration through reforestation projects.

BAM's staff has ample experience in the design and implementation of AFOLU projects as BAM has validated the ARR Project “Reforestation of pastures in Campo Verde with native species, Pucallpa, Peru”, which is the first reforestation project in Peru under VCS and CCB standards, and that just finished its second verification process.

Part of BAM’s team was involved in the first REDD project in Peru validated under CCB standards (Madre de Dios REDD Project), the first reforestation project validated under CDM standards (Dry Forest Reforestation Project), with the additional experience of FSC sustainable forest management projects (the first two FSC certification processes, one for Brazil nut harvesting and the other for logging with indigenous communities), among others. Also, part of our staff was part of the Peruvian Official Delegation in the UNFCCC COP 15 in Copenhagen and is the advisor of the Madre de Dios Regional Government in the GCF Taskforce.

Main Duties

- Provide ownership titles to commercialization rights of environmental services related to carbon in the Project area.
- Finance the project.
- Responsible for the implementation and monitoring of the project activities.
- Responsible for the technical process to certify carbon credits, including validation and verification of the Project.
- Responsible for selling carbon credits.

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1.4 Other Entities Involved in the Project

IMPLEMENTATION PARTNER

a) Federación de Productores de Castaña de Madre de Dios (FEPROCAMD)

The FEPROCAMD was established on September 12th, 2009 and was duly registered in the Public Registry on April 15th, 2010. This is the main organization representing most of the concessionaires of forestry products other than wood (i.e. Brazil nuts) in Madre de Dios, and it gathers the associations formed by people and families working on extracting, harvesting, transforming and selling of Brazil nuts. Concession agreements were granted to those associations between 2002 and 2007.

The FEPROCAMD members are listed below:

i) Association of Brazil nut and Agro forestry Growers of Alerta (APROCAAL)

ii) Association of Forestry and Agro forestry Growers and Extractor from La Novia

iii) Association of Brazil nut Growers and Extractors from Loreto (APECAL)

iv) Agro forestry Brazil nut Association from Varsovia (ASOCASVAR)

v) Association of Brazil nut Growers from Alegría

vi) Agro forestry Association Alegría, Alto Malecón, San Carlos and nearby areas

vii) Agro forestry Brazil nut Association Carmen Rosa (ASOCAR)

viii) Association of Brazil nut Growers and Extractors of Mavila (APECMA)

ix) Association of Brazil nut Growers and Extractors of Planchón (APECAPLAN)

x) Association of Brazil nut Producers and Extractors of Río Pariamanu and affluent (APECARPA)

xi) Association of Brazil nut Growers and Extractors from Shiringayoc (APECASHIR)

Main Duties inside the federation

- Integrate ideas and initiatives from the Associations duly represented, in order to contribute towards the economic, social and cultural development of the people and families that work on activities related to the extraction, collection, transformation and selling of Brazil nuts in the department of Madre de Dios.

- Promote reforestation activities and the integrated use of forestry resources included in the Brazil nut concessions in accordance with the legal framework in force and effect.

- Protect the interests of the Associations included, complying with the adopted agreement for mutual benefit.

- Defend the rights of each member of the Association and provide support for all procedures done with the political, administrative and legal authorities, if common interests are the same as those of FEPROCAMD and do not contradict them.

- Support participating associations in all issues related to regular development, such as budget planning, program execution, plans, projects, activities and other productive actions developed alone or with the joint collaboration of any public or private agencies.

- Promote and perform actions and initiatives that may help to obtain the technical and financial support of government institutions and of national or international private organizations that help to comply with the objectives of FEPROCAMD.

- Foster awareness of concessionaires, holders of ownership titles and legal holders of Brazil nut forest areas in Madre de Dios, all of which form the participating associations. They must respect the proper and sustainable use of forestry resources and the importance of conservation and foster the management and sustainable use of natural resources.

- Solve all questions posed to the participating associations regarding technical, legal and tax problems, among others, that may come up.

- Foster cooperation, solidarity and reciprocity among participating associations, thus promoting good relations among the members.

- Promote formalization of the economic activities that participating associations and its members may perform, in relation to Brazil nut management and use.

- Raise awareness among the population regarding the economic and social importance of conservation, management and sustainable use of Brazil nut forests in the region.

- Promote formalization of Brazil nut forests holders, encourage the signing of concession agreements of non-timber forestry products with the Peruvian government, and overcome any overlapping concessions with farming producers, concessionaires of timber forestry products and others.

- Promote best practices to harvest, dry, manage and transform Brazil nuts by learning new technologies, enhancing on-going training and promoting the use of modern machinery and equipment.

- Foster the conservation and afforestation of Brazil nut forests, improving their density, fighting against logging and avoiding forest fires.

- Foster the protection and defense of local Brazil nut growers against the illegal importation of Brazil nuts and price agreements.

- Other duties that may be approved by the FEPROCAMD General Assembly.

Contact Person

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b) Conservación Ambiental y Desarrollo en el Perú (CAMDE PERU)

CAMDE PERU is a Peruvian NGO that seeks to contribute to the conservation of biodiversity in Peru by promoting sustainable management of natural resources and generating profits in the local population. This institution has been working in Madre de Dios for the past 4 years and has developed several projects of conservation and sustainable management with different regional producers of palms, Brazil nuts, Shiringa (latex), etc. It also has presence in the region of Cuzco. CAMDE PERU has been an ally of BAM and has provided it technical assistance since the beginning of the project up to July 2011.

Main Duties

- Give technical support to the Brazil nut concessionaires in activities such as: redefinition of boundaries, preparation of AOP and actualization of documents of FMP.
- Present monthly reports of its activities to BAM's office in MDD.

Contact Person

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OTHER ENTITIES

Carbon Decisions International (CDI)

CDI is a recognized independent advisory company specializing in the design of projects, programs and policies that reduce greenhouse gas emissions in the forestry and land-use sector. Their main goal is to contribute meaningfully to the conservation and restoration of forests for climate change mitigation, biodiversity conservation, livelihood improvement and sustainable development.

This institution has participated in the development of the model of deforestation of the Madre de Dios Region, by elaborating the draft version and by giving technical advice for the completion of the final version of the model.

Main Duties

- Support BAM in the elaboration of the draft version of the deforestation model using DINMICA EGO software for the MDD region.

Contact Person

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1.5 Project Start Date

The Project start date is 24/09/2009, the date when the Association Contract between BAM and FEPROCAMD was executed for the joint development of the REDD Project in Brazil nut concessions.

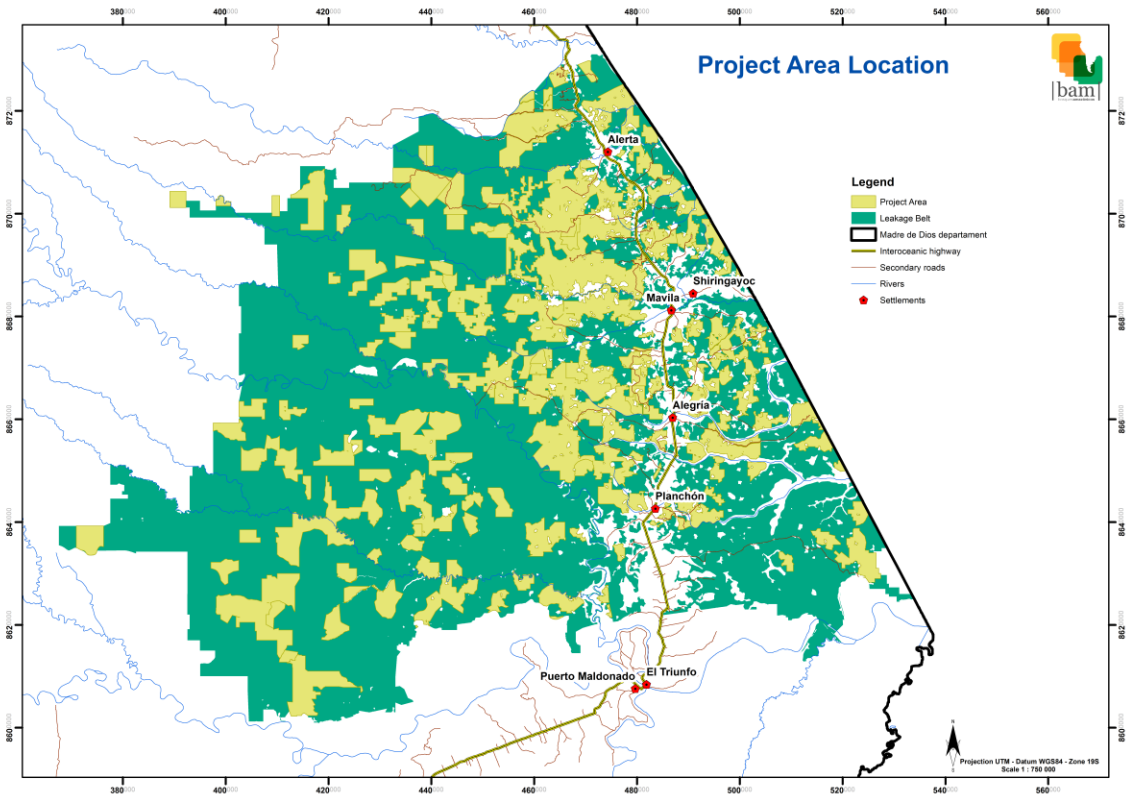
1.6 Project Crediting Period

The Project Crediting Period goes from 01/01/2010 up to 31/12/2040 and makes up a total of 31 years of crediting time. The start date coincides with the beginning of the first monitoring period.

