CCB & VCS Monitoring Report Template

MONITORING REPORT

LACANDÓN – FOREST FOR LIFE

REDD+ PROJECT

Document Prepared By CB CARBONCONSULTING

Project Title	*Lacandón – Forest for Life REDD+ Project*
Project ID	*PL1541*
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Project Location	*La Libertad and Las Cruces Municipalities, North West of Petén Department, Guatemala*
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Validation/Verification Body	*Organization and contact name with email address and phone number*
GHG Accounting/ Crediting Period	*(CCB) GHG accounting/(VCS) crediting period,* *February 1st 2012 to January 31st, 2042; 30 -years total period*
Monitoring Period of this Report	*August 25th,2014 to December 31st 2018*
History of CCB Status	*Full Validation and first Verification Date: June 18th, 2016* *CCB Standard. Third Edition & VCS Standard Version 3.*
Gold Level Criteria	***Gold Level Criteria**: Exceptional Climate, Community, and Biodiversity Benefits:* **Climate benefits**: Diversification of employment and income beyond agriculture, such as identification of new NTFP. As standard practice, the project will monitor household income, class, and gender of any direct beneficiary of the project's activities. Improvement of agricultural practices with the aim of higher productivity and slowing the rate of hectares deforested (per year) Workshops on climate change, forest fires, community governance, and health. Also, in the biodiversity areas has been implemented agroforestry activities, community plots, enrichment, and conservation of forest.

Community benefits:

Reduction of poverty rates through the implementation of alternative productive activities such as agroforestry systems, trading of NTFP, technification of productive systems, and improvement of technical capabilities.

Microcredits for families with women as leaders of the householders benefited 29 people during the previous monitoring report and 26 people during the current monitoring report.

Biodiversity benefits

Three endangered species have been monitored in the period 2014 - 2018. These are the "Near Threatened" jaguar (Panthera onca), the largest feline in Latin America and part of Guatemalan culture for centuries, the "Endangered" tapir (Tapirus bairdii), the largest land mammal in the Neotropics and the only living representative of the order Perissodactyla, a species considered nationally endangered, and the "Vulnerable" white-lipped peccary (Tayassu pecari). The results show the presence (quantity) and dynamics of fauna as well as the conservation status of the forest.

The registers for the threatened biodiversity during the previous monitoring report showed the presence of 39 jaguars, 114 tapirs, and 123 peccaries; higher record values than the baseline.

During this monitoring report, the data shows a considerable increase in this species: 44 jaguars, 216 tapirs, and 99 peccaries.

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1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

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Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
Access to credit by vulnerable and marginalized communities through the microcredit program.	26 microcredits granted (12 for women)	4.1.1	39 microcredits granted (20 for women)[1]
Protection of three HCV species: Jaguar, Tapir, and Peccari.	Jaguars: 44 Tapir: 216 Peccaries: 99	5.1.1 5.1.3 5.1.4 5.4	Jaguars: 44 Tapir: 216 Peccaries: 123

[1] 13 microcredits were granted during the previous monitoring period. See previous Monitoring Report, page 172.

1.2 Standardized Benefit Metrics

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Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	N/A	N/A	N/A
	Net estimated emission reductions in the project area, measured against the without-project scenario	1.146.232 tco_2e	3.2	1.516.214 tco_2e[2]
Forest[3] cover	For REDD[4] projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	4.913,6 hectares	3.2.4	11.075.3 hectares
	For ARR[5] projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	N/A	N/A	N/A
Improved land management	Number of hectares of existing production forest land in which IFM[6] practices have occurred as a result of the project's activities, measured against the without-project scenario	3.931 hectares[7]	N/A	Data not available
	Number of hectares of non-forest land in which improved land management	Data non-Available		Data not Available

[2] 369.982 tCO_2e were reduced during the previous monitoring report (section 6.4)
[3] 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*)
[4] 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*)
[5] 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*)
[6] 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*)

[7] 3.931 ha of forest were organized through a Forest Management plan developed for La Lucha Cooperative (See Management Plans).

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	has occurred as a result of the project's activities, measured against the without-project scenario			
Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	2.321	4.1.1	3.894[8]
	Number of female community members who have improved skills and/or knowledge resulting from training provided as part of project activities of project activities	758	4.1.1	1165
Employment	Total number of people employed in of project activities,[9] expressed as number of full time employees[10]	9	2.13.14	23[11]
	Number of women employed in project activities, expressed as number of full-time employees	Data not available	N/A	Data not available
Livelihoods	Total number of people with improved livelihoods[12] or income generated as a result of project activities	Per person, monthly income was increased in 36 Q	4.4	Data not available

[8] 1.573 training reported in the previous monitoring report
[9] 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.
[10] 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])
[11] 14 people were employed during the previous monitoring report. See page 172
[12] 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
	Number of women with improved livelihoods or income generated as a result of project activities	Data non-available	n/a	Data not-available
Health	Total number of people for whom health services were improved as a result of project activities, measured against the without-project scenario	11605 people benefited from the program for education and sexual health	4.1.1 4.4.3	31 people benefited from the program for education and sexual health (training)[13]
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	11605 women benefited from the program for education and sexual health	4.1.1 4.4.3	Data not available
Education	Total number of people for whom access to, or quality of, education was improved as a result of project activities, measured against the without-project scenario	45 students benefited from the construction, and equipment of the Pozo Azul school.	4.1.1	45 students benefited from the construction, and equipment of the Pozo Azul school
	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	Data not available	4.1.1	Data not available
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities,	472 households benefited from the construction of two water	4.1.1	Data not available

[13] As stated in the previous monitoring report page 183

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	measured against the without-project scenario	supply systems.[14]		
	Number of women who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Data not available	N/A	Data not available
Well-being	Total number of community members whose well-being[15] was improved as a result of project activities	18.574 people participated in field visits, stakeholder consultations, health-related activities, microcredits, training, and workshops	See excel database	Data not available
	Number of women whose well-being was improved as a result of project activities	13.752 women participated in field visits, stakeholder consultations, health-related activities, microcredits, training, and workshops	See excel database	Data not available

[14] See Water-Access to water

[15] 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,[16] measured against the without-project scenario	Data not available	N/A	Data not available
	Number of globally Critically Endangered or Endangered species[17] benefiting from reduced threats as a result of project activities,[18] measured against the without-project scenario	6 Critically Endangered and Endangered species benefited from the project activities	5.1.3	6 Critically Endangered and Endangered species benefited from the project activities

2 GENERAL

2.1 Project Description

2.1.1 Implementation Description

This report describes the results of the Climate, Community, and Biodiversity Monitoring of the Lacandón - Forests for Life REDD+ project. The monitoring period for both standards is August 25th, 2014 to December 31st 2018.

The Lacandón - Forests for Life REDD+ Project focuses on reducing deforestation in Sierra del Lacandón National Park (SLNP) to ensure that ecosystem services continue over time, cultural and archaeological heritage is preserved and the emission of greenhouse gases from deforestation and degradation is avoided. Also, the project focuses on improving the living conditions of the communities located within and surrounding the park boundaries.

[16] 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.
[17] Per IUCN's Red List of Threatened Species
[18] In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

The Sierra del Lacandón National Park is one of the seven nuclei of the Mayan Biosphere Reserve (MBR), which represents almost 20% of the land area of Guatemala and about 60% of the area of the Guatemala System of Natural Protected Areas. The SLNP is the second largest National Park in Guatemala and it has been characterized, along with the Mirador-Rio Azul National Park, as the region of greatest plant diversity within the MBR. Within the borders of the PNSL, there are at least 29 archaeological sites from the Mayan Civilization, including the monumental city of Piedras Negras.

The presence of species listed as endangered by the International Union for Conservation of Nature (IUCN) and included on the Red List have been documented in the park. These species include Jaguar - Panthera onca (Near Threatened), Tapir - Tapirus bairdii (Endangered), and White-lipped peccary - Tayassu pecari (Vulnerable) for fauna and cedar - Cedrela odorata (Vulnerable) and mahogany - Swietenia macrophylla (Vulnerable) for flora.

During the current monitoring, period were executed several workshops, training sessions, meetings, and events aimed at improving the skills of the communities in the sustainable management of forest and identification of alternative productive systems that can support the family income.

Some of the most important outcomes of this monitoring period include the reduction of deforestation, the signature of cooperation agreements with communities inhabiting the project area and with different organizations; the delivery of microcredits to vulnerable communities; the increase of family income due to the diversification of agricultural activities; the development of management plans for NTFP and for the productive forest of La Lucha cooperative; the execution of more than 400 monitoring patrols that helped to prevent leakage; the installation of water irrigation systems, the increase in the number of species of HCV associated with the Jaguar, the Peccari and the Tapir; the distribution of birth control tools; the creation of a new school in Pozo Azul; the strengthening of pymes and community enterprises about the production and trading of cocoa; the implementation of agroforestry systems; the development of business plans for tourism; the improvement of beekeeping facilities; the elaboration of handcrafts and the improvement of carpentries.

The GHG emissions reduced during this monitoring period is **1.146.232** tCO_2e. No new instances were added to the project area. Likewise, no changes in the management structure of the project were made during this reporting period

2.1.2 Project Category and Activity Type

This is an AFOLU REDD+ grouped project that aims at reducing GHG emissions from unplanned deforestation.

2.1.3 Project Proponent(s)

The project proponents are the Fundación Defensores de la Naturaleza (FDN), owners of Naranjitos and Centro Campesino lands, and the Cooperatives Unión Maya Itzá, La Lucha and La Técnica Agropecuaria, all of them with legal ownership/management rights over their lands.

Organization name	Fundación Defensores de la Naturaleza
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Organization name	La Técnica Agropecuaria Cooperative
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Email	

2.1.4 Other Entities Involved in the Project

Organization name	Oro Verde Die Tropenwaldstiftung Tropical Forest Foundation
Role in the project	Monitoring of financial management of the project
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Title	Team leader for International Projects
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Organization name	CB CARBONCONSULTING S.A.S
Role in the project	The developer of the Monitoring Report
Contact person	Catalina Becerra
Title	General Director
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Alliances:

Carbon monitoring and measurement:

CB CARBONCONSULTING oversees the development of the monitoring report in line with the guidelines of the CCBS and the VCS.

FDN has an agreement with CEMEC/CONAP, the institution responsible for deforestation and carbon monitoring of Lacandón – Forest for life REDD+ Project.

FDN has a long track record in working with natural resources in the project area. The professionals working for FDN have an average experience of 17 years. Defensores de la Naturaleza's extensive track record includes environmental impact assessments, environmental management mandates, socio-economic, archaeological, and historical assessments.

Community engagement:

FDN is very experienced in working with communities all over Guatemala. Most of the experience related to the SLNP was gathered during community extension and development work as well as in the investigation undertaken for determining the drivers and agents of deforestation present in the project sub-national region. FDN developed a substantial part of the social assessment to determine drivers and agents of deforestation and develop the community monitoring plan.

Biodiversity assessment:

The project's biodiversity assessment is designed and developed by FDN. FDN has several field teams specialized in biodiversity monitoring and that have already produced relevant results in the past regarding the monitoring of biodiversity in the area. The project includes the communities in the process of biodiversity monitoring.

2.1.5 Project Start Date (G1.9)

February 1st, 2012.

2.1.6 Project Crediting Period (G1.9)

GHG crediting period: February 1st, 2012 - January 31st, 2042. (30 years)

2.1.7 Project Location

Reference region:

Guatemala is divided into five specific regions with similar physical, social and economic characteristics (see the following figure). These are regions with different deforestation, landscape, ecosystem, economic and socio-cultural conditions, and dynamics. The reference region for this project corresponds to the sub-national region "Tierras Bajas del Norte" (Northern Lowlands), which covers the entire department of Petén and portions of the departments of Huehuetenango, Quiché, Alta Verapaz, and Izabal. Northern Lowlands

presents the largest extensions of remaining forest in Guatemala, and also presents the highest level of deforestation:

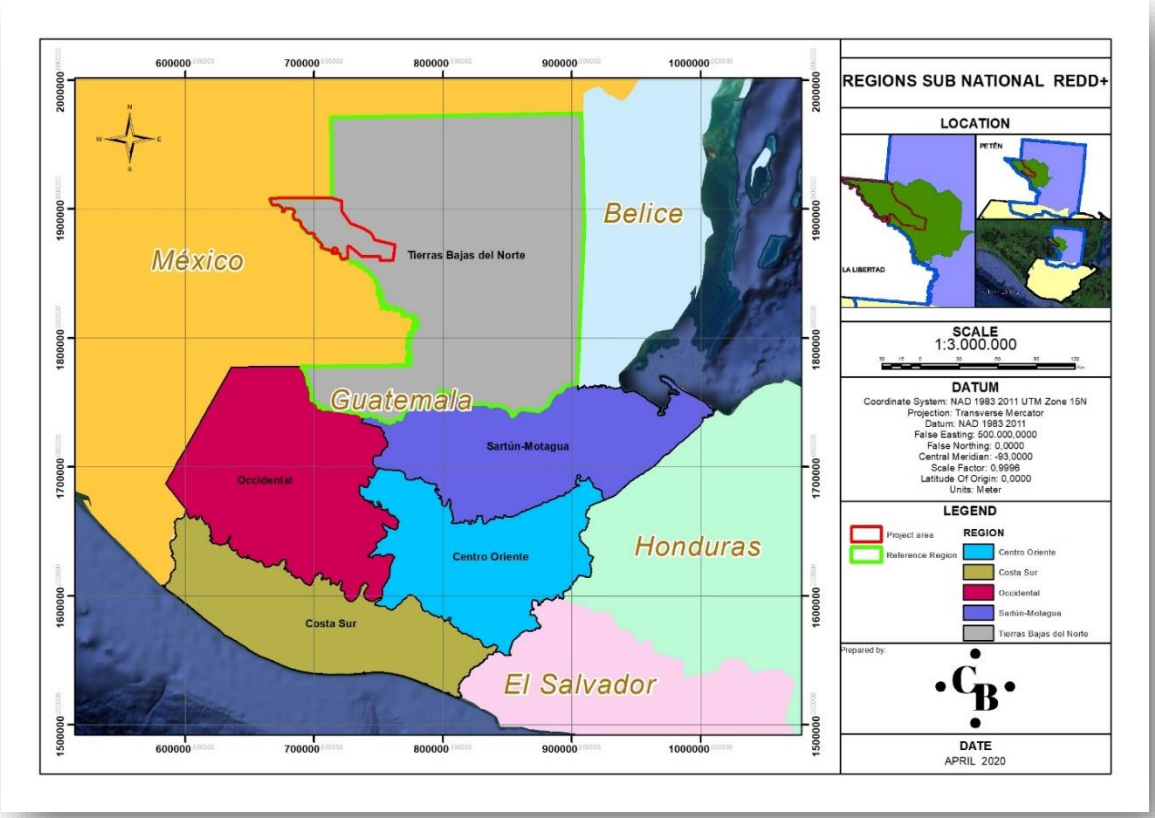


Figure 1 Reference Region

This region has the highest proportion of forest in the country (57% of the total) and the highest deforestation from 1990 to 2000 (43% of the total). The dynamics of deforestation are influenced by altitude and topographical characteristics. The reference region is located in the terrestrial ecoregion denominated as “Petén-Veracruz moist forest”. This ecoregion is considered to be the most extensive wooded tropical formation in Mesoamerica and functions as the natural northern boundary for tropical vegetation. The most significant impacts on this ecoregion are evident in the extensive areas of forests that have disappeared, mainly due to agriculture and livestock raising activities.

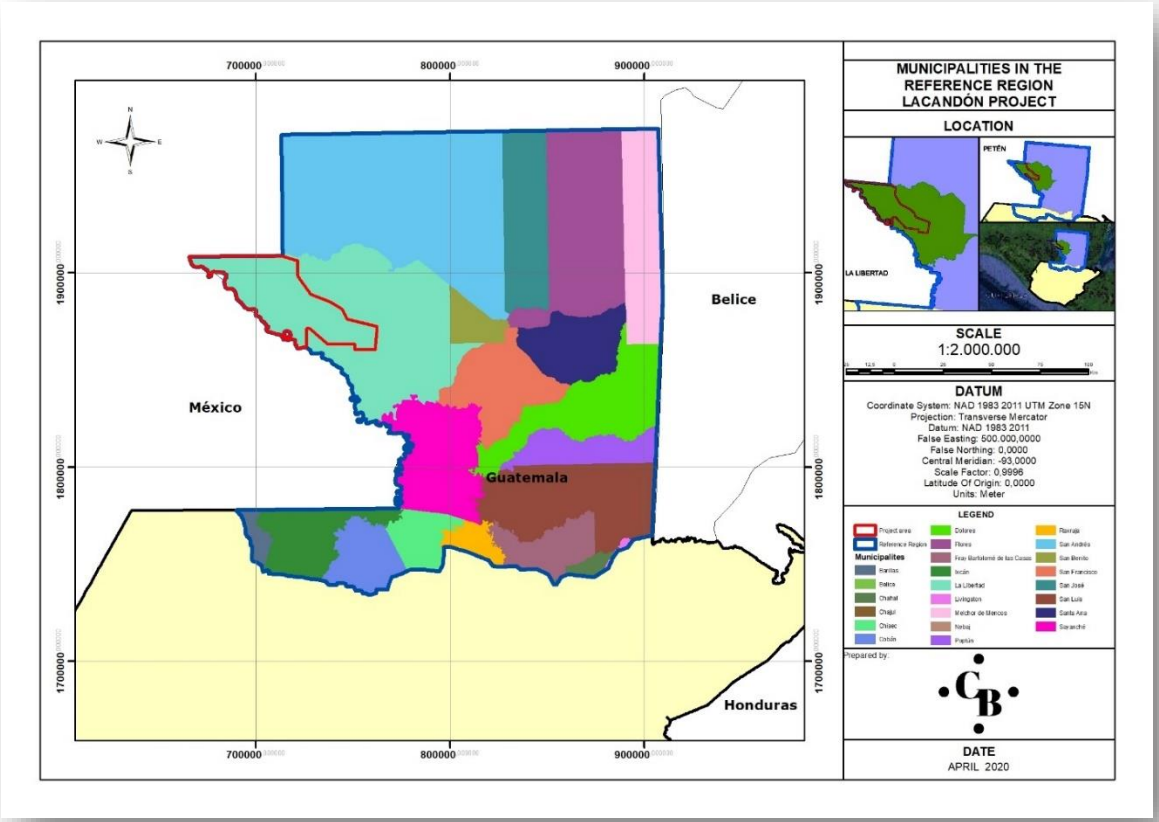


Figure 2 Municipalities in the Reference Region

Project zone:

The Lacandón REDD+ Project is located in the northwest of the Petén Department in Guatemala. The project zone is the total area of the National Park Sierra de Lacandón (PNSL), where La Lucha cooperative is located, plus the areas of the cooperatives Unión Maya Itzá and La Técnica Agropecuaria, which are located partially and fully outside the National Park area, respectively. The total project zone encompasses 206,268.71 ha.

About half of its boundaries are international border with the Mexican states of Chiapas and Tabasco. The northeast border is the multiple-use zone of the MBR, the northern limit is with the state of Tabasco (Mexico), in the west, it is the Usumacinta River natural border with the state of Chiapas (Mexico), and the southern and eastern boundaries are the buffer zone of the MBR within the municipalities of La Libertad and Las Cruces.

Project Area:

According to the methodology VM0015 used for this project, the project area is the area of forest within a given region. For the project first (I) instance, the project area corresponds to the total forest area of Unión Maya Itzá, La Técnica Agropecuaria, and La Lucha cooperatives, all with legal land tenure, and the private properties of Fundación Defensores

de la Naturaleza: Naranjitos and Centro Campesino areas. The total project area for the first instance is 45,288.81 ha.

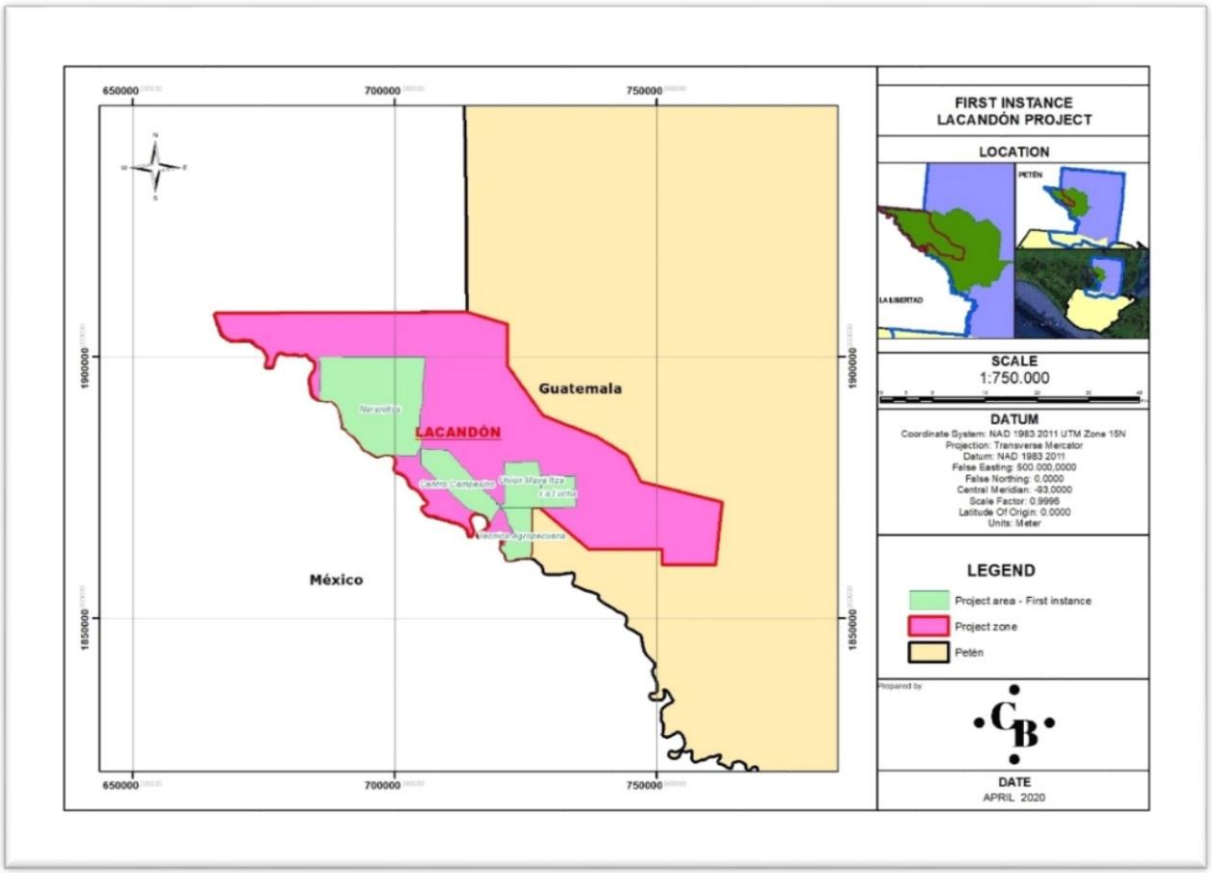


Figure 3 First Instance – Project Area

The coordinates of the project area (the first instance) are shown in the following table

Table 1 Coordinates of the first instance

Cooperative (C)/ Private property of FDN	Map area (ha)	Centroid coordinates			
		UMT coordinates		Geographic coordinates	
		X	Y	X	Y
La Técnica Agropecuaria (C)	4,642.03	723,634.36	1,866,217.55	-90.90	16.87
Unión Maya Itza (C)	6,086.24	724,404.11	1,875,457.29	-90.89	16.95
La Lucha (C)	3,974.03	731,252.31	1,874,259.56	-90.83	16.94
Private Property					

Centro Campensino- FDN	**8,392.72**	**712,185.22**	**1,876,092.83**	**-91.01**	**16.96**
Naranjitos – FDN	**30,807.2**	**696,651.53**	**1,891,676.93**	**-91.15**	**17.10**
Total	**53,884.22**				

The total area of the properties that conform to the first instance (forest+non-forest) is 53.884 hectares.

2.1.8 Title and Reference of Methodology

- VCS Methodology for Avoided Unplanned Deforestation (VM0015 v1.1)

- Tool for the demonstration and assessment of additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) project activities

- VCS AFOLU Non-permanence Risk Tool: VCS Version 3.2

- Climate, Community & Biodiversity Standards (CCBS) 3rd edition.

2.1.9 Other Programs (G5.9)

- Emission Trading Programs and Other Binding Limits:

  GHG emission removals generated by the project will not be used for compliance with another emissions trading program or to meet binding limits on GHG emissions. Given that to the date of verification Guatemala does not have any international agreement concerning emission caps under any compliance scheme, no double counting issues are applicable in this case.

- Other Forms of Environmental Credit:

  Carbon credits are currently the only environmental credit being generated from this project. No other environmental credits will be generated or sold

- The project has not sought or received any other GHG-related environmental credits:

  This project has not sought or received any other GHG-related environmental credit

- Participation under Other GHG Programs:

  This project is not participating under any other GHG Program

- The project is not registered under any other GHG programs:

  This project has not been registered under any other GHG Program

2.1.10 Sustainable Development

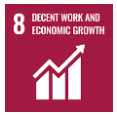
The contribution of the project objectives to the achievement of sustainable development goals has been summarized in the following table. The table relates the seven strategies previously defined for the project (See PDD and previous monitoring report) and the SDGs potentially impacted. Six SDGs were identified as being positively (directly or indirectly) impacted by the project: Life of land (15), Climate Action (13), zero hunger (2), Decent Work and Economic Growth (8), good health and wellbeing (3), Clean Water and Sanitation (6).

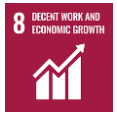
Table 2 Sustainable Development Goals

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
Adjustment of land uses and land use rights in communities without land registry.	Signature and enforcement of cooperation agreements	Negotiation Tables	During 2015 five cooperation agreements were signed with the communities of Arroyo Yaxchilan, El Pita, El Maniantalito and San Miguel Los Angeles	Forest conservation / GHG emissions reductions	 	The topics covered by the cooperation agreements had an impact on the following activities and related SDGs: * Implementation of sustainable development projects, which include initiatives to reduce deforestation AND GHG emissions such as agroforestry systems, and organic agriculture. * *Community Strengthening towards the sustainable use of natural resources. * Monitoring of Tapir through a Conservation Program * Improvement of the quality of education in nature conservation in the communities of Sierra de Lacandón National Park.
Forest protection and biodiversity programs	Establishment of a program of patrols and surveillance subcommittee for each organization within the park	Control program	During the years 2014 and 2018 more than 400 patrols were executed and about 16 goods were confiscated.	Forest conservation / GHG emissions reductions		Patrols contributed to mitigate illegal activities (illegal logging, illegal development of infrastructure hunting, fishing) and to monitor events such as forest fires and changes in the agricultural and livestock frontier. Patrols also improved the quality of life of the communities by generating safety environments and by transferring knowledge.

