

RIO PEPE Y ACABA REDD+ PROJECT: MONITORING REPORT

Project Title	RIO PEPE Y ACABA REDD+ Project
Project ID	1396
Version	1.7
Report ID	
Date of Issue	28 May 2019
Project Location	The project is located within the communities of Río Pepé and Acaba, located in the municipalities of Bajo Baudó and Medio Baudó, in the Colombian department of Choco.
Project Proponent(s)	Consejo Comuntario de Río Pepé (Point of Contact: Jhon Fredis Mosquera Valencia, +57 3218386266); and Consejo Comunitario de ACABA (Point of Contact Jair Mosquera Cordoba, +57 3105336270)
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Validation/Verification Body	AENOR Spanish Association for Standardization and Certification. Contact: José Luis FUENTES PÉREZ. Génova 6, 28004. Madrid, Spain. jfuentes@aenor.es - www.aenor.es
GHG Accounting/ Crediting Period	01 December 2014 through 01 December 2044; 30-year total period.
Monitoring Period of this Report	1 December 2014 through 31 December 2017.
History of CCB Status	Validation was achieved in April 2015. Currently undergoing verification.
Gold Level Criteria	The project seeks to be verified at the gold level for exceptional community benefits, using the following criteria for this purpose: short-term and long-term benefits; benefits for marginalized and/or

vulnerable community groups; net positive impacts on women; implementing an equitable benefit sharing mechanism; effective participation through governance and implementation structures; and building capacity development for smallholders and community members.

The project is explicitly pro-poor in terms of targeting benefits to globally poorer communities and the poorer, more vulnerable households and individuals within them. The project has generated both long-term and short-term net positive well-being benefits for community members at the individual and/or family level, based on the theory of change model developed at the time of validation and put into use during the monitoring period. All of the REDD+ project activities implemented have been designed to ensure that vulnerability is reduced and benefits accrue to the most marginalized and vulnerable groups, including strengthening land tenure for these groups and reaffirming use rights over natural resources; developing alternative economic activities to reduce financial vulnerability; protecting natural resources to reduce environmental vulnerability; increasing governance capacity, and enhancing relationships and contacts with other institutions, thereby reducing the general vulnerability of the community.

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1 SUMMARY OF PROJECT BENEFITS

1.1 Unique Project Benefits

Table 1 below contains brief summaries of a few project benefits that are not captured by the standardized benefit metric. Here, the net benefit of the project is assessed. Since this is the first monitoring period of the project, the achievements during the project lifetime are the same as those during the monitoring period.

Table 1: Unique Project Benefits

Outcome or Impact	Achievements during the Monitoring Period	Section Reference	Achievements during the Project Lifetime
1) Exchange of experiences workshop between project proponents and other organizations involved with REDD+ and other payment-for-ecosystem-services related initiatives.	On October 28, 2014, an exchange of experiences workshop was developed with the help and participation of various organizations involved with REDD+ at the regional and international level. This workshop was carried out among members of the Acaba Rio Pepe Community Council, FAO officials, CORPOURABA and the PNNP. Its main objective was to share the actions developed by the Community Council, within the framework of the Rio Pepe Acaba REDD + project, with other relevant institutions and organizations carrying out similar initiatives, and for these organizations to in turn share their own experiences with the project proponents.	Section 2.3.4	On October 28, 2014, an exchange of experiences workshop was developed with the help and participation of various organizations involved with REDD+ at the regional and international level. This workshop was carried out among members of the Acaba Rio Pepe Community Council, FAO officials, CORPOURABA and the PNNP. Its main objective was to share the actions developed by the Community Council, within the framework of the Rio Pepe Acaba REDD + project, with other relevant institutions and organizations carrying out similar initiatives, and for these organizations to in turn share their own experiences with the project proponents.
2) Capacity Building in consolidating and strengthening tenure and	347 people trained in the construction and implementation of internal governance and land-	Section 4.1.1	347 people trained in the construction and implementation of

governance over natural resources.	use regulations.		internal governance and land-use regulations.
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1.2 Standardized Benefit Metrics

Table 2 below quantifies the net benefit the project has achieved during the monitoring period. Since it is the first verification, the lifetime achievements are the same as the monitoring period achievements.

Please refer to document “MTC_ACABA_RIO PEPE_04_2019.xlsx” for supporting documentation/reference.

Table 2: Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	N/A	N/A	N/A
	Net estimated emission reductions in the project area, measured against the without-project scenario	648,915 tCO ₂ e	3.2.4	648,915 tCO ₂ e
Forest ¹ cover	For REDD ² projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	982 ha	5.1	982 ha
	For ARR ³ projects: Number of hectares of forest cover increased in the project area	N/A	N/A	N/A

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

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

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

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	measured against the without-project scenario			
Improved land management	Number of hectares of existing production forest land in which IFM ⁴ practices have occurred as a result of the project's activities, measured against the without-project scenario	N/A	N/A	N/A
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	120 hectares of improved farmland now managed and/or established under more sustainable practices (60 hectares of achote, and 60 hectares of cacao).	4.1.1; various	120 hectares of improved farmland now managed and/or established under more sustainable practices (60 hectares of achote, and 60 hectares of cacao).
Training	Total number of community members who have improved skills and/or knowledge resulting from training provided as part of project activities	30 families trained in the establishment and transformation of products derived from achote. 135 families benefited from the implementation of cacao production. 6 Individuals trained as trainers and/or community liaisons for the project.	4.1.1; various	30 families trained in the establishment and transformation of products derived from achote. 135 families benefited from the implementation of cacao production. 6 Individuals trained as trainers and/or community liaisons for

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

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
		234 people trained in increasing awareness and the identification of priority community investments. 239 people trained in leadership techniques, and in the construction of a contingency plan for the territory of ACABA and Rio Pepé. 160 people trained in leadership issues, and in the mitigation of risks associated with forced recruitment. 220 people received training related to gender issues and on sexual violence based on gender (SGVB). Training was given to 8 people, in handling and filling out documents for coordinators and members of the REDD + project.		the project. 234 people trained in increasing awareness and the identification of priority community investments. 239 people trained in leadership techniques, and in the construction of a contingency plan for the territory of ACABA and Rio Pepé. 160 people trained in leadership issues, and in the mitigation of risks associated with forced recruitment. 220 people received training related to gender issues and on sexual violence based on gender (SGVB). Training was given to 8 people, in handling and filling out documents for coordinators and members of the REDD + project.
	Number of female community members who have improved skills and/or knowledge resulting from training	105 women trained during environmental education campaigns aimed at women.	4.1.1; various	105 women trained during environmental education campaigns aimed at women.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	provided as part of project activities of project activities			
Employment	Total number of people employed in of project activities, ⁵ expressed as number of full-time employees ⁶	5 people hired to provide technical assistance in the field for agriculture/agroforestry. 6 people hired and trained in the monitoring of zoned project areas.	4.1.1; various	5 people hired to provide technical assistance in the field for agriculture/agroforestry. 6 people hired and trained in the monitoring of zoned project areas.
	Number of women employed in project activities, expressed as number of full time employees	No data available.	N/A	No Data available.
Livelihoods	Total number of people with improved livelihoods ⁷ or income generated as a result of project activities	Various community members have improved livelihoods in total, including: 11 people directly employed by the project; 165 families trained in improved and more sustainable agricultural practices; and 234 people trained in increased awareness and the identification of priority community investments.	4.1.1; various	Various community members have improved livelihoods in total, including: 11 people directly employed by the project; 165 families trained in improved and more sustainable agricultural practices; and 234 people trained in increased awareness and the identification of

⁵ Employed in project activities means people directly working on project activities in return for compensation (financial or otherwise), including employees, contracted workers, sub-contracted workers and community members that are paid to carry out project-related work.

⁶ Full time equivalency is calculated as the total number of hours worked (by full-time, part-time, temporary and/or seasonal staff) divided by the average number of hours worked in full-time jobs within the country, region or economic territory (adapted from UN System of National Accounts (1993) paragraphs 17.14[15.102];[17.28])

⁷ Livelihoods are the capabilities, assets (including material and social resources) and activities required for a means of living (Krantz, Lasse, 2001. *The Sustainable Livelihood Approach to Poverty Reduction*. SIDA). Livelihood benefits may include benefits reported in the Employment metrics of this table.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
				priority community investments.
	Number of women with improved livelihoods or income generated as a result of project activities	Data not 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	Data not available	N/A	Data not available
	Number of women for whom health services were improved as a result of project activities, measured against the without-project scenario	Data not available	N/A	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	Data not available	N/A	Data not available
	Number of women and girls for whom access to, or quality of, education was improved as a result of project activities,	105 women trained during environmental education campaigns aimed at women.	4.1.1; various	105 women trained during environmental education campaigns aimed at women.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
	measured against the without-project scenario			
Water	Total number of people who experienced increased water quality and/or improved access to drinking water as a result of project activities, measured against the without-project scenario	Data not available	N/A	Data not available
	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 ⁸ was improved as a result of project activities	Various community members have improved well-being in total, including: 11 people directly employed by the project; 165 families trained in improved and more sustainable agricultural practices; and 234 people trained in increased awareness and the identification of priority	4.1.1; various	Various community members have improved well-being in total, including: 11 people directly employed by the project; 165 families trained in improved and more sustainable agricultural practices; and 234 people trained in increased awareness

⁸ Well-being is people's experience of the quality of their lives. Well-being benefits may include benefits reported in other metrics of this table (e.g. Training, Employment, Health, Education, Water, etc.), but could also include other benefits such as empowerment of community groups, strengthened legal rights to resources, conservation of access to areas of cultural significance, etc.