1.7 Project Location

The Project is located in Peru, in the southeast zone of the Department of Madre de Dios, in the Provinces of Tahuamanu (Districts of Iberia and Tahuamanu) and Tambopata (Districts of Las Piedras, Laberinto, Inambari and Tambopata). It includes part of the sub-watersheds of the Rivers Tahuamanu and Las Piedras, as well as great part of Stretch 3 of the Inter-Oceanic Highway (Iñapari – Puerto Maldonado).

Map 1: Location of the REDD Project



1.8 Title and Reference of Methodology

The methodology used for validating the project is named *REDD Methodology Modules* (VM0007), version 1.1. It belongs to the AFOLU Sectorial Scope, was developed by Avoided Deforestation Partners and was approved by VCS on December 2010.

It is formed by several modules, but as this is an Unplanned Deforestation Project, we have only used the ones most appropriate, listed in Table 2.

Table 2: Information of the Modules used

	Module	Code	Version	Link
Always Mandatory	REDD Methodology Framework (REDD-MF)	VM0007	1.1	REDD Methodology Modules (REDD-MF), v1.1
	Methods for monitoring of greenhouse gas emissions and removals (M-MON)	VMD0015	2.0	Methods for monitoring of greenhouse gas emissions and removals (M-MON), v2.0
	Estimation of uncertainty for REDD project activities (X-UNC)	VMD0017	1.0	Estimation of uncertainty for REDD project activities (X-UNC), v1.0
	Methods for stratification of the project area (X-STR)	VMD0016	1.0	Methods for stratification of the project area (X-STR), v1.0
Baseline	Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP)	VMD0007	2.0	Estimation of baseline carbon stock changes and greenhouse gas emissions from unplanned deforestation (BL-UP), v2.0
Leakage	Estimation of emissions from activity shifting for avoided unplanned deforestation (LK-ASU)	VMD0010	1.0	Estimation of emissions from activity shifting for avoided unplanned deforestation (LK-ASU), v1.0
Pools	Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB)	VMD001	1.0	Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), v1.0
Emissions	Estimation of greenhouse gas emissions from biomass burning (E-BB)	VMD0013	1.0	Estimation of greenhouse gas emissions from biomass burning (E-BB), v1.0
	Estimation of emissions from fossil fuel combustion (E-FFC)[1]	VMD0014	1.0	Estimation of emissions from fossil fuel combustion (E-FFC), v1.0

Table 3: Information of the Tools used

	Tools	Code	Version	Link
Risk	Tool for AFOLU non-permanence risk analysis and buffer determination (T-BAR)		3.2	http://v-c-s.org/sites/v-c-s.org/files/AFOLU%20Non-Permanence%20Risk%20Tool%2C%20v3.2.pdf
Additionality	Tool for the Demonstration and Assessment of Additionality in VCS AFOLU Project Activities (T-ADD)	VT001	1.0	Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, v1.0
Significance	Tool for testing significance of GHG emissions in A/R CDM project activities (T-SIG)	EB_31	1.0	Tool for testing significance of GHG emissions in A/R CDM project activities

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

The Castañeros REDD Project implemented by BAM in partnership with the Federation (FEPROCAMD) has worked actively since the start of the project (established with the sign of the agreement between both partners).

[1] Only used for ex-ante estimations of project activities emissions in the with-project case

The first set of activities includes the determination of activities that were going to be funded by BAM in the framework of the project. This was done at a participative way with the FEPROCAMD leading decentralized consultation with their associations and members. The outcome of this whole consultation process was reflected in an investment plan. Its main activities have been incorporated in the VCS PD.

At the same time, the first period of the project was used to disseminate the project in order to incorporate new members to it. Uncountable workshops were carried out with the presence of BAM, FEPROCAMD and CAMDE, the NGO who provided technical support to the project.

Thanks to that, up to now, more than 4 hundreds of concessionaries have joined the project (of a universe of near a thousand of holders).

As can be seen in the project description, the different activities can be grouped in 2 main strategies to mitigate the deforestation: an economic incentive to change internal incentives to deforestation (increasing the profitability of forest resources compared to non-forest activities) and; to enhance the governance to inhibit the external deforestation drivers.

Based on that, a second stage included the implementation of the following set of activities:

- Technical Assistance
- Organizational Strengthening
- Studies for the implementation of Brazil Nut Processing Plant

The technical assistance, originally implemented by NGO CAMDE PERU and then complemented by the technical team of the Federation and BAM, included following activities:

- Zoning of the Concession (maps with roads, BN trees, rivers, borders, and other relevant elements of the concession)
- Delimitation of Boundaries (installation of milestones in the borders of the concession and signing boundaries agreements between the concessionaries and his neighbors)
- Preparation of management tools documents (Management Plan, Annual Operational Plan, Campaign Report, Complementary Plan, 5-years Report), among others

First two activities need to be done just once but in some cases, the technicians need to visit more than once because sometimes neighbors are absent or there are discrepancies in relation of where the limits are located. In case, no agreement is achieved, the State Forest Office (Programa Regional Forestal – PRF) is who defines the boundaries. There are initial conversations to include PRF in the field visits.

The management tool documents must be done periodically. Some of them every 5 years, while others every year and a third group of documents depending on the frequency the activity is done. It must be highlighted that the approval of these documents is necessary for legal harvesting of the nuts and the guidelines described in these tools must be followed to ensure the sustainable management of the resource.

About organizational strengthening, when the project started the Federation was not registered in the National Office of Organizations Record (SUNARP) because, its weakness had impeded to accomplish with the requirements established in its bylaws. With the support of the project, the

associations and the federation were refunded, registering again their new members and electing new boards that were also registered in SUNARP. Three years after the beginning the project, a new Directive was elected and new local associations wants to join the Federation.

The strengthening of the organization was not only referred to legal aspects, but many trainings have been given to leaders, related with different issues such as sustainable forest management, FSC Certification, forest carbon, among others. The project has also helped the Federation to build links with other entities as NGOs, governmental programs, among others. Through that, they have been in a best position to defend the interests of the Brazil Nut Concessionaries. The most relevant situation was when companies were importing nuts from Bolivia in order to avoid the growth of the price, affecting the incomes of local harvesters. Thanks to the strengthening of the Federation, other projects are in preparation, mainly addressed to add value of the forest products.

In third place, the core of the proposal is to increase the incomes of the Brazil nut Activity by adding value to the nut sold by concessionaries. Traditionally, concessionaries sell nuts in shell or shelled, in sacks of 80 kilos, aired, to intermediates or local companies. With the support of the project, a processing plant is being built. The factory will be co-ownership of the concessionaries and BAM, and it will allow to the concessionaries to access to international markets adding value to the product. A business plan has been developed and engineering designs are soon to be concluded. The land where the plant will be built has been already purchased.

The project has also supported to concessionaries with working capital for annual Brazil nut campaign in order to help them to not depending from intermediates or local companies. This has allowed an increase in prices even though it must be recognized that price of nuts depend mainly on external factors.

Other field activities, defined in the VCS PD, are already in initial stages as can be reviewed in Annex I. The project is also involved in inter-institutional forums as REDD Roundtables (National and Regional) that is working on the development of jurisdictional baselines and has helped Madre de Dios to be part of GCF and be chosen as one of the pilot regions of the VCS JNRI.

2.2 Project Description Deviations

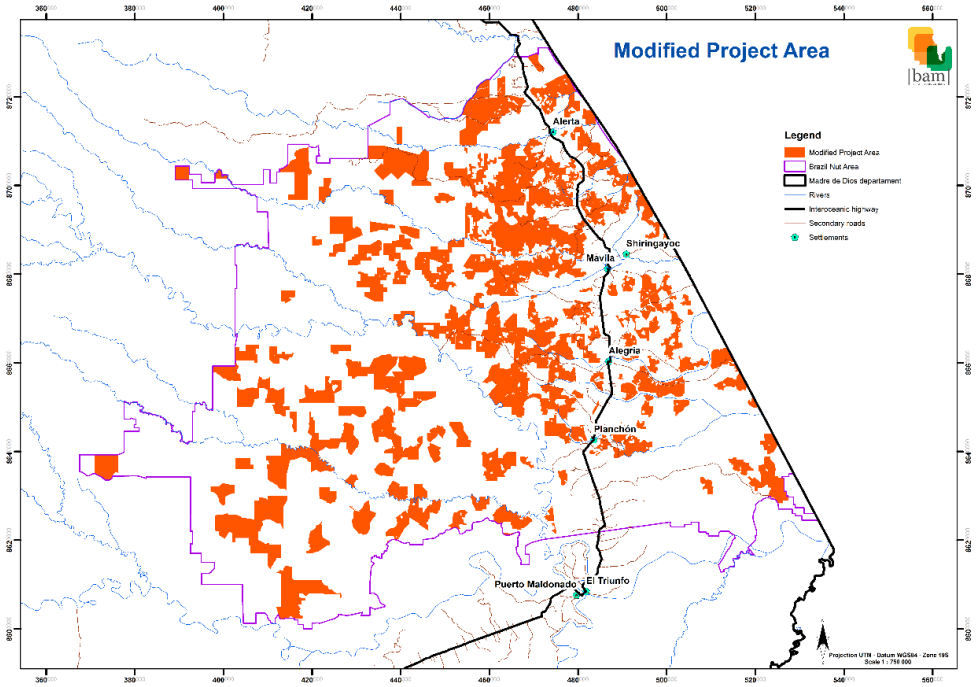
There has been a modification on the validated Project Area and Leakage Belt besides the change due to the addition of new concessions (explained in the Grouped Project Section), and previous to it.