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
	Workshops about fire management in the communities	Workshops	Training in forest fires and three forest fire prevention courses were carried out. In total seven training events and 222 people were trained.	Forest conservation / GHG emissions reductions / Strengthening community capacity		Training in forest fires contributed to empowering the community in executing activities that prevent the occurrence of forest fires. Not only the patrols carry out this control activity, but the community in general also learns how to prevent these events.
	Program for the conservation of habitats linked to endangered species and development of a plan for the conservation of HCV	Workshops	From 2014 to 2018, 20 HCV training and workshops were carried out. 1 about biodiversity and 19 about alternative productive activities	Forest conservation / GHG emissions reductions / Strengthening community capacity		The community is currently monitoring three critically endangered animals; therefore, environmental conservation training is being implemented in the field to develop monitoring reports towards in situ conservation of these species of fauna.
Sustainable farming and livestock familiar management systems	School of agroforestry promoters for enhancing practices sustainable agriculture in the communities	Persons trained	In September and October 2014, 70 people were trained by the school of agroforestry-	Forest conservation / GHG emissions reductions / Strengthening community capacity		The school of agroforestry promotes family agriculture as the basis for food security. This training allows families to generate food using sustainable practices that can coexist with the forest covers. The project is training rural development promoters.

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
Diversification and use of communal forestry resources	Identification of alternative Non-Timber Forest Products (NTFPs) and market study on each case	Non-timber management plan	Two NTFP management plans were developed: one for La Lucha in 2015 and one for la Libertad in 2016	Forest and biodiversity conservation / GHG emissions reductions	 	The project is working on the development and implementation of three integrated management plans: two for non-timber forest products and one for forest products, which has allowed the study and identification of the areas to be harvested and the species such as palms, stems and tree species that have economic potential. This has contributed to increasing the people's knowledge about their natural resources and the possibilities they offered to improve their livelihoods by sustainably growing, consuming, and trading NTFP. The trade of NTFP also contributed to the increasing of family income. Families were able to afford basic supplies including food.
	Development of a census of populations of species of flora/fauna that have historically been subject to commercial extraction and their most	Inventory	**FAUNA** **Mammalia:** Around 18 orders, 29 species, and 17 families were reported **Birds:** 28 species, 12 families, and 9 orders were	Forest and biodiversity conservation / GHG emissions reductions		The research on fauna species has produced monitoring reports and conservation protocols for species of birds, mammals, and reptiles. This has contributed to consecrate local endangered and vulnerable biodiversity along with their habitats.

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
	common geographical location		reported. **Reptilia:** 1 swamp crocodile was reported.			
	Development of sustainable forest management plans for smallholders and communities.	Forest Management Plan	In September 2014, the Forest Management Plan was developed for the community of La Lucha	forest and biodiversity conservation / GHG emissions reductions		Management plans organize the forest in a manner that differentiates productive and preservation areas according to their specific characteristics and allowed uses. Management plans promote the sustainable growth of the forest.
	Establishment and reinforcement of a program of micro-credits and the promotion of conservation and forest management.	Number of credits granted	26 microcredits were granted during 2015-2016. 54 Families were benefited.	Strengthening community capacity		Microcredits allow vulnerable communities to access credit and invest in small and medium scale businesses that are environmental-friendly. Microcredits also impact the purchasing capacity of communities and in some cases can contribute to increasing the monthly wages of the benefited families.

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
Improved management of the SLNP	Human resources plan focusing on contracting personnel at a fix-basis (not seasonal jobs).	Contract	9 permanent jobs were generated during this monitoring period.	Forest and biodiversity conservation - Generation of employment		The main objective of this strategy is to generate formal employment focused on the sustainable use of the territory and support the family income. It is not common in the region to sign contracts with employees as they are usually members of the community inhabiting the project area, hence no contract records are available for this monitoring period. Yet, records of payments are available at the folder Employment.
Community dialog, education, and capacitation	Capacity building and governance in REDD	Workshops	47 workshops on REDD+ and governance were executed during this monitoring period.	Forest conservation / GHG emissions reductions / Strengthening community capacity		The workshops offered by the project aimed at educating the community on the impacts of deforestation in their territory and on strategies to reduce the emissions of GHG as a result of deforestation. These training activities were based on the educational and institutional strengthening of Lacandón Park's according to the park's master plan. This plan contains actions to reduce emissions such as payment for environmental services, which is the key for the community to work towards reducing emissions and consequently conserving the park's forested areas.

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
Health and welfare of communities	Workshops about sexual and reproductive health in communities	Workshops	No trainings on this topic were executed in this monitoring period. However, several women benefited from the program of education and sexual health,	Forest conservation / GHG emissions reductions / Strengthening community		Despite no records of workshops on this topic were recorded during the monitoring period, more than 2000 women and men were benefited from the education and sexual health plan developed by FDN and supported by different partner institutions that including offering free family planning devices that helped to reduced unwanted childbirths and diseases and to improve the sexual health of the communities.
	Workshops water and waste management	Workshops	36 training in total, with more than 1500 people trained, including 516 women	Forest conservation / GHG emissions reductions / Strengthening community capacity		People were trained in the sustainable use of water resources and on the importance of water conservation for the survival of all living species of the Protected Area. Likewise, water committees and community leaders facilitated the monitoring of the adequate use of this resource. No specific monitoring of fish or other water-related biodiversity species occurred during the monitoring period. Yet in terms of access to clean water, the project contributed to developing two water facilities that improved the water quality to many people living in the project area. See water. Finally, strengthening student's

MAIN STRATEGY	STRATEGY	INDICATOR	STATUS	MONITORED IMPACT	RELATED SDG	DESCRIPTION OF IMPACT
						capacity to understand the Water Cycle and the importance of Forest Conservation, contributes to raising awareness on the appropriate use and conservation of water.

Guatemala officially adopted the Sustainable Development Goals (SDGs) at the High-Level Meeting of the United Nations held in September 2015. The Agenda is focused on people, the planet and prosperity and aims to combat the poverty, inequality and climate change during the next years, with emphasis on the needs of the most vulnerable population in such a way that "no one is left behind"[19].

The country is currently prioritizing this agenda following development priorities contained in the K'atun National Development Plan: Our Guatemala 2032, an instrument that constitutes the roadmap guiding the transformations and structural requirements needed to reduce inequality and inequity that persist in Guatemala Hence, contributing to the achievement of the SDGs through the project, directly benefits the vulnerable and marginalized communities that inhabit the National Park.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (G1.9)

The key dates and milestones of the project are summarized in the following table:

Table 3 Implementation Schedule

Date	Milestone(s) in the project's development and implementation
February 1st, 2012	Project Start Date
2012-2014	First Monitoring Period
2011	FDN and OroVerde Foundation initiated the Lacandón - Forests for Life Project with financial support from the European Union and the German Ministry of Environment through the International Climate Initiative. This project began to work with communities that had signed cooperation agreements with CONAP and communities with private property
2013	Stakeholder consultations initiated
May 8ty, 2015	The UMI and La Lucha cooperatives approved the Free, Prior and Informed Consent for participation in a REDD+ project jointly with FDN and other cooperatives in the Sierra del Lacandón National Park
June 9th, 2015	La Técnica Agropecuaria approved the free, prior and informed consent

[19] See shorturl.at/dhpO7

Jan 24th, 2016	an extraordinary meeting was held to report 1) PDD Lacandón Forest for Life REDD + Project; 2) Progress of REDD+ Project; 3) Process and field visit of validation and verification process
COOPERATION AGREEMENTS	
7/9/2015	Arrollo con Sellos Agreement To guarantee the integrity of the protected area "Sierra de Lacandon National Park" adapting the permanence of the group "Arroyo Yaxchilan" according to the current legal regulations
10/6/2015	Maniantalito Agreement To adapt the permanence and sustainable development of the polygon delimited for the Manantialito settlement following the legal regulations in force
2/2/2015	Letter of understanding between Defensores de la Naturaleza and COCODE of the San Miguel los Ángleles farm
2/2/2015	Cooperation agreement was signed between the Guatemala Baird's Tapir Conservation Program, Centro de Estudios Conservacionistas (CECON) from San Carlos de Guatemala University (USAC) and Defensores de la Naturaleza Foundation (FDN)
	ACOFOP-FDN Agreement The purpose of this agreement is the concession of a grant for the financing of the project called: Raising the competitiveness at the national and international level of MSMEs, Cooperatives and organized community producer groups of the forest and agroforestry sector of Petén
4/1/2017	DIDEDUC-FDN Agreement Improve the quality of education and nature conservation in the communities of Sierra de Lacandon National Park.
1/7/2018	FDN-CATIE Agreement Sign an agreement for the implementation of an experiment for the development of a sustainable forestry model
4/18/2018	El Pital Agreement a) the integrity of the protected area "Sierra del Lacandon National Park" b) the permanence and sustainable development of the "El Pita" Community
MANAGEMENT PLANS	
April 2014	PMI_ PFNM_ La Lucha Initial Environmental Assessment of the project called INTEGRATED MANAGEMENT PLAN FOR NON-TIMBER FOREST RESOURCES

September 2014	PGM La Lucha Updating the forest management plan
February 2016	PMI_ PFNM_ La Libertad INTEGRATED MANAGEMENT PLAN FOR NON-TIMBER FOREST RESOURCES, COOPERATIVE UMI, LA LIBERTAD, PETÉN, GUATEMALA.

2.2.2 Methodology Deviations

No methodology deviations were done to the current monitoring period

2.2.3 Minor Changes to Project Description (*Rules* 3.5.6)

No minor or major changes have been done to the Project description.

2.2.4 Project Description Deviations (*Rules* 3.5.7 – 3.5.10)

No project description deviations were applied during the monitoring report.

2.2.5 Grouped Projects

This is a grouped project. The first instance area is constituted by the cooperatives of La Técnica Agropecuaria, La Lucha, Unión Maya Itza, and the private properties of Fundación Defensores de la Naturaleza: Centro Campesino and Naranjitos. No new instances were included in this Project. Likewise, no project areas and/or communities were removed from the project area and no changes in the management structure, roles, or responsibilities were applied during this monitoring period.

2.2.6 Risks to the Project (G1.10)

No risks derivative of project activities that affect the climate, community, and biodiversity have been registered for the monitoring period. Besides, the project has mitigation measures for any potential risk described in PDD Section 2.3.

Risk to fires:

The methodology used for the monitoring of forest fires was the methodology of hot spots and fire scars, through which the integrated analysis was obtained for the periods 2014 to 2018.

The areas of the park under evaluation that presented the highest number of hot spots throughout the period 2014 to 2018 were the Lacandón national park reported 320 hot spots in 2017 and 140 in 2018.

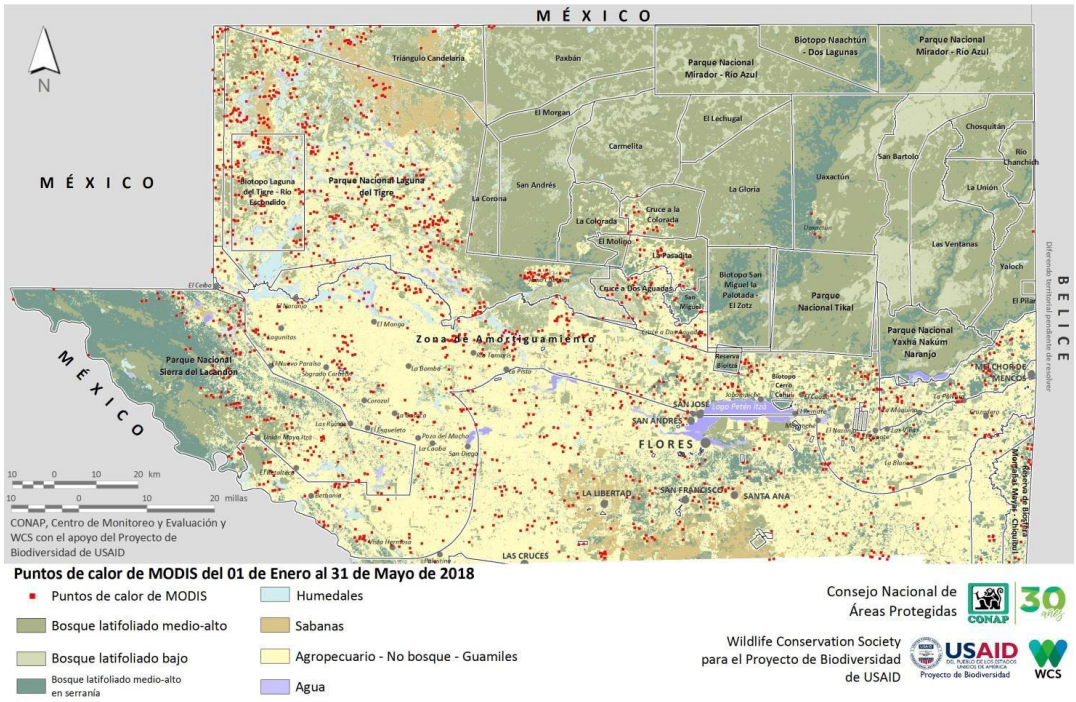


Figure 4 Hotspots of fires in Guatemala

The next table shows hot spot monitored by CONAP and Wild Conservation Society (WCS) in the Maya Biosphere Reserve (the SLNP are highlighted in orange):

Table 4 hotspots PNSL

Management Unit	HOTSPOT 2010 Y 2018				
	2012	2013	2014	2014	2018
Parque Nacional Sierra del Lacandón	225	456	153	320	140
Concesión Comunitaria Carmelita	0	0	0	6	1
Concesión Comunitaria Chosquitan (Laborantes del Bosque)	0	0	0	0	0
Concesión Comunitaria Cruce a la Colorada	13	7	17	16	15
Concesión Comunitaria (cancelada/rescindida/suspendida) La					
Colorada	3	7	9	5	3
Concesión Comunitaria (cancelada/rescindida/suspendida) La					
Pasadita	15	22	31	25	21
Concesión Comunitaria La Unión (Custodios de la Selva)	0	0	0	0	0
Concesión Comunitaria Las Ventanas (Árbol Verde)	0	0	0	0	0
Concesión Comunitaria Río Chanchich (Impulsores Suchitecos)	0	0	0	0	0
Concesión Comunitaria San Andrés (AFISAP)	0	0	0	0	0
Concesión Comunitaria (cancelada/rescindida/suspendida) San					

Management Unit	HOTSPOT 2010 Y 2018				
Miguel la Palotada	5	8	18	8	5
Concesión Comunitaria Uaxactún (OMYC)	7	6	3	1	3
Concesión Comunitaria Yaloch (El Esfuerzo)	0	1	3	0	1
Concesión Industrial La Gloria (Baren)	0	0	0	0	0
Concesión Industrial Paxban	2	5	3	1	3
Zona de Uso Múltiple no Concesionada El Lechugal	0	0	0	0	0
Área de Manejo Especial Laguna del Tigre - Sierra del Lacandón	7	5	7	12	7
Área de Uso Especial El Ceibo	0	0	0	0	0
Zona de Uso Múltiple no Concesionada La Corona	0	0	0	3	1
Zona de Uso Múltiple no Concesionada El Morgan	0	0	0	0	0
Zona de Uso Múltiple no Concesionada San Bartolo	0	0	0	0	0
Área de Manejo Especial Cruce a Dos Aguadas	36	43	54	44	45
Área de Manejo Especial Santa Rosita	5	22	16	23	4
Zona de Uso Múltiple no Concesionada Frontera Chanchich	0	0	0	0	0
Área de Recuperación y Uso Sostenible Ruta a Melchor de Mencos	28	111	95	79	56
Área Urbana Melchor de Mencos	0	2	1	0	0
Área de Manejo Especial de Límites Corozal	0	0	1	1	0
Área de Manejo Especial de Límites Tikal - El Zotz	0	2	0	2	0
Área de Manejo Especial de Límites Yaxhá - Tikal	0	0	0	0	0
Zona de Uso Múltiple no Concesionada Triángulo Candelaria	39	89	105	93	39
Área de Recuperación Oeste de PNLT	27	46	51	53	26
Zona de Uso Múltiple no Concesionada El Molino	0	0	0	0	1
Total	1131	1867	2454	2238	1294

Forest fires that occurred inside the Project area during the Monitoring Period affected 646.4 hectares. However, a downward trend on the occurrence of fires shows that mitigation and prevention activities have contributed to the reduction of fires:

Table 5 Forest fires in the Project Area

	Centro Campesino	La Lucha	Naranjitos	Tecnica Agropecuaria	Union Maya Itza	Total
2015	0	0	1,9	5,8	0,9	**8,6**
2016	4,8	20,1	4,7	366,2	24,8	**420,5**
2017	0,2	9,8	0,6	97,9	21,8	**130,3**
2018	0,4	12,3	0,7	42,0	31,6	**87,0**

No other risks to the project were identified during this monitoring period.

2.2.7 Benefit Permanence (G1.11)

The main strategy used to maintain and enhance the climate, community, and biodiversity benefits beyond the project lifetime have been the transfer of knowledge in the form of training

and improvement of skills of local communities for them to manage the forest and their productive initiatives in a way that is sustainable and inclusive.

Several training, workshops and information meetings took place during the monitoring period and many more will be planned for the subsequent reporting periods (see Training and Workshops); therefore it is expected that the continuous improvement of skills of the local communities will allow them to be able to continue developing the project objectives even beyond the end of the crediting period.

In terms of biodiversity, the project has concentrated efforts in the monitoring of fauna, with a special focus on three important species: the jaguar, the pecari, and the tapir. The permanence of fauna and flora has been benefited from the constant surveillance directed by patrols that report and control illegal activities such as unauthorized logging and hunting (see Patrols). Other actions included the socialization of monitoring reports and the awareness campaigns implemented through training and workshops on the importance of the conservation of biodiversity.

For this reason, it is expected that the people who have been involved in the project will avoid practicing activities that could endanger biodiversity and will share the message to future generations to continue protecting fauna and flora beyond the project term.

Finally, the revenues from the sale of carbon credits are expected to continue financing (partially or totally) the implementation of initiatives and programs that are expected to last in the long-term such as sustainable farming and use of NTFP.

2.3 Stakeholder Engagement

2.3.1 Stakeholder Access to Project Documents (G3.1)

Assemblies have been held to publicize the progress of the project on topics such as the VCU negotiations, carbon accounting, general documentation on climate change, among others. During the assemblies, a comic book has been distributed, with information about the project and about climate change, using colloquial language to facilitate the understanding of these complex issues. A version of this comic was even made in the Q'eqchi language, which is the most widely spoken Mayan language in the region.

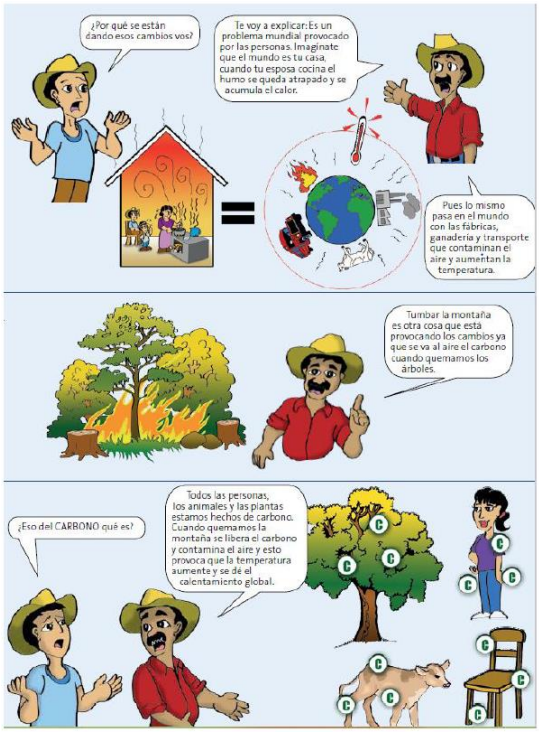


Figure 5 Comic distributed to stakeholders

The project proponents have made sure to share the link to the standards website, where the project documentation can be found, indicating that comments can be made for or against the project. As for organizations acting in the territory, the project has been socialized, trying to make synergies between the project and the efforts made by the communities, which are focused on women's empowerment, sustainable forest management, beekeeping, and the strengthening of different enterprises.

Figure 6 Informative Meeting about REDD+, Unión Maya Itza, Las Cruces, Peten, 2015

Finally, all the supporting documents of the Project mentioned in this Monitoring Report have been organized in a database that will be shared with the Validation and Verification Body.

2.3.2 Dissemination of Summary Project Documents (G3.1)

Reports describing the results of biological monitoring have been generated and published in at least one scientific journal. Specific results described in these reports have also been published in different social media.

Figure 7 Report on the monitoring of Tapir

The scientific reports can be found at Biodiversity-Tapir. In addition to this, about 21 informational meetings and events took place during the monitoring period (see Meetings and Events), along with about 9 stakeholder consultations (see stakeholder consultation) and four field visits (see Field visits). These events were used to socialize the results of the implementation of the project activities and to receive feedback from the stakeholders on the efficacy of the project on reducing deforestation.

2.3.3 Informational Meetings with Stakeholders (G3.1)

As mentioned before, about 21 informational meetings and events along with 9 stakeholder consultations took place during this monitoring period. More than 787 people were involved in these events.

Figure 8 stakeholder consultation, Tecnica Agropecuaria, 2015

Some of the topics of these meetings included the requirements to access the project, the duties, and responsibilities of those committed to reducing deforestation, the impacts of climate change,

the organizational structure of the project along with the phases of the project. Detailed information can be found in the folders Stakeholder Consultations and Meetings and Events.

2.3.4 Community Costs, Risks, and Benefits (G3.2)

All discussions of project risks, costs, and benefits have been developed within the structure of the project's Governance Committee. In this space, the representatives of each cooperative present their opinions and proposals regarding the project's issues. One issue that has been discussed a great deal is a benefit-sharing mechanism, where the community assemblies give the guidelines regarding the distribution of benefits and the representatives in the committee raise the requirements of their community assemblies, which are made official through the minutes of the committee. See folder Governance.

2.3.5 Information to Stakeholder on Verification Process (G3.3)

Describe how communities and other stakeholders were informed of the process for CCB verification by an independent validation/verification body. Specifically, address:

Activities and/or processes implemented.

Communication methods used.

2.3.6 Site Visit Information and Opportunities to Communicate with Auditor (G3.3)

Describe how communities and other stakeholders will be or have been informed of the validation/verification body's site visit in a timely manner before the site visit occurs, and how direct and independent communication between communities and other stakeholders or their representatives and the validation/verification body will be or has been facilitated.

2.3.7 Stakeholder Consultation (G3.4)

Stakeholder Consultations were carried out during the monitored period both for communities of the first instance and for other stakeholders. About 9 stakeholder consultations along with more than 21 informational meetings were executed especially during this reporting period. These consultations involved people from the communities of La Lucha, Unión Maya Itzá, Técnica Agropecuaria, Villa Hermosa, San Juan Villa Nueva, and Poza Azul. See Stakeholder Consultations.

Figure 9 Stakeholder consultation Unión Maya Itzá, 2015

Additional meetings and consultations with the communities that belong to the first instance and with other stakeholders present in the PNSL can be found in the folder Workshops-Training-Meetings and Events. The feedback of the communities received during the consultations has been documented and subsequently discussed with the members of the Governance Committee who are in charge of disseminating such feedback with representatives of other communities to build a consensus response and opinion.

Feedback from communities has mostly influenced the design of the benefit-sharing mechanism for the distribution of revenues, as communities can propose activities and investment necessities that shall be considered by the committee. Nevertheless, the feedback received from the communities is used to prioritize topics of training in order to improve the skills of those who want to participate in specific productive activities or of those who want to improve their performance when implementing the project activities.

2.3.8 Continued Consultation and Adaptive Management (G3.4).

The REDD+ Governance Committee has been the mechanism used to maintain continuous communication between project participants. Through regular and extraordinary meetings, proposals have been discussed, decisions made, and guidelines given to Defensores de la Naturaleza to lead the VCU negotiations. An issue that has been very much present in these meetings is the benefit-sharing mechanism, where each partner has a particular proposal on how to invest the project funds. However, thanks to this space, it has been possible to generate a proposal for a benefit-sharing mechanism that meets the requirements of each partner and guarantees the continuity of the project.

The project participants oversee the gathering of the opinions and proposals of the communities they represent and communicate them during the meetings of the governance committee. Apart from this, communication with stakeholders has been facilitated through the execution of stakeholder consultations, informative meetings, events, training, and field visits. The minutes,

photographic records, and lists of participants can be found in the respective folders. See Governance, Stakeholder Consultations, Meetings and Events, and Training and Workshops.

2.3.9 Stakeholder Consultation Channels (G3.5)

The participation of the different partners (participants) has been encouraged, ensuring that each person involved in the project can share their opinions. The means used have always been the community assemblies (see Governance), where the partners meet and raise their doubts or opinions about the project. In these assemblies, the records of the agreements are kept regarding relevant issues of the project. Then, the community representatives before the REDD+ Governance Committee are in charge of taking the agreements and discussing them with the communities to later formalize these decisions or opinions. The details of the legal representatives of the project participants are included in section 2.1.3 of this report.

2.3.10 Stakeholder Participation in Decision-Making and Implementation (G3.6)

As explained in the previous sections, different meetings, events, consultations, workshops, and training have been executed during the monitoring period. Depending on the topic and the audience the language for each activity is adjusted to enable the effective participation of all communities. Some minutes of these meetings along with reports of the project implementation have been translated to local languages to facilitate the understanding of non-Spanish speaking stakeholders.

Figure 10 decision-making process at the stakeholder consultation for Técnica Agropecuaria, 2015

Women's participation has also been encouraged in all events planned for the project. The list of participants of each event demonstrates that women have participated in the project activities. Some meetings were even held exclusively with women to facilitate their free expression and participation in the project's decision-making. See Training and Workshops, Governance, Meetings, and Events.

2.3.11 Anti-Discrimination Assurance (G3.7)

The community involvement in the project has been inclusive, accord to individual capabilities and independent of gender, cultural identity, and religion. The project Proponents understand the diversity of the stakeholders that are directly or indirectly involved in the REDD+ initiative and consequently, specific strategies have been designed to ensure that transparent and non-discriminatory procedures are in place.

Likewise, the project rejects any kind of discrimination in employment opportunities and promotes equality at work. All personnel contracted for the development of project activities are based on the experience and profile of the candidates applying to fill the position.

Finally, the primary project proponents have an excellent reputation and are not involved in or complicit in any form of discrimination or sexual harassment concerning the project. A comprehensive online search was performed to confirm that there are no reports that indicate that the Project Participants (project proponent and project developers) have been involved or complicit in any form of discrimination or sexual harassment.