Category	Metric	Achievements during Monitoring Period	Section Reference	Achievements during the Project Lifetime
		community investments.		and the identification of priority community investments.
	Number of women whose well-being was improved as a result of project activities	Data not available.	N/A	Data not available.
Biodiversity conservation	Change in the number of hectares significantly better managed by the project for biodiversity conservation, ⁹ measured against the without-project scenario	The project has maintained a total of 45,217 ha of in-tact forest area.	4.1.1	The project has maintained a total of 45,217 ha of in-tact forest area.
	Number of globally Critically Endangered or Endangered species ¹⁰ benefiting from reduced threats as a result of project activities, ¹¹ measured against the without-project scenario	34 birds, 18 mammal, 9 amphibians, and 5 reptile species are estimated to exist in the project area and known to fall within these RTE categories.	5	34 birds, 18 mammal, 9 amphibians, and 5 reptile species are estimated to exist in the project area and known to fall within these RTE categories.

⁹ Biodiversity conservation in this context means areas where specific management measures are being implemented as a part of project activities with an objective of enhancing biodiversity conservation.

¹⁰ Per IUCN's Red List of Threatened Species

¹¹ In the absence of direct population or occupancy measures, measurement of reduced threats may be used as evidence of benefit

2 GENERAL

2.1 Project Description

2.1.1 Implementation Description

Throughout this monitoring period, the project has continued to implement project activities that contribute to the creation of GHG emissions reductions. The project's main goals during this monitoring period have been to alleviate deforestation and degradation pressures on the forests and to effectively monitor this progress. Building capacity in local governance and creation of alternative economic pathways through ecosystem-based services and products were identified as key activities needed in order to accomplish this goal. Various project activities, technologies, and measures have been used and carried out during this monitoring period. Key milestone dates are included in the implementation schedule in Section 2.2.1 of this report.

Building governance capacity is an identified outcome that contributes to the alleviation of deforestation and degradation. Strengthening governance has occurred throughout this monitoring through various measures. These include community-based land use planning, community and forest patrols, as well as updating forest and land use management plans. The project has also established conservation agreements as well as demarcated conservation zones. The project has employed many local community members who have ancestral knowledge of the forest and who can help with forest regeneration and planning. Strengthening governance capacity is a key measure which alleviates pressures of deforestation, and thus, generates GHG emissions reductions.

The generation of alternative economic activities and income sources has also been identified as a project outcome which contributes to the generation of GHG emissions reductions. Through capacity building in administration and management, occurrence of training workshops, technical assistance with agricultural and fishing activities, as well as the provision of direct employment by the project (forest patrols to monitor and catch illicit forest use), the project has worked towards creating alternative economic avenues. In doing so, the project provides substitute employment options for community members that do not contribute to deforestation and forest degradation. As such, GHG emissions reductions are created.

More details about governance and economic capacity building in the community can be found in Section 4.1.1 of this report. For more details about implementation of activities specifically related to social and biodiversity goals, please see Section 4 and Section 5 of this report, respectively.

For an overview of the project's leakage monitoring activities and non-permanence risk categorization, see section 3.2.3 of this report and "Rio Pepe Non-Permanence Risk Report M1 2014-2018" The project has contributed to a total of 648,915 tons of net GHG emissions reductions or removals in this monitoring period.

Some changes to project proponents and other participating entities have occurred since the validation of the project. From initial project development through project validation in 2015, BIOREDD+ was the project developer. Since 2018, the continued implementation and development of the project has been strengthened by a new USAID program, Paramos y Bosques. Like BIOREDD+, Paramos y Bosques is executed by USAID-implementer, Chemonics International. Fondo Acción, an implementing partner from the project's validation, continues to act as the main implementing partner of the project. Project partners Wildlife Works and ecoPartners LLC, both entities with extensive experience in the formulation and verification of REDD + projects, have also joined as key support for project activity implementation; monitoring and reporting activities; remote sensing and land use change analyses; and other verification support services. See Section 2.3.9 of this report for more details about project participants.

2.1.2 Project Category and Activity Type

This project is an Agriculture, Forestry and Other Land Use (AFOLU) project under the Reducing Emissions from Deforestation and Degradation (REDD) project category. Specifically, the project is of the “Avoided Unplanned Deforestation & Degradation” (AUDD) project category. This is not a grouped project.

2.1.3 Project Proponent(s)

Provide contact information for the project proponent(s). Copy and paste the table as needed.

Organization name	Consejo Comunitario de ACABA
Contact person	Eduar Melanio Rivas
Title	Legal Representative
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Email	edu2171@hotmail.com

Organization name	Consejo Comunitario de Río Pepé
Contact person	Jhon Fredis Mosquera Valencia
Address	Consejo Comunitario de Río Pepé
Telephone	+57 3218386266

2.1.4 Other Entities Involved in the Project

Organization name	Fondo Acción
Role in the project	Main Implementing Partner
Contact person	Andres Sierra
Title	REDD+ Coordinator
Address	Carrere 7 No. 32-33 piso 27, Bogota D.C. Colombia
Telephone	(57-1 2853862
Email	asierra@fondoaccion.org

Organization name	EcoPartners LLC
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Role in the project	Remote Sensing, Land Use Change Analysis, VCS/CCB verification support services
Contact person	Paz Lozano
Title	Manager of Developmental Services
Address	2930 Shattuck Ave Suite 304 Berkeley, California 94705
Telephone	+1 415 634 4650 extension 104
Email	plozano@ecopartnersllc.com

Organization name	Wildlife Works Carbon
Role in the project	Project implementation support and MRV
Contact person	Jeffrey Hayward
Title	Director Colombia
Address	Calle 94ª, #13-72, Oficina 501
Telephone	+57 3172288982
Email	jeff@wildlifeworks.com

Organization name	Chemonics International
Role in the project	Project implementation support and MRV
Contact person	Luis Fernando Jara
Title	Program Director
Address	Calle 94ª, #13-72, Piso 5 Bogota DC, Colombia
Telephone	+57 320 364 3690
Email	ljara@paramosybosques.org

2.1.5 Project Start Date (G1.9)

The project start date is December 1 2014. This is the date on which the last of the communities signed a letter of intent with OPTIM to reduce emissions through a REDD+ project. Because communities within the same project signed letters on different dates, the most recent date is used as the official project start. The signing of the letter of intent also demonstrates the beginning of project activities on this date, as it

represents a conscious change in forest governance. According to the project's theory of change model, forest governance is an important project activity for addressing the drivers of deforestation and forest degradation.

2.1.6 Project Crediting Period (G1.9)

The project's crediting period is 30 years, starting on 01 December 2014 and ending on 01 December 2044.

2.1.7 Project Location

The project is located within the communities of Río Pepé and Acaba, located in the municipalities of Bajo Baudó and Medio Baudó, in the Colombian department of Choco. The entire project area lies within the areas awarded to these communities through executive resolution. The communities are organized as community councils (consejos comunitarios, or CCs), to which the property rights have been allocated. These land rights are protected by Constitutional Law, and by Law 70/93.

Please refer to the Project Description for a more detailed description of the project location. The spatial boundaries of the project area and its geodetic coordinates are as follows:

Community Council	Area (ha)	Center point Coordinates (Lat, Long)	
Río Pepé	4,784	5° 07'02" N	76°50'38" W
Acaba	43,393	5° 12'07" N	76°56'01" W
Total	48,177		

2.1.8 Title and Reference of Methodology

The project is using the approved methodology VM0006, "Methodology for Carbon Accounting for Mosaic and Landscape-scale REDD projects v2.1" for the quantification of GHG emission reductions and removals generated in mosaic and landscape scale REDD+ projects. In addition to applying the VM0006 methodology in full, it further uses the VT0005 Tool for measuring aboveground live forest biomass using remote sensing, designed by Terra Global Capital. This tool provides a method for determining aboveground Live Forest Biomass (ALFB) through a combination of remote sensing data and field measurements to provide an accurate and cost-effective estimation of ALFB across varied LULC classification types and broad spatial extents. The tool is intended for use with all approved VCS methodologies within the scope of AFOLU projects.

This methodology also refers to the latest version of the following approved tools and modules:

- CDM A/R Methodological Tool Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities.
- CDM A/R Methodological Tool 03 Calculation of the number of sample plots for measurements within A/R CDM project activities.
- CDM A/R Methodological Tool 06 Procedure to determine when accounting of the soil organic carbon pool may be conservatively neglected.
- CDM A/R Methodological Tool 09 Estimation of GHG emissions related to displacement of grazing activities in A/R CDM project activity.
- CDM Tool for testing significance of GHG emissions in A/R CDM project activities.
- VCS Tool VT0001 Tool for the demonstration and assessment of additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) project activities.

- VT0005 Tool for measuring aboveground live forest biomass using remote sensing
- VCS Tool for calculating deforestation rates using incomplete remote sensing images.
- VCS Module VMD0033 Estimation of emissions from market leakage.

The project also meets all the requirements for models and default factors set forth in the VCS Standard v3.7 and the VCS AFOLU Requirements v3.6.

2.1.9 Other Programs (G5.9)

- Emission Trading Programs and Other Binding Limits: The emissions reductions and removals generated by the project are not used for compliance with any emissions trading program or to meet any binding GHG emissions limit. To avoid double counting, emissions reductions will only be issued as Verified Carbon Units (VCUs).
- Other Forms of Environmental Credit: The project has not and does not intend to generate any related environmental credit for GHG emissions reductions or removals other than those claimed under the VCS Program. No other forms of environmental credit will be sought by the project proponent.
- Participation under Other GHG Programs: The project has not been, and will not be, seeking registration under any other GHG programs other than VCS and CCB. CCB verification will demonstrate positive climate, community and biodiversity impacts, but does not produce any registered emissions reductions or credits.
- Resolution 1447: The main project proponents, and all organizations providing support to project implementation, have recognized and adhere to Resolution 1447 of 2018, as well as to all applicable rights and laws as they relate to project landholders and owners. Since the resolution came into effect, the project implementors and their partners have been in regular communication with the Ministry of the Environment and Sustainable Development (MADS) in order to clarify the requirements for projects that have been validated prior to this legislation to international standards, such as the Verified Carbon Standard (VCS) and Climate, Community, and Biodiversity Standards (CCBS) of the Verra program Verra.