This modification occurred because erroneously we have included in the validation a BN concession that is not part of the project instead of a project's concession, because of having our member contract code miswritten. After revising BAMs database and checking each contract code we have fixed the problem. The exchanged concessionaires are:

Contract	Name	Area (ha)	Status
David Bohorquez Cairo	17-TAM/C-OPB-J-083-04	1,326.0	Not a member
Pedro Quispe Quispe	17-TAM/C-OPB-J-083-03	473.8	member

In terms of area change, we are losing 852 ha after the exchange because the first concession is bigger than the member concession. Therefore, the Project area is being reduced from 291,566.53 ha to 290,714.25 ha. All the emission and emission reductions estimations were calculated using the modified Project Area. The following map shows the modified area, before the inclusion of the new members.

Map 2: Modified Area of the Project



A second project description deviation is referred to the addition of new project members. Although the PD does not explicitly defines where the new instances would occur, the project has always been interested in incorporating new concessions that voluntarily want to join it.

The non-associated concessions together represent almost 84% of the Leakage Belt, and share similar conditions with the Project Area, in terms of landscape, transportation, policy and regulations and social factors[2]. As part of the project boundaries, they were included in the baseline analysis and projections of deforestation.

Furthermore, the additionality performed during validation is applicable for the non-associated BN concessions, given that all the characteristics of Scenario 1 (Continuation of Pre-Project Activities) that describes the Brazil nut activity, were taken from studies encompassing the entire BN sector such as the socio-economic diagnosis made by BAM, which includes project and non-project concessionaires. In the same way, the applicability conditions of each methodological module (detailed in Section 2.2 of the Project Description) are satisfied by the non-project concessions.

[2] The compliance of these factors were already described in section 1.1.3 Leakage Belt of the BL-UP module.

It is fair to say then, that the admission of new concessions to the project does not constitutes a change in the way it is being performed nor in the fulfillment of the standard's and methodology's rules and requirements. Therefore, any inclusion of a new member will only require the extraction of said concession from the Leakage Belt to enter it to the Project Area.

The details of the entrance of new members during the current monitoring period are explained in the following section.

A last deviation happened because of the change in the bunt-biomass proportion used for this monitoring period. During validation, it was assumed that 55% of the biomass was burnt during deforestation. Now, said value has been changed to 100% in order to have more conservative estimations. For the Infrastructure post-deforestation land-use is not being used, however. By reviewing the road construction guides and consulting a road-engineer expert, it was seen that the burning of biomass was not a common practice; therefore, no burning is assumed to occur during deforestation for creating roads. If in future monitoring periods, it is seen that more types of infrastructure other than roads are created, it will be necessary to confirm the use of fire during their construction; otherwise, a 100% proportion will be used.

The three changes described before were made this year, during the preparation of the monitoring report.

2.3 Grouped Project

The REDD Project in Brazil Nut Concessions is a grouped project. As it aims to work with all Brazil nut concessionaires with a real interest in protecting and managing their forests, it is open to all other concessionaires, located in the Leakage Belt, who want to become part of the project.

During this Monitoring Period, 28 concessions have joined the project. Their inclusion does not imply the entry of a new project proponent because all concessionaires are grouped under the representation of the FEPROCAMD, who is already an implementation partner.

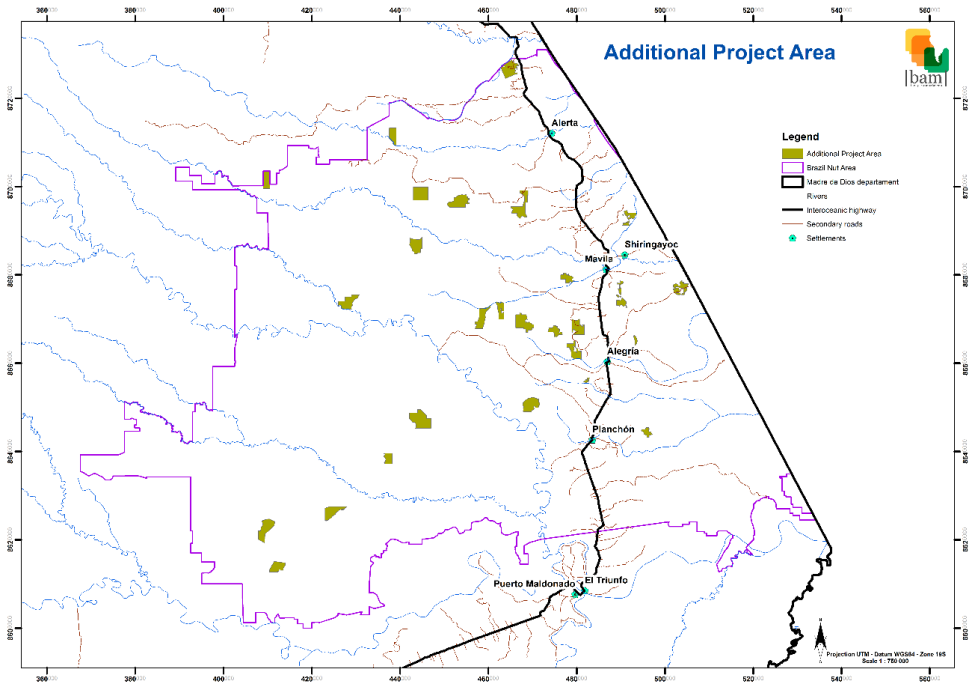
The summed area of the new concessions makes up 18,043.06 ha after removing the non-forested areas and peats. A list of the new members, their area and the centroid coordinates of the concessions can be seen in the next table; and their location can be seen in Map 3. The management documents and contracts are stored in BAM's office and will be available for the auditor.

Table 4: List of concessions added to the Project Area

N°	Contract	Concessionaire	Area (ha)	X	Y
378	17-TAH/C-OPB-A-001-08	Alipio Arnolio Puma Checalla	987.78	467443	8695559
379	17-TAH/C-OPB-A-002-05	Delfin Hugo Mejia Rivera	376.12	491873	8693043
380	17-TAH/C-OPB-A-037-08	Lebana Olivia Quispe Sueros	147.05	489867	8677227
381	17-TAH/C-OPB-A-050-08	Gabriela Rossana Parillo Quispe	600.00	409750	8701500
382	17-TAH/C-OPB-A-118-04	Valentín Parrillo Yerba	975.19	453400	8696547
383	17-TAH/C-OPB-J-114-04	Cesar Delgado Andia	982.13	464753	8726609
384	17-TAM/C-OPB-A-004-08	Teobaldo Aristides Reategui Trigoso	418.51	475131	8667270

385	17-TAM/C-OPB-A-006-08	Maribel Yeni Aparicio Carpio	822.29	428209	8673784
386	17-TAM/C-OPB-A-019-07	Hugo Mamani Chavez	124.83	493239	8664897
387	17-TAM/C-OPB-A-032-06	Wilder Reategui Camargo	1,002.02	409495	8622441
388	17-TAM/C-OPB-A-036-06	Agapito Pacco Barrientos	397.97	437366	8638417
389	17-TAM/C-OPB-A-040-07	Jose Manuel Corahua Quispe	600.26	412173	8613865
390	17-TAM/C-OPB-A-041-06	Casimira Huaman De Mishisaka	653.82	479519	8662682
391	17-TAM/C-OPB-A-079-07	Alcibiades Canelos Yumbo	777.59	424607	8626348
392	17-TAM/C-OPB-A-121-04	Percy Humberto Espirilla Condo	308.91	490063	8673820
393	17-TAM/C-OPB-A-159-04	Isabel Tejada Aguirre	912.48	469592	8650632
394	17-TAM/C-OPB-A-187-04	Honorato Pacamia Guerra	781.62	458488	8670200
395	17-TAM/C-OPB-J-022-03	Facundo Cahuantico Cahuantico	734.58	480253	8668066
396	17-TAM/C-OPB-J-030-02	Felix Condori Taina	538.85	503482	8677015
397	17-TAM/C-OPB-J-035-04	Maria Cristina Loayza Valeriano	773.14	443661	8686685
398	17-TAM/C-OPB-J-086-03	Angel Bustamante Huallpayunca	266.50	495896	8644375
399	17-TAM/C-OPB-J-105-03	Juan Emilio Barriga Vissa	1,397.88	444648	8647164
400	17-TAM/C-OPB-J-137-03	Juan Gualberto Condori Sullo	479.01	462779	8672008
401	17-TAM/C-OPB-J-208-03	Francisco Vargas Puma	1,021.20	467914	8669162
402	17-TAM/C-OPB-J-243-03	Lucinda Novoa De Romero	394.94	477802	8679257
403	17-TAM/C-OPB-J-262-03	Hernan Jimenes Llanos	69.66	482323	8656102
404	GOREMAD-GGR-PRMRFFS-DER-TAH/C-OPB-024-11	Juan Reyner Mamani Loayza	994.76	444653	8698383
405	GOREMAD-GGR-PRMRFFS-DER-TAH/C-OPB-025-11	Wilder Marave Rodriguez	503.97	438415	8711566