2.3.12 Grievances (G3.8)

The process for handling conflicts and grievances is led by the Governance Committee and supported by the field technicians as they are the first to respond to requests raised by the community. Additionally, the representative of the Governance Committee of each cooperative serves as the communication channel between communities and project proponents, as established in the procedural guidelines of the Governance Committee.

The specific mechanism for receiving and handling grievances is described below:

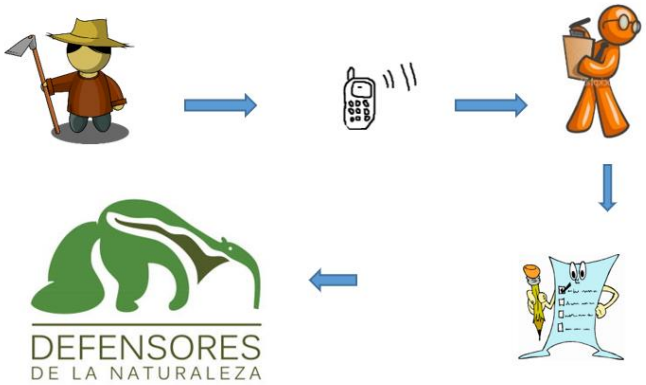


Figure 11 Channel for communication of grievances

1. The person in charge of FDN maintains constant communication (at least once a month) with the community representatives to be informed about any news, complaints, questions, suggestions, new interested parties, among others.

2. The person in charge collects the information in the formats established by the consulting team (See following image) and shares them with the coordinator of the REDD+ project in the field, who will be responsible for responding to the comments. In case of additional assistance is needed, the consultant team can be contacted at any time.

Proyecto: REDD+ Lacandón – Bosque para la Vida

Grievances, Complaints and Comments

Date	Comments/name and phone number	Action Requested	Response by the Project	Person in charge of responding to the request	Has the request been satisfactorily addressed?

3. Once the results of the comments are known, the person in charge should contact the community representative again to inform him/her of the status of the case and the steps to be taken. The duration between each cycle of questions and answers should potentially last a maximum of one week.

Unfortunately, the records of the grievances, complaints, and suggestions during this monitoring period were not recorded in the format established for that purpose as most of these comments were received during the several meetings and events executed from 2015 to 2018 (see Grievances and Complaints). The main positive comments of the local communities regarding the project are summarized below:

- The presence of technical staff in each of the communities has been of great support both for the management of the program and for the organizations and local authorities, as it has facilitated communication, articulation, and the work of raising awareness, providing services and training community youth leaders.

- All the interventions carried out together and led by the project's coordination team and donors have encouraged the consolidation of alliances to work in a harmonious, homogeneous manner, with unified criteria and a shared vision on the importance of sexual and reproductive health, family planning, training of youth multipliers and environmental education.

- With the experience acquired during the project lifetime, it was possible to design jointly and in a consensual way the model of attention of approach and processes of action for each component of the Project. The experience acquired by the technical team from the implementation of this approach has been extremely valuable in defining actions and resolving the application of strategies so that they are in line not only with the project objectives but also with the reality and idiosyncrasies of the beneficiaries at the community level.

- Due to a clear structure in the model of attention of the project and its activities, in addition to the achievements to date, Fundación Defensores de la Naturaleza has achieved considerable fundraising through the replication of program objectives and strategies to other geographical areas under its responsibility.

- The link between reproductive health and environmental protection is seen to be real and of interest to the communities living in extreme poverty, as usually they are forced to abuse the natural resources, either by cutting down trees for firewood or by killing wild animals for food. This project has demonstrated to involve an effective methodology to integrate such activities not only to improve the health of the population but also to protect the environment.

On the other hand, the negative comments of the stakeholders are summarized below:

- Some communities have threatened to cut down the forest if they do not receive a monetary incentive from the project. In response, FDN has pointed out that there are restrictions on logging because the project is located in a protected area. Concerning financial incentives, it has been clarified that decisions are not FDN's sole responsibility but rather depend on a previously agreed administrative process.

- Few people stated that the project has misled them and that they no longer want to be part of it. To solve this issue, FDN has clarified that the project decisions do not rely entirely on them and that the restrictions and regulations of the protected area prevail over the project objectives.

Consequently, FDN has invited the community to create the PNSL Advisory Council and participate in specific meetings and consensus decisions of the PNSL, along with the creation of local commissions for disaster reduction. However, the response from these people has been negative.

- Some people argue that they are private landowners and hence no restrictions on the use of natural resources can be imposed on them. However, although they own the rights to the land, their territories are located inside a National Park ruled by specific regulations.

Specific records of the grievances received are summarized in the following table:

Table 6 grievances and complaints

Name	Position	Grievance/Comment	Description
Alba Mendez	Local Teacher	Comment	The project has brought positive benefits to the local communities, especially women. Although many women have benefited from the sexual health training and distribution of contraceptive methods, others think that the project is encouraging them to avoid having children.

Name	Position	Grievance/Comment	Description
Iris Portillo	Mini Network Youth Multiplier, School Youth Multiplier, and Volunteer for the “Reading Adventures” program.	Comment	The project has positively impacted her work as Trainer as she has received training and knowledge from the different activities executed to improve the skills of the stakeholders. She believes the project has been useful for the communities, especially women, children, and youth.
Consuelo Sánchez	Active participant of the reproductive health campaign		She has benefited from the project as she has improved her skills to communicate sensitive information regarding reproductive health. The project has also allowed her to visit places she did not know and she has developed skills in caring for women in childbirth.

2.3.13 Worker Training (G3.9)

As for the Project's technical staff, training workshops have been held on topics such as agroforestry systems, nursery plant production, beekeeping, post-harvest management of ramón and pepper, group management, and conflict resolution (See Training and Workshops). As of 2018, a programmatic monitoring system has been implemented, which involves the use of tools to facilitate the reporting and systematization of project activities. This monitoring system is combined with an application for Android devices, which facilitates real-time reporting of activities.

For the use of this monitoring system (tools and mobile application), workshops were held to train the technical team, to teach the proper use of the tools and application as well as the required quality of the reported data.

In terms of training in community and productive issues, training has been given in the management of agroforestry systems, beekeeping, carpentry, sustainable forest management, community organization, and tourism, among others. In recent years, the emphasis has been placed on organizational, administrative, and accounting issues, to strengthen community governance and ensure the sustainability of initiatives over time.

More than 84 training and education activities were executed during this reporting period involving at least 2.32 participants from which at least 758 were women. Photographic records of some training are shown hereafter. See Training and Workshops for more information.

Apiary Técnica Agropecuaria.

Figure 12 beekeeping industry

Pulp extraction from avocado and sapote fruits for shampoo production with communities of La Lucha, Las Cruces, and San Juan Villa Nueva.

Figure 13 Community enterprise for the production of avocado pulp

Carpintería La Lucha is a center for training, production and sale of wooden furniture, involving young people from the Sierra Lacandón National Park-PNSL- from three organizations, Cooperativa La Lucha, Cooperativa Unión Maya Itzá, and Parcela miento el Retalteco.

Figure 14 Community enterprise – carpentry

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Figure 15 Training teachers in environmental awareness for children in Pozo Azul and Villa Hermosa in 2018

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Figure 16 Training and development of a business plan for Piedras Blancas Archeological site in 2018

Sandwich making courses Guatemalans, Guatemalan cuisine, and elaboration of candles and aromatic candles. 2018

Figure 17 Community enterprise for the production of snacks

2.3.14 Community Employment Opportunities (G3.10)

The project rejects any kind of discrimination in employment opportunities and promotes equality at work. All personnel contracted for the development of project activities are based on the experience and profile of the candidates applying to fill the position. Training has been provided for everyone interested regardless of gender, religion, or race.

According to the records of FDN, during the monitoring period 9 permanent jobs have been generated along with 48 temporal jobs and 2.483 daily-based employment opportunities:

Table 7 Generation of employment

		Jobs		
Community	**Year**	**Daily-based**	**Temporal**	**Permanent**
El Retalteco Beekeeping Committee	2017	70	25	2
Unión Maya Itzá Agroindustrial Cooperative R.L.	2017	0	0	0
Cooperative La Lucha	2017	298	0	0
	2018	675	0	0
	2019	1440	0	0
		0	0	0
	2020	0	0	7
Cooperative La Tecnica	2014	0	1,7	0
	2015	0	12	0
	2016	0	9	0
Total general		2483	47,7	9

Unfortunately, FDN did not save the records of contracts or agreements that can support the above numbers. These records were gather based on an extensive review of documents and meetings with communities and project leaders. Finally, records of payments to 85 people for the execution of different project activities in addition to wages generated for the operation of the Pymes supported by the project can be found in Employment.

2.3.15 Relevant Laws and Regulations Related to Worker's Rights (G3.11)

The Guatemalan Constitution and Labour Code recognize the right to freely associate and bargain collectively. Articles 34 and 102 (q) of the Constitution expressly provide that workers may freely associate without discrimination or previous authorization from the government. The Labour Code further elaborates on these basic protections. Guatemala has signed 47 agreements34 within the International Labour Organization35.

The main social safeguards in Guatemalan legislation can be found in the Constitution of 1985, the Peace Accords of 1996, the Municipal Code of 2002, and the Cadastre Information Registration Law of 2005. The 1985 Constitution recognizes indigenous and collective rights (Art 67) and says that the State will develop legislation and mechanisms to protect these rights (Constitution Art. 68 and 70). This further legislation has never been passed. Two of the Peace Accords, the Agreement on Indigenous Peoples' Identity and Rights (Section F) and the Agreement on Socioeconomic Aspects and the Agrarian Situation (Chapter 3, Section E), also refer to indigenous communities' rights to land.

At the international level, Guatemala has ratified ILO Convention 169 - The Indigenous and Tribal Peoples Convention, 1989, which is a legally binding international instrument open to ratification, deals specifically with the rights of indigenous and tribal peoples. Also, this is part of the United

Nations Declaration on the Rights of Indigenous People, which constitutes the minimum standards for the survival, dignity, and well-being of the indigenous peoples of the world.

This project ensures that all workers are treated according to the requirements of the applicable legislation. All personnel of the REDD+ project will have to agree and sign a contract in which his or her obligations and rights will comply with the applicable legislation and will be exposed.

2.3.16 Occupational Safety Assessment (G3.12)

The project is developed within a National Park; an area with high susceptibility to being invaded due to the variety of natural resources. Therefore, there is a latent risk during patrols to meet people who carry out illegal activities. In monthly meetings, security issues in the park are discussed, to review and adjust the needs for the personnel or external support. However, interinstitutional presence in the park has increased the safety of people working in the project zone, reducing potential threats or conflicts.

For the activities in which people from the communities have an active role, FDN has always provided training and, when necessary, safety equipment. In tasks where worker's safety cannot be guaranteed (fire control, chainsaw utilization, etc.), FDN makes sure that the risks are minimized using best practices in occupational health and safety management, establishing and maintaining a preventative culture through active participation of workers in workshops to ensure a safe environment and healthy work (see Training and Workshops and Occupational Safety). Permanent workers of different institutions have social insurance. Communities have constant training on actions that can reduce these risks.

Figure 18 Slides from training in wood harvesting

Finally, workers of FDN are covered by life insurance that protects them in case any injuries occur when performing their duties. See Occupational Safety.

2.4 Management Capacity

2.4.1 Required Technical Skills (G4.2)

The technical team of the project is composed of qualified experts on areas related to community engagement, assessment of biodiversity and carbon accounting, and monitoring. The graduates and technical experts receive constant training in specific areas necessary for the successful execution of the REDD+ initiative (See Workshops-Training-Meetings-Events). The following table summarizes the academic experience of the technical team:

Table 8 Technical skills of the implementing team

Name	Position	Years of experience	Last academic degree achieved	REDD+ Skill
Daniel Gonzalo Castellanos Pinedo	Control and Protection Assistant		Technician in agricultural production	Carbon Monitoring and Biodiversity assessment
Denver Osberto Ruiz Velasquez	Beekeeper promoter	6	Primary School	Technical expert
Diana Elizabeth Cantoral Melendez	Primary school teacher	23	Degree in legal and social sciences	Community Engagement
Edin Orlando López Tejada	Agronomic engineer	17	Agronomic engineering	Carbon Monitoring
Edwin Edilberto Carrera Hernandez	Rural promoter	17	Primary School	Technical expert

Name	Position	Years of experience	Last academic degree achieved	REDD+ Skill
Elver Barrios Lucas		10	Third grade in elementary school	Technical expert
Gerson Eli Velarde López	primary school teacher - Field facilitator		Grade six in Diversified School	Technical expert
Gloria Marina Aguilar Hernandez	Field facilitator	17	Environmental engineering	Community Engagement
Guadalupe de Jesus Melendez Sanchez	Patrol Team		Diversified School	Technical expert
Heidy Yesenia Portillo Gómez		3	Diversified School	Technical expert
Heriberto Lucero Martínez			Primary School	Technical expert
Irene María Romero Zetina	Forestry Engineer	27	Master's Degree in Rural Development	Community Engagement
Jorge Anibal Soza Castillo			Licentiate in Archaeology	Community Engagement
Julio Aroldo Pineda Escoar	Coordinator of the PSNL environmental education program	30	Licentiate in Environmental Education	Community Engagement
Manuel de Jesus Fajardo Barrientos			Primary School	Technical expert
Marconi Miguel Artola Chan		14	Land Management Engineering	Carbon Monitoring and Biodiversity assessment
Mario René Lara Campos	Field technician	17	Agronomic Engineer - Zootechnist	Biodiversity assessment
Nery Osbaldo Jurado Cordero	Research and Monitoring Department Technician	28	Diversified School	Technical expert
Osea Obed Hgil Bertruy	Usumancita District Manager - Community Development Program	11	University level Currently studying	Community Engagement
Panfilio Regino Hernandez Mirando			Primary School	Technical expert
Pedro López Sánchez	Primary school teacher	6	University Level	Technical expert

Name	Position	Years of experience	Last academic degree achieved	REDD+ Skill
Rebeca Escobar Méndez	Research Coordinator	15	Licentiate in Biology	Technical expert
Evelyn Roxana Quiñonez		16	Licentiate in Business Administration	Community Engagement
Sahara Ché Cuc			Diversified School	Technical expert

The CVs of each expert can be found at CV's and Technical experience.

2.4.2 Management Team Experience (G4.2)

The experience of the Management Team was summarized in the previous section. The full CVs describing the prior experience of the management team can be found at CV's and Technical experience.

On the other hand, FDN contracted the firm CB CARBONCONSULTING for preparing this monitoring report and for estimating GHG emission removals. This company has worked during the last 8 years in the design and execution of Carbon Projects from the AFOLU sector for both the regulated and voluntary markets. The CV of the general director and the team of the firm can be found at CV's and Technical experience.

2.4.3 Project Management Partnerships/Team Development (G4.2)

As noted by the governance committee, the project has an advisory committee that includes the Oro Verde Foundation and the Association of Forest Communities of the Petén (ACOFOP). Oro Verde is a German institution with a long and relevant track record in monitoring the financial management of projects linked to the conservation of natural ecosystems. Oro Verde was founded in 1989 by renowned personalities from industry and science. Its work focuses on concrete and permanent effective contributions to the conservation of tropical forests.

On the other hand, ACOFOP[20] is a community-based association consisting of twenty-three rural and indigenous organizations. The association facilitates community forestry, guaranteeing that natural forests will be maintained in perpetuity in the Multiple Use Zone of the Maya Biosphere Reserve. The main objective of ACOFOP is to improve the quality of life of forest communities through community forest management and by promoting social, ecological, economic, and political sustainability in the Multiple Use Zone.

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

As for Defensores de la Naturaleza, it currently has a range of projects that guarantee accompaniment and technical assistance to the communities within the project area. FDN has a well-consolidated administrative-accounting apparatus that not only verifies the financial

[20] http://www.acofop.org/

implementation of the different projects but is also responsible for ensuring the correct investment of the funds, through internal and external audits.

As for the cooperatives, they also have an administrative structure. Their boards of directors have a treasury department, which is complemented by an external accountant who handles the accounting for each organization. As for the income of each organization, the main source comes from sustainable forest management, which represents one of the main incomes throughout the year, since it generates jobs for the communities, as well as a capital that is distributed among the members themselves.

Tourism is another activity that has developed in recent years, generating jobs and some income for the cooperative to operate. Finally, carpentry is another activity that has been strengthened, being managed by a group of young people and registered within the framework of the cooperative. It has generated jobs for 8 young carpenters, as well as dividends that have been reinvested in materials and supplies for the carpentry, but also in the operation of the cooperative.

2.4.5 Avoidance of Corruption and Other Unethical Behavior (G4.3)

A comprehensive online search was performed, and, as a result, there are no reports that demonstrate that the Project Participants (project proponent and project developers) are involved or complicit in any form of corruption. Also, the Governance Committee oversees that the personnel directly involved in the project complies with the REDD+ project objectives and performs its duties as per the rules and requirements set for the project and the Protected area.

2.4.6 Commercially Sensitive Information (*Rules* 3.5.13 – 3.5.14)

All project documentation has been published on the VCS project database website. Physical records of the information are stored at the offices of FDN. Upon request, every stakeholder can access the information of the project.

2.5 Legal Status and Property Rights

2.5.1 Recognition of Property Rights (G5.1)

The areas included in the project zone have diverse tenure status. The most representative are:

- Private owners organized in communities.
- Communities established on state-owned lands before the creation of the SLNP, with signed cooperation agreements.
- Communities established on state-owned lands before the creation of the SLNP but acknowledged by the Guatemalan Government.
- Illegal settlements irregularly established and unrecognized by the Guatemalan Government.

- Land owned by the NGO Fundación Defensores de la Naturaleza (FDN) and other private owners.

- State-owned land.

In total, there are 28 human settlements and 2 private conservation areas owned by FDN within or overlapping partially with the areas of the National Park. (See section 2.7.1 of the previous Monitoring Report). To the date, tree communities along with the two areas owned by Defensores de la Naturaleza conform the first instance of the project area.

There are no ongoing or unresolved disputes or conflicts over land between the different landowners inside the project area. Fundación Defensores de la Naturaleza owns Centro Campesino and Naranjitos. The three communities of La Lucha, La Técnica Agropecuaria, and Unión Maya Itzá present legal land tenure. The proof of title documentation can be found in the Land tenure folder. The project proponents have the rights over the land and over the Certified Emissions Reductions to be generated by the project activities taking place in these areas.

2.5.2 Free, Prior and Informed Consent (G5.2)

Free prior and informed consent was received from the following communities during the monitoring period. All supporting documents can be found at Free, Prior, and Informed Consent. No relocation of people has been necessary for the development of the project. The communities have freely expressed their interest in being part of the project.

La Lucha:

Before communities confirmed their interest in being part of the project, two consultations took place in La Lucha. These meetings aimed at explaining the project and provide time for discussion.

March 10th, 2015; 21 participants (see photo)

March 19th ,2015 ; 10 participants

However, the written consent was provided on May 8th, 2015 where 49 people from the community of La Lucha agreed on being included.

Figure 19 free, prior and informed consent in La Lucha

Técnica Agropecuaria:

24 people form Técnica Agropecuaria assisted to an informative meeting that took place in March 2015 (see photo), where people were informed about the project concepts, implications, and benefits. However, it was only until June 9th, 2015, where 45 people from this community formally decided to join the project.

Figure 20 Free, prior and informed consent La Técnica

Unión Maya Itzá:

On May 8th, 2015, 115 people from Unión Maya Itzá decided to formally be included in the REDD+ Project.

2.5.3 Property Right Protection (G5.3)

FDN has informed all communities living within the SLNP that this project's goal is reducing deforestation and complying with the requirements described by Guatemalan Law regarding the management procedures in protected areas. The process for distributing information to communities has been undertaken by the technicians of FDN, and it happened at the same time as the announcement of the stakeholder consultation meetings.

FDN together with CONAP has established guidelines for land use in these protected areas, which are reflected in cooperation agreements to be signed between CONAP and the communities that are currently settled without legal documentation but with historic land rights (see Cooperation Agreements).

The cooperation agreements reflect legislation that is not currently being enforced. CONAP has already expressed willingness to maintain the settlements with historic land rights if they follow the guidelines considered by the applicable law.

Thus, if any community or settlement is evicted from the project area, it will be due to the application of the Guatemalan Law of protected areas, as has happened in the past, and not due to the implementation of the REDD+ project36.

For the first instance of the project, the three cooperatives have land titles and the other lands are owned by FDN. No involuntary relocation will occur.

2.5.4 Identification of Illegal Activity (G5.4).

This project has been designed to a significant degree considering the illegal activities that currently occur within the borders of the SLNP. Project activities like the inter-institutional collaboration for patrolling the borders of the park, the normalization of land tenure, the maintenance of facilities that ease logistical implementation of control activities, the system for controlling materials coming out of the SLNP, the systems of quick alert in case of emergencies like a fire, firefighting training, etc. are mostly focused on lowering the impacts of the illegal activities that currently occur and seeking the eradication of such practices from the area by creating an uncomfortable environment for the individuals that undertake such practices. None of the project benefits will be derived from illegal activities.

The monitoring patrols reported the occurrence of isolated illegal activities associated with Hunting, logging, and fishing. Different weapons and machinery were confiscated and more than 50 legal procedures haven ben placed to offenders identified by the Patrols (see Patrols).

2.5.5 Ongoing Disputes (G5.5)

There are no ongoing or unresolved disputes or conflicts regarding land. Fundación Defensores de la Naturaleza owns Centro Campesino and Naranjitos. The three communities of La Lucha, La Técnica Agropecuaria, and Unión Maya Itzá present legal land tenure. The proof of title documentation can be found in the Land tenure folder. The project proponents have the rights over the land and over the Certified Emissions Reductions to be generated by the project activities taking place in these areas.

2.5.6 National and Local Laws (G5.6)

Guatemala has initiated concrete actions to address the challenges of climate change. It has a National Change Climate Policy and one of the first laws on global climate change; this is the Climate Change Framework Law, whereby the National Council on Climate Change (Art. 8), integrates different sectors of the country including government, municipalities, mayors created and indigenous, private, peasant authorities, non-governmental organizations, indigenous groups, and universities.

- Protected Areas Law (Decree 4-89) and its reform in the Decree 19-89 and 110-96.

- Regulation of the Law on Protected Areas (Government Agreement 759-90).

- Biosphere Maya Reserve (Legislative Decree 5-90) and areas of Southern Petén (Decree 64-95) and Master Plans approved for each particular protected area.

- The Law of the Land Fund (Decree 24-9).

- Law of protection and improvement of the environment (Decree 68-89) and its reform in the Decree 1-93 and 90-2000.

- Regulation of Forestry Law (4.23.97 Resolution of Board of INAB).

- Law of the Ministry of Agriculture (Legislative Decree 102-70).

- Red List of Flora for Guatemala (Resolution No. ALC 028/2001 of CONAP).

- Trifinio Biosphere Reserve Act (Legislative Decree 939-87).

- Act declaring the Protected Area South of the Petén (Legislative Decree 64-95).

- Leasing State Reserve Areas (Government Agreement 199-93).

- Technical Cooperation Agreement between the Government of the Republic of Guatemala and the Government of the Republic of Finland on the management and sustainable use of natural coniferous forests of Guatemala (Decree 10-93).

- Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973). According to Resolution 22/90 amendments to Appendices, I and II of the Convention (24/06/92)(Legislative Decree 63-79) are allowed.

- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Legislative Decree 4-86).

- Convention for the Conservation of Biodiversity and Protection of Wilderness Areas in Central America (Legislative Decree 5-95)

-Law on the Use and Marketing of Gum Protection and the Chicozapote Tree (Legislative Decree 99-96).

The project complies with the relevant national legislation and such compliance is monitored by the territorial entities that manage the protected areas in Guatemala.

3 CLIMATE

Note that Section 3 relates exclusively to data and parameters for monitoring GHG emission reductions and removals. No community or biodiversity parameter should be entered here except for any relevant information for fulfilling the optional Gold Level criteria.