Fondo Acción submitted to the Ministry a formal request regarding the possible effects of Resolution 1447 of 2018 on the project, and this petition was resolved by means of file No. DCC-8250-E2-2018-037242 of December 11, 2018, written by MADS. This clarifying response by the Government, which is referenced below, along with others submitted to MADS to verify status of implementation, allows the project proponent to affirm that it has conformed to all requirements under Resolution 1447 of 2018, as applicable. The project proponent has proactively solicited advice to determine the potential effects of Articles 40 and 41 and how these have been addressed.

To address the effects of the Resolution 1447, its necessary to first analyze the content of Article 40 and to further establish that Colombia currently only has one official forest reference emission level (FREL, or NREF in Spanish), corresponding only to the Amazon Biome in the southeast portion of the country. The FREL that was submitted by Colombia and approved by the UNFCCC in 2015 is only applicable to that portion of the country from that date forth. There is currently no FREL established for the Pacific biome where the project is located, nor is there a national FREL for Colombia as a whole yet. Article 40 of Resolution 1447 of 2018 states that a maximum mitigation potential (MMP) for results subject to national accounting that were generated from January 2016 until December 2019 should be calculated by the Government based upon the submitted

FREL. In the absence of a FREL, RENARE, the MADS and IDEAM will instead establish the maximum GHG mitigation potential based on official data from the national monitoring system.

The project proponent, as documented in DCC-8250-E2-2018-037242 of December 11, 2018, first requested clarification as to the timing and process for the calculation of this PMM as subject to national accounting. It was made clear to these appropriate institutions that the results submitted were those from 2016-2019, pertaining to activities that reduce deforestation and store carbon in above ground biomass. As of June 20, 2019, the MMP has still not been calculated, nor have any REDD+ projects verified to the Verra standards in Colombia.

The project proponents indicate their willingness to abide by the calculation of the MMP for those results as legally applicable once the government announces its disposition to undertake the calculation. It is important to indicate that the MADS clarified, in DCC-8250-E2-2018-037242 of December 11, 2018, that the process of verification can proceed in parallel or in advance of the calculation of the MMP.

Regarding Article 41

Article 41 clearly establishes the important precedent acknowledging the validity of REDD+ project baselines that were validated prior to the Resolution 1447 of 2018. Article 41, Paragraph 1 serves to grandfather existing validated project baselines and this clause establishes the right to use these, provided that the project follows the provisions of Article 40 already described.

2.1.10 Sustainable Development

The Sustainable Development Goals (SDGs) are framed in the universal call for the adoption of measures to end poverty, protect the planet and to ensure that all people enjoy peace and prosperity. Based on these guidelines, Colombia adopts 17 objectives to achieve the goals of the SDGs. The SDGs embroider the root causes of poverty and unite us to achieve positive change for the benefit of people. Based on these principles, the fundamental pillars of the SDG for the country since 2016 focus on quality education (4), reduction of inequalities (10), and peace, justice and solid institutions (16), all as stated in the National Development Plan (UNDP 2016).

The REDD + project is concentrated in one of the country's territories with the greatest deficiencies in infrastructure, education, health and social assistance. The Colombian Pacific Corridor is also defined as one of the five places in the country with the greatest vulnerability to climate change. In the chapter entitled, "Producing and Conserving While Producing", of the National Development Plan, the recognition of the key role played by ethnic communities in the conservation of natural capital has been highlighted. REDD + projects can contribute to further these goals by generating economic alternatives and incentives that improve living conditions yet maintain ancestral customs aligned with the conservation of natural resources. Activities implemented during the years under the auspices of the REDD + project have and will continue to be in line with capacity building for communities and for instances of increased territorial governance, which will allow them to reduce deforestation and environmental degradation, as well as help with the management of climate change and disaster risks (PND, 2018-2022).

The REDD + project, from its conception and implementation, has been harmonized with the objectives that contribute to a Colombia in Peace by strengthening the governance of its territories, implementing productive alternatives and through the diversification of income that can be provided from the protection of forests. These characteristics align perfectly with the objectives of a Green Growth Economy and with a reduction in the degradation of ecosystems. The vision of the projects and as they have been registered before international standards, is to continue contributing to the reduction of deforestation and degradation of the tropical humid forests of the Pacific region, under REDD + schemes for the next 60

years. These actions will contribute to the goals of reduction of greenhouse gas emissions established in international agreements, to the goals of reducing deforestation and degradation in general, and will be linked to the economic policies of future tax reforms related to carbon taxes and pollution, carbon neutrality, and for providing reduced carbon emission units to industrial sectors with carbon tax compliance obligations.

Table 3 below details national sustainable development goals and how this project is explicitly contributing to them.

Table 3: Sustainable Development Goals

Sustainable Development Goals	REDD+ Project Contributions
 1 FIN DE LA POBREZA Eradicating poverty in all its forms continues to be one of the main challenges facing humanity.	Generation of employment alternatives and opportunities in environmental services and green business markets. Linking the community to patrolling programs of their territory and administrative activities. See indicators in the theory of change matrices. New sources of temporary employment were implemented and new forms of providing services are provided within the framework of REDD + projects.
 2 HAMBRE CERO The Sustainable Development Goals seek to end all forms of hunger and malnutrition by 2030 and ensure access for all people, especially children, to sufficient and nutritious food throughout the year.	Sustainable agricultural practices have been promoted with community producers, and community participants have been given equal access to technologies to improve production and how to reach better markets.
 4 EDUCACIÓN DE CALIDAD	The connected landscapes program implemented the strategy, "Conservar Educando" during this reporting period, which through different workshops, trainings and events, improved knowledge about the environment, and sustainable, friendly production. It is expected that with the potential income from the sale of carbon credits, contributions will be made to elements of educational infrastructure, internet connectivity and virtual courses with the National Learning Service (SENA).

	The Sustainable Development Goals will build on these achievements to ensure an end to discrimination against women and girls around the world. It is intended that by 2030, the number of women in public positions representing decision making of relevance to the country in the figure of 50%.	As shown in the community monitoring plan indicators, the participation of women in decision-making and in the different councils and workshops has been favorable and their participation has been in accordance with the implementation of Fondo Acción's policies, especially the one related to gender. http://fondoaccion.org/nuestras-politicas/
	The Sustainable Development Goals aim to stimulate sustainable economic growth by increasing levels of productivity and technological innovation.	The REDD + project has allowed access to all community members to improve their technical capabilities through service contract positions to develop activities for the project. All the contracts have been adjusted to comply with Colombian regulations, recognizing all labor, social and occupational health rights.
	Improve education, awareness and human and institutional capacity in mitigating climate change, adaptation, impact reduction and early warnings.	This objective is met through the reduction of deforestation and degradation in the humid forests of the Colombian Pacific, under the mechanisms of REDD + projects validated and in the process of verification, such as this one.

2.2 Project Implementation Status

2.2.1 Implementation Schedule (G1.9)

Table 4 below indicates the key dates and milestones in the project's development and implementation. Please refer to "2.2.1 CronogramalImplementacionPortafolio" for reference and documentation.

Table 4: Implementation Schedule

Date	Milestone(s) in the project's development and implementation
Aug to June 2013	First basic training workshops on REDD+
21 July 2014	Strengthening of capacities for the management of REDD + projects through shared experiences of a successful case
Oct 2014	Drafting of internal governance regulation for land use and management of natural resources
01 December 2014	Project start date, based on the date in which the letter of intent was signed by the then most recent signatory community authority (consejo)
28 Oct 2014	Experience exchange tour to the Chóco Darién Conservation Corridor
30 April 2015	End of USAID BioREDD Program
April 2015	Letter of intention and commitment of the communities to continue with the implementation of the REDD + Project with Fondo Acción
April 2015	Successful VCS and CCBA Validation of project.
Sept 1 2015	USAID support of project through: Connected Landscapes Program
Nov 2015	Asamblea Approves Connected Landscapes Program/Assistance
8 Feb 2016	Conformation and training of REDD + units for project management
Feb - Mar 2016	Workshops on Territorial Appropriation Governance and REDD + with culturally appropriate pedagogical materials
Feb - Mar 2016	Induction workshop REDD + Community Team
June 2016	Implementation of productive alternatives. Technical assistance, training, tools and supplies, improvement and management of existing crops, exchange tours on achote.
Aug-Oct 2016	Strengthening of administrative capacities through HARMOS coaching workshops
Oct - Dec 2016	PDDs disseminated and translated into locally appropriate language
April 2017	Initial Mechanism of Distribution of Benefits Agreement and Mitigation Actions Document for the implementation of REDD activities
June 2017	Conformation of Interethnic Agenda
June 2017	Meeting with Government delegates and Minister of the Environment
Nov 2017	Participation spaces and participatory adjustment of the PDDs and elaboration of SOPs for all REDD + activities
Nov 2017	Signature of Agreement for sale of VCUs
Dec 2017	REDD + Safeguards Workshop with UNREDD
Feb 2018	Meeting of Legal Representatives Community REDD + Portfolio. Verification Process and ERPA
Mar 2018	USAID support of project through: Paramos y Bosques Program
April-Dec 2018	Loans to Projects with resources from Fondo Acción

June 2018	Meeting with community leaders to explain the activities and costs of the verification process. Paramos y Bosques and Fondo Acción
Oct 2018	LIDAR flights to adjust emission factors
Oct 2018	Contracting of third party verification auditors
April-May 2019	Start of the public comment period of the project monitoring document

2.2.2 Methodology Deviations

No methodology deviations were applied during the monitoring and quantification of NERs for this monitoring period.

2.2.3 Minor Changes to Project Description (Rules 3.5.6)

In November of 2017, the project proponents held a participatory adjustment of the PDDs workshop with relevant stakeholders, producing a substantive list of suggested corrections and minor changes to the original project design document. Due to its length, these changes are presented here separately, as the document "Revisión_ajustes_PDD_Rio_Pepe.docx". For each suggested change or correction, the corresponding PDD section, a detail of the modification, and a categorical justification (along with notes, if required) is outlined. All of the minor changes proposed are in conformance with the requirements of the CCB Standards criteria and indicators.