Map 3: Location of new concessions



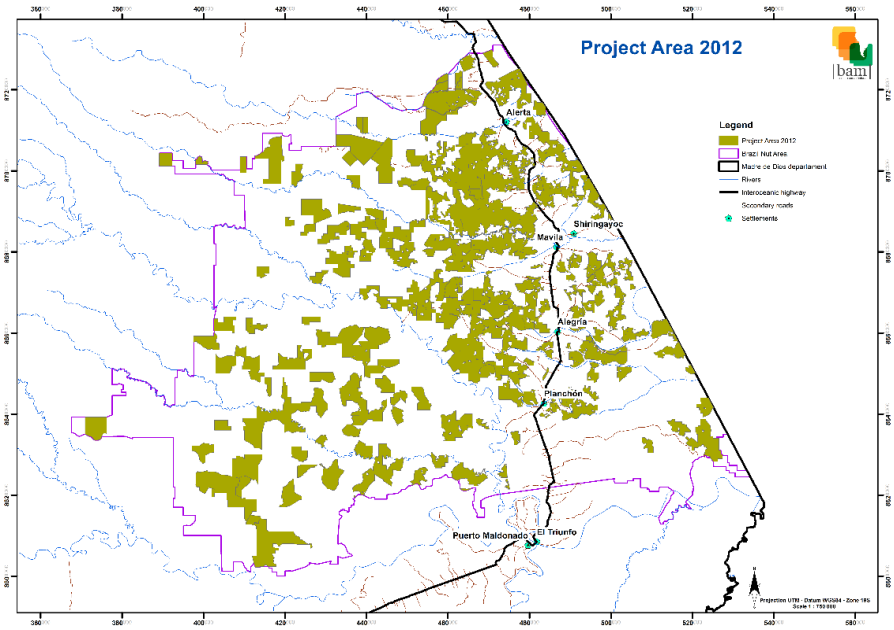
Because of the inclusion of new members, the Project Area and the Leakage Belt area were modified. These new boundaries are called “Project Area 2012” and “Leakage Belt 2012”, and the magnitude of their change is shown next:

Table 5: Summed Areas per Stratum in the new Project Area and Leakage Belt

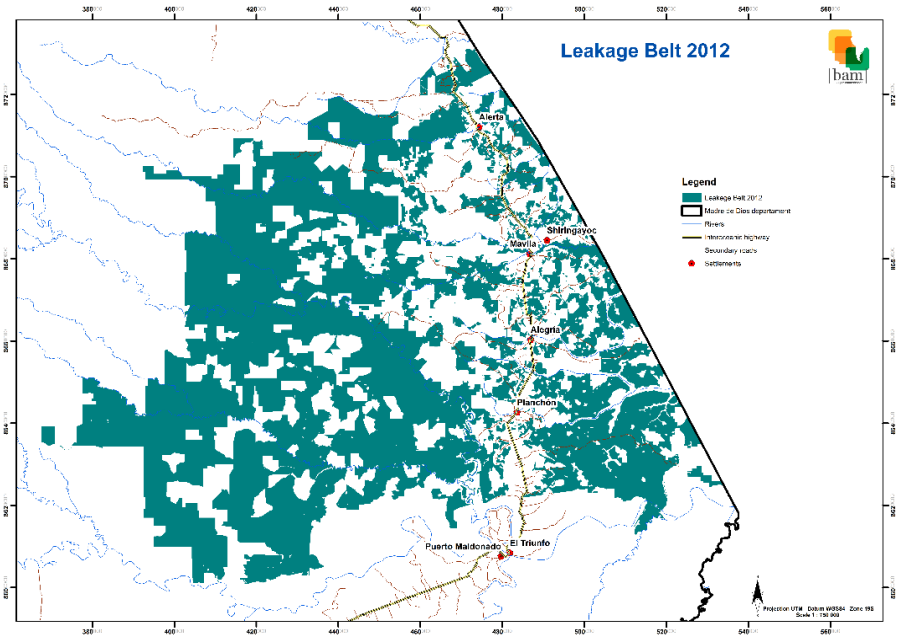
	Initial	2012	Difference
PA	290,714.3	308,757.3	**18,043.1**
LB	724,601.3	706,558.2	**18,043.1**

The area of change in each boundary is the same, because the concessions are being taken from the Leakage Belt to the Project Area.

Map 4: Project Area 2012



Map 5: Leakage Belt 2012



It is to be stressed that these new members were not part of the Project Area emissions calculations or in its emission reductions; but were included in the Leakage Belt emissions estimations, as they were originally located in it. Not to include them in these period reductions was preferred because they entered the project in the last year (2012). Nonetheless, they will be accounted starting from the second monitoring period. In the future, only the concessions entering the project during the first semester of the first year of the period will be included for that period, unless yearly estimations of emissions can be made; if not, then those concessions will be added in the sub-sequent period.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Data Unit / Parameter:	Map of Forest / Non-forest Coverage in the Reference region.
Data unit:	n/a
Description:	Map that shows the stratification and location of forest and non-forest areas in the Reference Region at the beginning of the accreditation.
Source of data:	Landsat satellite images.
Value applied:	n/a
Justification of choice of data or description of measurement methods and procedures applied:	The Landsat images have the adequate resolution and they are an available tool to all public.
QA/QC procedures to be applied:	Through the accuracy assessment.
Any comment:	The stratification is based on the Ecological and Economic Zoning of the Region of Madre de Dios, that was developed by the IIAP in 2009 and it is used by the regional government as its official source. Non-forest has been determined as beach and water bodies areas. In addition, there are other areas that are access roads (rivers, bridges, alternate roads, the Interoceanic Highway).

Data Unit / Parameter:	Map of Forest Coverage in the Project Area.
Data unit:	n/a
Description:	Map that shows the stratification and location of forest areas in the Project area at the beginning of the accreditation.
Source of data:	Landsat satellite images.
Value applied:	n/a
Justification of choice of data or description of measurement methods and procedures applied:	The Landsat images have the adequate resolution and they are an available tool to all public.
QA/QC procedures to be applied:	Through the accuracy assessment.
Any comment:	The stratification is based on the Ecological and Economic Zoning of the Region of Madre de Dios, that was developed by the IIAP in

	2009 and it is used by the regional government as its official source. Non-forest has been determined as beach and water bodies areas. In addition, there are other areas that are access roads (rivers, bridges, alternate roads, the Interoceanic Highway). To date there is no other use but forest usage.

Data Unit / Parameter:	Map of Forest Coverage in the Leakage Belt.
Data unit:	n/a
Description:	Map that shows the stratification and location of forest in the Leakage belt at the beginning of the accreditation.
Source of data:	Landsat satellite images.
Value applied:	n/a
Justification of choice of data or description of measurement methods and procedures applied:	The Landsat images have the adequate resolution and they are an available tool to all public.
QA/QC procedures to be applied:	Through the accuracy assessment.
Any comment:	The stratification is based on the Ecological and Economic Zoning of the Region of Madre de Dios, that was developed by the IIAP in 2009 and it is used by the regional government as its official source. Non-forest has been determined as beach and water bodies areas. In addition, there are other non-forested areas that used as access roads (rivers, bridges, Interoceanic Highway, alternate roads).

Data Unit / Parameter:	Carbon stock of the sources in the forest stratum.
Data unit:	T CO_2 e / ha
Description:	Carbon stock by stratum in baseline before deforestation.
Source of data:	Determined from inventory's results carried out inside the Project Area (2011).
Value applied:	BTI 389.84 PA 929.23 BPT 499.63 BT 944.24 P 753.99 BCB 1,020.43 BPCB 453.65
Justification of choice of data or description of measurement methods and procedures applied:	Inventories have been carried out in 58 plots established inside the Project Area. The next steps were followed: - Parcels were built in the different stratum. - DBH (Diameter Breast Height) and HT (Total Height) were taken from each individual found. - It was determined the aerial biomass based in the Chavé formula for trees and

	Winrock for palm trees. - Factor 0.24 was used to determine the root biomass according to module CP-AB. For the inventory design, many regional inventories' procedures and results were consulted.
Any comment:	The exact data for each stratum is found in module CP-AB.