3.1 Monitoring GHG Emission Reductions and Removals

3.1.1 Data and Parameters Available at Validation

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Data / Parameter	I
Data unit	*Dimensionless*
Description	*1, 2, 3 .. IRR A stratum within the reference region*
Source of data	*Section 4.1 Annex VCS*

Value applied	*Stratum 1 – Maya Biosphere Reserve (RBM) (with exclusions)* *Stratum 2 – Buffer Zone (ZA)* *Stratum 3 – Northern Lowlands.*
Justification of choice of data or description of measurement methods and procedures applied	*Baseline emissions are better estimated when different homogeneous strata are created-*
Purpose of the data	*Calculation of baseline*
Comments	

Data / Parameter	ABSLLK
Data unit	*Ha*
Description	*Cumulative area of baseline deforestation within the leakage belt at year t*
Source of data	*Calculated, see Annex VCS Section 1.1.3 and 4.1.2.2*
Value applied	*Table 9c, 11c, 13c of VM0015.*
Justification of choice of data or description of measurement methods and procedures applied	*Leakage emissions calculation. Calculated according to requirements of VM0015 v1.1 by dividing ABSLRR (t) of stratum 1 of the RR by the leakage belt polygon.*
Purpose of the data	*Calculation of leakage*
Comments	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter	Thrp
Data unit	*Yr*
Description	*Duration of the historical reference period*
Source of data	*Section 2 Annex VCS*
Value applied	*10.*

Justification of choice of data or description of measurement methods and procedures applied	*Required for the calculation of Historical emissions and forest cover change.*
Purpose of the data	*Calculation of baseline*
Comments	

Data / Parameter	f(t)
Data unit	*Dimensionless*
Description	*Time function equation, Approach b*
Source of data	*Mapa de Cambios 1986 – 2009 CEMEC*
Value applied	*ABSLRR𝕁_(i,t)=1,225.37x-2,447,617.33*
Justification of choice of data or description of measurement methods and procedures applied	*Used to estimate Baseline emissions as per the options offered by the methodology.*
Purpose of the data	*Calculation of baseline*
Comments	

Data / Parameter:	*ABSLLK*
Data unit:	*ha*
Description:	*Cumulative area of baseline deforestation within the leakage belt at year t*
Source of data:	*Calculated, see Annex VCS Section 1.1.3 and 4.1.2.2*
Value applied:	*Table 9c, 11c, 13c of VM0015.*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*

Purpose of the data:	*Leakage emissions calculation. Calculated according to requirements of VM0015 v1.1 by dividing ABSLRR (t) of stratum 1 of the RR by the leakage belt polygon.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLLK_(fcl,t)*
Data unit:	*ha*
Description:	*Area of final (post-deforestation) forest class fcl deforested at time t within the leakage belt in the baseline case*
Source of data:	*Calculated, see Annex VCS section 4.1.2.2*
Value applied:	*Table 13c of VM0015.*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Leakage emissions calculation. Calculated according to requirements of VM0015 v1.1 by dividing ABSLRR (t) of stratum 1 of the RR by the leakage belt polygon.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLLK_(i,t)*
Data unit:	*ha*
Description:	*Annual area of baseline deforestation in stratum (i) within the leakage belt at year t*
Source of data:	*Calculated, see Anexo VCS section 4.1.2.2*
Value applied:	*Table 9c, 11c, 13c of VM0015.*
	N/A
Justification of choice of data or description of measurement methods and procedures applied	

Purpose of the data:	*Leakage emissions calculation. Calculated according to requirements of VM0015 v1.1 by applying the time function regression (with constraints) to stratum 1 of the RR and dividing it by the project area and leakage belt boundaries.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLLK_(icl,t)*
Data unit:	*ha*
Description:	*Area of initial (post-deforestation) forest class fcl deforested at time t within the leakage belt in the baseline case*
Source of data:	*Calculated*
Value applied:	*Table 11c of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	N/A
Purpose of the data:	Baseline emissions calculation. Calculated according to requirements of VM0015 v1.1, 5.1 by applying land cover map to the result of Table 9c
Comments:	Activity data for calculating GHG emissions in the baseline scenario

Data / Parameter:	*ABSLLK_(t)*
Data unit:	*ha*
Description:	*Annual area of baseline deforestation within the leakage belt at year t*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9c, 11c, 13c of VM0015.*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*

Purpose of the data:	*Leakage emissions calculation. Calculated according to requirements of VM0015 v1.1, 4.1.2.2 by dividing ABSLRR (t)of stratum 1 of the RR by the leakage belt polygon.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*Annual area of baseline deforestation in stratum (i) within the RR at year t*
Data unit:	*ha*
Description:	*Cumulative area of baseline deforestation within the project area at year t*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9b, Table 11b, Table 13b of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. Calculated according to requirements of VM0015 v1.1, 4.1.2.2 by dividing ABSLRR (t) of stratum 1 of the RR by the project area polygon.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLPA_(i,t)*
Data unit:	*ha*
Description:	*Annual area of baseline deforestation within stratum (i) of the project area at year t*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9b, 11b, 13b of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. Calculated according to requirements of VM0015 v1.1, 4.1.2.2 by dividing ABSLRR (t) of stratum 1 of the RR by the project area polygon.*

Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLPA_(icl,t)*
Data unit:	*ha*
Description:	*Area of initial (pre-deforestation) forest class icl deforested at time t within the project area in the baseline*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 11b of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. Calculated according to requirements of VM0015 v1.1, 5.1 by applying land cover map to the result of Table 9b*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLPA_(t)*
Data unit:	*ha*
Description:	*Annual area of baseline deforestation in the project area at year t*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9b, 11b, 13b of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. Calculated according to requirements of VM0015 v1.1,*
	4.1.2.2 by dividing ABSLRR (t) of stratum 1 of the RR by the project area polygon.
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLPAz_(t)*
Data unit:	*ha*
Description:	*Area of the zone z "deforested" at time t within the project area in the baseline case; ha*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 13b of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. Methodology deviation applied. Equal to values of Table 11b.*
Comments:	*Calculating net GHG emissions via post deforestation C-stocks*

Data / Parameter:	*ABSLRR*
Data unit:	*ha*
Description:	*Cumulative area of baseline deforestation in the reference region at year t*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9a,11a VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. The reference area meets three of the four criteria in section 1.1.1 and then calculated according to 4.1.2.1, option b with constraints applied.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLRR_(i,t)*
Data unit:	*ha*
Description:	*Annual area of baseline deforestation in stratum (i) within the RR at year t*

Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9a,11a VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. The reference area meets three of the four criteria in section 1.1.1 and then calculated according to 4.1.2.1,*
	option b with constraints applied.
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ABSLRR_(t)*
Data unit:	*ha*
Description:	*Annual area of baseline deforestation within the RR at year t*
Source of data:	*Calculated, see Annex VCS*
Value applied:	*Table 9a,11a VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. The reference area meets three of the four criteria in section 1.1.1 and then calculated according to 4.1.2.1, option b with constraints applied.*
Comments:	*Activity data for calculating GHG emissions in the baseline scenario*

Data / Parameter:	*ARR_(i)*
Data unit:	*ha*
Description:	*Total forest area in stratum i within the reference region at the project start date*
Source of data:	*Calculated, see Annex VCS*

Value applied:	*Stratum 1: 1,248,936.12* *Stratum 2: 110,828.16* *Stratum 3: 531,726.48*
Justification of choice of data or description of measurement methods and procedures applied	*CONAP in charge of analyzing satellite images.*
Purpose of the data:	*Baseline emissions calculation. Based on the results of satellite image processing as described in Annex section 4.1.1. and 2.4.3.*
Comments:	*Benchmark forest cover used to assess emissions reductions.*

Data / Parameter:	*Cab_(fcl)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in the aboveground biomass carbon pool of final post deforestation class fcl*
Source of data:	*Calculated, see Annex VCS 6.1.1*
Value applied:	*Agropecuario-Non-Forest - Guamiles: 17.7* *Palma Africana / humid: 123.3* *Regeneración de bosque secundario: 11.3*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation.*
Comments:	*Calculate GHG emissions from deforestation*

Data / Parameter:	*Cab_(cl)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in the aboveground biomass carbon pool of LU/LC class cl*
Source of data:	*Calculated, see Annex VCS 6.1.1*

Value applied:	*Forest class:* *BB-SH: 263.9* *BMA-H: 343.8* *BMA-SH: 314.7*
Justification of choice of data or description of measurement methods and procedures applied	*Derived from national inventory data*
Purpose of the data:	*Baseline emissions calculation. Derived from various forest inventory data. See section 6.1.1.*
Comments:	*Emissions factors for estimating GHG emissions from deforestation.*

Data / Parameter:	*Cab_(fcl)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in the aboveground biomass carbon pool per zone z*
Source of data:	*Calculated, see Annex VCS 6.1.1*
Value applied:	*Zone 1 (BB-SH): 16.7* *Zone 2 (BMA): 25.4*
Justification of choice of data or description of measurement methods and procedures applied	*National official sources were carefully reviewed to derivate carbon stocks*
Purpose of the data:	*Baseline emissions calculation. Derived from a combination of sources. See section 6.1.1*
Comments:	*Growth factors in post-deforestation classes used for calculating net GHG emissions.*

Data / Parameter:	*Cbb_(fcl)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in the belowground biomass carbon pool per zone z*
Source of data:	*Calculated, see Annex VCS 6.1.1*
Value applied:	*Zone 1 (BB-SH): 26.8* *Zone 2 (BMA): 22.6*

Justification of choice of data or description of measurement methods and procedures applied	*National official sources were carefully reviewed to derivate carbon stocks*
Purpose of the data:	*Baseline emissions calculation. Derived from a combination of sources. See section 6.1.1*
Comments:	*Growth factors in post-deforestation classes used for calculating net GHG emissions.*

Data / Parameter:	*Ctotz*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock of all accounted carbon pools per zone z*
Source of data:	*Table 17 VM0015*
Value applied:	*Zone 1 (BB-SH): 43.5* *Zone 2 (BMA): 48.0*
Justification of choice of data or description of measurement methods and procedures applied	*N/A*
Purpose of the data:	*Baseline emissions calculation. Calculated, see Anexo VCS Section 6.1.1*
Comments:	*Estimate net GHG emissions*

Data / Parameter:	*R_(j)*
Data unit:	*%*
Description:	*Root:shoot ratio*
Source of data:	*IPCC/Literature value*
Value applied:	*0.24*
Justification of choice of data or description of measurement methods and procedures applied	*International Applicable Factor.*
Purpose of the data:	*Baseline emissions calculation. Default value of 0.24 from IPCC/Mokany 2006*
Comments:	*Belowground biomass estimation*

Data / Parameter:	*Cbb_(cl)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in the belowground biomass carbon pool of LU/LC class cl*
Source of data:	*Calculated, see Annex VCS 6.1.1*
Value applied:	*Forest class:* *BB-SH: 63.3* *BMA-H: 82.5* *BMA-SH: 75.5*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Default value of 0.24 from IPCC/Mokany 2006*
Comments:	*Emissions factors for estimating GHG emissions from deforestation.*

Data / Parameter:	*CF_(j)*
Data unit:	*Dimensionless*
Description:	*Carbon fraction for tree tr, of species, group of species or forest type j*
Source of data:	*Arreaga 2002, IPCC GPG 2006 Chapter 6, Sec. 6.3.1.4*
Value applied:	*Forest classes: 0.5* *Post-deforestation classes: 0.47*
Justification of choice of data or description of measurement methods and procedures applied	*Internationally used fractions.*
Purpose of the data:	*Baseline emissions calculation. See section 6.1.1. of the Annex VCS* *Forest Classes: Arreaga 2002, local measurements* *Post-Deforestation classes: default values IPCC GPG 2006, Chapter 6, Sec. 6.3.1.4*
Comments:	*Conversion from biomass to CO2e*

Data / Parameter:	*Cp*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in the carbon pool p*
Source of data:	*Table 20.a*
Value applied:	*Table 20.a. VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Requirements of VM0015 sec. 6.1.2.*
Comments:	*n.a.*

Data / Parameter:	*Ctot_(fcl, t)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock of all accounted carbon pools in non-forest class fcl at time t;*
Source of data:	*n.a.*
Value applied:	*n.a.*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Sec. 8.1.1 Anexo VCS. Leakage management activities do not decrease carbon stocks.*
Comments:	*n.a.*

Data / Parameter:	*Ctot_(icl)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock per hectare in all accounted carbon pools of LU/LC class cl*
Source of data:	*Calculated, see Annex VCS 6.1.1*

Value applied:	*Forest class:* *BB-SH: 325.9* *BMA-H: 425.03* *BMA-SH: 388.9*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Derived from various forest inventory data. See section 6.1.1.*
Comments:	*Emissions factors for estimating GHG emissions from deforestation.*

Data / Parameter:	*Ctot_(icl, t)*
Data unit:	*t CO2e ha-1*
Description:	*Average carbon stock of all accounted carbon pools in forest class icl at time t*
Source of data:	*Calculated, see Annex VCS Section 9.1*
Value applied:	*Deemed de-minimus*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Significance analysis. Table "Significancia" in "Tablas de VM0015 Lacandon_5areas"*
Comments:	*n.a.*

Data / Parameter:	*a1,a2*
Data unit:	*ha*
Description:	*Sample plot size*
Source of data:	*Various field plot types from: • Inventarios forestales de Concesiones en la RBM (IFCRBM)• Parcelas permanentes de monitoreo forestal (PPMF)• Inventarios de carbono de la UVG-CEA del área protegida Lachuá (ICUVG)• Inventario de carbono en el Parque Nacional Sierra del Lacandón (ICPNSL)*

Value applied:	*IFCRBM = >24.99 cm DAP 1ha (500mx20m), >9.99 cm DAP <25 cm DAP (0.2ha)*
	PPMF = 0.25 ha (50mx50m) *ICUVG = 0.1 ha (circular)* *ICPNSL = 0.1 ha (50mx20m)*
Justification of choice of data or description of measurement methods and procedures applied	*Data derived from national applicable sources.*
Purpose of the data:	*Baseline emissions calculation.* *Carrera, F. 1996; Castellanos, E. et al, 2010; Castellanos, E. et al, 2011; Márquez, J. 2013, Pinelo 2000, Pinelo 2004*
Comments:	*An estimate of aboveground biomass*

Data / Parameter:	*Cwp_(icl)*
Data unit:	*t CO2-e ha-1*
Description:	*Average carbon stock per hectare in the harvested wood products carbon pool of initial forest class icl.*
Source of data:	*Historical harvest data 2000-2013 from CONAP.*
Value applied:	*1.3*
Justification of choice of data or description of measurement methods and procedures applied	*Provided by CONAP based on their extensive experience.*
Purpose of the data:	*CONAP has historical harvest data for the MBR, and Bamaca's local harvesting efficiency study is one of the few that exist on the subject. Approximately 25% of a whole tree is converted into commercially viable wood. Guatecarbon project estimates that milled wood equates to harvested wood products (conservative) and that they are long-lived (no decay) because of the lack of data, which is also conservative.*
Comments:	*To account for biomass losses due to harvest and to determine whether the harvested wood pool is significant. Finally, the significance analysis shows that the Hwp from legal and illegal harvests are insignificant and account for less than 1% of emissions.*

Data / Parameter:	*ΔCabABSLKK*
Data unit:	*t CO2-e*
Description:	*Cumulative baseline carbon stock changes for the above-ground biomass pool in the leakage belt*
Source of data:	*Table 21.c.1 of VM0015*
Value applied:	*See Table 21.c.1 of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. GHG accounting in the leakage belt.*
Comments:	*n.a.*

Data / Parameter:	*ΔCbbABSLKK*
Data unit:	*t CO2-e*
Description:	*Cumulative baseline carbon stock changes for the below-ground biomass pool in the leakage belt*
Source of data:	*Table 21.c.1 of VM0015*
Value applied:	*See Table 21.c.1 of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. GHG accounting in the leakage belt.*
Comments:	*n.a.*

Data / Parameter:	*ΔCabBSLPA*
Data unit:	*t CO2-e*

Description:	*Cumulative baseline carbon stock changes for the above-ground biomass pool in the project area*
Source of data:	*Table 21.b.1 of VM0015*
Value applied:	*See Table 21.b.1 of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. GHG accounting in the project area.*
Comments:	*n.a.*

Data / Parameter:	*ΔCbbBSLPA*
Data unit:	*t CO2-e*
Description:	*Cumulative baseline carbon stock changes for the below-ground biomass pool in the project area*
Source of data:	*Table 21.b.1 of VM0015*
Value applied:	*See Table 21.b.1 of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. GHG accounting in the project area.*
Comments:	*n.a.*

Data / Parameter:	*ΔCADLK*
Data unit:	*t CO2-e*
Description:	*Cumulative total decrease in carbon stocks due to displaced deforestation*
Source of data:	*Table 34, 35 of VM0015*
Value applied:	*See Table 34, 35 of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*

Purpose of the data:	*Leakage emissions calculation. GHG accounting from displaced leakage*
Comments:	*n.a.*

Data / Parameter:	*ΔCBSLPA*
Data unit:	*t CO2-e*
Description:	*Total baseline carbon stock changes in the project area*
Source of data:	*Table 36 of VM0015*
Value applied:	*See Table 36 of VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. GHG accounting in the project area*
Comments:	*n.a.*

Data / Parameter:	*ΔCPLdPA*
Data unit:	*t CO2-e*
Description:	*Cumulative decrease in carbon stock due to planned logging activities at year t in the project area*
Source of data:	*Table 25b, 25d VM0015* *Historical harvest data 2000-2013 from CONAP. See "Extracción_madera_Lacandon_I instancia.xlsx".*
Value applied:	*1.3 tCO2e ha-1 yr-1, but deemed de-minimis*
Justification of choice of data or description of measurement methods and procedures applied	*Provided by CONAP based on their extensive experience on the field*
Purpose of the data:	*Baseline emissions calculation. To account for biomass losses due to harvest and to determine whether the harvested wood pool is significant.*
Comments:	*The significance analysis shows that legal and illegal harvests are insignificant and account for less than 1% of emissions.*

Data / Parameter:	*ΔCPSPA*
Data unit:	*t CO2-e*
Description:	*Cumulative project carbon stock change within the project area at year t*
Source of data:	*Table 27, 36 VM0015*
Value applied:	*Table 27, 36 VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Calculation of net GHG emissions reductions*
Comments:	*n.a.*

Data / Parameter:	*fj(DBH,H)_(ab)*
Data unit:	*kg arbol-1*
Description:	*Allometric equation linking biomass to a biometric variable (D).*
Source of data:	*Arreaga 2002*
Value applied:	*Log10(Bt)=-4.09992+2.57782*Log10(DAP).*
Justification of choice of data or description of measurement methods and procedures applied	*Taken from national applicable sources*
Purpose of the data:	*Baseline emissions calculation. See Annex VCS section 6.1.1, N=139, R2 = .95*
Comments:	*Estimate biomass to calculate GHG equivalents*

Data / Parameter:	*ΔCUDdPA*
Data unit:	*t CO2-e*
Description:	*Cumulative actual carbon stock change due to unavoided unplanned deforestation at year t in the project area*
Source of data:	*Table 27 VM0015. Section 7.1.2 Annex VCS*
Value applied:	*Effectiveness index: 45%*

Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. A measure of project effectiveness*
Comments:	*n.a.*

Data / Parameter:	*ΔREDD_(t)*
Data unit:	*t CO2-e*
Description:	*Net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t*
Source of data:	*T36 VM0015*
Value applied:	*T36 VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. The cumulative result of applying the VM0015 methodology, see section 9.2 of Annex VCS*
Comments:	*Final GHG calculations*

Data / Parameter:	*DLF*
Data unit:	*%*
Description:	*Displacement leakage factor*
Source of data:	*%*
Value applied:	*5*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Leakage emissions calculation.Ex-ante leakage*
Comments:	*n.a*

Data / Parameter:	*EI*

Data unit:	*%*
Description:	*Ex-ante estimated Effectiveness Index*
Source of data:	*Estimate generated by the project*
Value applied:	*0.45*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Estimate generated by the project*
Comments:	*n.a.*

Data / Parameter:	*ELK*
Data unit:	*t CO2-e*
Description:	*The cumulative sum of ex-ante estimated leakage emissions at year t*
Source of data:	*Table 35,36 VM0015 Annex VCS*
Value applied:	*Table 35,36 VM0015 Annex VCS*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Leakage emissions calculation. The cumulative result of applying the VM0015 methodology, see section 8 of Annex VCS*
Comments:	*n.a.*

Data / Parameter:	*RF_(t)*
Data unit:	*%*
Description:	*Risk factor used to calculate VCS buffer credits*
Source of data:	*VCS Non Permanence Risk analysis*
Value applied:	*10*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*

Purpose of the data:	*Baseline emissions calculation. See VCS NonPermanence Risk Analysis*
Comments:	*n.a.*

Data / Parameter:	*VBC_(t)*
Data unit:	*t CO2-e*
Description:	*Number of Buffer Credits deposited in the VCS Buffer at time t;*
Source of data:	*Table 36 VM0015*
Value applied:	*Table 36 VM0015*
Justification of choice of data or description of measurement methods and procedures applied	*n/a*
Purpose of the data:	*Baseline emissions calculation. Calculated. Section 9.3*
Comments:	*Buffer calculation*

3.1.2 Data and Parameters Monitored

Data / Parameter:	*ABSLLK*
Data unit:	*Hectares (ha)*
Description:	*Cumulative area of deforestation within the leakage belt at year t*
Source of data:	*Information about deforestation rates and forest cover change was provided by CONAP/CEMEC. The analysis was based on seven zones where remote sensing data (Sentinel 2,3,4,5 and 6) was available. Images were acquired in 2015 and 2018.*
Description of measurement methods and procedures to be applied:	*The monitoring of the forest coverage in the leakage belt was conducted through satellite image analysis and Geographic Information System. Spatial resolution images are 10 m, allowing to work with better resolution and accuracy in the analysis of deforestation.*

Frequency of monitoring/recording:	*At each verification period*
Value monitored:	*Table 9c, 11c, 13c of VM0015*
Monitoring equipment:	*Geographic Information System (ArcGIS 10.3)*
QA/QC procedures to be applied:	*Quality control/quality assurance (QA/QC) procedures will be performed by CEMEC/CONAP according to the guidelines in Annex PD VCS GuateCarbon. The assessment of the monitoring period used remote sensing images of Sentinel*
Calculation method:	*Activity data for calculating GHG emissions. Calculated according to requirements of VM0015 v1.1.*
Comments:	*See GIS Accuracy Assessment.*

Data / Parameter:	*ABSLLK_(i,t)*
Data unit:	*ha*
Description:	*Annual area of deforestation in stratum (i) within the leakage belt at year t*
Source of data:	*Satellite images*
Description of measurement methods and procedures to be applied:	*Satellite image analysis and Geographic Information System.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 9c, 11c, 13c of VM0015.*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Activity data for calculating GHG emissions. Calculated according to requirements of VM0015 v1.1.*
Comments:	*n.a.*

Data / Parameter:	*ABSLPA*
Data unit:	*ha*
Description:	*Cumulative area of deforestation within the project area at year t*
Source of data:	*Satellite images*
Description of measurement methods and procedures to be applied:	*Satellite image analysis and Geographic Information System.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 9b, 11b, 13b of VM0015*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Activity data for calculating GHG emissions. Calculated according to requirements of VM0015 v1.1.*
Comments:	*n.a.*

Data / Parameter:	*ABSLPA_(i,t)*
Data unit:	*ha*
Description:	*Annual area of deforestation within stratum (i) of the project area at year t*
Source of data:	*Satellite images*
Description of measurement methods and procedures to be applied:	*Satellite image analysis and Geographic Information System.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 11b of VM0015*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Activity data for calculating GHG emissions.*
	Calculated according to requirements of VM0015 v1.1.
Comments:	*n.a.*

Data / Parameter:	*ABSLPA_(t)*
Data unit:	*ha*
Description:	*Annual area of deforestation in the project area at year t*
Source of data:	*Satellite images*
Description of measurement methods and procedures to be applied:	*Satellite image analysis and Geographic Information System.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 9b, 11b, 13b of VM0015*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Activity data for calculating GHG emissions. Calculated according to requirements of VM0015 v1.1.*
Comments:	*n.a.*

Data / Parameter:	*AUFPA_(icl,t)*
Data unit:	*ha*
Description:	*Areas affected by forest fires in class icl in which carbon stock decrease occurs at year t*
Source of data:	*Fire monitoring reports from CEMEC. See Fires*
Description of measurement methods and procedures to be applied:	*Satellite image analysis*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*2014: 14 ha* *2015: 8.6 ha* *2016: 420.5* *2017: 130.3* *2018: 87*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Fire monitoring reports from CEMEC*

Comments:	*No large fires or events were detected in the project area*

Data / Parameter:	*ΔCFCdPA*
Data unit:	*t CO2-e*
Description:	*Cumulative decrease in carbon stock due to forest fires and catastrophic events in the project area*
Source of data:	*Fire monitoring reports from CEMEC*
Description of measurement methods and procedures to be applied:	*Satellite image analysis*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*n.a*
Comments:	*No large fires or events were detected in the project area*

Data / Parameter:	*ΔCFCdPA_(t)*
Data unit:	*t CO2-e*
Description:	*Total decrease in carbon stock due to forest fires and catastrophic events at year t in the project area*
Source of data:	*Fire monitoring reports from CEMEC*
Description of measurement methods and procedures to be applied:	*Satellite image analysis*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*GIS software*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*n.a*

Comments:	*No large fires or events were detected in the project area*

Data / Parameter:	*ΔCPSPA*
Data unit:	*t CO2-e*
Description:	*Cumulative project carbon stock change within the project area at year t*
Source of data:	*Satellite images*
Description of measurement methods and procedures to be applied:	*Methodology VM0015 v1.1.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 36.*
Monitoring equipment:	*n.a*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Activity data for calculating GHG emissions reductions according to methodology VM0015 v1.1.*
Comments:	*n.a.*

Data / Parameter:	*ΔCPSPA_(t)*
Data unit:	*t CO2-e*
Description:	*Annual project carbon stock change within the project area at year t*
Source of data:	*Satellite images*
Description of measurement methods and procedures to be applied:	*Methodology VM0015 v1.1.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 36.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*

Calculation method:	*Activity data for calculating GHG emissions reductions according to methodology VM0015 v1.1.*
Comments:	*n.a.*

Data / Parameter:	*ΔCUCdPA*
Data unit:	*t CO2-e*
Description:	*Cumulative decrease in carbon stock due to catastrophic events at year t in the project area*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*n.a.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Activity data for calculating GHG emissions reductions.*
Comments:	*No significant events were detected in the project area*

Data / Parameter:	*ΔCUCdPA_(t)*
Data unit:	*t CO2-e*
Description:	*Total decrease in carbon stock due to catastrophic events at year t in the project area*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*n.a.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*

Calculation method:	*Activity data for calculating GHG emissions reductions.*
No significant	*No significant events were detected in the project area*

Data / Parameter:	*ΔCUCiPA*
Data unit:	*t CO2-e*
Description:	*Cumulative increase in carbon stock in areas affected by catastrophic events (after such events) at year t in the project area*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*n.a.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Measure carbon stock increases from natural disturbance/catastrophic events*
Comments:	*No significant events were detected in the project area*

Data / Parameter:	*ΔCUCiPA_(t)*
Data unit:	*t CO2-e*
Description:	*Total increase in carbon stock in areas affected by catastrophic events (after such events) at year t in the project area*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*n.a.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*

Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Measure carbon stock increases from natural disturbance/catastrophic events*
Comments:	*No significant events were detected in the project area*

Data / Parameter:	*ΔCUFdPA*
Data unit:	*t CO2-e*
Description:	*The cumulative total decrease in carbon stock due to unplanned (and planned – where applicable) forest fires in the project area*
Source of data:	*Fire monitoring reports from CEMEC*
Description of measurement methods and procedures to be applied:	*Satellite image analysis*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Measure net GHG emissions*
Comments:	*No large fires or events were detected in the project area*

Data / Parameter:	*ΔCUFdPA_(t)*
Data unit:	*t CO2-e*
Description:	*The total decrease in carbon stock due to unplanned (and planned – where applicable) forest fires at*
	year t in the project area
Source of data:	*Fire monitoring reports from CEMEC*
Description of measurement methods and procedures to be applied:	*Satellite image analysis*
Frequency of monitoring/recording:	*At each verification period*

Value applied:	*n.a.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Measure net GHG emissions*
Comments:	*No large fires or events were detected in the project area*

Data / Parameter:	*ΔCUFiPA*
Data unit:	*t CO2-e*
Description:	*The cumulative total increase in carbon stock due to unplanned (and planned – where applicable) forest fires in the project area*
Source of data:	*Fire monitoring reports from CEMEC*
Description of measurement methods and procedures to be applied:	*Satellite image analysis*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*n.a.*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Measure net GHG emissions*
Comments:	*No large fires or events were detected in the project area*

Data / Parameter:	*ΔREDD*
Data unit:	*t CO2-e*
Description:	*Cumulative net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*Methodology VM0015 v1.1.*

Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 36*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*According to methodology VM0015 v1.1. Table 36*
Comments:	*n.a.*

Data / Parameter:	*ΔREDD_(t)*
Data unit:	*t CO2-e*
Description:	*Net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*Methodology VM0015 v1.1*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 36*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*According to methodology VM0015 v1.1.*
Comments:	*n.a.*

Data / Parameter:	*RF_(t)*
Data unit:	*%*
Description:	*Risk factor used to calculate VCS buffer credits*
Source of data:	*VCS Non Permanence Risk analysis*
Description of measurement methods and procedures to be applied:	*AFOLU Non-permanence Risk Tool v.3.2*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*10%*

Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*Non-permanence Risk Tool v.3.2*
Comments:	*Buffer calculation*

Data / Parameter:	*VBC_(t)*
Data unit:	*t CO2-e*
Description:	*Number of Buffer Credits deposited in the VCS Buffer at time t;*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*Methodology VM0015 v1.1.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 36*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*According to methodology VM0015 v1.1.*
Comments:	*Buffer calculation*

Data / Parameter:	*VCU_(t)*
Data unit:	*t CO2-e*
Description:	*Number of Verified Carbon Units (VCUs) to be made available for trade at time t*
Source of data:	*n.a.*
Description of measurement methods and procedures to be applied:	*Methodology VM0015 v1.1.*
Frequency of monitoring/recording:	*At each verification period*
Value applied:	*Table 36*
Monitoring equipment:	*n.a.*
QA/QC procedures to be applied:	*Please refer to Monitoring Plan*
Calculation method:	*According to methodology VM0015 v1.1.*

Comments:	*Buffer calculation*

3.1.3 Monitoring Plan

The full monitoring plan can be found in section 8 of the PDD. A summary is presented below:

The objective of climate monitoring is to obtain information to estimate the amount of avoided GHG emissions during the crediting period. For this purpose, FDN uses MIRA application and has the support of CONAP/CEMEC, which will produce land cover maps that help quantify the effectiveness of the project in terms of the amount of forest cover that remains intact and undisturbed as a result of anthropogenic influence.