2.2.4 Project Description Deviations (Rules 3.5.7 – 3.5.10)

The project proponents have decided to make small alterations to the data/parameters gathered under the validated community monitoring plan. These alterations mostly refer to variations as to the frequency and methods by which these parameters are collected and checked, and do not impact the applicability of the methodology, additionality, or the appropriateness of the baseline scenario.

The deviations of the project in the first monitoring period detailed below do not impact on the applicability of the methodology, additionality, or the appropriateness of the baseline scenario. The deviations listed in this section relate to changes to social investments, project benefits, and involvement of local stakeholders that have no impact on the project's VCS design or the applicability of methodology. The methodology's applicability criteria pertain to agents and drivers of deforestation as well as landscape configuration, none of which is affected by the deviations listed. The deviations listed also do not affect the project's compliance with the CCB standard requirements and indicators, and are markers of the project's implementation of adaptive management in order to improve the project's implementation.

Table 5 below describes these proposed changes and also provides an explanation/justification as to the change:

Table 5: Project Description Deviations

Parameter	Description Category for Proposed Changes	Proposed Changes	Explanation/Justification
Involvement of the community in	Description of measurement methods and	Rather than monthly frequency of recording, the project proponents propose doing it	Change would be more in line with the current project MRV practices

the surveillance and patrolling of forests	procedures to be applied; Frequency of monitoring/recording:	every three months	between the field and home office
Involvement of Corteros in the regeneration and maintenance of the conservation areas	Data unit; Frequency of monitoring	Rather than specifically referring to "corteros", the unit should refer to all those persons who are dependent upon logging for their income; frequency of monitoring to be done every three months rather than monthly	New description would better capture those beneficiaries for which the project is trying to provide alternatives to logging; More in line with project MRV practices between the field and home office
Trained and equipped people	Data unit; description; and Frequency of monitoring	rather than households receiving technical assistance, records will be kept for all individuals receiving assistance; frequency of monitoring to be done every three months rather than monthly	Change would help harmonize indicator monitoring with standardized benefit matrices; More in line with project MRV practices between the field and home office
Establishment of new productive agricultural activities	Data unit; Description	"new and/or improved" hectares will replace "new" hectares	Change will better capture the number of hectares undergoing changes due to project activities and objectives
Families benefitted from the social investments of the REDD+ projects	Sources of data; Description; and Monitoring equipment	A Participatory Impact Evaluation Survey will be conducted, where subjective perception of the changes in four aspects of the quality of life of the communities (income, technical capabilities, governance and conservation): These surveys will replace the originally proposed annual household surveys	Change would be more in line with the current project MRV practices between the field and home office
Strengthened governance	Description of measurement methods and procedures to be applied; Frequency of monitoring/recording:	Rather than monthly frequency of recording, the project proponents propose doing it every three months	Change would be more in line with the current project MRV practices between the field and home office
Effectiveness of the Grievance	Description of measurement methods and	Rather than monthly frequency of recording, the project proponents propose doing it	Change would be more in line with the current project MRV practices

Redress Mechanism	procedures to be applied; Frequency of monitoring/recording:	every three months	between the field and home office
Women benefited from the Social investments of the REDD+ Projects	Data unit; description; and Frequency of Monitoring	In addition to number of beneficiary women, a Participatory Impact Evaluation Survey will be conducted, where subjective perception of the changes in four aspects of the quality of life of the communities (income, technical capabilities, governance and conservation): These surveys will replace the originally proposed annual household surveys	Change would be more in line with the current project MRV practices between the field and home office
Involvement of women in the surveillance and patrolling of forests	Frequency of monitoring	Rather than monthly frequency of recording, the project proponents propose doing it every three months	Change would be more in line with the current project MRV practices between the field and home office

2.2.5 Grouped Projects

As this project is not considered a grouped project, this section is not applicable.

2.2.6 Risks to the Project (G1.10)

The project was designed and has been developed in such a way that all of the risks identified via a participatory process with community members have been managed and/or mitigated against during the monitoring period. Specifically, members of the community evaluated the possibility of natural risks, such as: the occurrence of fire, pestilence, climate and geological risks, the results of which are reflected in the Non-Permanence Risk tool developed for this reporting period. Just as was done at time of validation, the project communities found that the risks posed from fire, pest and disease outbreaks, extreme weather, and geologic events were insignificant. Data from the DesInventar system once more shows no reports of forest fires, significant pest or disease outbreaks, or significant seismic events within the region. While flooding is a form of extreme weather event that does occur naturally within the region with a frequency of less than 10 years, it poses a negligible risk to carbon stocks, as floods affect annual crops rather than forests, as demonstrated in the DesInventar data. Further, the protection of natural forests from deforestation and degradation will reduce the impact of flooding events as a result of forest ecosystem services.

Beyond that, community members also identified possible risks related to food safety. Since forest conservation can sometimes conflict with food security by limiting access to non-timber forest products or by regulating against clearing new land for agriculture, communities determined that the project would not generate conflict for them by including planned and improved agricultural production as part of the project activities, including the expansion of crops to non-forest / marginal land areas, which continues to be a central objective of the project, as well as the improvement of fish farming. In this way, it is expected that project activities will continue to improve food security and climate resilience, rather than hinder these

efforts. The project also helps mitigate risks related to food health by helping communities adapt to climate change. The project activities related to the generation of alternative sources of income to improve food health, crop yields and adaptability are still considered very useful to mitigate these aforementioned risks.

Communities from the project area also identified as a potential risk the possibility that the income generated by the alternative income activities would not be sufficient enough to cover the loss of income (the opportunity cost, for example) generated by the reduction of logging. This applies both to families whose primary source of annual income was derived from wood, and to families that would use wood as a source of emergency income; and can even also apply to a large number of stakeholders involved in the wood supply chain, beyond those who simply cut down trees. As a mitigation measure, when the communities agreed to participate in the REDD + project, they did so knowing that the use of wood for the sustenance of the families (i.e. wood for the construction of houses) and cultural traditions would not be limited; and that it was understood, and continues to be, that the project would continue to seek and promote the participation of community members in alternative livelihood options. While some alternative livelihood options have been created by the project during this monitoring period, unsanctioned logging continues to be a major risk and issue in the project area. Mitigation actions in this respect have included the construction, approval, dissemination, and socialization of new management and land use/ allocation plans that delimit the areas of land use based on the project's priorities, and assigns specific zones for particular activities, such as the use of wood for construction, to predestined communal areas set aside for this purpose. While unsanctioned logging continues within the project area, the hope is that it will continue to diminish as the applicability, enforcement, and socialization of these new management plans progresses and as new and existing alternative livelihood options for community members are created and improved upon.

An additional social risk that was identified relates to the management and sufficiency of resources, such as the unequal distribution of benefits among the different communities that make up the major council and that, given the current conditions of carbon markets, the project may not be generating sufficient resources to provide adequate legal jobs for enough members. In addition to this, there was the potential for conflict between families engaged in illegal logging and the beneficiaries of the carbon project. To mitigate this risk, the project has developed a specific complaint procedure and grievance mechanism, understood by all members of the community, and at the same time, has continued to develop a mechanism for the distribution of benefits that will be transparent to its members and which focuses on the needs and wants dictated by community members themselves.

Yet another risk identified by the communities is that some families may not comply with the community commitments established in the REDD + project for the management of forest and natural resources. To mitigate this risk, the projects teams, together with the communities, have strengthened the rights of use and processes for the possession and use of land through various aforementioned governance activities, such as carrying out participatory mapping of project areas, improving management plans, demarcating boundaries, and implementing additional environmental protection and improved coordination with local and community authorities. Please refer to "MTC_ACABA_RIO PEPE_04_2019.xlsx" for supporting evidence/documentation.

Finally, there is the perceived risk that the communities implementing the project may have to bear the costs of implementing the project, including investing in the production of new crops and generating emission reductions on a constant basis. For example, communities perceive a risk by having to invest in materials for production (fertilizer, pest control, among others), without taking into account the expected productivity or the income that this activity can generate. These costs, including project implementation and carbon maintenance, are expected to be covered by the profit generated from the sale of emission reductions.

2.2.7 Benefit Permanence (G1.11)

The project is minimizing risks to the expected climate, community, and biodiversity benefits in order to maintain those benefits beyond the lifetime of the project. Specifically, the VCS project crediting period is

30 years, starting in 2014 and ending in 2044. The VCS project lifetime is also 30 years, the period of time during which the project proponents and implementing partners are committed to maintain the designed activities that will protect previously issued credits. While the management plans, including the Implementation Plan, extend in some instances out to 60 years, the implementation of the project activities will occur during the 30 years of the project lifetime. However, the project benefits are expected to last far beyond this time frame.

The project is currently taking active measures to enhance the climate, community, and biodiversity benefits of the project beyond the project crediting period by implementing the following long-term activities now and throughout the project lifetime:

- Continuing to strengthen land tenure and forest governance. The communities will update internal by-laws every 10 years, taking into account requirements of the project.
- Continuing to develop and implement sustainable forest and land use management plans. The communities will continue to assess and update forest management plans, based on current priorities for sustainable land use.
- Developing alternative livelihoods. The communities will continue to increase household incomes, reducing the need for income from timber extraction, through the production, processing and marketing of agricultural and other projects, such as fish.

In addition to the above-mentioned activities, the project implementers are continuing to devise a benefit distribution mechanism that will provide net income to participating communities to create and maintain other planned social investments in the future (i.e. potable water, health facilities, access to education). The benefits from these investments will improve livelihoods and help minimize the risks to these benefits long beyond the life of the project.

2.3 Stakeholder Engagement

2.3.1 Stakeholder Access to Project Documents (G3.1)

Since the beginning of the project, and acting as the project proponents' main implementing partner, Fondo Acción has put in place a stakeholder engagement and project management structure so as to ensure the active involvement of all stakeholders in the planning and execution of all project activities. For a more complete description of this engagement and management structure, please refer to the proceeding stakeholder engagement sections of this report.

An integral part of this implemented engagement and management structure has been the accessibility of all project documentation (PDDs and other documents related to REDD+ activities) to the participating communities and to other stakeholders. Since the beginning of the REDD + project, to date, different dissemination strategies have been used to allow access to all of the project documentation to communities and other relevant stakeholders in order to promote knowledge and participation of the Community Councils of all REDD + activities, and to help strengthen their capacities in sustainable management and territorial governance.