Data Unit / Parameter:	Change in the land use.
Data unit:	%
Description:	Percentages of the project area that will change the land use after deforestation.
Source of data:	Determined according to the studies of land use carried out in the region of Madre de Dios. - CDC, UNALM, SZF, INRENA 2007. And the potential mining area in PA.
Value applied:	39.01 % Farming 3.25 % Farmland 51.79 % Pasture 2.32% Infrastructure 3.62% Mining
Justification of choice of data or description of measurement methods and procedures applied:	The study mentioned has been carried out in areas that include the Project Area, or next to them. Furthermore, this data is updated and actors that are also in our areas have been considered.
Any comment:	n/a

Data Unit / Parameter:	Emissions by biomass burning
Data unit:	T CO_2 e
Description:	Tons of CO_2 equivalents, coming from emissions of CH_4 and N_2O by forest burning and agriculture residues.
Source of data:	Factors of module E-BB were used (table 2.6 and 2.5) for tropical forest. Likewise, it was used the combustion factor of table 2.6 by agriculture biomass burning.
Value applied:	Used values: - 100% of the deforested forest is burnt, except in Infrastructure land-use. - Combustion factor Tropical Humid Forest = 0.5 Agriculture Residues (Corn) = 0.8 - Emission Factor Tropical Forest = 6.8 (CH_4), 0.2 (N_2O) Agriculture Residues= 2.7(CH_4), 0.07(N_2O)
Justification of choice of data or description of measurement methods and procedures applied:	Assuming that 100% of the biomass is burnt is a conservative measure. It is not applied in Infrastructure land-use because burning is not a common practice when building roads, and during the present monitoring period, Infrastructure is equal to roads.
Any comment:	n/a

3.2 Data and Parameters Monitored

Data Unit / Parameter:	Project Forest Cover Monitoring Map
Data unit:	n/a
Description:	Map evidencing location of forest land in the Project Area at the beginning of each verification period. It has to be evidenced if within the Project area there are deforested areas.
Source of data:	Resource sat satellite images and ground truthing.
Justification of choice or description of measurement methods and procedures applied:	The minimum accuracy shall be 90%.
Frequency of monitoring/recording:	Prior to every verification event, or at least every 5 years.
Value applied:	
Monitoring equipment:	Software GIS, available satellite images, GPS, professional monitoring equipment in field.
QA/QC procedures to be applied:	
Any Comment:	The forest cover stratified using the Forest Classes of the ZEE of the Region of Madre de Dios, as in validation.

Data Unit / Parameter:	Leakage Belt Forest Cover Monitoring Map
Data unit:	n/a
Description:	Map evidencing the location of forest land in the Leakage Belt at the beginning of each verification period. It has to be evidenced if there are deforested areas.
Source of data:	Resource sat satellite images and ground truthing.
Justification of choice or description of measurement methods and procedures applied: Frequency of monitoring/recording:	The minimum accuracy shall be 90%. Prior to every verification event, or at least every 5 years.
Value applied:	
Monitoring equipment:	Software GIS, available satellite images, GPS, professional monitoring equipment in field.
QA/QC procedures to be applied:	Permanent verification of the area of the project surfaces. Also, through the accuracy assessment.
Any comment:	The forest cover stratified using the Forest Classes of the ZEE of the Region of Madre de Dios, as in validation.

Data Unit / Parameter:	Degradation PRA Results
Data unit:	n/a
Description:	If positive results are obtained, then $A_{deg,i}$ is estimated.
Source of data:	PRA
Justification of choice or description of measurement methods and procedures applied:	The PRA was executed by interviewing a sample of concessionaires and visiting their areas with the purpose of identifying the existence of depredation potential within the area of the project due to: · Extraction of firewood.

	· Illegal logging Less than 10% of the surveys indicated risk of degradation
Frequency of monitoring/recording:	Every 2 years.
Value applied:	Degradation is Zero
Monitoring equipment:	PRA sociologist in charge with focusing criteria.
QA/QC procedures to be applied:	
Any comment:	n/a

Data Unit / Parameter:	Results of Limited Degradation Survey
Data unit:	Stumps
Description:	Verification of degradation processes in the project area.
Source of data:	Field measurements.
Justification of choice or description of measurement methods and procedures applied:	Sampling transects with known length and width, are distributed across the buffer area with the purpose of identifying if there are new tree-stumps. Transects should cover a surface of no less than 1% of the buffer area.
Frequency of monitoring/recording:	Each time the PRA indicates there is degradation potential to the project area.
Value applied:	NA
Monitoring equipment:	GPS, compass, tape line.
QA/QC procedures to be applied:	Trained staff for field measurement.
Any comment:	PRA showed no degradation threat inside Project Area

Data Unit / Parameter:	$A_{DefPA,iu,t}$
Data unit:	Ha
Description:	Deforested area in the Project area in stratum i converted to land use u.
Source of data:	Project Forest Cover Monitoring Map
Justification of choice or description of measurement methods and procedures applied:	Preparation maps forest and non-forest following the methodology employed to prepare maps during reference period.
Frequency of monitoring/recording:	Prior to every verification event, or at least every 5 years.
Value applied:	2,076.89 ha
Monitoring equipment:	Software GIS, available satellite images, verification in field with GPS and professional equipment.
QA/QC procedures to be applied:	n/a
Any comment:	This value was recorded for the PA without the 84 temporarily excluded concessions

Data Unit / Parameter:	$A_{DefLB,iu,t}$
Data unit:	Ha
Description:	Deforested area in the Leakage belt by type of forest.
Source of data:	Leakage Belt Forest Cover Monitoring Map
Justification of choice or description of measurement methods and procedures applied:	Preparation maps forest and non-forest following the methodology employed to prepare maps during reference period.
Frequency of monitoring/recording:	Prior to every verification event, or at least every 5

	years.
Value applied:	7,937.58 ha
Monitoring equipment:	Software GIS, available satellite images, verification in field with GPS and professional equipment.
QA/QC procedures to be applied:	n/a
Any comment:	Ex-ante values calculated using the formula suggested in M-MON module

Data Unit / Parameter:	$A_{DegW,i}$
Data unit:	Ha
Description:	Area under potential degradation process.
Source of data:	GIS delineation and ground truthing.
Justification of choice or description of measurement methods and procedures applied:	The buffer area shall be composed from all access points. The length is obtained from the PRA results, and the width shall be equal to the length.
Frequency of monitoring/recording:	Must to be repeated each time the PRA indicate a potential for degradation.
Value applied:	Degradation is Zero
Monitoring equipment:	GIS software
QA/QC procedures to be applied:	n/a
Any comment:	

Data Unit / Parameter:	$A_{DECKS,i,t}$
Data unit:	Ha
Description:	Area of logging decks in stratum i at time t.
Source of data:	Field measurements or post-harvest reports based on field measures.
Justification of choice of data or description of measurement methods and procedures applied:	A systematic sampling to ensure all decks within area logged are identified and a conservative estimate of area produced.
Frequency of monitoring/recording:	At least every 5 years.
Value applied:	7.72 ha
Monitoring equipment:	GPS Garmin, Software Arc GIS
QA/QC procedures to be applied:	For field measurements, before recording the coordinates, the technician waited a few minutes until GPS is stabilized in 3D (12 channels) to assure that the margin of error won't be larger than ± 15 meters (which depends on the type of the GPS used).
Calculation method:	Data is obtained by default from the GPS
Any comment:	n/a

Data Unit / 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:	Satellite images and ground verification.
Justification of choice of data or description of measurement methods and procedures applied:	Minimum monitoring unit equal to a minimum one hectare.
Frequency of monitoring/recording:	At least every 5 years or prior to a verification event.

Value applied:	Zero
Monitoring equipment:	satellite images
QA/QC procedures to be applied:	Contrast the information from the Remote sensing with field verification
Any comment:	

Data Unit / Parameter:	$A_{ROAD,i,t}$
Data unit:	Ha
Description:	Area of roads in stratum i at time t.
Source of data:	Post-harvest assessment reports and maps.
Justification of choice of data or description of measurement methods and procedures applied:	The area of roads is based on the length of roads times the average width of roads. Systematic samplings may be used to estimate the width of roads, achieving a precision equal or less than 15% of the mean at 95% confidence interval.
Frequency of monitoring/recording:	At least every 5 years or prior to a verification event.
Value applied:	**Stratum** / **Sec. Road** / **Primary Road** **BTI** 0.062 0.027 **PA** 0.065 0.028 **BPT** 0.310 0.136 **BT** 18.538 8.130 **P** - - **BCB** 0.687 0.301 **BPCB** 0.174 0.076 **Total** 19.837 8.699
Monitoring equipment:	GPS Garmin, Software Arc GIS
QA/QC procedures to be applied:	
Any comment:	n/a

Data Unit / Parameter:	$A_{RRL,forest,t}$
Data unit:	Ha
Description:	Remaining area of forest in RRL.
Source of data:	Images Satellite
Description of measurement methods and procedures to be applied:	Images satellite interpretation
Frequency of monitoring/recording:	Every 5 years or prior to a verification event.
Value applied:	1,587,354.4 ha
Monitoring equipment:	GPS Garmin, Software Arc GIS
QA/QC procedures to be applied:	n/a
Any comment:	The same procedures used for analysing images will be followed.

Data Unit / Parameter:	AP_i
Data unit:	Ha
Description:	Total area of degradation sample plots in stratum i.
Source of data:	Ground measurement.
Description of measurement methods and procedures to be applied:	The sampling plan must be designed using plots systematically placed over the buffer zone so that they sample at least 3% of the area of the buffer zone.
Frequency of monitoring/recording:	Every time the Limited Degradation Survey indicates degradation (existence of stumps), or at least every 5

	years.
Value applied:	Zero
Monitoring equipment:	GPS, field equipment: tape line, compass. And field staff.
QA/QC procedures to be applied:	Trained staff for field measurement.
Any comment:	There is no evidence of degradation by illegal logging within the project area.