Calculating carbon stock changes and GHG emissions for periodical verifications within the fixed baseline period:

Monitoring of carbon stocks changes and GHG emissions for second verification:

Task 0: At first and second verification, confirmation of project area boundaries:

There are not any issues regarding the land ownership for the areas of the first instances. All owners have legal rights and titles of their areas. The boundaries are clearly defined.

Task 1: Monitoring of actual carbon stock changes and GHG emissions within the project area:

This task involves:

1. Monitoring of project implementation:

   the project activities implemented within the project area were monitored in order to determine if they are consistent with the management plans of the project area and the PD. All maps and records (including pictures, testimonies, additional specific reports, etc.) generated during the monitoring report were stored by FDN and will be made available to auditing.

2. Monitoring of land-use and land-cover change within the project area:

   CONAP collected data in form of satellite images and developed spatial to generate information about the area of forest land converted to non-forest land and the area of forested land undergoing carbon stock decrease, per LULC change class.

   The forest cover mapping is developed by CONAP/CEMEC as FDN has an agreement with them. The monitoring of planned and unplanned deforestation will be done using 30-meter or higher spatial resolution satellite images, depending on access to images and the advancement of technology.

The assessment of land-use and land-cover change was done using SENTINEL 2, 3, 4, 5 to generate the annual deforestation data. Deforestation estimates obtained from this analysis have been compared with the deforestation model established in the baseline scenario.

Table 9 Satellite images used for map accuracy assessment

Vector	Sensor	Resolución		Cobertura	Fecha de adquisición			Escena	Observaciones
		Espacial	Espectral	km2	DD	MM	YY	Tile	
Satelite	Sentinel 2	10*10	1-12	11405	23	10	2015	15QYU	https://scihub.copernicus.eu/dhus/odata/v1/Products('82026907-5915-4d09-b47e-36987b51e57b')/$value
Satelite	Sentinel 2	10*10	1-12	12000	25	11	2015	15QXU	https://scihub.copernicus.eu/dhus/odata/v1/Products('eb032f19-ecce-40c2-8d10-d05851743d3a')/$value
Satelite	Sentinel 2	10*10	1-12	9100	23	10	2015	15QYV	https://scihub.copernicus.eu/dhus/odata/v1/Products('8a6eaf6b-f70f-4688-932b-2f1db5aa9a01')/$value
Satelite	Sentinel 2	10*10	1-12	12000	19	12	2018	15QXU	https://scihub.copernicus.eu/dhus/odata/v1/Products('6fd05592-5e89-4380-9191-87f86eaaf08c')/$value
Satelite	Sentinel 2	10*10	1-12	12000	29	12	2018	15QXV	https://scihub.copernicus.eu/dhus/odata/v1/Products('3a24cf77-90cb-485d-968a-e79973a6e9ce')/$value
Satelite	Sentinel 2	10*10	1-12	4500	19	12	2018	15QYU	https://scihub.copernicus.eu/dhus/odata/v1/Products('b8b9adf6-2cf6-4119-8e80-2e45f9f4dfa3')/$value
Satelite	Sentinel 2	10*10	1-12	7000	19	12	2018	15QYV	https://scihub.copernicus.eu/dhus/odata/v1/Products('4a3eb44f-53b8-4a4a-9623-42592b6ad0bc')/$value

3. Monitoring of carbon stocks and non-CO2 emissions from forest fires:

In case uncontrolled forest fires or other catastrophic events occur within the project area, this project commits to estimate carbon stock losses as soon as possible. If planned and significant carbon stock decrease occurs in leakage management areas in the project scenario, CEMEC/CONAP is in charge of estimate the change in carbon stocks at least once after the planned event that caused the carbon stock decrease has happened.

In most cases, the ex-ante estimated average carbon stocks per LU/LC class (or carbon stock change factors per LU/LC change category) will not change during a fixed baseline period and monitoring of carbon stocks will not be necessary. However, monitoring of carbon stocks is mandatory in the following cases:

3.1 Within the project area:

a) Areas subject to significant carbon stock decrease in the project scenario according to the ex-ante assessment.

These areas are subject to controlled deforestation and planned harvesting activities, such as logging, fuelwood collection, and charcoal production. Monitoring of these areas has been done through forest management plans of each community; as well as legal permits for removal. All types of logging must have permission from the relevant authorities and shall follow a forest harvesting guide. The emissions attributed to planned logging were considered insignificant for the baseline period and hence its quantification is required only when significant. However, no significant emissions (above the baseline) attributed to planned logging were released during the monitoring period.

- Harvesting permits along with forest management can be found at the folders. (See Harvesting and Management Plans).
- Data will be stored in physical format (field) and then in digital formats.

b) areas subject to unplanned and significant carbon stock decrease, e.g. due to uncontrolled forest fires and other catastrophic events. In these areas, carbon stock losses will be estimated as soon as possible after the catastrophic event when significant.

- No such significant events were recorded in the monitoring period.

3.1 Within the leakage management areas:

Areas subject to planned and significant carbon stock decrease in the project scenario according to the ex-ante assessment. In these areas, carbon stocks must be estimated at least once after the planned event that caused the carbon stock to decrease. The project does not consider a decrease in carbon stocks and increased emissions resulting from leakage prevention measures inside the leakage management areas. All project proponents have legal land tenure, so it is unlikely that a leak occurs

3.2 Optional monitoring of carbon stocks within the project area:

a) Areas subject to carbon stock increase after planned harvest activities, such as logging, fuelwood collection, and charcoal production. In these areas, the carbon stock increase occurring after the harvest event can be measured and accounted, when significant. However, The project does not consider an increase in carbon stocks within the project area so this monitoring is not necessary.

b) Areas recovering after disturbances, such as unplanned forest fires, and other catastrophic events. In these areas, the carbon stock increase occurring after the catastrophic event can be measured and accounted, when significant. The project does not consider the increase in carbon stocks that may occur after catastrophic events so it is not necessary this monitoring

3.3 Optional monitoring of carbon stocks within the leakage management area:

Areas subject to carbon stock increase due to leakage prevention measures. In these areas, the carbon stock increase can be measured and accounted only up to the amount necessary to offset any carbon stock decrease caused by leakage prevention measures in other leakage management areas or previous years.

The project does not consider an increase in carbon stocks within the leakage management areas, so it is not necessary for this monitoring.

3.4 Optional monitoring of carbon stocks within the leakage belt:

Areas undergoing significant changes in carbon stock may be measured at the end of each fixed baseline period to update carbon stock information for the subsequent period. The project does not consider an increase in carbon stocks within the leakage belt so it is not necessary for this monitoring.

4. Monitoring of impacts of natural disturbances and other catastrophic events:

All decrease in carbon stocks due to natural disturbances or catastrophic events will be done through monitoring of forest cover by using satellite images; and the same method for

monitoring forest cover in the project area will be used. A significant reduction in carbon stock will be reported in the verification process.

There are no catastrophic events reported by FDN during this monitoring period.

5. Total ex-post estimated actual net carbon stock changes and GHG emissions in the project area:

   All ex-post estimations in the project area will be summarized using Table 36 of the VCS methodology VM0015.

6. Data archiving:

   FDN will be responsible for the centralized documentation of all project planning and implementation. Quality Assurance and Quality control (QA/QC) procedures will be implemented to ensure that all materials generated through remote sensing and GIS exercises and biomass and leakage are measured and monitored precisely, credibly, verifiably, and transparently. FDN will coordinate QA/QC activities, and is responsible for documenting QA/QC procedures. For this purpose, FDN will designate a QA/QC coordinator; for the first verification, it is biologist Rebeca Escobar.

   All documents related to the monitoring will be put together in hard/or digital files and made available to the verification body at each verification event.

   Task 2: Monitoring of leakage:

   Decrease in carbon stocks and an increase in GHG emissions associated with leakage prevention activities.

1. Leakage prevention measures in this project may include tree planting, agricultural intensification, fertilization, and/or fodder production, a temporally significant reduction in carbon stocks and/or an increase in GHG emissions may occur compared to the baseline case. If this is the case, this project will account for and monitor these sources of leakage emissions. Monitoring of the forest-cover leakage belt is conducted through satellite images provided by CONAP/CEMEC. No leakage was identified during this monitoring period.

2. Monitoring of carbon stock changes

   Deforestation above the baseline in the leakage belt area will be considered activity displacement leakage. Leakage will be calculated as the difference between the ex-ante and the ex-post assessment of the area of forestland converted to non-forest land in the leakage belt. Monitoring is undertaken following the same approach as in the monitoring of land-use and land-cover change within the project area.

   Ex ante value: 7 081 ha

   Ex post value: 2 612 ha

Emissions from forest fires were not included in the baseline, as they were considered not significant.

Task 3: Ex post calculation of net anthropogenic GHG emission reduction

Results for net anthropogenic GHG emissions are presented in Section 3.2.4

3.1.4 Dissemination of Monitoring Plan and Results (CL4.2)

See section 2.3.2

3.2 Quantification of GHG Emission Reductions and Removals

3.2.1 Baseline Emissions

Total emissions in the baseline scenario for the project area and leakage belt are presented in the following table. The overall baseline deforestation for this monitoring period (2014-2018) is 4.743 ha for the project area and 7.081 ha for the leakage belt:

Table 10 Annual areas of baseline deforestation in the project area (Table 9.b VM0015 v1.1).

Table 10 Baseline deforestation in the project area

year	Project year *t*	Stratum *i* of the reference region in the project area 1	Total	
			annual	cumulative
		$ABSLPA_{1,t}$	$ABSLPA_t$	$ABSLPA$
		Ha	ha	ha
2012	1	561	561	561
2013	2	781	781	1.343
2014	3	706	706	2.049
2015	4	1.038	1.038	3.087
2016	5	959	959	4.045
2017	6	884	884	4.929
2018	7	1.157	1.157	6.086
TOTAL		**6.086**	**6.086**	**22.100**
TOTAL 2014-2018		**4.743**	**4.037**	**18.147**

Table 11 Annual areas of baseline deforestation in the leakage belt (Table 9.c VM0015 v1.1)

Table 11 Baseline deforestation in the leakage belt

year	Project year *t*	Stratum *i* of the reference region in leakage belt	**Total**	
		1	annual	cumulative
		$ABSLLK_{i,t}$	$ABSLLK_t$	$ABSLLK_{i,t}$
		Ha	ha	ha
2012	1	3.175	3.175	3.175
2013	2	2.076	2.076	5.251
2014	3	2.329	2.329	7.580
2015	4	1.338	1.338	8.918
2016	5	1.287	1.287	10.205
2017	6	1.329	1.329	11.534
2018	7	797	797	12.331
TOTAL		**12.331**	**12.331**	**58.993**
TOTAL 2014-2018		**7.081**	**4.751**	**42.988**

Table 12 Annual areas deforested per forest class icl within the project area in the baseline case (baseline activity data per forest class) (Table 11.b VM0015 v1.1)

Table 12 Baseline deforestation in the project area per forest classes

Area deforested per forest classes *icl* within the project area				Total baseline deforestation in the project area	
ID_{icl}>	005	006	007	$ABSLPA_t$	*ABSLPA*
Name	Broadleaved, sub-humid forest (BB-SH)	Broadleaved, medium-high, humid forest (BMA-H)	Broadleaved, medium-high, sub-humid forest (BMA-SH)	annual	cumulative
Project year *t*	ha	Ha	ha	ha	ha
0				-	
2012	-	561	-	561	561
2013	-	781	-	781	1.343
2014	-	706	-	706	2.049
2015	-	1.038	-	1.038	3.087
2016	-	959	-	959	4.045
2017	-	884	-	884	4.929
2018	-	1.157	-	1.157	6.086

Table 13 Annual areas deforested per forest class icl within the leakage belt in the baseline case (baseline activity data per forest class) (Table 11.c VM0015 v1.1).

Table 13 Baseline deforestation in the leakage belt per forest class

Area deforested per forest classes *icl* within the leakage belt				Total baseline deforestation in the leakage belt	
ID_{icl}>	005	006	007	$ABSLLK_t$	*ABSLLK*
Name >	Broadleaved, sub-humid forest (BB-SH)	Broadleaved, medium-high, humid forest (BMA-H)	Broadleaved, medium-high, sub-humid forest (BMA-SH)	annual	cumulative
Project year *t*	ha	ha	ha	ha	ha
0				-	
2012	5	3.081	89	3.175	3.175
2013	3	2.028	45	2.076	5.251
2014	-	2.282	48	2.329	7.580
2015	-	1.317	21	1.338	8.918
2016	-	1.251	36	1.287	10.205
2017	-	1.301	28	1.329	11.534
2018	3	770	24	797	12.331

Table 14 Baseline carbon stock change

Project year *t*	**Total net carbon stock change i of the initial forest classes in the project area**	
	ΔCBSLPAt	ΔCBSLPA
	Annual	*Cumulative*
	t CO2e ha-1	t CO2e ha-1
2012	194.833	194.833
2013	273.306	468.138
2014	249.903	718.042
2015	367.506	1.085.548
2016	343.568	1.429.116
2017	320.844	1.749.959

Project year *t*	**Total net carbon stock change i of the initial forest classes in the project area**	
	ΔCBSLPAt	ΔCBSLPA
	Annual	*Cumulative*
	t CO2e ha-1	t CO2e ha-1
2018	418.624	2.168.583

3.2.2 Project Emissions

Total ex-post estimated carbon stock change in the project area under the project scenario for the present monitoring period is presented in the following table:

Table 15 Annual areas deforested per forest class icl within the project area in ex-post (Table 11.b VM0015 v1.1).

Table 15 Ex-post deforestation in the project area

Area deforested per forest classes *icl* within the project area				Total deforestation in the project area	
ID_{icl}>	005	006	007	$ABSLPA_t$	*ABSLPA*
Name	Broadleaved, sub-humid forest (BB-SH)	Broadleaved, medium-high, humid forest (BMA-H)	Broadleaved, medium-high, sub-humid forest (BMA-SH)	annual	cumulative
Project year *t*	ha	ha	ha	ha	ha
0				-	
2012	-	242	-	242,5	242,5
2013	-	294	-	294,2	536,7
2014	-	100	-	99,6	636,3
2015	-	224	-	224,3	860,6
2016	-	153	-	153,1	1.013,7
2017	-	242	-	242,2	1.255,9
2018	-	-	-	-	1.255,9

Table 16 Annual areas deforested per forest class icl within the leakage belt in ex-post (Table 11.c VM0015 v1.1).

Table 16 Ex-post deforestation in the leakage belt

Area deforested per forest classes icl within the leakage belt				Total deforestation in the leakage belt	
ID_{icl}>	005	006	007	$ABSLPA_t$	*ABSLPA*
Name	Broadleaved, sub-humid forest (BB-SH)	Broadleaved, medium-high, humid forest (BMA-H)	Broadleaved, medium-high, sub-humid forest (BMA-SH)	annual	cumulative
Project year *t*	ha	ha	ha	ha	ha
0				-	
2012	7	1.244		1.251	1.251
2013	8	1.671		1.679	2.930
2014	2	1.021	-	1.023	3.953
2015	5	348	7	360	4.313
2016	-0	-	-	-0	4.313
2017	0	859	31	890	5.203
2018	-	336	3	339	5.542

Table 17 Ex post estimated net carbon stock change in the project area

Project year *t*	**Total net carbon stock change of the initial forest classes in the project area**	
	ΔCtotBSLPA,t	ΔCtotBSLPA
	Annual	*Cumulative*
	t CO2e ha-1	t CO2e ha-1
2012	84.204	84.204,2
2013	103.015	187.219,2
2014	36.425	223.644,2
2015	80.085	303.729,5
2016	56.135	359.864,3
2017	87.604	447.467,9
2018	4.334	451.801,9

Non-CO2 emissions from forest fires:

Not subject to monitoring and accounting because it was considered insignificant in the baseline.

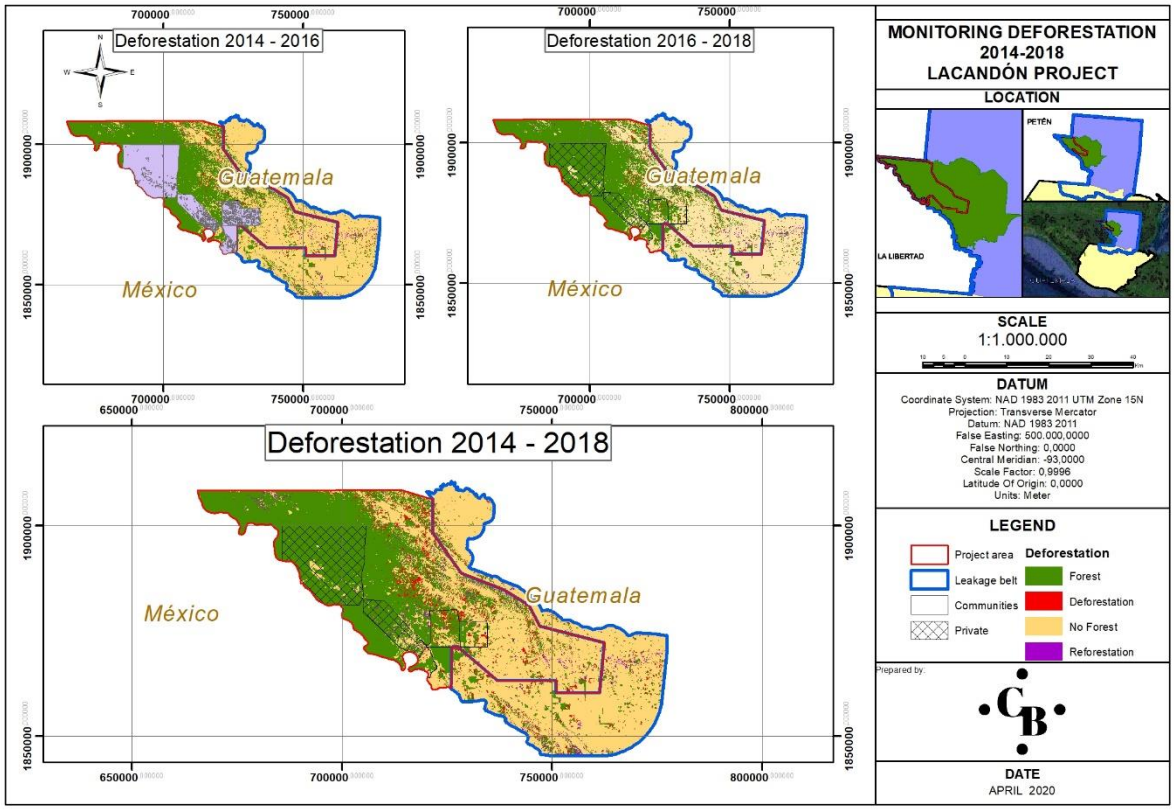

Figure 21 deforestation during the monitoring period

3.2.3 Leakage

Total ex-post estimated leakage.

The project does not consider a decrease in carbon stocks and increased emissions resulting from leakage prevention measures. Leakage is calculated as the difference between the ex-post and ex-ante values (deforestation above the baseline in the leakage belt area will be considered activity displacement leakage). As the result is < 0, the total ex-post leakage is zero.

No displacement emissions are expected since all proponents of the first instance have legal tenure over the land. Some of the mitigation measures employed by the Project to avoid leakage include constant monitoring of the territory through a mix of interinstitutional patrols and the REDD+ patrols of the project.

project year t	Total ex ante net baseline carbon stocks in leakage belt		Total ex post net actual carbon stock change in the leakage belt		Total ex post leakage	
	annual	cumulative	annual	cumulative	annual	cumulative
	ΔCbbABSLKK,t	ΔCbbABSLKK	ΔCbbABSLKK,t	ΔCbbABSLKK	ΔCbbABSLKK,t	ΔCbbABSLKK
	t CO2e	t CO2e	t CO2e	t CO2e	t CO2e	t CO2e
2012	-1.095.377,2	-1.095.377,2	-433.779,78	-433.779,78	0	0
2013	-727.399,5	-1.822.776,7	-586.777,63	-1.020.557,41	0	0
2014	-288.433,0	-1.534.343,7	-128.039,00	-892.518,41	0	0
2015	-488.217,7	-2.022.561,4	-133.497,92	-1.026.016,34	0	0
2016	-474.867,6	-2.497.429,1	-14.841,82	-1.040.858,16	0	0
2017	-494.026,6	-2.991.455,7	-303.449,98	-1.344.308,14	0	0
2018	-314.428,4	-3.305.884,1	-133.669,16	-1.477.977,30	0	0

Leakage mitigation activities implemented during the reported period included monitoring patrols, transfer of knowledge, and capacity building focused on sustainable agriculture and livestock production.

This project has calculated the amount of leakage based on the two sources of leakage detailed under the methodology VM0015:

1. The decrease in carbon stocks and an increase in GHG emissions associated with leakage prevention measures:

    - Leakage management measures would not generate any decrease in carbon stocks or increases in GHG emissions. This is attributed to the reason that the project area is a Protected National Park subject to specific regulations regarding land-use. For this reason, even though livestock production is allowed, its expansion over forested areas is forbidden.

    - Legal logging is permitted with forest management plans

    - The non-forest areas are leakage management areas. The activities executed in these areas were proposed by the project participants before signing conservation agreements

    - Non-forest classes presented in the areas of leakage management are the same class of non-forest present in the project area

- The carbon stocks of leakage management areas are the same stocks from post-deforestation class

- The project does not consider changes in carbon stocks within the management areas of leakage due to project activities. Therefore, a decrease in carbon stocks and an increase in GHG emissions associated with leakage prevention measures are excluded

2. A decrease in carbon stocks and an increase in GHG emissions associated with activity displacement leakage

    - No significant reduction of carbon stocks and/or an increase in GHG emissions occurred compared with the baseline scenario. Therefore, leakage emissions associated with the leakage prevention measures were not accounted and ex-post monitoring will not be undertaken

3.2.4 Net GHG Emission Reductions and Removals

The net anthropogenic GHG emissions reductions were calculated following the VM0015 methodology. The risk factor used to calculate VCS buffer credits is 10% as calculated in the Non-permanence risk tool. The calculated ex-post GHG emissions reductions are presented in the following table. It is used a discount per month at baseline because the monitoring period is until August and the project star day is in February. The VCUs tradable for the monitoring period are **1.146.232** tCO2-e

Table 18 Net GHG Emission Reductions and Removals

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)	Ex post buffer credits	Ex post VCUs tradable
2012	194.833	84.204	N.A	110.628	11.063	99.565
2013	273.306	103.015	N.A	170.290	17.029	153.261
2014	87.63721	36.425	N.A	51.211	5.121	46.089
2015	367.506	80.085	N.A	287.420	28.742	258.678
2016	343.568	56.135	N.A	287.433	28.743	258.689
2017	320.844	87.604	N.A	233.240	23.324	209.916
2018	418.624	4.334	N.A	414.289	41.429	372.860
Total	2.006.317	451.802	N.A	1.554.511	155.451	1.399.058

[21] Discount applied because the monitoring start date is August 25th, 2014.

Total monitoring period	**1.538.178**	**264.583**	**N.A**	**1.273.593**	**127.359**	**1.146.232**

Reduced forest loss:

The number of hectares of reduced forest loss in the project area measured against the without-project scenario for both the project lifetime and the current monitoring period is shown in the following graphs:

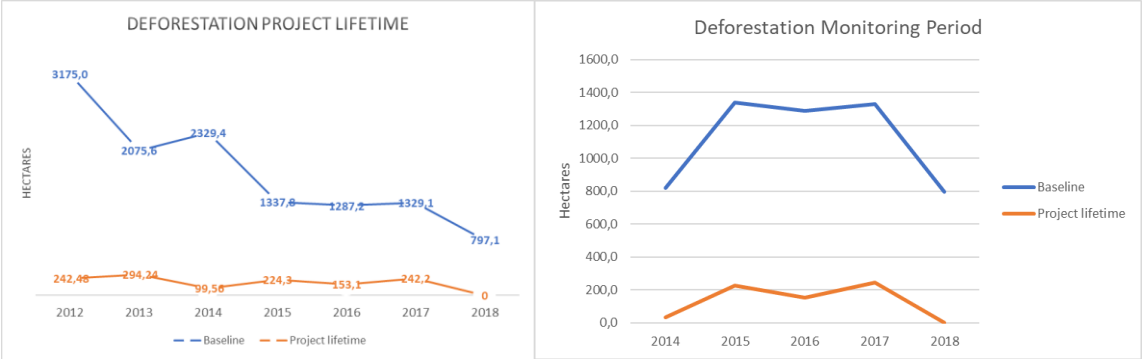

Figure 22 Forest loss during the monitoring period

The graph shows a continued decrease in forest loss during the project lifetime and during the current monitoring period. During this monitoring period, the project reduced the loss of 4.913,6 hectares.

3.3 Optional Criterion: Climate Change Adaptation Benefits

As explained in section 6.5 of the previous monitoring report, Guatemala is particularly vulnerable to the impacts of climate change. The implementation of the project has contributed to the reduction of vulnerabilities to climate change and the increase of resilience through the implementation of sustainable agricultural activities, sustainable farming, family livestock, agroforestry systems, and the increase in forest cover. These activities have been accompanied by permanent training to local communities on climate, environmental education, sexual and health protection (See Workshops-Training-Meetings-Events) along with the execution of patrols (see Patrols) to identify risks to the permanence of the project and the establishment of cooperation agreements with local communities to promote the sustainable management of natural resources.