The shared documents have been the following:

- PDD project design document
- Validation report
- Written communication: REDD + Portfolio, Information sheets REDD + Projects
- REDD + Activities and Social Indicators (Matrix Theory of Change)
- Standard operating procedures (SOP) for all activities
- Benefit-sharing mechanism -MDB,

These documents have been made accessible to communities through socialization events, workshops, and / or community participation spaces, and have been delivered via printed, digital, and audiovisual materials created specifically for communities and other interested stakeholders.

Brief summaries of these types of events, and the dates when they were held, are as follows. Please refer to “2.2.1 CronogramImplementacionPortafolio” for further details and evidence regarding the following mentioned events and activities:

- **REDD + Training Workshops**

Workshops on the socialization of objectives and scope of REDD + projects, elements of the program, and concepts of climate change and adaptation. These workshops were held for the Acaba Rio Pepe project starting in June of 2013.

- **Summarized PDD Documents**

Summary booklets of the objectives, activities and benefits of each of the community, climate and biodiversity components of the project were elaborated in culturally appropriate language for their dissemination in communities. In addition, these booklets identified the responsibilities and functions of each of the strategic partners involved in the project, along with the agreed upon route and destination of the profits obtained from the sale of carbon credits at that time. These summary booklets were distributed in the Acaba Rio Pepe project starting in November of 2016.

- **Promotion of Community Appropriation of Project Activities**

Community appropriation of REDD + projects was promoted through workshops, socialization events, implementation of activities, and through the elaboration of communication products. These appropriation activities have been ongoing since the beginning of the project.

- **Promotion of Community Participation Spaces**

The strengthening of community participation with stakeholders was promoted throughout the reporting period via Assemblies, Government meetings, cultural events, and tours and exchanges of experiences with other REDD+ ventures. These events have been ongoing ever since the beginning of the project, with the exchange of experiences workshop and field trip being held in July and October of 2014, respectively.

- **Adjustment to the REDD + Project Design Documents (PDDs)**

A new thorough reading and understanding of the design document of the PDD project by the communities was carried out through discussion and participatory construction workshops in November of 2017. Community participation spaces were made for one-to-one reading of the components of the PDD document and subsequent adjustments to these documents were proposed by stakeholders.

- **Elaboration and Socialization of Standard Operating Procedures (SOP) and Benefit Sharing Mechanism (MDB).**

Through planned workshops, government boards, representatives of local communities and REDD + teams, have developed standard procedures for all REDD + activities established in the project documents, as well as began starting to develop an agreed upon benefit distribution system. Establishment of SOPs for project activities has been ongoing since the beginning of the project, while the latest rounds of workshops to help define the specifics of the project's benefit distribution system began in April of 2017.

2.3.2 Dissemination of Summary Project Documents (G3.1)

As mentioned earlier in this section of the report, an integral part of the project's implemented engagement and management structure has been the accessibility of all project documentation (PDDs and other documents related to REDD+ activities) to the participating communities and to other stakeholders. This has also included the dissemination of project documents in summarized versions. Please refer to "2.2.1 CronogramalImplementacionPortafolio" for further details and evidence regarding the following mentioned events and activities.

Using a participatory approach, the project proponents drafted a "REDD + Plan" document to serve as a condensed version of the Project Design Document, which was ultimately presented and approved by the general Assembly before the project was validated. In April 2015, a hard drive was delivered to all the project communities, which contained all of the relevant project documentation produced to date. Between April and June 2016, a computer was donated to the local REDD + team in order to archive all project related documents and files.

Activities to promote further ownership of the projects by community stakeholders started at the end of 2015, when a local REDD+ team was formed. This team was later trained on aspects relating to project management, climate change, land appropriation, and communication strategies during an induction workshop. These teams, with a constant presence in the project area, have been in charge of bringing information and raising concerns relating to the REDD + project with the local government boards. These REDD + teams also designed and produced culturally appropriate materials to disseminate information in the project areas on issues of REDD +, territorial appropriation, organizational identity and community governance through workshops. These materials varied in their formats, from primers, videos, musical pieces, and even didactic games, whose objective was to inform stakeholders as to project benefits and to reach a wider audience.

At the end of 2016 and the beginning of 2017, versions of the PDDs, using culturally appropriate pedagogical materials, were further distributed in the project areas via workshops, where such topics as "And what do we gain from this?; our role as a community; tasks of the board of directors; What are the profits invested in?; And the benefits of the project, were discussed.

Beginning in July of 2017, the project MRV links, or liaisons, were trained to lead workshops within the project areas where the Project Documents could be once more reviewed and adjusted by community stakeholders. Such workshops ran through September 2017, and were executed through an agreement with the communities, where modifications were made to the Project Design Documents, Standard Operating Protocols for certain project activities, and to the proposed Benefit Sharing Mechanism.

Finally, in June of 2019, a pedagogic summary of the same was designed and distributed to present the results of the monitoring, reporting and verification process to all of the project communities. Please see "Lista de Productos de Comunicaciones" for reference and documentation. Additionally, a written monitoring report summary (see "Resumen del Reporte de Monitoreo Acaba Rio Pepe") was drafted in Spanish and posted for public comment on the CCB website as well as made available for community review.

2.3.3 Informational Meetings with Stakeholders (G3.1)

Since the beginning of the project, the stakeholder engagement and project management structure put in place has allowed for a constant stream of communication and information sharing with communities and with local stakeholders through their interactions with the project's local MRV coordinators or liaisons, who reside within the project areas. Besides this, and under the framework of a larger information communication strategy related to the Rio Pepe y Acaba REDD + project, the following activities were carried out from 2013 to 2018, which included spaces for information updates to be shared with project stakeholders and to also receive feedback.

These meetings, workshops, assemblies and other spaces have been promoted through general announcements and telephone calls made by the governments' boards and the legal representatives of each community council, addressed to the town councils, community leaders and other interested parties. At all these events supporting materials and deliverables (billboards, brochures, booklets, videos and audios) were made with the support of the Fondo Acción home office. A complete listing of all these communications materials produced, along with their corresponding evidence, can be found in "Lista de productos de comunicaciones.xlsx." Table 6 below details communications with stakeholders.

Table 6: Communications with Stakeholders

Activity	Type of Communication Utilized
Community Assemblies	Audiovisual material and informational brochures
Workshops on Territorial Appropriation	Socialization meetings and discussions on REDD +, audio visual material, billboards, documents, game kits, booklets and banners
Socialization of REDD+ documentation (PDDs; SOPs; MDB)	Visual material, booklets and brochures
Socialization of Action Plans	Visual material
Fondo Acción Directive Meetings Boards	Presentation (slideshow)
Meeting with Municipal Institutions	Presentation (slideshow)
Regional Workshops	Visual material, booklets and brochures
Cultural Encounters	Visual material, booklets and brochures

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

Since the project's successful validation, all fundamental decisions regarding the development of the REDD+ project have been made in coordination with the Community Councils or by smaller designated groups with the authority of the Council. Throughout this monitoring period, Fondo Acción has provided the relevant technical and organizational support and coaching to communities and has provided adequate information about the potential costs, risks, and benefits of any related consequence to decisions being made.

Information about costs, opportunities, risks and benefits has been constantly communicated in inclusive language, using appropriate materials and pedagogies for the communities. Please refer to "2.2.1 CronogramalImplementacionPortafolio" for exact dates and other details of the following events for the REDD+ project, along with a complete listing of their corresponding evidence/documentation. Since the project's inception in 2013, Fondo Accion developed the "basic REDD+ training" workshop as a means to effectively transmit an understanding of the main project components, including: carbon markets, certificates, buyers of credits, payment methods, prices, and social safeguards, as well as the identification of associated environmental and cultural risks.

Starting in October of 2013, informative meetings with community leaders were carried out to discuss the search for allies, investors and project financiers. The meetings consisted of presentation sessions that included the basic concepts of REDD + and focused their discussion on how the scheme of payments for services derived from these types of projects work. During these sessions, the project proponents helped

explain how payments for environmental services could be structured to help cover the investments necessary in setting up alternative productive activities that could help discourage the indiscriminate logging of local forests as the main source of income for local families. These sessions also touched upon a number of other relevant topics, such as: how the flow of funds for financing a REDD + project are carried out; how potential risks can be mitigated against; and what a letter of intent is and how it can be used in the context of a REDD+ project, among others topics. A Letter of Intent for this REDD+ project was signed after having the approval of the Assembly on the 26th of October, 2013.

In July of 2014, an exchange of experiences workshop was held between the Rio Pepe y Acaba REDD+ project and the Chocó-Darién Conservation Corridor REDD+ project, the first to be verified in Colombia. This workshop was facilitated by the community team of Cocomasur, a scenario similar to the current REDD+ project in its composition as a communal territory of ethnic (afro/indigenous) communities. The Cocomasur team shared their REDD+ experiences, candidly recounting opportunities, challenges and benefits. Led by Afro-colombians, this exchange facilitated an atmosphere of open communication and inquiry about the in-practice realities of REDD+ projects and helped to highlight what challenges might be expected, based on firsthand experience. A question-and-answer section was included, as well as a section focused on challenges during the first verification period. The workshops were accompanied by booklets systematizing the Cocomasur case and flipcharts or pedagogical material with which attendees could disseminate the information among their communities. To complete the exchange of experiences, an on-site visit was made to the Chocó Darién Conservation Corridor project in October 2014; one designated community representative visited the sister project for three days, where they had the opportunity to meet with community leaders and project managers, discussing costs, benefits, and risks associated with the adoption of REDD+.