Data Unit / Parameter:	$C_{DegW,i,t}$
Data unit:	T CO_2-e
Description:	Biomass carbon of trees cut and removed through illegal logging and charcoal extraction degradation process from plots measured in stratum i at time t.
Source of data:	Field measurement.
Description of measurement methods and procedures to be applied:	- The diameter of the tree-stumps will be assumed as DBH. If the stump is a large buttress, then other individuals of the same specie standing next to it should be measured and a ratio DBH/Diameter of buttress at stump height. The ratio shall be applied to the measured stumps to estimate the likely DBH of the cut tree. - With DBH data, the carbon stock of individuals deforested will be calculated using the same allometric equation used in CP-AB. - It will be assumed that all stock will be send to the atmosphere.
Frequency of monitoring/recording:	Every time there is a degradation event or at least every 5 years.
Value applied:	Zero
Monitoring equipment:	GPS, field equipment: tape line, compass. And field staff.
QA/QC procedures to be applied:	n/a
Any comment:	

Data Unit / Parameter:	$C_{AB\_tree\_dest,i}$
Data unit:	T CO_2-e ha^{-1}
Description:	Carbon stock in aboveground tree biomass assumed to be killed per unit area resulting from the creation of the skid trail in stratum i.
Source of data:	CP-AB.
Justification of choice of data or description of measurement methods and procedures applied:	It is assumed that $C_{AB\_tree\_dest,i}$ = $C_{AB\_tree,i}$ in the baseline.
Frequency of monitoring/recording:	Frequency: Every 5 years or prior to a verification event.
Value applied:	Zero
Monitoring equipment:	n/a
QA/QC procedures to be applied:	n/a
Any comment:	No skid trails were created during this period

Data Unit / Parameter:	$C_{BB\_tree\_dest,i}$
Data unit:	T CO_2-e ha^{-1}
Description:	Carbon stock in belowground tree biomass assumed

	to be killed per unit area resulting from the creation of the d trail in stratum i.
Source of data:	$C_{AB\_tree\_dest,i}$
Justification of choice of data or description of measurement methods and procedures applied:	The root-to-shoot used in baseline (0.24) will be applied to $C_{AB\_tree\_dest,i.}$
Frequency of monitoring/recording:	Every 5 years.
Value applied:	Zero
Monitoring equipment:	n/a
QA/QC procedures to be applied:	n/a
Any comment:	No skid trails were created during this period

Data Unit / Parameter:	L_{sk}
Data unit:	m
Description:	Length of skid trail sk.
Source of data:	Post-harvest assessment reports and maps.
Justification of choice of data or description of measurement methods and procedures applied:	A systematic sampling may also be used, if reports are insufficient.
Frequency of monitoring/recording:	Every 5 years.
Value applied:	Zero
Monitoring equipment:	GPS MAP 60 CSX
QA/QC procedures to be applied:	Verification of results. Data was re-evaluated by a skilled technician to establish the measurement error, which must not be higher than 10%. Otherwise, data should be taken again.
Any comment:	No skid trails were created during this period

Data Unit / Parameter:	$V_{EXT,z,i,t}$
Data unit:	m^3
Description:	Volume extracted from logging stratum z in stratum i at time t.
Source of data:	Official Extraction Balances (Balances de Extracción) of the ATFFS of Tambopata and Tahuamanu Provinces
Justification of choice of data or description of measurement methods and procedures applied:	The extraction balances are the yearly official registries of the total wood extracted per concession in Madre de Dios. These balances, along with the permits, are used by for controlling the extraction activity.
Frequency of monitoring/recording:	Every 5 years or prior to a verification event.
Value applied:	**Stratum** / ***VEXT,z,i,t*** **(m3)** **BTI** 28.41 **PA** 29.73 **BPT** 142.01 **BT** 7,882.36 **P** - **BCB** 314.50 **BPCB** 79.70
Monitoring equipment:	n/a
QA/QC procedures to be applied:	n/a
Any comment:	n/a

Data Unit / Parameter:	$V_{EXT,j,z,i,t}$
Data unit:	m^3
Description:	Volume of timber extracted of species j for logging stratum z, in stratum i at time t.
Source of data:	Official Extraction Balances (Balances de Extracción) of the ATFFS of Tambopata and Tahuamanu Provinces
Justification of choice of data or description of measurement methods and procedures applied:	Procedures will be the same applied to the estimation of the volume extracted from logging stratum z in stratum i at time t ($V_{EXT, z, i, t}$).
Frequency of monitoring/recording:	At least every 5 years or prior to a verification event.
Value applied:	In the file: Cp Estimations in BAM v3.xlsx / CLG-Extracted Timber
Monitoring equipment:	Forms designed for FSC certification
QA/QC procedures to be applied:	n/a
Any comment:	n/a

Data Unit / Parameter:	W_{SKID}
Data unit:	M
Description:	Mean width of skid trails.
Source of data:	Reported measures.
Justification of choice of data or description of measurement methods and procedures applied:	FSC Post-harvest assessment reports or other procedure described in M-MON if reports are not sufficient.
Frequency of monitoring/recording:	Prior to a verification event.
Value applied:	zero
Monitoring equipment:	GPS
QA/QC procedures to be applied:	Verification of results. Data was re-evaluated by a skilled technician to establish the measurement error, which must not be higher than 10%. Otherwise, data should be taken again.
Any comment:	No skid trails were created during this period

3.3 Description of the Monitoring Plan

The Monitoring has been carried out following the guidelines of module M-MON (Approved VCS Module VMD0015).

The purpose of the monitoring is to have all information necessary to assess the development of the Project activities, possible deviations between what was estimated and what is real, and finally, the calculation (ex-post) of net GHG reductions attributed to the project and the leakage occurred.

This document presents the parameters evaluated to be used in the calculation ex-ante, and parameters to be evaluated during the life of the project, especially on each Monitoring and Evaluation of the Baseline.

The Monitoring will be carried out a maximum of every 5 years, and the Revision of Baseline every 10 years. During each period all data will be gathered according to the occurrence of each programmed activity (PRA, training courses, etc.) and of those that will be avoided (fires, degradation, use of fertilizers, etc.).

The gathering of information will be carried out directly in field, and indirectly by using satellite images, as well as representative studies of the area and official information if necessary.

Organization and Responsibilities

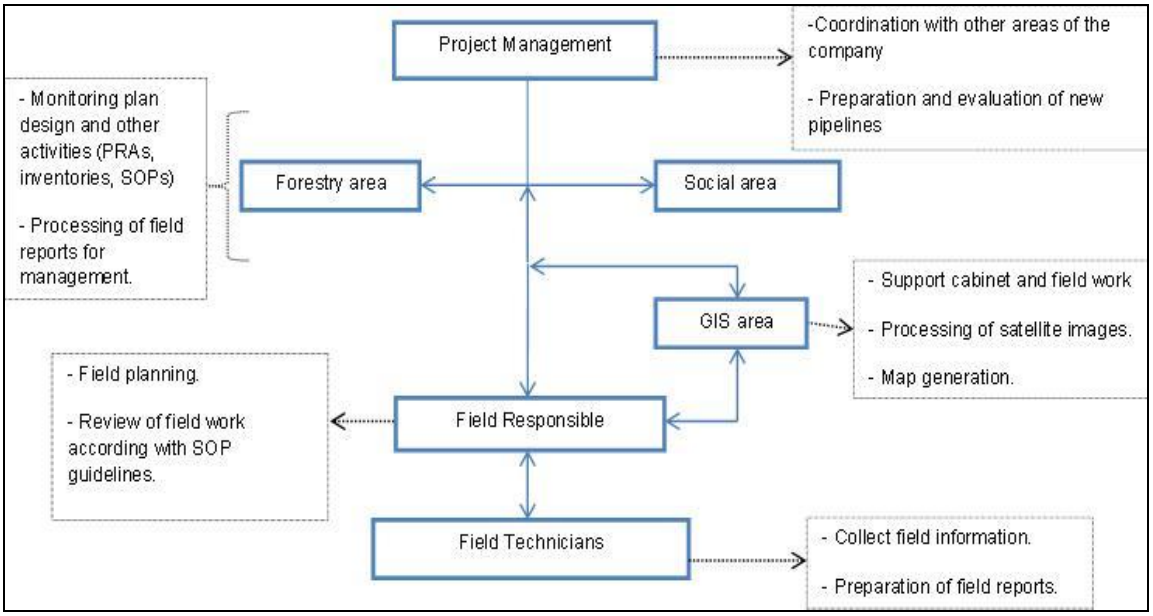
The design and execution of the Project and its Monitoring is handled by a multidisciplinary technical team, duly qualified and with experience in Project development. In addition, it is supported by recognized institutions related to the Amazon investigation as the IIAP and AIDER.

Specialists in forest, social, and economic areas lead the team, who are in charge of defining the objectives and provide guidelines to the correct development of the activities.

The Head of Monitoring is in charge of the implementation. He organizes the work and staff in field and keeps the Specialists informed about everything that is in progress through periodic reports of the activities and permanent communication about the outcome and contingencies arising out.