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

This project's community and biodiversity enhancement and conservation activities will not be threatened by climate change, that is, they will not be more vulnerable than under any baseline scenario. Furthermore, the project strengthens the communities' capacity to cope with future climate change. We perceive our forest conservation efforts as an investment in ecosystem health, measure of climate change adaptation.

The complex nature of interactions between climate change and natural resources virtually ensures that over the lifetime of the project new risks will emerge; risks that have not yet been identified and anticipated. Besides, the project ensures that new impacts of climate change that emerge over the lifetime of the project will be recognized and appropriately addressed in the project management. Some of the project activities that help communities and biodiversity to adapt to the impacts of climate change are summarized below:

- The project strengthens the decision-making and capabilities of communities, especially the operational capacity of forest and agricultural areas.
- The project's adaptive management will identify and address further issues of climate change adaptation
- Project activities help reduce population vulnerability to food insecurity through the implementation of alternative productive activities and the development of agroforestry systems.
- The permanence and sustainable management of forest are achieved through the implementation of environmental education, sexual and health workshops, along with patrols and forest conservation.
- Diversification of employment and income beyond agriculture, such as identification of new NTFP.
- Improvement of agricultural practices with the aim of higher productivity and slowing the rate of hectares deforested.
- The project promotes the sustainable management of water sources and the implementation of conservational agriculture.
- The project creates new business models that contribute to the creation of new job profiles that were inexistent in the project region

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CM2.1)

The analysis of the net benefits to the communities resulting from the project activity is organized around the Sustainable Livelihoods Approach (SLA). The SLA includes a framework for understanding the complexities of poverty and guiding principles for action. This framework is designed to center on people and the influences that affect how they can support themselves and their families.

The main objective related to community well-being is to promote the sustainable development of local communities living in the project area through productive activities adapted to local cultural, geographic, infrastructure, and access to markets. The basic units of SLA analysis are livelihood assets, which are divided into five categories: human capital, social capital, physical capital, natural capital, and financial capital. One of the key factors that affect access to livelihood assets is the vulnerability context. This idea incorporates into the analysis of economic, political, technological trends, as well as shocks and seasonality.

Community impacts are therefore assessed against the applicable livelihood assets. However, due to the amount of information gathered it was not possible to desegregate the total impacts per specific communities. Hence, community Impacts are here summarized considering that all communities were benefited by the project. All supporting documents can be found in the database.

Human Capital: Education, Knowledge, and Skills:

Education and training have occurred throughout the reporting period. 2.321 people attended different educational events during this monitoring period. The main educational activities performed per year are summarized hereafter:

Table 19 Training and workshops executed in this monitoring period

	Total	Women	Men
People Trained in the Current Period	2321	758	1563
	Total	**Women**	**Men**
People Trained in the Previous Monitoring Report & PDD	1573	407	598

2015:

- Execution of the program “Reading Adventures” which consists of providing a reading space with children of different ages.

- “Book Loan Program” is launched to learn reading techniques and activities that encourage children's interest in developing the habit of reading and acquiring skills in retention, comprehension, analysis, and creation of stories. (see Informe de Salud y Educación PNSL).

2016:

- A work plan between the FDN and the Ministry of Education was designed through 6 meetings with the staff of the Departmental Directorate of Education to reach an agreement on improving education in the PNSL communities.

- During that year began a process of studying and registering a model educational center for adolescents in the communities of Manantialito, Pozo Azul, Villa Hermosa, and San Juan Villa Nueva to provide a differentiated education. (see Informe de Salud y Educación PNSL).

2017:

- In that year the work of Mini networks began with the participation of 20 young active knowledge multipliers belonging to each of the 10 priority communities of the PNSL. The total number of training talks given by the 20 Youth Multipliers was 522.

- A training plan for 60 teachers was designed and implemented. The topics taught by the staff of the Departmental Directorate of Education were: (i) reading comprehension, (ii) principles of mathematics, (iii) effective mathematics teaching techniques, (iv) planning, (v) knowledge and understanding of the National Basic Curriculum, (vi) evaluation of learning, (vii) classroom evaluation tools, (viii) management of dosage by grade and (ix) environmental education with an emphasis on climate change.

- the Basic Institute school in Pozo Azul was initiated benefiting 45 students.

- In 2017 the program's technical team, young multipliers, teachers, and community members were trained on the new curriculum Birds of My World from Cornell University's Ornithology Laboratory.

The experience in this training was overwhelming as each of the participants learned a lot about the importance of birds, ecological balance, and environmental conservation. The participants were provided with a manual of the work with birds. Such a manual was designed in a way that was clear for a good understanding of children, adolescents, and teachers**.** 20 people participated in the training. (see Informe de Salud y Educación PNSL).

2018

- In May 2018, a piece of computer equipment was delivered to INEB in Pozo Azul, to complement the existing computer center, as well as an internal server with the name of Raquel that has captivated teachers and students. The information that this server has, has been very useful for both basic and primary level teachers. The teachers have shared their experiences and learnings and are currently working on mathematics, social sciences, and language through activities where young people learn about the subjects and also practice technology.

- During that year, 19 mini networks were set up

- A donation of 7 bicycles was made for young people who have to travel long distances to get to school.

- In November 2018, the closing or graduation ceremony was held for the young people who received training. The total number of youth who graduated was 93, the rest (21 young people) did not complete the modules in the established time, in the case of the mini-network of Guayacán, and some multipliers, 6 did not graduate, some because of work or study situations or because they went abroad (see Informe de Salud y Educación PNSL).

Human Capital: health

A similar situation occurs when analyzing Community impacts related with the improvement of health as there is only one report that covers the entire monitoring period and that states that about 11.605 women and men from 10 communities (including La Lucha, La Téncina Agropecuaria and Unión Maya Itzá) were benefited from the services of family planning provided as part of the project activities.

Sexual health is fundamental to the physical and emotional health and well-being of individuals, couples, and families, and the social and economic development of communities and countries. When viewed affirmatively, sexual health encompasses the rights of all persons to have the knowledge and opportunity to pursue a safe and pleasurable sexual life.

However, the ability of men and women to achieve sexual health and well-being depends on their access to comprehensive information about sexuality, knowledge about the risks they face, their vulnerability to the adverse consequences of sexual activity, their access to good-quality sexual health care, and an environment that affirms and promotes sexual health[22]. Consequently, the project has contributed to improving the sexual health of 10 communities located in the Project Zone by providing free access to family planning tools. (See Health).

In addition, training on hygiene, water-forestry relations, solid and liquid waste management, and latrine use and maintenance were executed during the monitoring period. 95% of the population was interested in the proper use of composting toilets. Seventeen training events were held in two communities for local committee members, teachers and students, and community residents. At the end of the project, according to analyses carried out on 3 February 2016 and 3 October 2017, the bacterial load was reduced by 50%.

In the communities of Pozo Azul and Villa Hermosa, two (2) household water supply systems were installed and are operating in 472 beneficiary households. The systems are integrated by well, pumping house, tank, and distribution network at the household level (see Water-Access to water).

Social Capital: Governance and Relationships:

The governance system of the project is managed by the governance committee that also involves and advisory body conformed by Oro Verde and by an organization that gathers most of the communities inhabiting the National Park.

[22] shorturl.at/nyOYZ


Figure 23 Committee meeting 2018

During the monitoring period, such a committee met several times (See Workshops-Training-Meetings-Events) and consequently made important decisions on the implementation of the project. This brought positive impacts to the community as such decisions made possible to continue implementing the project in a way that most communities are satisfied.

The governance structure of the project was also strengthened through the execution of training on conflict resolution and capacity building of leaders in the region.

In terms of relationship building, cooperation agreements were created with ACOPOF, also known as the Petén forest community association. Cooperation agreements were also signed with the departmental directorate of education in Petén, the tropical agricultural research and education center (CATIE), and the Guatemala's program for the conservation of the Tapir. See Cooperation Agreements.

Physical Capital: Infrastructure and Access to markets:

In terms of infrastructure, during the monitoring period, the project supported the construction and equipment of a basic school in Petén. A total of 34.770 Q where invested in this infrastructure (See Infrastructure).

As per Access to markets, the project supported the design of business plans along with the capacity-building of pymes and community ventures in the following topics: organization of farms, sandwich and candle making, tourism, agroforestry systems, cocoa production, beekeeping, and woodwork. (See Workshops-Training-Meetings-Events).

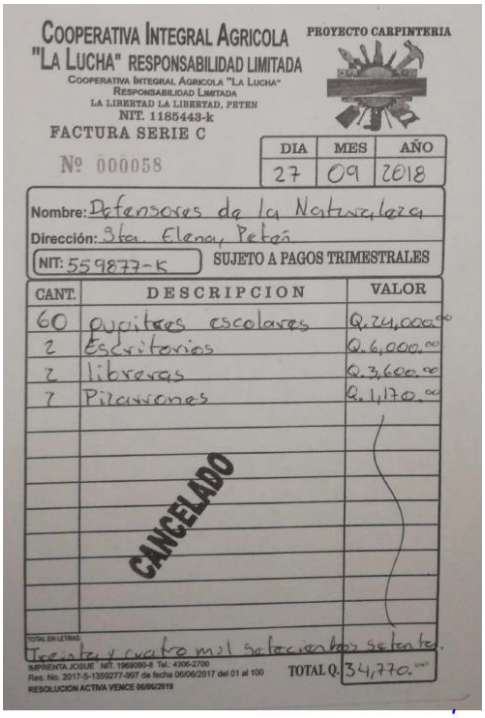

Figure 24 Investments in infrastructure

Financial Capital: Employment and Investment:

As mentioned in section 2.3.14, during the monitoring period 9 permanent jobs were generated along with 48 temporal jobs and 2.483 daily-based employment opportunities. In addition to this, the project supported the pymes of different communities that achieved significant sales of their products during the monitoring period (See employment).

Pyme	Year	Category	Sub-category	Sales in USD $
Beekeeping Committee El Retalteco	2017	NTFP	Honey	$ 244,89
Agro-industrial Cooperative Unión Maya Itzá R.L.	2017	Wood	Roundwood	$ 110.753,96
Cooperative La Lucha	2017	Wood	Furniture	$ 2.906,52
		Wood	Boxes for bees	$ 2.337,87
			Furniture	$ 3.882,55
	2018	Wood	Boxes for bees	$ 2.384,20
			Furniture	$ 1.525,89
		Wood	Furniture	$ 33.509,93
				$ 6.198,68
	2019	Wood	Furniture	$ 25.371,09
		Service	Sizing and brushing	$ 4.111,46
	2020	Wood	Furniture	$ 22.402,34
Cooperative La Tecnica	2014	Tourism	Tourist packages	$ 4.186,15
	2015	Tourism	Tourist packages	$ 145,33
		Tourism	Tourist packages	$ 3.720,00
		Tourism	Tourist packages	$ 1.146,41
	2016	Tourism	Tourist packages	$ 3.518,55
		Tourism	Tourist packages	$ 11.995,46
Total				**$ 240.341,28**

Figure 25 Sales from community enterprises

In terms of investment, the advances in the microcredit program are detailed below:

On March 18, 2015, the third phase of the program's disbursement took place, benefiting a total of 14 families living in Arroyo Yaxchilán, Técnica Agropecuaria, La Lucha, Nueva Jerusalén II, Pozo Azul, and Villa Hermosa.

On September 14, 2016, the fourth phase of the program was carried out with a total of 12 beneficiary families, residents of Villa Hermosa, Pozo Azul, La Unión Maya Itzá, La Lucha and La Técnica Agropecuaria.

Figure 26 Beneficiaries of the microcredits

In the first three phases of disbursement, the capital investment was made in various projects such as shops or grocery stores, canteens, pharmacies, bookstores, sale of telephone cards, purchase of basic grains, expansion of shops, clothing services, computer academy, repair of tires, preparation of spare parts and food. For the fourth and final phase of disbursement, the capital investment was made to strengthen the shops established in the different communities. (See, Progress Report Microcredit Program 4 Phases Disbursement 2011, 2012, 2015 Y 2016).

Figure 27 Improvement of community enterprises

The program benefited a total of 54 families of the PNSL, granting amounts between Q.5,000.00 to Q.20,000.00 per family, making a total capital delivery of Q.480,000.00, during the years 2011. 2012, 2015, and 2016. (See Microcredits).

Figure 28 Improvement of community enterprises

As per the income generation, see section 4.4 of this document.

4.1.2 Negative Community Impact Mitigation (CM2.2)

Some community members have expressed their discontent about the fact that they can no longer harvest the forest without any control or vigilance. This restriction could harm the generation of income for these communities.

As a mitigation strategy, FDN has clarified that because the project is in a protected area, the rules of the park regarding the use of natural resources prevail over the project objectives. However, logging has not been completely forbidden but it has been organized through the development of forest management plans (See management plans).

Also, and as noted from the previous section, the project has contributed to increasing the family income by supporting productive activities proposed and developed by the communities themselves. This increase can to some extent offset the decrease of revenues previously obtained from illegal logging. (See Income). It is important to note that family income in this project is considered as an exceptional community benefit.

No other negative community impacts were identified during the monitoring period.

4.1.3 Net Positive Community Well-Being (CM2.3, GL1.4)

The analysis of the net benefits to the communities resulting from the project activity is organized around the Sustainable Livelihoods Approach (SLA). The SLA includes a framework for understanding the complexities of poverty and guiding principles for action. This framework is designed to center on people and the influences that affect how they can support themselves and their families.

The main objective related to community well-being is to promote the sustainable development of local communities living in the project area through productive activities adapted to local cultural,

geographic, infrastructure, and access to markets. The basic units of SLA analysis are livelihood assets, which are divided into five categories: human capital, social capital, physical capital, natural capital, and financial capital. One of the key factors that affect access to livelihood assets is the vulnerability context. This idea incorporates into the analysis of economic, political, technological trends, as well as shocks and seasonality. (See section 4.1.1)

The net impacts of the project on the communities both within and outside of the Sierra del Lacandón National Park (SLNP) have been positive. Since the beginning of the project, all work has been completed in conjunction with communities and cooperatives, from the definition, implementation, and execution of project activities to the determination of the benefits that these groups will receive.

There is a major difference between the cooperatives and the communities in the project zone. Cooperatives are democratic entities – autonomous and voluntary associations of voting members, each of whom has equal rights and obligations. In contrast, communities lack official organizational bodies. FDN has been promoting the implementation of alternative use models that employ sustainable forest management.

The project activities have produced multiple benefits to the communities, which have extended well beyond the project area to reach the legal residents of the park (See section 4.1.1). Besides, the project activities have assisted communities to adapt to the probable impacts of climate change through the implementation of sustainable productive activities that contribute to ensuring food safety, the conservation of natural covers and reduction of deforestation and GHG emissions as stated in section 3 of this document, the reinforcement of working skills and transfer ok knowledge to children, youth, women, and adults, the increased awareness on the importance of the conservation of biodiversity and HCV and the empowerment of women to lead and propose strategies that can positively impact the communities in the long and short-term.

4.1.4 Protection of High Conservation Values (CM2.4)

The project area is identified as being of the community-related High Conservation Values 5 (fundamental basic needs) and 6 (cultural identity). The project has not included restrictions of access to these areas and therefore does not limit the local communities' ability to use the land for their cultural needs, especially for Mayan communities.

In terms of fundamental needs, the project will follow an incentive-based approach to reduce the use of forest timber and non-timber resources, (see project activities to be implemented in section Description of the Project Activity (G1)). This implies a) that reduced benefits from not using forest resources are being (over) compensated for and b) forest resources are still available for use by locals.

The measures for the Area of High Conservation Value 5: HCV5: Sites and resources fundamental for satisfying the necessities of local communities or indigenous people:

- Support and implement productive projects for local communities.

- Generate timber and non-timber forest management plans

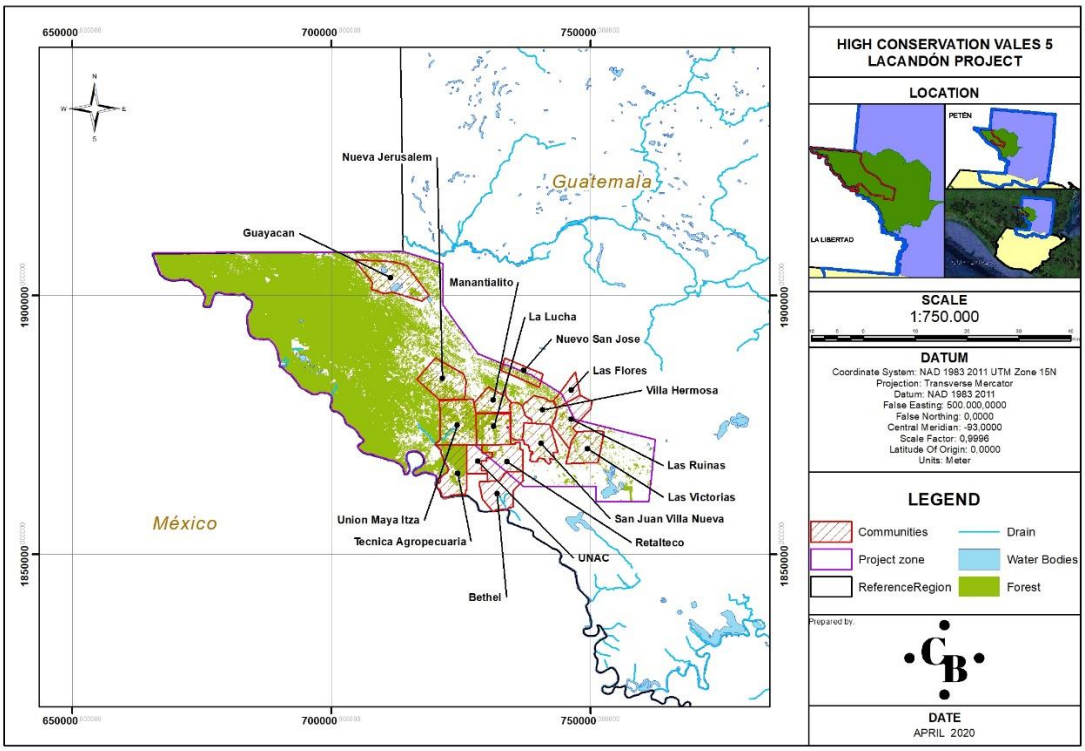

Figure 29 HCV 5 Sites and resources fundamental for satisfying the needs of local communities

The areas destined for the fundamental satisfying of the communities located inside the Project area have not changed during the current monitoring period.

The measures for the Area of High Conservation Value 6: Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous people:

- Management and conservation of cultural sites such as Piedras Negras and El Tecolote, under supervision of the Ministry of Culture and Sports - Direction of Cultural and Natural Heritage

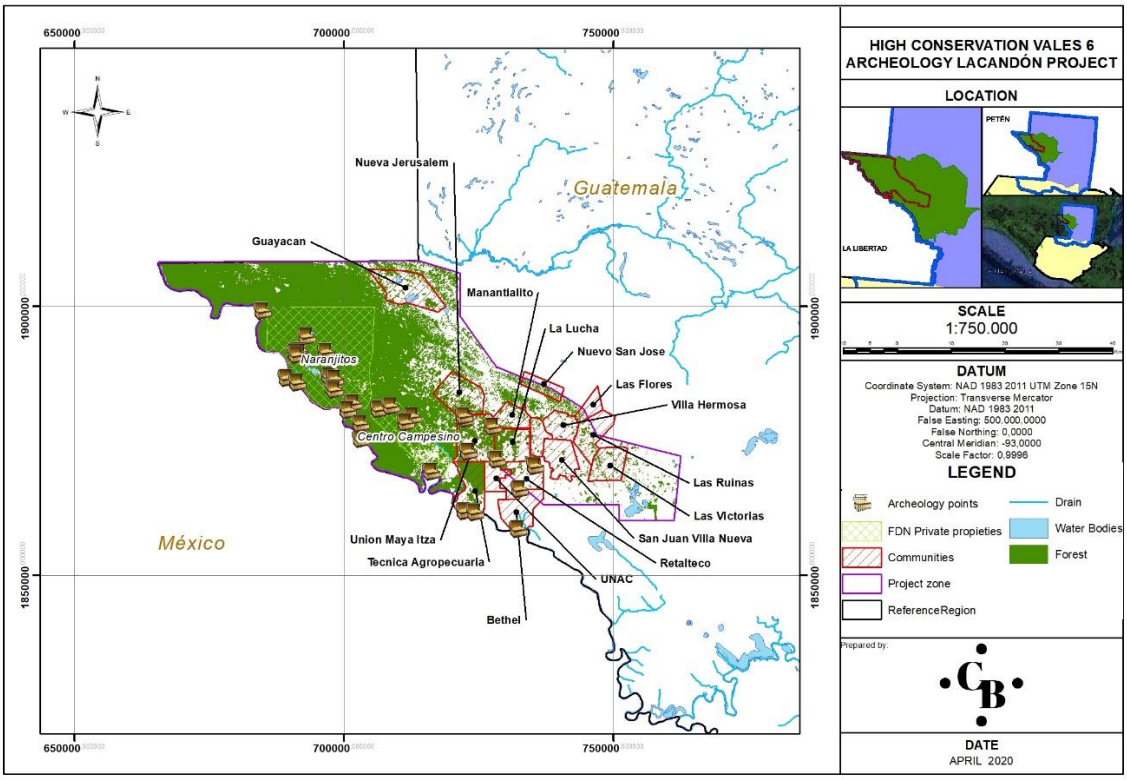

Figure 30 HCV 6 Inside the Project Zone

Figure 31 HCV 6 Important Archeological Sites

4.2 Other Stakeholder Impacts

4.2.1 Mitigation of Negative Impacts on Other Stakeholders (CM3.2)

No negative impacts on other stakeholders were identified during the current monitoring period. Most project participants have expressed positive opinions regarding the project.

4.2.2 Net Impacts on Other Stakeholders (CM3.3)

Between 2014 and 2018, the project has not caused negative impacts during the monitoring period to communities or other stakeholders. Before initiating a project or associated activities, a community meeting is gathered to explain the objectives and methods that are expected to achieve. Finally, the meeting attendants or other stakeholders decide whether or not to participate in the initiative

4.3 Community Impact Monitoring

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

The full monitoring plan can be found in section 6 of the PDD. A summary is included in this section. The results of the monitoring are included in section 4.1.1 of this document.

Monitoring will be developed by FDN, whereas other governmental and non-governmental institutions may also participate in the process of data gathering on the field. The data generated during monitoring will be stored by FDN. FDN will be responsible for the gathering and process of all necessary data on the field for community and biodiversity monitoring. CEMEC/CONAP will be responsible for the gathering and process of all data for climate monitoring needed for future VCS verification events.

A process of quality check and quality control of the information generated by each institution will occur along the time and strengthen before any verification event. Any non-conformity found during the internal auditing exercises will be documented, communicated, and solved within 3 months after its detection.

All CCB community and biodiversity monitoring activities are carried out by FDN, with support from CONAP and the local communities. CCB Climate monitoring requirements will be fulfilled under the monitoring designed for fulfilling VCS monitoring criteria. Data is stored on local servers using the Excel program. This furthers accuracy and transparency and minimizes data loss.

Data collection: Data has been collected by FDN and CONAP

Data storage: The project entity has made necessary arrangements for data entry on the registry forms. The forms are in paper and electronic formats to ensure that the information is stored in multiple ways. Further, the project proponent has ensured the transfer of data to a spreadsheet database as outlined in the monitoring methodology at required intervals. (See database)

Data Management System: The project information management links the operations of the field data collection and spreadsheet database. Further, it outlines the responsibilities of staff involved in collecting field data and organization of the spreadsheet database. The supervisory staff overseeing the field data and spreadsheet database must check and certify the data. If any changes occurred in the data collected and processed during the month, the supervisory staff has to provide the necessary clarification**.**

Monitoring and Operational procedures: The project participants use Standard Operation Procedures (SOPs)115. All measured and experimental data shall be documented and archived**.**

Also, during this monitoring report, the firm CB CARBONCONSULTING has performed a QC on the data provided by FDN to include only evidence that is complete, and that complies with the project SOPs.

Data archiving: The personnel involved in the measurement of carbon pools, community and biodiversity; and other monitorings will be fully trained in-field data collection and analysis by the technical manager. For this monitoring period, the raw and processed data has been archived in the servers of FDN and a copy has been stored by CB CARBONCONSULTING.

Gold level monitored criteria: In terms of community, the project has measured the income variation of the local communities. See section 4.1.1.

4.3.2 Monitoring Plan Dissemination (CM4.3)

All project documents including the results of the monitoring plan will be disseminated through the VCS database portal. Likewise, the results of the monitoring have been discussed during several training and workshops and during the stakeholder consultation that also served as a preparatory meeting for the verification of this initiative.

4.4 Optional Criterion: Exceptional Community Benefits

The project´s exceptional criteria about Community Benefits are related to the increase in income and reduction of poverty. The baseline data is described in section 7.3 of the previous Monitoring Report. The current data corresponding to these benefits was obtained from the survey of the poverty rate variation.

In order to confirm that the project has positively impacted the generation of family income, the baseline situation of the communities has been summarized as follows:

In the 2009 baseline study, for the cooperative of La Lucha, it was established that the average was Q 10.88 (Guatemalan Quetzal, GTQ) (USD 1.30) available daily per person. In the case of La Técnica Agropecuaria, 60.5% of households subsisted on less than Q 16 (USD 2) per person per day. Finally, for Unión Maya Itzá, 38.3% of households subsisted on less than Q 1,000 per family per month. 29.8% of households had between Q 1,000 and Q 2,000 per month, and 12.8% had between Q 2,000 and 3,000 per month. On average, the monthly income per family was Q 20 for all communities.