For the closure of the USAID BioREDD + program, an Assembly was held in 2015 in which the status of the REDD + project was presented in relation to the formulation of future actions planned to continue providing support and continuity to the initiative. In April 2015, a letter of intention and commitment between the community and Fondo Acción was renewed to continue with the implementation of the REDD + Project and to move towards its verification. In the letter, Fondo Acción committed itself to continue with the development of the REDD + Project within the framework of the REDD + Plan formerly agreed upon with the community, prioritizing the activities that would continue to contribute to reduce deforestation and to strengthen the organizational capacities of project stakeholders in accordance with the VCS and CCBA standards. All these activities were carried out with the aim of advancing towards the generation and subsequent purchase and sale of carbon credits generated by the REDD + Project. One of the main purposes of this new letter of intent was to authorize Fondo Acción to help manage resources to continue with the implementation of the project, always in close coordination and consultation with the communities as the main project proponents.

Between November and December 2015, another informative Assembly on the REDD + Project was held. In this session, the community was informed about activities to be implemented, costs, and the anticipated chronogram for the period of 2015 to 2017. Specific commitments of the implementing agency and the communities were also noted. During the aforementioned period, activities focused largely on "community ownership of the REDD+ project," starting with the hiring and training of local "promoter teams" (early 2016) in fundamental knowledge related to REDD+, climate change, community monitoring, and the strengthening of land tenure. Due to their permanent presence in the territory, these teams are an efficient focal point as a liaison between communities and the implementing agency or government boards, with respect to REDD+ developments and inquiries. REDD+ local promoter teams were equipped with the materials that they deemed appropriate to effectively disseminate information in the territory with the ultimate aim of strengthening organizational identity and community governance. Chosen materials varied in their formats, from primers to videos to songs to educational games; in each case, the underlying objective was to leverage pedagogical tools to reach as broad an audience as possible.

In May 2016 the workshop titled "Men and Women Caring for Their Territory" took place. Developed from a gender sensitive approach, this workshop aimed to socialize the diverse visions of the territory's social groups as per their use patterns and priorities, emphasizing the complementary nature of this diversity. Dependence on the forest was a central theme, in all of its variations. Between August and October 2016

a series of HARMOS trainings took place with community members. Under such trainings, community leaders are induced with skills in administrative, financial, legal, communications, leadership, and other key tools vital for the administration of the REDD + project and for the better functioning of all of their organizations.

Another space to disseminate information of the REDD + project with interested stakeholders was a regional meeting held in November of 2016, where regional institutions and neighboring communities, authorities and other regional key actors participated to socialize the progress of the REDD + project, as well as to articulate other local initiatives to help improve regional environmental management. Yet another way to relay further information about the development of the REDD + project and its existence within the territory, was through the installation of allegorical fences at the project's boundaries, which took place between January and March of 2017.

From October to December of 2016, culturally appropriate pedagogical materials summarizing the PDDs were distributed in workshops across the project area, including sections entitled, "And what do we gain from this?"; "Our Role as a Community"; "Tasks of the Board of Directors"; and "What are our Profits Invested in?". Other ways to expand the project's outreach was the realization of an artistic residency, which culminated with the production of a musical album that included environmental content, called "Sound Landscapes". During General Assemblies held in the beginning of 2017 the objectives and progress of the project were exposed and awareness was further raised about issues such as territorial rights, and the REDD+ project acting as a mechanism for the sustainable management of natural resources.

In April 2017, a generic Benefit Sharing Mechanism and a document that showcased how risk mitigation actions were to be implemented for all REDD + activities was developed. These documents were delivered to the community and the MRV link participated in a training workshop in May where these documents were explained to stakeholders.

In May of 2017, two banners were designed as pedagogical materials to explain to communities the basic steps behind devising a Mechanism for the Distribution of Benefits, as well as for the Monitoring, Reporting and Verification process under the VCS and CCBA standards. The approach of these banners compared the production of carbon certificates to the production of an agricultural product, which helped showcase the different ways that project proponents seek to explain the objectives of the project to different community groups.

In June 2017, a space for dialogue was created in Bogotá, with the participation of legal representatives and presidents of the Community Councils and other community authorities, which resulted in the construction and signing of a joint declaration of a constitution for a common inter-ethnic agenda in REDD + and Pacific Climate Change. This agenda is the result of a community and collective effort that transcends the local and demonstrates i) the determination of the owners of the projects, to have a portfolio of projects, to assume responsibilities and rights over these REDD + projects; and ii) advances in environmental governance and the empowerment of communities. In the same month, a regional meeting was held with representatives of the other REDD + projects, and MADS officials, among them Minister Luis Gilberto Murillo Urrutia. The achievements of this meeting included: i) inclusion and prioritization of REDD + projects in Vision Pacífico Sostenible, a government program, ii) the generation of synergies with the National REDD strategy (ENREDD +), and iii) the Minister's commitment to include resources within the Sustainable Colombia Fund for the verification of these REDD + projects.

On July 31, 2017, MRV liaisons were trained in the operation and characteristics of the Benefit Sharing Mechanism. With this training, and in conjunction with technical assistance, they then made multiple trips to facilitate participation of communities in the farthest reaches of the territory's interior. These field visits were coordinated through an agreement with the project communities, and continued until November 2017. In these participatory spaces, the communities and MRV team worked hand-in-hand to modify the Project Design Documents, Standard Operating Protocols, and Benefit Distribution Mechanism as needed. These spaces were fundamental for the communities' understanding of the project; specifically, the processes of verification, certificate issuance and sale of credits, plus the subsequent distribution and

use of funds were explained. Pedagogically appropriate materials were used to explain concepts: for example, comparing the cacao harvest to the harvest of carbon credits.

In December of 2017, a workshop was held in coordination with ONUREDD, to strengthen local capacities on the issues of social and environmental safeguards for REDD + in Colombia. With the workshop, the local MRV teams were able to connect and relate the progress of their projects with the advances at the country level of the National Strategy for the Comprehensive Control of Deforestation, and were also able to showcase how the project is also complying with the VCS and CCBA standards, which are also aligned with the social and environmental safeguards proposed by ONUREDD +.

A pedagogical game, entitled "Trato Hecho", was designed so that the communities could better understand the processes, negotiation and dynamics around the purchase and sale of carbon certificates, and so that they can make more informed decisions on this topic. The design of the simulator has the challenge of recreating the process of generating and selling certificates, something that neither the communities nor the national market have done so far.

In early 2018, the local MRV team initiated the final collection of information for this monitoring report. The team conducted days of information gathering and impact evaluations, where they also kept community members updated on the progress of the project and its next phases. In February 2018 a meeting was held with the Legal Representatives of the REDD + Project to tell them about the progress of the project, as well as the pending activities to reach verification and the associated costs. In April 2018, a meeting was held in Bogotá with the REDD + leaders to explain the verification process, its costs, and how these will be assumed by the Projects and paid for with the sale of future Carbon certificates. Pedagogical materials were once again produced to explain the functioning of the loan mechanism, called "anchoring". Before accepting the loan, communities held an assembly to explain this process to the community and to make the decision on this together.

In June 2018, USAID's Paramos y Bosques Program held two meetings, the first in Bogotá on June 1 and the second in Cali on June 21 and 22, with community leaders to inform them of their support for continuing REDD + activities, mainly those of governance and of alternative productive projects. Regarding the activities of Monitoring Reporting and Verification, Paramos y Bosques informed stakeholders that they would support the costs related to the monitoring of carbon and biodiversity benefits, the drafting of the monitoring report, as well as the verification audit and the issuance of certificates, which would be covered with donation resources. It was decided that the REDD + Project would repay, with carbon credits, the costs associated with the social monitoring and portions of the carbon monitoring of the project that utilized remote sensing.

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

Information regarding the VCS/CCBA verification process has been shared with the local communities and other relevant stakeholders through a series of communication channels, events, and gatherings, as expressed in various sections of this monitoring report.

Specifically, the project's main implementing partner has used a series of strategies and materials explicitly tailored to engage the project's particular communities and stakeholders on these topics. A complete listing of all these communications materials produced, along with their corresponding evidence, can be found in "Lista de Productos de Comunicaciones." These have included:

- Audio/visual communication materials (Video)
 - "REDD+ gana el clima, ganamos todos": A summary of the process to generate carbon certificates, their market, and their distribution. Also briefly explained in this video, from the voice of the community itself, is what it means to be a REDD + Project, how Monitoring, Reporting and Verification works, and the process of selling certificates and the mechanism of distribution of social benefits.

- Documentary “Toma Pacifica”: Documentary series on territorial appropriation workshops, and issues related to REDD +
- “Un Cambio Hacia la Carbono Neutralidad”: This video summarizes what happened at the “companies and conservation” event. It highlighted the signing of the first agreement of understanding between Prodeco, the communities of the REDD + Community Portfolio, and Fondo Acción.
- “Resultados Paisajes Conectados Pacífico”: Institutional video to raise awareness about deforestation in Colombia and a reminder that the project works in both of the necessary strategy areas needed to combat this tendency: through local governance and productive alternatives to reduce tree felling.
- Graphic Memories (Banners)
 - Role playing games; “El territorio desde los sentidos”; What is REDD+: The objective of these materials was to expose them in workshops and other events that took place within the communities so that they could remember their fundamental rights as black/indigenous communities, their history, and to socialize the REDD + project and generate greater appropriation of their territories, to recover their cultural identity, and to raise awareness about the conservation of forests and biodiversity.
 - Pedagogical materials regarding verification and the marketing of carbon credits: Materials that expose in diagrams and drawings the process of implementation and monitoring of activities, in addition to the verification process, to obtain carbon credits.
- Through spaces of community participation and decision making:
 - Construction of standard operating procedures (SOP)
 - Participative construction of benefit sharing mechanism (prioritizing investments)
 - Monitoring and evaluation of social parameters (monitoring and gathering of information)
 - Monitoring of activities established in PDD (monitoring and gathering of information)

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

In June of 2018, local MRV teams were trained to help conduct the last rounds of the project's Participatory Rural Assessments as part of the last collection of stakeholder engagement and community benefit monitoring evaluations that correspond to this first monitoring period. The MRV liaisons then conducted workshops in the project area communities to report on the results and evaluations of the project activities to date, as well as provided descriptions and a timeline for the verification audit activities that are to follow (preparation of final monitoring reports, public comment period, auditor visits and possible interviews, verification report and results. Please see “Lista de productos de comunicaciones.xlsx” for reference and documentation.)