The field staff is in charge of gathering all parameter information that will be monitored to evaluate the performance of the project. They will be constantly trained to improve their skills in the use of: standard procedures to collect information, measurement instruments, and outcome processing, etc. It is worth to mention that all staff will be permanently in contact to coordinate the activities, discuss problems and difficulties arising out and take relevant decisions, so there will be a feedback at all level. The organizational chart is presented hereunder:

Figure 1: Organizational chart of the team in charge of monitoring



Information Management

As already mentioned, there will be Standard Operating Procedures (SOPs) that will guide the monitoring activities, limiting the change that the incorporation of new staff members would

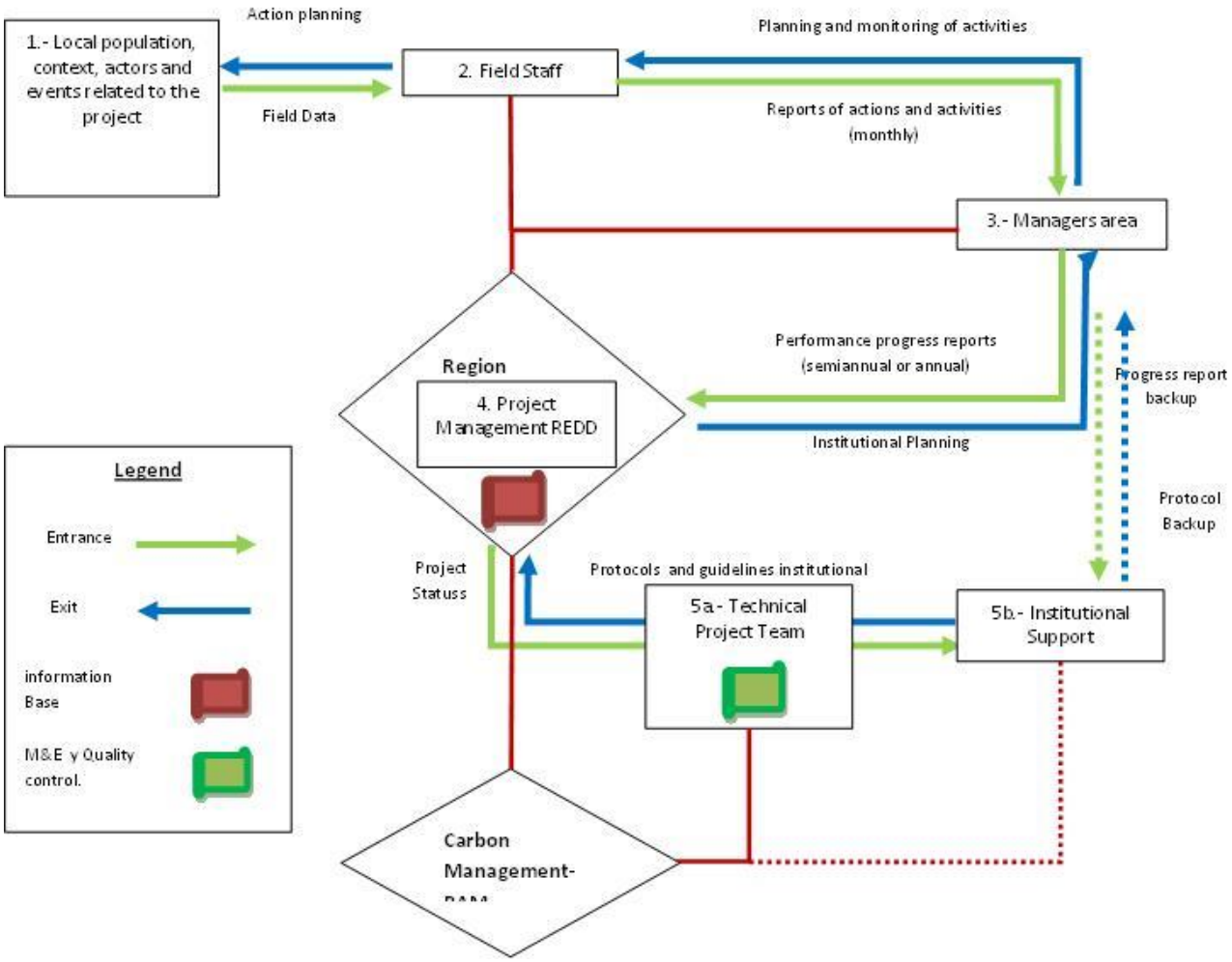
cause. There will also be forms for each parameter that will allow documenting them clearly and consistently through time. Even though they are standard forms, additional information considered as relevant by the field operator can be included.

Furthermore, unique procedures will be fixed (SOPs Quality Control) for the management, processing and archive of the gathered information with the purpose to secure information and availability to any subsequent revision.

To that end, it has been determined that all physical data of field forms and reports generated will be stored in a safe space specially enabled to the purposes thereof, as well as using a codification that will avoid errors in time and/or activities referred thereto.

Likewise, all data shall have to be digitized in Excel or Word documents, according to each type and following the forms format, saved in files with the same code used in all hard copies, sent to the headquarters of the company and regularly updated. Information flow is presented herein below:

Figure 2: Information Flow among the staff in charge of Monitoring



In-House Audit

Use of SOPs will minimize the error information to handle the project, both in terms of procurement (field survey) as well as in processing and storage. It will also let knowing the uncertainty in the monitoring of each parameter, as required by module X-UNC, and keep it within the allowed range.

As additional information conservation measures, there will be:

- Training

It includes training of the staff in general in different roles to play within the structure of the project. However, in the aim to always have quality information, training will be prioritized at the critical points of management, which are the field collection and processing (head of evaluation and monitoring, field staff and GIS specialist). All staff must pass an induction process prior to execution of any activity related to monitoring.

- Field Verification

For each measurement made directly in the field, especially in the case of inventory (carbon stock, growth, degradation, etc.) or use of satellite images, verification will be designed to meet the statistical criteria allowing corroborating reliability of the information.

It will also be verified that the staff using the SOPs in their daily activities would do it without any difficulty.

- Reviewing monitoring reports before delivery and storage

Prior to the delivery of the reports to the headquarters, the Head of Monitoring and Evaluation will review all reports that have been made in field and by sub processing, in order that the information reaching the next team is completely cleared.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

The baseline GHG emissions for the Project Area during the first three years, without the temporarily 84 excluded concessions, is 7,755,174.6 tCO_2-e.

T	Year	$\Delta C_{BSL,unplanned}$ (t CO_2-e)
1	2010	2,651,011
2	2011	2,578,372
3	2012	2,525,791
Total	**7,755,174.6**	

4.2 Project Emissions

During the monitoring, all the steps in M-MON module were followed to obtain the Net greenhouse gas emissions under the project scenario:

$$\Delta C_P = \sum\sum(\Delta C_{p,defPA,i,t} + \Delta C_{p,Deg,i,t} + C_{pDist,PA,i,t} + GHG_{p\text{-}E,i,t} + \Delta C_{p,Enh,l,t})$$ Equation n°1 M-MON

Stratum	$Cp,defPA,i,t$	Cp,Deg,i,t	$CpDist,PA,i,t$	$GHGp\text{-}E,i,t$	Cp,Enh,l,t	Total
BTI	5,113.57	194.29	-	288.89	-	5,596.74
PA	64,916.37	203.30	-	3,153.16	-	68,272.83
BPT	19,284.99	971.11	-	521.77	-	20,777.87
BT	1,634,007.14	57,289.57	-	69,527.83	-	1,760,824.54
P	-	-	-	-	-	-
BCB	67,099.96	2,150.64	-	2,286.01	-	71,536.61
BPCB	38,251.96	544.99	-	265.60	-	39,062.56
Total	1,828,673.98	61,353.91	-	76,043.26	-	**1,966,071.15**

The emissions from degradation activities (timber harvest) are *de minimis*; therefore, the project scenario emissions are: 1,904,717.24 t CO_2-e.

4.3 Leakage

During the monitoring of period 2010-2012 and following the steps presented n LK-ASU module, the net greenhouse gas emissions due to leakage are equal to:

$$\Delta C_{LK\text{-}AS,unplanned} = \Delta C_{LK\text{-}ASU\text{-}LB} + \Delta C_{LK\text{-}ASU\text{-}OLB} + GHG_{LK,E}$$ … Equation n°13 LK-ASU

$\Delta C_{LK\text{-}ASU\text{-}LB}$	$\Delta C_{LK\text{-}ASU,OLB}$	$GHG_{LK,E}$	$\Delta C_{LK\text{-}AS,unplanned}$
-	-	-	**-**

Given that the project was only validated for avoided unplanned deforestation activity, the total emissions due to leakage are the same presented in the above table, as stated in the following equation:

$$\Delta C_{LK} = \Delta C_{LK\text{-}AS,unplanned}$$ …. Equation n°3 REDD-MF

4.4 Summary of GHG Emission Reductions and Removals

The total net greenhouse gas emissions reductions of the REDD project activity were calculated as follows:

$$C_{REDD,t} = \Delta C_{BSL} - \Delta C_P - \Delta C_{LK}$$ … Equation n°1 REDD-MF

	$\Delta C_{BSL,unplanned}$	ΔC_P	$\Delta C_{LK\text{-}AS,unplanned}$	$C_{REDD,t}$
2010-2012	7,755,174.6	1,904,717.24	-	5,850,457.36

Then, this result was adjusted to account for the uncertainty analysis:

*Adjusted_ C_{REDD} = C_{REDD} * (100% - C_{REDD_ERROR} + 15%)* … Equation in RE|DD-MF, page 19

Adjusted_ C_{REDD} = 5,850,457.36 *(100% - 19.63% + 15%) = 5,579,828.83 t CO_2-e

A final discount due to Permanence Risk Buffer was made, so the final result is:

$Buffer_{UNPLANNED}$ = ((7,755,174.60 – 0) – (1,904,717.24 – 0)) * 11% = 643,550.31 t CO_2-e

In this way, the total emission reductions due to project activity for the 2010-2012 period were obtained:

	$C_{REDD,t}$	Adjusted $C_{REDD,t}$	$Buffer_{UNPLANNED}$	VCU_t
2010-2011	5,850,457.36	5,579,828.83	643,550.31	4,936,278.52

All these calculations can be reviewed in the following excel documents:

- VCUs Estimations BAM v6.xlsx
- Cp Estimations in BAM v4.xlsx.
- Leakage Estimations in BAM v5.xlsx.
- Uncertainty Analysis v3.xlsx.