Now during the monitoring period (See income) and according to the mid-term evaluation of the project, on average, the monthly family income has increased to 1.680 Q (56 Q per day). Most of the income came from the implementation of agricultural activities as shown in the following graph:

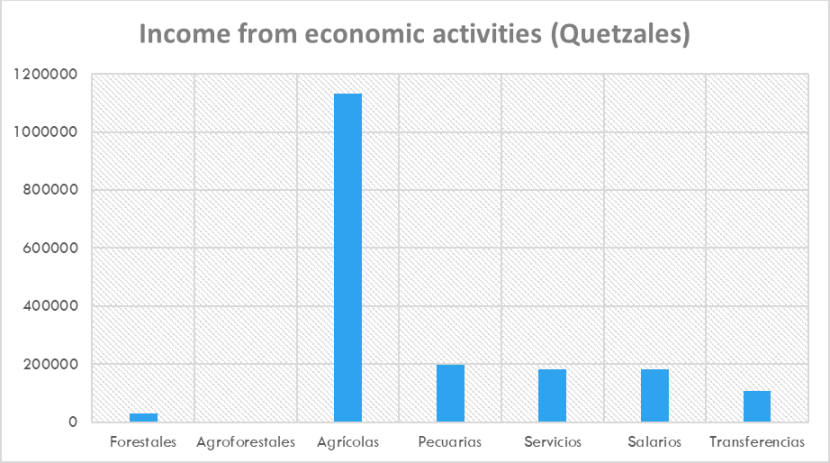

Figure 32 Income from economic activities

When comparing the baseline scenario with the project, a downward trend on income generation from salaries (other sources of income) and the forestry sector can be noted. In contrast, Income generation from the agricultural sector has increased considerably. This might be attributed to the fact that the project has supported different productive activities from this sector:

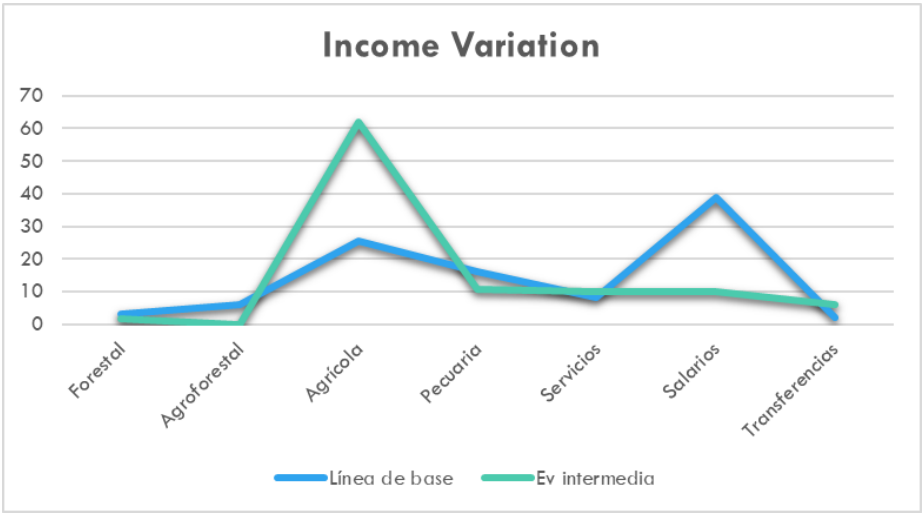

Figure 33 Income Variation

In conclusion, the project has positively contributed to increasing the monthly income generation of the families that are part of the project.

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

Short-term benefits generated by the project for the community members are mostly related to the microcredits granted to communities along with the income generation due to the agricultural activities. On the other hand, long-term impacts are mostly related to the capacity-building and transfer of knowledge to communities that participated in training, workshops, meetings, and events; the conservation of biodiversity, the strengthening of family enterprises, and the access to family planning devices.

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

All project participants (cooperatives and communities are considered vulnerable due to their conditions as indigenous peoples that used to live in extreme poverty and with reduced access to basic services and infrastructure.

Community Group	La Lucha, La Técnica Agropecuaria and Unión Maya Itzá
Net positive impacts	Net positive impacts include access to environmental education and training, conservation of habitats and HCVs, development of sustainable farming, enforcement of governance systems, an increase of monthly family income, access to sexual health education and tools, improved skills in the management of project and project finances, empowerment of women, active participation from children and you in environmental activities, diversification of income sources through the sustainable trading of NTFP, among others.
Benefit access	One of the major barriers defeated by the project is the ability of communities to access credit. This has been possible thanks to the microcredit program that to the date has benefited more than 50 families.
Negative impacts	The main negative impact identified by some community members is the restrictions imposed on logging. To mitigate this impact the project has developed a Forestry Management Plan to identify the places and adequate rates of extraction to avoid affecting the health of the forest. Moreover, communities can always request to CONAP a permit to harvest wood for family purposes.

4.4.3 Net Impacts on Women (GL2.5)

758 Women participated in training and workshops during this reporting period. In addition, 575 women participated in several meetings and events. (See database Workshops, Training Meetings and Events).

Table 20 Women trained during the monitoring period

	Total	Women	Men
People Trained in the Current Period	2321	758	1563

This almost doubles the number of women participating in these activities during the previous monitoring period.

Family planning for women:

By 2015, there was a growing demand for definitive and long-term contraceptive methods, thanks to the efforts of the team and network of volunteer family planning promoters to destigmatize taboos on this subject.

In recognition of this growing demand, it was established that medical day services should be more consistent and accessible and demanded greater coordination of partner organizations for the execution of family planning sessions. An initial step to address this demand would be to increase the number of days of training at the community level, but the need for a nurse near or within the Park was also identified. Ideally, the nurse would visit the communities every month and would be able to respond to demand immediately, thus mitigating the risk of unwanted pregnancies for women interested in long term reversible contraception.

By 2017, the distribution of short-term contraceptive methods remained the responsibility of volunteer promoters who have been trained to provide adequate and quality care according to the needs and conditions of each family. Also, the promoters have been liaisons in the promotion of workshops for long-term methods, with a total of 18 referrals to such services from the promoters. (see, Health and Education Report PNSL).

The following services were proved in 2015: 950 quarterly injections, 417 monthly injections, 212 pills, 613 condoms, 58 subdermal implants (Jadell), 16 intrauterine devices (IUD) and 94 IVVA . 10 communities located in the Sierra Lacandon National Park benefited from the Education and Reproductive Health program.

In 2016 the results regarding the distribution of short-term methods were: 908 Quarterly injections, 478 Monthly injections, 194 Pills, 388 Condoms, 32 Subdermal implants (Jadell), 7 Intrauterine devices (IUD), 7 Laparoscopies (AQV) and 40 IVAA.

In 2017, 12 active promoters distributed 1839 contraceptive methods (839 Depo provera, 487 Cyclofem, 168 pills, 345 condoms, and 218 pregnancy tests). The total number of re-consultation users served was 612 and 166 new users. During this year, four sessions were coordinated with APROFAM, and these sessions were the most accessible, given the distance between the communities of the NSLP. The total number of women attended to during these four days was 31. The methods provided were 27 Jadell 5-year protection method and 4 Operations on women, definitive protection method). (See, Report of Health and Education PNSL).

For the year 2018, the results in the distribution of short-term methods were the following: 1042 Quarterly injections, 584 Monthly injections, 253 Pills, 516 Condoms, and long term methods 59 Subdermal implants (Jadell), 4 Intrauterine devices and 3 Laparoscopies (AQV). An additional 230 pregnancy tests were performed. (see, Health and Education Report PNSL). The total number of people whose health system benefited from this program is 11,605.

4.4.4 Benefit Sharing Mechanisms (GL2.6)

Fundación Defensores de la Naturaleza (FDN) has been co-administrating the National Park Sierra del Lacandón (PNSL) since 1999. To date, FDN has worked on various topics of the REDD+ project, including conservation, sustainable use of natural resources, policies and

legislation, sustainable development, environmental education, research, monitoring, and institutional development.

All of these actions have led to field activities that have been developed jointly with local communities, in order to integrate them into the sustainable management of resources and the conservation of the Park's natural heritage.

Through a consultation process, which lasted more than two years and concluded in 2015, FDN received formal consent through an assembly act from the cooperatives of La Técnica Agropecuaria, La Lucha, and La Unión Maya Itzá (La UMI), to partner with FDN to develop a REDD+ project in the NSP. This is an indispensable requirement for concluding the Project Design Document and generating Verified Carbon Units (VCUs) (See Benefit Sharing-Mecanismo Distribución de Beneficios).

Then in 2016, these cooperatives met again to create the benefit-sharing mechanism based on five strategies that were prioritized by the partners (participants) of the project. The strategies are:

1. Protection Program
2. Diversification and use of community forest resources
3. Community-based dialogue, education, and training
4. Community health and welfare
5. Sustainable agriculture and family livestock management systems

To manage the funds required for the implementation of each of the strategies, the project proponents decided to create the “governance committee” whose main function is to analyze, discuss, direct and approve the legal and administrative structures needed to develop the project.

Within this competence, the Committee elaborated a document of Benefit Sharing Mechanism, which is an instrument that will allow the funds generated from the commercialization of the VCUs to arrive in an agile and transparent way to all the partners of the Project, according to their investment requirements. The benefit-sharing document describes the banking route to be used to receive and transfer funds from the marketing of the VCUs of the REDD+ project (See Benefit Sharing-Mechanismo Financiero).

After several discussions, in 2017 the committee decided to use FDN as intermediaries to receive the funds from the VCUs and then transfer the money to a banking account in Petén, managed by the committee. This decision was made based on the fact that such a strategy has advantages in terms of speed, economy, agility, security, the capacity of control, and confidence.

Figure 34 Benefit-sharing mechanism

Thus, the banking mechanism to follow will be as explained hereafter: the buyer is interested in the purchase of VCUs, then, the funds from the sales are deposited into a specific FDN project account named "DEFENSORES/LACANDON BOSQUES PARA LA VIDA". The funds will then be transferred to a Committee account which will be created and managed by the committee in Peten, and then transferred to each of the Cooperatives (according to the amounts approved in the Benefit Sharing Mechanism). The latter will oversee the distribution of the conservation incentive funds to each of the partners duly registered as members of the Project.

4.4.5 Governance and Implementation Structures (GL2.8)

The project´s governance structure is framed in the rules of procedure of the “Governance Committee” (see Governance-Reglamento-Organigrama). The project is managed through the “Governance Committee of the Project” that meets periodically and in which each entity has a representative with voting rights. The Governance Committee is responsible for the design and implementation of project activities, monitoring, and general management of the project on-site. The cooperatives participate in the decision making through representation in the Governance committee and collaborate in the implementation of project activities in joint with FDN.

The cooperatives participate in the governance committee through one full representative and one alternate and through FDN. The Governance Committee will be in place for the duration of the project, after which it will cease to function.

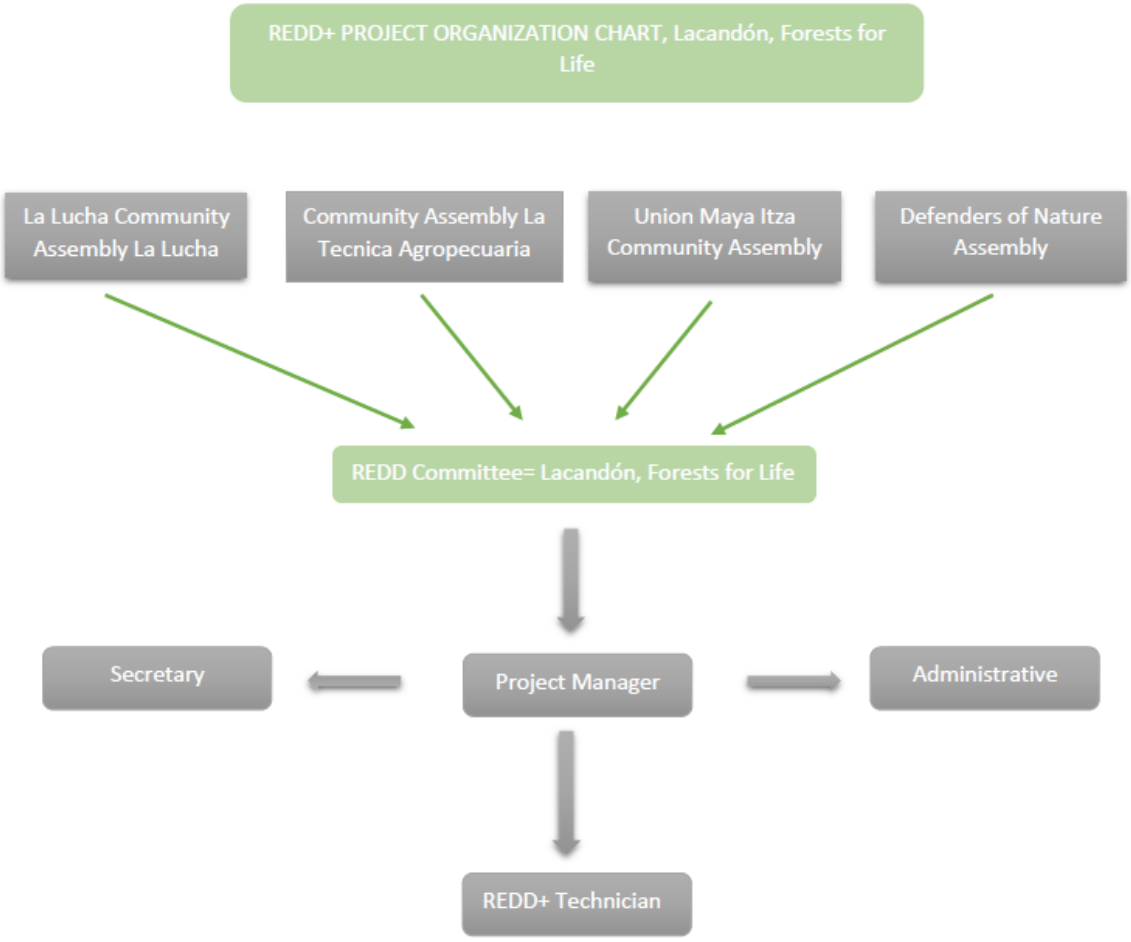

Figure 35 Governance committee structure

Committee bodies:

General assembly: The General Assembly is made up of the members of the Committee who have been convened and met; it constitutes the supreme body of the committee and expresses the will to make decisions, which will be made in a consensual manner, with the prior endorsement of its bases.

Management: The Project Management will be carried out by a suitable professional, who will be elected and appointed by the General Assembly. Its functions include reporting to the Governance Committee on 1) Financial Statements; 2) Technical Executions; 3} Operational Plans; 4} Project proposals.

Secretariat: The Committee will have a Secretariat, which will depend hierarchically on the Management

advisory committee: It is an assistance and advisory body for the Governance and Project Management Committee, formed initially by the Oro Verde Foundation and the Association of Forest Communities of Petén -ACOFOP.

All bodies involve people from the different cooperatives including small-holders and community members from both the Project Area and the Leakage Belt.

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

As mentioned before, the project involves indigenous communities that belong to the cooperatives La Lucha, La Técnica Agropecuaria, and Unión Maya Itzá, along with other communities that inhabit the national park. All communities have been invited to participate and benefit from the different project activities, including training, workshops, meetings, stakeholder consultations, events, and field visits.

The representatives of each community participate in the governance committee previously defined, and hence their opinions and requests are always transmitted to the general assembly members to be considered for the project design and implementation. For more information see Governance; Training and Workshops; stakeholder consultation.

The people belonging to each cooperative also belong to different local organizations acting inside the project zone. Local, community, rural, or grassroots organizations are formal or informal, voluntary, democratic groups whose primary purpose is to promote the economic or social objectives of the men and women who make them up. In this case, they also serve to transmit to the messages from the REDD+ project to those no directly involved in the committees.

Community organizations are also made by different bodies including:

The assembly: It is made up of all the registered members of the community organization and takes the main decisions as it is the highest authority of the organization. The assembly meets once or twice a year or when there is an emergency.

Audit committee: It is the body responsible for verifying that the organization functions are following the laws, regulations, statutes, and agreements set forth by the General Assembly.

Management Board: It is responsible for carrying out the decisions made by the

Assembly. It also acts as the official representative of the organization and leads its objectives.

Specific details on the functions of each member of the organizations and how the decisions they make are informed by the entire communities can be seen at Governance-Curricula de Comites.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

5.1.1 Biodiversity Changes (B2.1)

The changes in the biodiversity are here referred to as the progress made in the implementation of activities directly or indirectly linked with the conservation of biodiversity during the current monitoring period in the project zone:

Change in Biodiversity	*Increased **capacity building** towards the protection of biodiversity*
Monitored Change	*During the current monitoring period, **19** workshops on sustainable production were executed to increase awareness about the importance of the implementation of sustainable production practices that are aligned with the conservation of biodiversity.* See Workshops-Training-Meetings-Events
Justification of Change	*The previous monitoring report stated that **14** workshops were executed. Hence, the number of workshops and people trained increased considerably during this monitoring period.*

Change in Biodiversity	***Conflicts over land tenure and use** were reduced during the monitoring period. This had a positive impact on the conservation of forest and its biodiversity*
Monitored Change	*During the current monitoring period, **4** cooperation agreements were signed with the communities of "Arroyo Yaxchilan", El Pital, Manantialito, and San Miguel los Angeles. These agreements included special commitments to avoid overexploitation of natural resources and to promote the conservation and monitoring of biodiversity. Besides, **4** cooperation agreements were signed with different institutions to coordinate mechanisms for the conservation of biodiversity inside the project area. See Cooperation agreements.*
Justification of Change	*The previous monitoring report did not include the number of cooperation agreements signed at that time. However, that report indicated that progress was done towards the signature of different cooperation agreements. Therefore, the change achieved during this monitoring period is the actual signature of those agreements.*

Change in Biodiversity	***Increased control of illegal activities affecting the permanence of biodiversity***
Monitored Change	*During the current monitoring period, **401** monitoring Patrols were executed. Such patrols were able to identify and control the occurrence of illegal activities affecting biodiversity such as logging, hunting, fishing, fires among others. Different machinery, weapons, and tools were confiscated because of the monitoring performed by the patrols. See Patrols-Base Datos.*
Justification of Change	*Although the previous monitoring report stated that **768** monitoring patrols were conducted at that time, it is important to note that even when fewer patrols were conducted during this monitoring period, 3.109 people were involved in the patrols from August 2014 to December 2018. These people were able to produce tangible results such as the confiscation of weapons and the arrest of people who were carrying out illegal practices that put the conservation of biodiversity at risk.*

Change in Biodiversity	***Reduction of desertification through the increase in fire prevention activities***
Monitored Change	*During the current monitoring period, **7** workshops on forest fires were executed involving the presence of **222** people. These workshops seek to train people on how to avoid and mitigate the impacts of forest fires in the plant covers and associated biodiversity. Training-workshops-fire.*
Justification of Change	*The previous monitoring report stated that **20** workshops on fires took place at that time. This shows that the Program has continued to implement strategies aimed at reducing the vulnerability of plant covers and associated biodiversity historically affected by fires, in addition, to increase the resilience of the communities through the improvement of capacities and technical skills to reduce and attack fires.* *This information is supported with the records of the hotspots identified for the PNSL during this reporting period and compared with the data reported in the previous reporting period:* *Current Hotspots:* Management Unit / PUNTOS DE CALOR ENTRE EL 2010 Y 2018 2014 / 2015 / 2016 / 2017 / 2018 Parque Nacional Sierra del Lacandón: 151 / 143 / 219 / 320 / 140 *Previous Hotspots:*

	 *For more details see Fires-Informe de incendios 2014-2018-síntesis de reporte de incendios forestales 2014-2018*

Unidad de manejo	PUNTOS DE CALOR ENTRE EL 2010 Y 2018		
	2012	2013	2014
Parque Nacional Sierra del Lacandón	225	456	153

Change in Biodiversity	***Increase in wildlife***
Monitored Change	*The following number of individuals were observed from 2015 to 2018:* *Jaguars: 44* *Tapir: 216* *Peccaries: 99* *See biodiversity-biodiversidad LBPV.*
Justification of Change	*The previous monitoring report stated the following numbers:* *Jaguars: 39* *Tapir: 114* *Peccaries: 123* *As can be seen from the comparison with the current data, a notable increase in the number of jaguars and tapirs was observed during this monitoring period. As per the Tapir, the reduction of the number of individuals might be given to the fact that during the previous monitoring period It was reported that each photographic file corresponded to a different individual, without considering the independent events (which precisely seek to avoid population overestimation).* *For this reason, the Project does not consider a reduction in the Tapir population but only a change in the monitoring strategy.*

5.1.2 Mitigation Actions (B2.3)

No negative impacts on biodiversity associated with the implementation of the Project have been identified during the crediting period. This may be attributed to the execution of several on topics such as REDD+, the importance of the conservation of biodiversity and sustainable farming and livestock production.

Another reason can be the constant monitoring of HCV and fauna conducted by FDN through the monitoring patrols (See Patrols) and the installation of tramp cameras (See Biodiversity). The strengthening of forest governance has been another strategy to clarify the allowed uses of

natural resources inside the Protected Area and to establish cooperation agreements aimed at promoting the sustainable management of natural resources (See Cooperation Agreements).

The precautionary principle (or precautionary approach) is a broad epistemological, philosophical, and legal approach to innovations with the potential for causing harm when extensive scientific knowledge on the matter is lacking. It emphasizes caution, pausing, and review before leaping into innovations that may prove disastrous. To the date, no major technological innovations that might harm the biodiversity have been developed and/or tested inside the Project zone. Biodiversity is monitored through effective monitoring methods that include tramp camps and visual observation. No recollection of specimens or plant material is performed as part of the project.

Illegal hunting, fishing, and logging are monitored and controlled to the possible extent by the Monitoring patrols with the assistance of the communities that report the events that are negatively affecting biodiversity.

5.1.3 Net Positive Biodiversity Impacts (B2.2, GL1.4)

Positive biodiversity impacts are directly correlated with the conservation of natural covers and habitats and with the implementation of activities that reduce the threats to biodiversity. In addition to the positive changes mentioned in section 5.1.1, the following table compares the without-project with the project scenario in terms of the conservation of biodiversity.

Impact	Without-project	With Project
Hectares of forest loss	Baseline activity data: 2012: 561 2013: 781 2014: 706 2015: 1.038 2016: 959 2017: 884 2018: 1.157 Total: 6.086 ha	Previous monitoring report: 2012: 242 ha 2013: 294 ha 2014: 100 Current monitoring report: 2015: 224 2016: 153 2017: 242 2018: 0 Total: 1.256 ha
Uncontrolled fishing, poaching, logging and extraction of NTFP	Monitoring patrols only conducted by the	1.169 monitoring patrols (768 previous reports + 401 current report) have been conducted since the project start date.

	workers of the National Park. During the period from 2000 to 2012, 115 legal proceedings were established against people conducting illegal activities (poaching, fishing, logging, etc) inside the Project area.	These patrols have served to confiscate machinery and weapons used for illegal fishing and poaching. Also, the following legal proceedings have been established since the project commencement date: 2013: 13 2014: 10 2015: 25 2016: 44 2017: 8 2018: 4 Total: 104 legal proceedings    The full report of the legal proceedings can be found at Patrols- Procesos judiciales PNSL-excel.
Introduction of exotic species	No specific data on exotic species introduced to the project area is available for the without project scenario. However, the Project Document PDD, mentioned that	No exotic species have been introduced as part of the project activities. On the contrary, the Project has promoted the use of native species as can be noted from the previous monitoring report.

	exotic species were introduced as productive alternatives for the inhabitants of the project area	
Conservation of HCV[23]	According to FDN the baseline data recorded during 2011 for these three species is: Jaguars: 6 Tapir: 9 Peccaries: 7	Jaguars: 44 Tapir: 216 Peccaries: 99

In terms of monitoring of local fauna, a total of 3,469 photographic archives were obtained in 2015, 6,417 in 2016, 8,583 in 2017, and 11,425 in 2018 as a result of the photo-trapping seasons. In addition to the species registered through photo-trapping, those observed by the technical staff of Fundación Defensores de la Naturaleza during field visits for the implementation of photo-trapping are included. The following table presents the medium and larger vertebrate species that were registered in the PNSL during these years, as well as the method of registration.

Table 21 Monitored fauna

No.	Class	Order	Family	Species	Common name	UICN category	2015		2016		2017		2018	
							Photo-tramp	Visual /	photo-tramp	Other	photo-tramp	Other	photo-tramp	Visual /
1.	Mammalia	Didelphimorphia	Didelphidae	*Didelphis marsupialis*	Tacuazin	LC			√		√		√	
2.				*Didelphis virginiana*	Tacuazin	LC			√				√	
3.				*Philander oposum*	Tacuazín de agua	LC					√		√	
4.		Pilosa	Myrmecophagidae	*Tamandua mexicana*	Oso colmenero	LC	√				√			
5.			Cyclopedidae	*Cyclopes didactylus*	Hormiguero pigmeo	LC						√		
6.		Cingulata	Dasypodidae	*Dasypus novemcinctus*	Armadillo de nueve bandas	LC	√		√		√		√	
7.		Primates	Atelidae	*Alouatta pigra*	Mono aullador negro	EN		√		√		√		√
8.				*Ateles geoffroyi*	Mono araña	EN		√		√		√		√
9.		Rodentia	Sciuridae	*Sciurus sp*	Ardilla		√		√		√		√	

[23] See folder Biodiversity.