In June of 2019, pedagogical material was designed to help present the results of the monitoring, reporting and verification process to the communities in a summarized fashion. This report was presented at publicized community meetings, which informed stakeholders about the visit of the auditing entity, the place, date, and purpose of that visit, and of the possibility of stakeholders' ability to interact freely with this verifying entity during the visit. A complete listing of all these communications materials produced, along with their corresponding evidence, can be found “Lista de productos de comunicaciones.xlsx.”

In June of 2019 notifications of the site visit and verification process were sent through the official email addresses of the project communities, through dissemination by the project MRV links, and through notices posted at visible sites within the stakeholder communities. Refer to “Lista de productos de comunicaciones.xlsx” for documentation.

2.3.7 Stakeholder Consultation (G3.4)

Since the beginning of the project, and acting as the project proponents' main implementing partner, Fondo Acción has put in place a stakeholder engagement and project management structure so as to ensure the active involvement of all stakeholders in the planning and execution of all project activities. This structure has respected the existing community governance structure, where Afro-Colombian

communities within the project area are organized as Community Councils, constituted by a General Assembly and a Governing Board, and with an appointed Legal Representative. The Community Council acts to enforce established government laws as well as the internal laws (*derecho propio*) specific to each community. In communities such as those of this project, with large populations distributed over very large and often isolated areas, sub-level community-based organizations called Minor Councils (*consejos menores*) are formed to facilitate efficient governance: when General Assemblies attended by all community members are logistically impossible, they can be substituted with a General Assembly of Delegates of the Minor Councils. Governing Board members are democratically elected every three years and provide guidance for the Legal Representative, who is also democratically elected. Elections for these officials are made at the General Assembly, which continues to be the widest and most representative governing body within the project area, as every member of age has a right to be present and to vote. Here, the General Assembly approved the initial REDD+ Plan for the project with wide-spread representation among all community members, and has continued to work and decide upon the project's activities together with Fondo Acción during this initial monitoring period.

As part of adhering to the main project proponents' normal governance structures and processes, the on-going engagement process has involved both formal and informal exchanges between Fondo Acción personnel and the communities. This has been facilitated by the long-term, physical presence of Fondo Acción MRV liaisons or coordinators (*enlaces*), who live and work in the project areas. These coordinators receive continual professional support from Fondo Acción's central MRV unit, which provides the technical support and oversight needed for the entire REDD+ project from their Bogota office. This team is in turn also supported by a REDD+ socialization team that functions as a bridging mechanism between the communities and the central MRV unit. Associated social engagement activities include workshops, work sessions, and meetings. This entire effort is overseen by program management from the Fondo Acción main office in Bogota.

Implementation of all project activities has similarly also been coordinated through the administrative support and oversight organization of Fondo Acción. Personnel from this main implementing partner has been in constant liaison with the governing boards of the community councils and in conjunction with the MRV coordinators, who in turn have been specifically trained to execute such roles. All fundamental decisions regarding REDD+ development have been made in coordination with the governing boards of the councils or by smaller designated groups with the authority of the council. Throughout this monitoring period, Fondo Acción has provided technical support and coaching to communities and has hired outside technical experts for support on implementation of specific project activities and MRV, where necessary. Please refer to the other stakeholder engagement sections of this report for brief descriptions of the specific activities that were carried out to ensure stakeholder consultation. Of special note with respect to this requirement for the monitoring period will be the informational meetings carried out with stakeholders, particularly the PDD revision workshop and the continuing process of benefit distribution mechanism design. These consultations and their corresponding evidence demonstrate that the project is being implemented via a participatory and transparent process, and provide a tangible example of how project design has been affected by stakeholder input.

2.3.8 Continued Consultation and Adaptive Management (G3.4)

Information sharing and stakeholder consultation has been carried out constantly during this initial monitoring period, in inclusive language and using appropriate materials and pedagogies to ensure community participation and understanding. Near the project's inception, a baseline REDD + training workshop was held in which the specific aspects, risks, implications and benefits of the projects were discussed (please refer to 2.2.1 CronogramImplementacionPortafolio for exact dates of these events for each of the REDD+ projects, along with its corresponding evidence). Once the communities were trained in the basics of REDD + and the particularities of their project, a General Assembly was held to present and draft the Letter of Intent, which shows the intention of the communities to carry out a REDD + project. The Charter was signed after confirming approval of the Assembly.

The elaboration of the project has always been conducted in a participative way with communities, taking into consideration their suggestions and based on their decisions. Specifically, communities determined

how to implement the project activities included in the PDD, which was based on REDD+ Plans developed in 2013 during community workshops. After the project was validated, implementation activities began with the support of USAID through the Connected Landscapes (*Paisajes Conectados*) program. In December of 2015 a General Assembly was held to begin this implementation phase. In this Assembly, communities discussed and agreed on the activities to be implemented, their costs, and their timeline for the period of 2015 to 2017.

To ensure effective interaction with the communities, the project focused on community ownership of the REDD + project. During the first quarter of 2016, a local REDD + team was formed and later trained in various issues related to the project, such as climate change, appropriation of the territory, and project communications. The role of these community teams, made up of people from within the territory, is to serve as a link between the communities and the implementing partner of the project, liaising in two primary ways: a) updating the community on progress and results and b) adjusting the implementation of the activities in the field based on community feedback. The REDD + team has accompanied the implementation of activities in the areas of governance, production, conservation and MRV. The specific role of the community MRV liaison is to keep government boards informed. These liaisons have and will continue to lead spaces for training and participation, where information is disseminated with pedagogical and culturally appropriate materials.

Implementation of productive alternatives that help to reduce deforestation and forest degradation was agreed upon with the community, with whom detailed action plans for each productive alternative included in the REDD + project were drawn up and designed. Each plan contained a proposal for logistical specifics, such as: selection of beneficiaries, diagnostic activities, rehabilitation, maintenance, phytosanitary control, establishment of good cultural practices, technical assistance, and training through agricultural field schools (ECAs).

In June 2017, a space for dialogue was created in Bogotá, with the participation of community legal representatives and presidents of the Community Councils. This gathering resulted in the drafting and signing of a joint declaration outlining the constitution of a common inter-ethnic agenda in REDD + and Pacific Climate Change. The described agenda is the result of a collective effort that transcends local dynamics and clearly demonstrates i) the determination of community stakeholders both to have a portfolio of REDD+ projects and to assume the rights and responsibilities of those projects; and ii) advances in environmental governance and the empowerment of communities. Please refer to 2.2.1 CronogramalImplementacionPortafolio for exact dates of these events for each of the REDD+ projects, along with its corresponding evidence.

In July of 2017 MRV liaisons were trained in the process of design and in-practice operation of the Benefit Sharing Mechanism. Following this training and in the company of technical assistance, the liaisons made journeys to the interior of the territory, in coordination with communities until November 2017. During that time, participatory workshops were carried out to adjust Project Design Documents, Standard Operating Protocols, and the Benefit Distribution Mechanism. These participatory spaces were a key component of community understanding and served as a platform for requested project modifications. They were also employed as an opportunity to explain the process of verification, the issuance and sale of certificates, and the decisions required for subsequent use of resources from the sale of certificates. In all of these workshops, culturally appropriate pedagogical materials were used.

In June 2018, USAID's Forests & Paramos (*Paramos y Bosques*) Program held two key meetings to inform community leaders of their pledged support for REDD + activities, mainly in the areas of governance and productive projects. The first of these meetings was in Bogotá on June 1, and the second was in Cali on June 21 and 22. With respect to Monitoring, Reporting, and Verification activities, Paramos y Bosques informed communities that they would support all costs associated with the monitoring of carbon and biodiversity, drafting of the monitoring report, and the audit and issuance of certificates. The second of these meetings focused specifically on engaging with community management teams to evaluate the results of the productive activities and define a plan for their continuation.

2.3.9 Stakeholder Consultation Channels (G3.5)

The Rio Pepe y Acaba REDD + Project is being implemented on the communal property of an Afro-Colombian community recognized by Colombian laws and characterized by legal certainty with respect to land possession. Likewise, their leaders and legal representatives are chosen according to the laws stipulated in the Colombian constitution and must be registered in the mayor's office and interior ministry before the ethnic affairs office. These legal conditions make it easier for the implementing partner to inform and consult directly with the legitimate representatives of the communities (in particular, see Law 70 of the 1993 decree number 1745). The interactions of the project's implementing partner with the communities have not been limited to these legal representatives; meetings have also been held with local governing boards and General Assemblies, which have been convened specifically to make critical decisions. Since the project's inception, widespread dissemination of relevant information and meetings for participatory processes throughout the territory have also been prioritized.

Another tool that Afro-Colombian communities have at their disposal for facilitating independent decision-making (and that has been employed in this project) are the "autonomous spaces" which may be convened within any meeting and by any community participant to make decisions or discuss issues specifically without the presence of outsiders. Most of the project meetings have had a designated autonomous space, which was always respected by the project's main implementing partner.

The Common Inter-ethnic Agenda on REDD + and Pacific Climate Change represents another space for the facilitation of information sharing, consultation, and decision-making. Including this project, the Agenda was created by community leaders of 9 REDD + projects total located in the Colombian Pacific, each of which is in constant dialogue with the main implementing partner and the National Government. Begun in 2012, one of its first activities was to convene a meeting with legal representatives of the participating ethnic organizations during which a road map for community-guided coordination of project activities and objectives was defined. Within these spaces, it was agreed that consultations and local participatory workshops would be used to determine the development priorities of interested communities, and to jointly develop plans for specific economic alternatives. More recent convenings of the Inter-ethnic Agenda (June 2018) have focused on: 1) socializing detailed information about the project's monitoring, reporting, and verification requirements, and 2) evaluating/planning production activities for economic alternatives under implementation, as stipulated by the Paramos y Bosques program under the guidance of Fondo Acción.