5 ADDITIONAL INFORMATION

For this monitoring period, we have temporally excluded eighty-four concessions from the Project Area. They still are project members but the GHG emissions and emissions reductions generated on their area, which represent 76,846.7 hectares, are not being included in this period estimations (in the previous section).

The baseline estimations were updated accordingly to reflect only the project emissions of the remaining portion of the PA.

Table 6: List of 84 concessions temporarily excluded from the Project Area

CAS	CONTRACT NUMBER	NAME
CAS001	17-TAM/C-OPB-A-112-04	Abigail Sanz Salinas
CAS012	17-TAM/C-OPB-J-035-03	Alcides Ccuno Chahuara
CAS019	17-TAM/C-OPB-A-207-04	Alfonsa Moreno Aguirre
CAS034	17-TAM/C-OPB-J-002-04	Antonio Mamani Conto
CAS049	17-TAM/C-OPB-J-104-04	Bernardino Villafuerte Mamany
CAS057	17-TAM/C-OPB-J-158-03	Carlos Aguilar Huaman
CAS076	17-TAM/C-OPB-J-031-03	Constantino Huaman Casas
CAS077	17-TAM/C-OPB-J-025-02	Constantino Miguel Torres Cuevas
CAS083	17-TAM/C-OPB-J-272-03	Daniel Suclli Laura
CAS104	17-TAM/C-OPB-J-015-04	Elena Mamani Huallpa
CAS112	17-TAM/C-OPB-J-271-03	Elvira Camila Yatto Tibubay de Vizcarra
CAS120	17-TAM/C-OPB-J-004-03	Estanislao Lopez Vera
CAS123	17-TAH/C-OPB-A-003-05	Eufrasia Parillo Quispe

CAS129	17-TAM/C-OPB-J-197-03	Federico Barrientos Marquez
CAS130	17-TAM/C-OPB-A-161-04	Felicitas Macochoa Grifa
CAS133	17-TAM/C-OPB-A-010-07	Felix Antonio Huaman Gutierrez
CAS153	17-TAM/C-OPB-A-033-07	Gustavo Alejandro Ríos Hermoza
CAS154	17-TAM/C-OPB-A-001-07	Guillermo Antonio Rios Pickman
CAS174	17-TAM/C-OPB-J-100-02	Jesus Torres Vasquez
CAS228	17-TAM/C-OPB-J-078-04	Luis Racua Salazar
CAS245	17-TAH/C-OPB-J-058-04	Maria Elvira Cahuana Tapuy
CAS254	17-TAM/C-OPB-A-044-07	Marly Villavicencio Mamani
CAS256	17-TAM/C-OPB-J-116-03	Juan Enrrique Pereyra Guerra
CAS258	17-TAM/C-OPB-A-021-05	Mario Alvarez Quispe
CAS263	17-TAH/C-OPB-A-018-06	Martina Sabina Mamani Cahuana
CAS277	17-TAM/C-OPB-A-138-04	Mirian Yoni Aragon Paredes
CAS288	17-TAM/C-OPB-A-002-08	Nicanor Cjuno Peña
CAS290	17-TAM/C-OPB-A-011-06	Nimia Medina Bate
CAS295	17-TAM/C-OPB-J-096-04	Oscar Angel Alvarez Belson
CAS299	17-TAM/C-OPB-J-162-03	Pablo Alegre Usca
CAS300	17-TAM/C-OPB-A-122-04	Pablo Alfredo Bolivar Alvarez
CAS311	17-TAM/C-OPB-J-224-03	Pilar Mandujano Baca
CAS318	17-TAM/C-OPB-A-182-04	Reynaldo Kuno Cumpa
CAS329	17-TAM/C-OPB-J-052-04	Rufino Condori Ccahuata
CAS337	17-TAM/C-OPB-A-160-04	Saturnino Villafuerte Blanco
CAS340	17-TAM/C-OPB-J-012-04	Segundino Torres Huaman
CAS364	17-TAM/C-OPB-A-111-04	Valerio Leoncio Carrasco Chavez
CAS366	17-TAM/C-OPB-J-098-04	Victor Econema Pacaya
CAS368	17-TAH/C-OPB-A-002-09	Victor Victor Encinas Espinoza
CAS371	17-TAM/C-OPB-J-064-03	Washington Maceda Irarica
CAS376	17-TAM/C-OPB-J-117-03	Wilfredo Mendiguiri Mendoza
CAS378	17-TAM/C-OPB-A-014-05	Wilson Guzman Ramirez
CAS382	17-TAM/C-OPB-J-169-03	Zoila Norma Racua Guerra
CAS400	17-TAH/C-OPB-A-034-08	Isabel Vizcarra Yatto de Miyashiro
CAS413	17-TAM/C-OPB-A-020-05	Adrian Canelos Quiroz
CAS415	17-TAM/C-OPB-A-015-07	Rosa Graciela Sanchez Arquino
CAS421	17-TAM/C-OPB-J-040-02	Felipe Mauricio Limachi Paucar
CAS424	17-TAM/C-OPB-A-076-07	Maribel Jenny Aparicio Carpio
CAS128	17-TAM/C-OPB-J-020-03	Faustino Chalco Paucar
CAS022	17-TAM/C-OPB-J-027-04	Moreno Fuller Alfredo
CAS033	17-TAM/C-OPB-J-196-03	Anselmo Racua Mariche
CAS065	17-TAM/C-OPB-J-151-03	Luis Alberto Reategui Trigoso
CAS072	17-TAM/C-OPB-J-256-03	Cirilo Torres Ttito
CAS085	17-TAM/C-OPB-A-141-04	Asturima Huamantica David
CAS095	17-TAM/C-OPB-A-053-05	Carlin Elisvan Alvarez Almanza
CAS111	17-TAM/C-OPB-J-043-03	Elvira Jacqueline Vizcarra Yatto
CAS119	17-TAM/C-OPB-A-039-05	Salcedo Chaupis Mistral Araceli
CAS135	17-TAM/C-OPB-A-137-04	Felix Armando Arimuya Inuma
CAS142	17-TAM/C-OPB-J-102-02	Florentino Cañari Turpo
CAS144	17-TAM/C-OPB-J-016-04	Francisco Diaz Vargas
CAS148	17-TAM/C-OPB-A-198-04	Gerardo Cesar Guzman Quispe
CAS177	17-TAM/C-OPB-A-146-04	Jorge Castillo Pacherrez
CAS196	17-TAM/C-OPB-A-045-05	Juan Vargas Ramirez
CAS197	17-TAM/C-OPB-J-097-04	Juan Vicente Sanchez Pineda
CAS215	17-TAM/C-OPB-J-038-02	Leonidas Cuno Solis
CAS293	17-TAM/C-OPB-J-306-03	Nora Esperanza Belluma Huanuire
CAS301	17-TAM/C-OPB-J-353-03	Pablo Callo Condori

CAS305	17-TAM/C-OPB-J-076-03	Guerra Flores Paula Audalita
CAS315	17-TAM/C-OPB-J-170-02	Rene Florencio Vargas Pineda
CAS321	17-TAH/C-OPB-A-046-08	Mamani Ancco Rocio Luz
CAS322	17-TAM/C-OPB-A-041-07	Durand Chavez Rocio Miluska
CAS342	17-TAM/C-OPB-A-118-04	Moreno Caypo Segundo
CAS345	17-TAM/C-OPB-J-072-04	Siles Flores Rengifo
CAS347	17-TAM/C-OPB-J-285-03	Silvia Apaza Hidalgo
CAS349	17-TAM/C-OPB-J-007-04	Sofia Irene Del Carpio De Chair
CAS380	17-TAM/C-OPB-A-194-04	Bolivar Barriga Isela
CAS387	17-TAM/C-OPB-J-233-03	Jose Augusto Pereyra Flores
CAS417	17-TAM/C-OPB-J-276-03	Serapio Condori Flores
CAS428	17-TAM/C-OPB-J-103-03	Pablo Dueñas Mayorga
CAS175	17-TAM/C-OPB-A-131-04	Jesus Racua Rodriguez
CAS195	17-TAM/C-OPB-J-058-04	Condori Suyo Juan Tito
CAS172	17-TAM/C-OPB-J-309-03	Jesus Chavez Vargas
CAS339	17-TAH/C-OPB-A-001-05	Rosmeri Tapuy Palla
CAS168	17-TAM/C-OPB-A-037-05	Irbing Yasset Horna Paredes