No.	Class	Order	Family	Species	Common name	UICN category	2015		2016		2017		2018	
							Photo-tramp	Visual /	photo-tramp	Other	photo-tramp	Other	photo-tramp	Visual /
10.			Dasyproctidae	*Dasyprocta punctata*	Cotuza	LC	√		√		√		√	
11.			Cuniculidae	*Cuniculus paca*	Tepezcuintle	LC	√		√		√		√	
12.		Lagomorpha	Leporidae	*Sylvilagus sp.*	Conejo		√		√				√	
13.		Carnivora	Canidae	*Urocyon cinereoargenteus*	Zorro gris	LC	√		√		√			
14.				*Canis latrans*	Coyote	LC	√		√					
15.			Procyonidae	*Procyon lotor*	Mapache	LC	√		√		√			
16.				*Nasua narica*	Pizote	LC	√		√		√		√	
17.				*Potos flavus*	Micoleón	LC		√		√		√	√	√
18.			Mustelidae	*Eira barbara*	Perico ligero	LC	√		√		√		√	
19.			Mephitidae	*Conepatus semistriatus*	Mofeta, Zorro hediondo	LC	√		√		√			
20.			Felidae	*Leopardus pardalis*	Ocelote	LC	√		√		√		√	
21.				*Leopardus wiedii*	Tigrillo, Margay	NT	√		√		√		√	
22.				*Puma concolor*	Puma	LC	√		√		√		√	
23.				*Panthera onca*	Jaguar	NT	√		√		√		√	
24.				*Puma yagouaroundi*	Yaguarundi	LC	√		√		√		√	
25.		Perissodactyla	Tapiridae	*Tapirella bairdii*	Tapir	EN	√		√		√		√	
26.		Artiodactyla	Tayassuidae	*Pecari tajacu*	Pecarí de collar	LC	√		√		√		√	
27.				*Tayassu pecari*	Pecarí de labios blancos	VU	√		√		√		√	
28.		Artiodactyla	Cervidae	*Mazama temama*	Venado cabrito	DD	√		√		√		√	
29.				*Odocoileus virginianus*	Venado cola blanca	LC	√		√		√			
30.	Aves	Tinamiformes	Tinamidae	*Tinamus major*	Mancolola	NT	√		√		√		√	
31.				*Crypturellus soui*	Tinamu menor	LC	√		√				√	
32.				*Crypturellus cinnamomeus*	Tinamu	LC	√							
33.				*Crypturellus boucardi*	Tinamu jamuey	LC			√		√		√	
34.		Galliformes	Cracidae	*Ortalis vetula*	Chachalaca común	LC	√		√					
35.				*Penelope purpurascens*	Pava cojolita	LC	√		√				√	
36.				*Crax rubra*	Faisán	VU	√		√		√		√	
37.		Columbiformes	Columbidae	*Patagioenas speciosa*	Paloma escamosa	LC			√					
38.				*Geotrygon montana*	Paloma perdiz rojiza	LC			√					
39.				*Leptotila cassinii*	Paloma pechigris	LC			√					
40.				*Leptotila plumbeiceps*	Paloma cabecigris	LC	√		√					
41.				*Leptotila sp*	Paloma	LC	√		√		√		√	

No.	Class	Order	Family	Species	Common name	UICN category	2015		2016		2017		2018	
							Photo-tramp	Visual /	photo-tramp	Other	photo-tramp	Other	photo-tramp	Visual /
42.		Gruiformes	Aramidae	*Aramus guarauna*	Carao	LC	√		√					
43.		Pelecaniformes	Ardeidae	*Tigrisoma mexicanum*	Garza tigre	LC					√		√	
44.		Cathartiformes	Cathartidae	*Cathartes aura*	Aura Cabecirroja	LC					√			
45.		Accipitriformes	Accipitridae	*Geranospiza caerulescens*	Gavilán zancón	LC			√					
46.				*Rostrhamus sociabilis*	Gavilán caracolero	LC	√							
47.				*Buteogallus anthracinus*	Aguililla negra menor	LC	√							
48.				*Buteogallus urubitinga*	Gavilán negro	LC			√					
49.				*Pseudastur albicollis*	Busardo blanco o aguililla blanca	LC							√	
50.				*Buteo sp.*	Gavilán		√							
51.		Coraciiformes	Momotidae	*Momotus lessonii*	Barranquero	LC			√					
52.		Passeriformes	Formicariidae	*Formicarius analis*	Gallito hormiguero carinegro	LC			√					
53.			Turdidae	*Catharus dryas*	Zorzal pecho amarillo	LC					√			
54.				*Turdus sp*	Zorzal				√					
55.			Passerellidae	*Arremonops chloronotus*	Gorrión dorsiverde	LC					√			
56.				*Arremon aurantiirostris*	Rascador piquinaranja	LC			√				√	
57.			Parulidae	*Setophaga citrina*	Reinita encapuchada	LC							√	
58.	Reptilia	Crocodilia	Crocodylidae	Crocodylus moreletii	Cocodrilo de pantano	LC		√		√		√		√

All monitoring results can be physically accessed by requests and summaries were communicated to the Communities and Other Stakeholders through appropriate media.

Finally, the project activities that assist the biodiversity to adapt to the probable impacts of climate change include the diversification of employment and income beyond agriculture, such as identification of new NTFP and Improvement of agricultural practices with the aim of higher productivity and slowing the rate of hectares deforested.

In this regard, two management plans for NTFP were developed for the communities of La Lucha and La Libertad, while one Forest Management Plan was developed for La Lucha. See Management Plans.

5.1.4 High Conservation Values Protected (B2.4)

The project zone includes areas of High Conservation Value (HCV). The HCV characteristics have been identified using Geographic Information Systems and management plans for sustainable use of the principal species such as Spanish Cedar, Large-leaved Mahogany, Breadnut, and Allspice. These are the HCV´s identified within the project zone:

HCV1: Concentrations of biological diversity including endemic species, and rare, threatened, or endangered species.

The project has positively contributed to the conservation of HCV1 as detailed below. HCV 1 is specifically related to the conservation of Three species: Tapir, Jaguar, and Peccari:

Monitoring and conservation of Tapir (*Tapirella bairdii*):

In the most recent update of the RBM Master Plan, the tapir was selected as a new Natural Element of Conservation, because it is considered a good indicator of the ecological integrity of the ecosystems it inhabits (Consejo Nacional de Áreas Protegidas [CONAP], 2015). Because of this, this species acquires relevance for the conservation and management of the biological diversity in this reserve, being necessary to know the state of its populations through time.

In response to the need to monitor the status of the tapir's wild populations, in 2015, a basic protocol was proposed for its monitoring by the Program for Tapir Conservation in Guatemala of the Center for Conservationist Studies (CECON) and Defensores de la Naturaleza (FDN). In 2016, a pilot study was implemented in three core zones, the results of which allowed for the enrichment and improvement of the base protocol.

Also, the Project area has a specific plan for the conservation[24] of Tapir through the actions of the Centre for the conservation of studies of the University of San Carlos and the IUCN. The main results of the implementation of such a plan from 2015 to 2018 are detailed below:

- **Institutional engagement and support**: As the first step in the implementation of the program, an inter-institutional cooperation agreement was signed between the Guatemala Baird's Tapir Conservation Program, Centro de Estudios Conservacionistas (CECON) from San Carlos de Guatemala University (USAC) and Defensores de la Naturaleza Foundation (FDN), to ensure the participation and commitment of all partners along the three years of the project. From the above, it was possible to conform to the project's base team, which included a project coordinator, researchers, technicians, and park rangers.

Another basic step for the program's implementation and success was the authorization and endorsement from the National Council of Protected Areas (CONAP in Spanish), the leading Governmental institution for wildlife and protected areas in Guatemala. In order to achieve this, we held many meetings with representatives from the Wildlife Division in Guatemala City.

[24] Full details of the conservation plan can be found at Biodiversity-Tapir-GARCIA Bairds Guatemala

- **Conservation tools for NGOs and government agencies**: The main results in this objective were focused on the establishment of a Scientific Committee for the Conservation of Tapirs in the Maya Biosphere Reserve (MBR) and a National Working Group for the development of the National Strategy for the Conservation of the Tapir and its Habitat in Guatemala, as well as the preparation of the draft document.

- **Systematic Tapir monitoring**: In November-December 2015, the Guatemala Tapir Conservation Program developed specifically for this project a proposal of a Standardized Tapir Monitoring Protocol for the Maya Biosphere Reserve (MBR). It was proposed as an innovative, multi-scale framework for the monitoring of an endangered species, and it has not been applied in the MBR before. The proposed protocol is made up of logical frameworks at different scales (national, regional, subregional, and local). The local scale focuses on Core Protected Areas (CPA) of the MBR, in different spatial scales for data sampling (2.25 km2, 9 km2, 25-36 km2, and 100-124 km2). In this framework, larger sampling units imply fewer resources for its implementation (size of the unit will depend on the resources that are available for each CPA). A meeting for the socialization of this protocol was carried out on March 2nd, 2016 before the pilot sampling round took place.

- **Improved protected area surveillance in key Tapir habitat**. A training workshop was held on March 1st, 2016, at Cerro Cahuí Protected Biotope where 18 park rangers and two technicians from CECON and FDN were trained. The workshop focused mainly on the implementation of the monitoring protocol, therefore sampling methods for wildlife (camera-traps, use of GPS, and recognition of raptor species) and primary threats to wildlife were the main topics. Two additional workshops were implemented in 2017 and 2018, to present results from tapir monitoring at the Protected Biotopes and training in other topics such as botanical collections and the use of the MBR carpological catalog.

- **Develop and implement Tapir conservation strategies that directly benefit local actors**: 30 tourism guides from local communities were selected to participate in the training workshops about the conservation of Tapit; 10 guides from El Remate Community, 5 from Cruce Dos Aguadas community and 15 from La Técnica Agropecuaria Cooperative.

Finally, the results of the last monitoring of this specie show that 216 Tapirs were identified inside the PNSL.

Figure 36 Reports of Tapir

The full results of the monitoring of this species can be found at Biodiversity-Biodiversidad LBPV.

Monitoring and conservation of the Jaguar (*Panthera onca*):

According to the recent results of the monitoring of the Jaguar, it is estimated that the Jaguar is present in 5.92% of the area of the PNSL. However, the potential habitat for this species accounts for about 116.935,75 hectares.

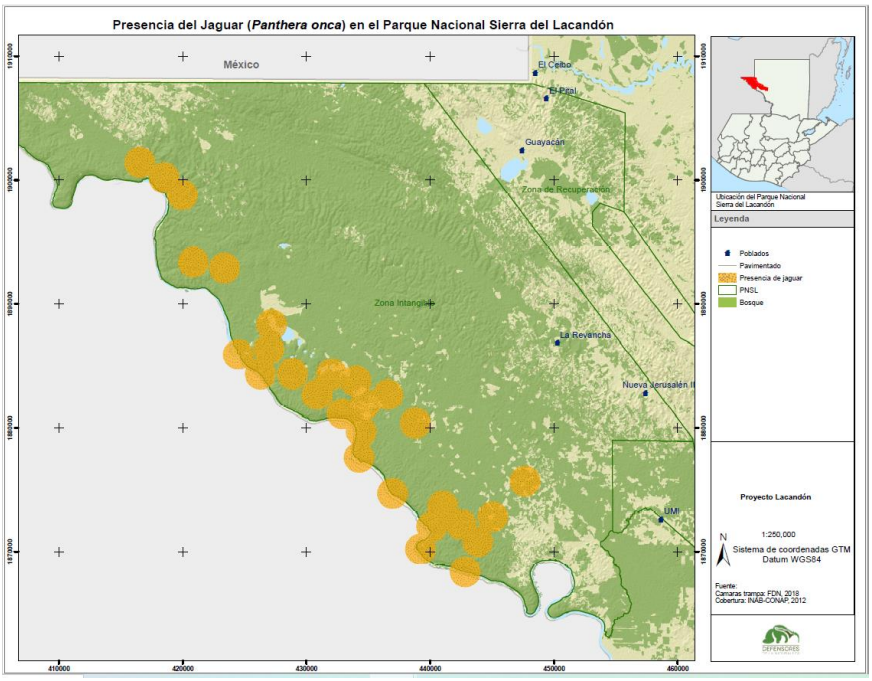

Figure 37 Distribution of jaguars in the territory

The results of the monitoring show that during the monitoring period 44 jaguars were observed inside the Project area. Full details can be found at Biodiversity-Biodiversidad LBPV.

Figure 38 records of jaguars

Monitoring and conservation of the Pecari (*Tayassu pecari*):

The results of the most recent monitoring show that during the monitoring period 99 peccaris were observed inside the Project area. Full details can be found at Biodiversity-Biodiversidad LBPV.

Figure 39 Records of Peccari

Other measures implemented to maintain the HCVs 1 are:

- Monitoring of endangered wildlife and indicator of stable ecosystems.
- Register of other species in the project zone through camera-traps sampling.
- Patrols conducted to avoid invasions.
- Awareness and workshops on forest fires.
- Control over the illegal extraction of natural resources.

5.1.5 Invasive Species (B2.5)

The project uses native species for its agricultural and forestry activities. Invasive species were not used during the monitoring report.

5.1.6 Impacts of Non-native Species (B2.6).

Non-native species where not used or promoted inside the project zone in part because the project is located inside a National Protected Area that excludes the use of introduced tree species as they might affect the health of the protected ecosystems. The following table shows some of the native species used by the project. See Management Plans-PGM La Lucha.

Table 22 Native species used by the project

Scientific name	Spanish name	English name
Cedrela odorata	Cedro	Spanish Cedar
Swietenia macrophylla	Caoba	Large-leaved Mahogany
Brosimum alicastrum	Ramón	Breadnut
Theobroma cacao	Cacao	Cocoa
Pimenta dioica	Pimienta	Allspice

5.1.7 GMO Exclusion (B2.7)

No GMOs were used to generate emissions reductions or removals. This project aims at conserving natural forest covers and to promote the use of native species for productive purposes.

5.1.8 Inputs Justification (B2.8)

No Fertilizers, chemical pesticides, biological control agents, and other inputs were used for the project.

5.2 Offsite Biodiversity Impacts

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

Lacandón - Forests for Life REDD+ Project focuses on reducing deforestation to ensure that ecosystem services continue over time, cultural and archaeological heritage is preserved and the emission of greenhouse gases from deforestation and degradation is avoided. Also, the project focuses on improving the living conditions of the communities located within and surrounding the park boundaries.

Until the reporting monitoring period, there are no negative impacts to biodiversity caused by project activities due to one main project objective is forest conservation. One potentially negative impact would be the result of leakage. However, the results of the monitoring show that no leakage occurred during this monitoring period.

5.2.2 Net Offsite Biodiversity Benefits (B3.3)

No negative impacts on biodiversity caused by the project were identified during the current monitoring period. The net positive impacts of the project on biodiversity are described in section 5.1.1 and section 5.1.3.

5.3 Biodiversity Impact Monitoring

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

The complete Monitoring Plan can be found in section 8.1.1 of the Project Design Document version 3. No changes have been applied to the monitoring plan since validation. The results of the Biodiversity Impact monitoring are summarized below:

Monitoring has been developed by FDN, whereas other governmental and non-governmental institutions have also participated in the process of data gathering on the field. The data generated during monitoring has been stored by FDN. FDN is responsible for the gathering and process of all necessary data on the field for community and biodiversity monitoring. CEMEC/CONAP is responsible for the gathering and process of all data for climate monitoring needed for future VCS verification events. A process of quality check and quality control of the information generated by each institution will occur along the time and strengthen before any

verification event. Any non-conformity found during the internal auditing exercises will be documented, communicated, and solved within 3 months after its detection.

Monitoring for this monitoring period:

Fifty photo-trapping stations were established in the Sierra de Lacandón National Park's Intangible Zone, with an average linear distance between each station of 2.3 km (1.9 - 3.4 km), covering a total area of approximately 200 km^2. Each station was geo-referenced using a Garmin® GPS.

An automated camera (Bushnell Trophy Cam®) was installed at each station, at an average height of 45 cm and in a north-south direction. All the cameras were active for about 90 consecutive days during the four years of the monitoring period and were programmed to take pictures and videos 24 hours a day and record the date and time of each picture. During the sampling period, visits were made to the stations to check the status of the cameras, change batteries, and memory cards.

After sampling, the photographic files on the memory cards were reviewed and saved in folders labeled with the photo-trapping station number. In addition, effective and ineffective photographic files were separated, with those that detected the presence of fauna being effective. The photographic files from 2016 to 2018 were processed using the CameraBase software, and a database (compatible with Excel) was created for each year.

For the analyses of the present study, only medium and large size species, i.e. larger than 1 kg, were considered; species with lower body weight were not included in the analyses. Taxonomic identification of species recorded in photo-traps was done using the illustrated guides of Howell and Webb (1995), Peterson (2016), and Reid (2009). The conservation status of medium and larger vertebrate species was made based on the "IUCN Red List of Threatened Species".

Independent events refer to the amount of time (minutes, hours, days) that must elapse between one photo and another for them to be considered statistically independent. Independent events were considered to be those photographic records of the same species that were separated by an interval of one-hour, consecutive photographic records of different individuals, and non-consecutive photographic records of individuals of the same species.

In the case of gregarious species, photographic records where more than one individual was observed were considered to be an independent event, even when the presence of 2 or more individuals was evident. In those photographic records where there was more than one individual (or in subsequent records), then each of these was considered to be an independent record. The use of independent events helps to avoid overestimation.

5.3.2 Biodiversity Monitoring Plan Dissemination (B4.3)

See section 2.3.2

5.4 Optional Criterion: Exceptional Biodiversity Benefits

The project area is included within the Key Biodiversity Area (KBA) Selva Lacandóna and Sierra del Lacandón Mexico/Guatemala. By avoiding deforestation in a KBA the Lacandón - Forests for Life Project generates Exceptional Biodiversity Impacts.

In the intangible area of SLNP, a biodiversity baseline was performed, where three items of conservation were selected: The near-threatened Jaguar (*Panthera onca*), the largest feline in Latin America and part of the Guatemalan culture for years; the endangered Tapir (*Tapirus bairdii*), largest land mammal in the Neotropics and the only living representative of perissodactyla order, is a species considered nationally endangered and throughout its range, and vulnerable White-lipped Pecari (*Tayassu pecari*), is threatened due to strong illegal hunting. These were identified by the availability of information, expert criteria, the viability of the species and if it were present in the lists of species threatened CITES and List of Threatened Species of the CONAP.

These three species require large tracts of contiguous forest to maintain viable populations over time, so generating mechanisms or tools for conservation habitat, are protecting other species that share the same habitat type, allowing there a balance of the ecosystem. By protecting areas of intact forest the habitat of many species is conserved. Furthermore, the previously logged areas are reforested with native species also in the IUCN Red list like *Swietenia macrophylla* and *Cedrela odorata* or recover over time so that they can be almost natural forests.

Indicators for the three trigger species are included in the monitoring plan under the “Presence of endangered fauna” indicator. The monitoring is performed using the camera trap method. This method is used for multiple purposes, from identifying individual specie to assess population size and various aspects of their ecology and behavior. For this reason, using camera traps in one of the most important and versatile methodologies for studies of biological research for conservation purposes.

The results of the monitoring of exceptional Biodiversity species are summarized below. For additional information, see the “Biodiversidad LBPV” located in the folder: Biodiversity:

Table 23 Results of monitoring of HCV fauna

Species	2015					2016					2017					2018				
	Events	Sex				Events	Sex				Events	Sex				Events	Sex			
		Male	Femal	Cría	ND		Male	Femal	Cría	ND		Male	Femal	Cría	ND		Male	Femal	Cría	ND
Jaguar	11	2	2		7	15	3			12	6	1			5	12		1		11
Tapir	61	26	19		16	17				17	51	9	1	1	40	87	16	20	4	47
Pecarí	17					2					18					62				

5.4.1 Trigger Species Population Trends (GL3.3)

Trigger Species	Panthera onca
With-project Scenario	Actions taken to protect the Jaguar include the constant monitoring and conservation of its habitat. As a result of the implementation of the project activities, 5 new individuals were identified in this monitoring period compared to the previous monitoring report. Also, the monitoring patrols were able to identify and confiscate weapons and tramps normally used to hunt this species.

Trigger Species	Tapiruis bairdii
With-project Scenario	102 additional individuals of Tapir were recorded in this monitoring report compared to the previous monitoring period. Actions taken to protect the Tapir include the constant monitoring and conservation of its habitat.

Trigger Species	Tayassu pecari
With-project Scenario	24 fewer individuals of Pecari were recorded during this monitoring period compared to the previous monitoring report. However, this decrease is attributed to an adjustment in the monitoring procedure of the species and not to an actual decrease in the population. Actions taken to protect the Tapir include the constant monitoring and conservation of its habitat

6 ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

Most information about the current implementation of the project was already provided in the previous sections of this monitoring report. Several other activities no reported in the figures of this report but that took place during the monitoring period according to FDN are saved in the raw database of this project. Such information was not included because the records provided were incomplete (e.g. did not include a list of participants or a full description of the activities implemented). Therefore, the positive impacts of the project might go beyond the ones reported in this document if the raw database is also considered. Yet, the proponents decided to only report on the complete pieces of evidence.

7 ADDITIONAL PROJECT IMPACT INFORMATION

No other additional project impact information will be provided here as all activities and impacts of the project on the climate, community, and biodiversity were already reported in the different sections of this monitoring report.

APPENDICES

Appendix 3: Training and Workshops

No	WORKSHOP	TOTAL	WOMEN	MEN	YEAR
29	35th International Course on Protected Areas, Biological Corridors, and Ecosystem	1	1	0	2014
30	Camera Traps Training Meeting	13	1	12	2014
31	Management of Fruit and Forestry Nursery	3	0	3	2014
32	REDD+ Informative workshop	14	0		2014
33	REDD+ Informative workshop	10	2		2014
34	REDD+ Informative workshop	28	9		2014
35	Rural Empowerment and Gender Equality Workshop – Central Office	15	7	8	2014
36	Rural Empowerment and Gender Equality Workshop – Communities	22	10	12	2014
37	School for Promoters of Rural Integral Development (Module IV)	30	6	24	2014
38	School for Promoters of Rural Integral Development (Module V)	24	13	11	2014
39	School for Promoters of Rural Integral Development (Module VII)	40	12	28	2014
40	Services	24	9	15	2014
41	A comic about climate change and a summary of PDD was delivered	107	17		2015
42	Advances of consensus among REDD+ Project Proponents	8	2		2015
43	Answer questions, define next meeting	21	3	18	2015
44	Answer questions, define next meeting	10	9		2015
45	Date of final consultation was defined	65	10		2015
46	Date of final consultation was defined	12	0		2015
47	Define guest for final consultation	26	10		2015
48	Define guest for final consultation	36	0		2015
49	Define guest for final consultation	37	13		2015
50	Explain Project Impacts	26	26		2015
51	Explain Project Impacts	18	0		2015
52	Final consultation FPIC	49	16		2015

53	Final consultation FPIC	115	29		2015
54	Final consultation FPIC	45	17		2015
55	Follow up to project impacts	15	0		2015
56	Follow up to project impacts	26	26		2015
57	REDD+ Informative workshop	28	28		2015
58	REDD+ Informative workshop	28	13		2015
59	Forest Fires and Early Warning Systems	30	8	22	2014
60	Training in forest fires in Villa Hermosa	30	9	21	2015
61	Forest Fire Prevention Course - Villa Hermosa Elementary School	30	11	19	2016
62	Training teachers in environmental management - Las Ruinas	23	9	14	2016
63	Climate Change - Pozo Azul Caserio	8	3	5	2016
64	Climate Change - Villa Hermosa Caserio	17	9	8	2016
65	Awareness meeting for forest protection -Pozo Azul Caserio	24	4	20	2017
66	conference on forest fire prevention - Villa Hermosa Caserio	25	11	14	2017
67	Training for teachers and students in environmental education -Villa Hermosa	22	10	12	2017
68	Conference on forest fire prevention - Pozo Azul Caserio	50	21	29	2017
69	Conference on forest fire prevention - Villa Hermosa Caserio	50	26	24	2017
70	Enhancing the conservation and enrichment of the forests of Villa Hermoza and Pozo Azul	20	8	12	2017
71	Tour of exchange of experiences in administration and management of natural resources - Santa Elena	35	14	21	2017

72	Training for young people in Villa Hermosa and Poza Azul on leadership, conflict and climate change	55	21	34	2018
73	Training for teachers of La Lucha on self-management, leadership, and conflict	20	10	10	2018
74	Workshop with members of the board of directors and young people of the la tecnica cooperative	8	4	4	2018
75	Training for teachers of Poza Azul on self-management, leadership, and conflict	24	17	5	2018
76	Exchange of experiences of young people in the municipality of La Libertad	17	17		2018
77	Institutional workshop to update the master plan in Santa Elena, Flores, Peten	11	4	7	2018
78	Institutional workshop to update the master plan in Santa Elena	12	4	8	2018
79	Workshop - Introduction to Agriculture	25	11	14	2018
80	First governance forum in Santa Elena	7	4	3	2018
81	Systematization of lessons learned - Santa Elena	40	9	31	2017
82	Environmental conservation and sexual and reproductive orientation to update the master plan	24	5	19	2018
83	Forest fire protection planning	7	2	5	2017

84	Beekeepers' meeting	37	5	32	2018
85	Environmental education for conservation and life workshop -COBAN, Alta Verapaz	20	9	11	2017
86	Workshop for young people in PNSL to update the master plan	33	21	12	2018
87	Community workshop to update the master plan in Santa Elena	20	2	18	2018
88	Education and Reproductive Health	10 Communities			2014 - 2018
89	Program for the conservation of Tapir	20	13	7	2015-2018
90	Environmental education for conservation and life workshop -COBAN, Alta Verapaz	20	10	10	2017
91	Strengthening productive initiatives of the youth project in La Lucha	12	4	8	2018
92	Strengthening productive initiatives of the youth project in Union Maya Itza	21	8	13	2018
93	Training in environmental education for the Union Maya Itza youth group	36	12	24	2018
94	Reforestation Activities in San Juan	12	4	8	2018
95	Reforestation Activities in Villa hermosa	11	6	5	2018

96	Experience Exchange Workshop	6	1	5	2018
97	Workshop on tourism	24	5	21	2018
98	Master Plan Maintenance	43	20	23	2018
99	Conflict Resolution Workshop	30	10	20	2015
100	Human Settlements Policy Workshop	16	1	15	2017
101	Methodological workshop for territorial agreements	9	3	6	2014
102	Diagnostic visit	13	0	13	2016
103	Talk about family nursery management and plant production	12	5	7	2017
104	Forestry techniques and cocoa demonstration visits	29	2	27	2017
105	Workshop on the implementation of the SAF Community Organization	20	3	17	2018
106	Good SAF practices	51	1	50	2018
107	Elaboration of fertiliser boxes Pastoral social-FDN	15	0	15	2018
108	Forest nursery maintenance	31	1	30	2018
109	Filling bags and talking about chocolate making	115	51	64	2018
110	land recovery in the pollo solo area	7	2	5	2018
111	Beekeepers' Meeting	18	2	16	2017
112	Nursery construction and seed delivery	9	2	7	2017
113	Nursery construction and plant relocation	22	4	18	2017
114	Delivery of pepper plants	34	6	28	2018
115	Transfer and delivery of plants, processing of Ramon sub-products	42	15	27	2018
116	Exchange of experiences in agroforestry systems	4	0	4	2018
117	Exchange of community experiences ZUE	58	5	53	2018
118	Conflict resolution workshop	25	7	18	2015
119	Institutional Workshop Master Plan	11	3	8	2018
120	Basic English Course	15	9	6	2018
121	SAF Implementation Workshop	20	6	14	2018
122	Conflict resolution workshop	25	7	18	2015
123	Conflict resolution workshop	30	6	24	2016
124	Workshop on the elaboration of the communal action board regulations	7	3	4	2018

125	Bocadillos and candle making workshop	15	10	5	2018
126	Conflict resolution workshop	27	8	19	2014
127	Leadership training workshop	90	32	58	2015
128	Workshop on the elaboration of farm plans	14	0	14	2015
129	Conservation Project Training Workshop	42	8	34	2015
130	Climate change workshop	55	15	40	2018
131	Climate change workshop	71	33	38	2018
132	Workshop with young people to update the master plan	33	20	13	2018
133	Community workshop master plan	10	0	10	2018
134	Community workshop master plan	17	4	13	2018
135	Climate change workshop with young people	105	47	58	2018
136	Youth project socialization workshop	43	11	32	2018
137	Training in the elaboration of handicrafts	17	17	0	2015
138	Training of park community staff	28	5	23	2016
139	Exchange of experiences in biodiverse SAF	48	3	45	2018
140	seventh module school of rural development promoters	40	7	33	2014
141	sixth module school of rural development promoters	30	11	19	2014
142	Agroforestry techniques	39	2	37	2017