Additionally, the project has had a permanent MRV liaison that is based within the territory. This person is part of the community and was democratically elected for the position. MRV liaisons have been present during the implementation of all key activities in the areas of governance, production, conservation and monitoring, reporting, and verification, acting to adjust activities according to local needs and based on community feedback. Two primary liaison responsibilities are to keep the local government boards informed of all project-related news and to lead spaces for community training and participation, where information has been disseminated using pedagogical and culturally appropriate materials. Key project documents have also been drafted and modified via a participatory process with community stakeholders, most importantly the Project Design Document, the most recent Benefit Distribution Mechanism and the Standard Operational Procedures, all of which were approved in General Assemblies. The Monitoring, Reporting and Verification process has similarly been undertaken using participatory approaches, and in constant coordination with community leaders.

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

As stated earlier in this section of the monitoring report, all fundamental aspects of decision making and project implementation have been conducted in coordination with the governing boards of community councils or by smaller designated groups with the authority of the council. Throughout this monitoring period, Fondo Acción has provided technical support and skills coaching to communities, and has hired

outside technical experts for support on the implementation of specific economic alternatives and MRV, wherever necessary.

This decision-making structure has respected that of the existing Afro-Colombian community governance, where communities within the project area are organized into community councils, led by a governing board and with an appointed legal representative. The board members are democratically elected every 3-4 years, and the board normally appoints this legal representative. Elections are made at the General Assembly, which continues to be the widest and most representative governing body within the project area, as every member of age has a right to be present and to vote. The General Assembly approved the initial REDD+ Plan for the project with wide-spread representation among all community members, and has continued to work and decide upon the project's activities together with Fondo Acción during this initial monitoring period.

Specific project components designed to allow for effective and inclusive community participation during this monitoring period have been:

- Participation of men and women in assemblies for decision making
- Selection of the beneficiaries of productive activities by means of pre-established criteria
- Equitable participation in territorial appropriation workshops
- Workshops on gender equity and conservation: leaders with increased skills, recognition of uses, and differentiated care of natural resources
- Participation of men, women, boys and girls in strategies aimed at territorial appropriation and cultural identity: 1 exchange of experiences for musical training; 1 record production of 4 songs (Tambores del Tolo); and trainings in management of musical projects, musical production, audiovisual realization.
- Pedagogical materials appropriate for facilitating understanding in the entire population. Culturally appropriate communication kits in clear language, didactic and inclusive.
- HARMOS workshops focused on organizational coaching and leadership, facilitating the participation and training of young people and adults, men and women
- Training in specific productive activities

The communication strategies and materials employed for each of these activities were designed using local language, with culturally appropriate examples geared toward facilitating understanding in all of the local stakeholders affected by the project. The communication materials described below were elaborated with information provided by the communities themselves via neighborhood boards, important figures, and youth and children. Each of these segments of the populace actively participated in communication strategies by contributing their own experiences, knowledge of community process/REDD + objectives, hopes, and dreams. A complete listing of all these communications materials produced, along with their corresponding evidence, can be found in "Lista de Productos de Comunicaciones."

Specific communication aids employed by the project included:

- Billboards aimed at socializing the concepts of territorial appropriation and cultural identity. Produced with the participation of community leaders, these posters contain drawings that depict key moments of their history as a distinct Afro-Colombian group, and of the community process (past, present and future), particularly in relation to the REDD + project. The objective of these materials is to catalyze a general recognition of the fundamental rights of black communities; their history, cultural identity, and community process; the value of territorial appropriation; and an understanding of the need for conservation of forest and biodiversity, all within the context of this REDD+ project and what it can offer the community.
- Educational games kit, "Play it for the Pacific." Designed in workshops with children and young people from the Rio Pepe y Acaba REDD+ project, this kit was produced for all of the region's communities. Each kit contains 6 didactic games that teach native versus non-native species, medicinal plants, animals in danger of extinction, the emblematic characters of ancestral territories, conservation of flora and fauna and other natural resources, and territorial and cultural

appropriation. Generally speaking, the games kit is intended to promote youth education within community territories and facilitate the integration of communities through games.

- Appropriation fences. Fences were installed with the aim of demarcating key sites belonging to community territories and promoting the conservation of forests and biodiversity. Each appropriation fence contains images and messages targeted at raising conservation and project awareness amongst loggers and the community in general.
- Informative videos of the REDD + project. With the aim of keeping communities and stakeholders informed regarding project progress, videos were produced for dissemination. Subject areas included: REDD+ basics, project stages, the territorial appropriation workshop, and achievements of the Connected Landscapes (*Paisajes Conectados*) program.
- PDD cards. The Project Design Document was summarized using a didactic approach to facilitate community member understanding of the fundamentals of this REDD+ project.
- Informative brochures and leaflets. Brochures produced for the project aimed to socialize the Connected Landscapes program, as well as REDD+ projects in general and data relevant to the Rio Pepe y Acaba project.
- Puppet kits and play cards. Puppets were created to depict important characters and animals (e.g. fisherman, midwife, bus, tatabro and bass) representative of the communities' territory, accompanied by play cards that convey relevant information and poems about them. The aim of the puppet kits is to teach children about local culture and fauna in an engaging way.
- Appropriation CDs. Musical recordings of four songs were produced to draw attention to the importance of preserving local music, the environment, forests, and Afro-Colombian culture through what has historically been a key medium for community-building and communication between generations. The ultimate aim of these CD's is to strengthen project management potential and catalyze greater territorial appropriation.
- Slide presentations. Slides were used as a visual aid to disseminate basic concepts about REDD+ and climate change, as well as specific project objectives and progress made.
- Banners. Banners were used to generate a community consciousness about territorial and project appropriation; approaches employed were messages from and images of local leaders, images of key locations for securing territorial appropriation, and inspirational ideas and phrases.
- Memories with REDD + content. All audio-visual materials and project-related documents produced for the project have been shared with community stakeholders, as mentioned above.

2.3.11 Anti-Discrimination Assurance (G3.7)

Fondo Acción is an Equal Opportunity Employer which aims to include community members in its work regardless of age, gender, ethnicity or other characteristics. They have provided in-depth training for their own staff as well as for local community members involved in project implementation. In addition, Fondo Acción's employees and consultants are all selected through a competitive procedure that is part of their Quality Control System (ISO 9000 – 2008), based on predefined terms of reference. Terms of reference are generally published on Fondo Acción's web page or circulated among professional networks. Short list selection processes are also common. Only in cases where there is a strong reason, does Fondo Acción hire a person without a competitive process.

Additionally, a key component of the benefit sharing distribution schemes currently being designed is to ensure that benefits (including employment opportunities) reach women and the most vulnerable and/or marginalized people in the community. The benefit distribution plans for this REDD+ project with indigenous communities is also rooted in locally created development plans, which were created with broad community participation following the internal rules of the Community Assemblies. Once the key activities for the benefit distribution plans are agreed upon, the next key step will be to determine who will be directly involved in its implementation.

Additional procedures that guarantee equal opportunities for community members, including women and vulnerable and/or marginalized people, to fill all positions, including management positions, are now developed, and the protocols in the following links also describe the measures taken in order to ensure that the project proponent and all other entities involved in project design and implementation are not

involved in harassment or discrimination, including discrimination based on gender, race, religion, sexual orientation or other habits:

- http://fondoaccion.org/wp-content/uploads/2018/04/Politica_genero.pdf
- <http://fondoaccion.org/wp-content/uploads/2018/04/CodigoDeEtica.pdf>
- http://fondoaccion.org/wp-content/uploads/2018/04/politica-ninez_0_0.pdf
- http://fondoaccion.org/wp-content/uploads/2018/04/Politica_anticorruption_esp_eng_jun_2017.pdf

2.3.12 Grievances (G3.8)

The project relies on existing and emerging institutions to mediate any conflict arising from project related activities. Specifically, each Community Council jurisdiction now has the presence of a REDD+ Implementation Unit, which consists of, at a minimum, an MRV coordinator and a team of rangers, who are assigned a series of responsibilities and duties relevant to the project. These responsibilities have included the operation of a grievance and redress mechanism associated with the REDD+ project activities. At the time of project validation, each REDD+ Implementation Unit established a Grievance and Redress Mechanism in order to receive, respond to, and solve inquiries, complaints, and potential claims in accordance with recognized guidelines for a Grievance and Redress Mechanism.

Since the project's validation however, there have been no formal grievances or complaints that have passed through, or that or have been recorded and/or resolved, via the established Grievance and Redress mechanism. This is not to say that the project proponents and implementation partners have not attended to or responded to any information requests, suggestions, complaints and/or claims posed by community members and/or other project stakeholders. In short, there have been no grave conflicts or complaints during this monitoring period that have warranted the need of a mediation body, which for this project would include the Governing Board President, the Legal Representative, and representatives from Fondo Acción. Community members and other project stakeholders however, are fully aware that they are able voice their concerns via this mechanism at any time, and have also been afforded particular spaces and events where they have been able to express their suggestions, complaints, and general information requests. The most notable of these types of events during the monitoring period have been the PDD revision workshop, as well as process and series of workshops currently underway for devising the benefit distribution mechanism. Please refer to the preceding stakeholder engagement sections of this report and its annexes for more complete descriptions of these events and how stakeholder inputs and concerns have been addressed by the project in this respect.

Additionally, Fondo Acción also has a formal Complaints and Grievances Procedure of its own as part of its Quality Control System (ISO 9000 – 2008). Under this procedure, the Board of Directors receives all complaints and these are registered in Board Meeting Minutes. The Executive Director is responsible for treating these complaints according to a second procedure that is also part of the Quality Control System (ISO 9000 – 2008) (Corrective and Preventive Actions). A stakeholder satisfaction survey is also as part of the Complaints and Grievances Procedure. This survey inquires about the stakeholders' opinions regarding Fondo Acción's management, innovation, communication, internal reporting etc. Surveys are conducted once a year and results evaluated by the Board. If there is a low grade in a given survey (2 or less), the Executive Director has to address it under the Corrective and Preventive Actions Procedure.

2.3.13 Worker Training (G3.9)

Over the course of the monitoring period, Fondo Acción has facilitated and provided a number of training and capacity building activities for both people working directly under the REDD+ project as well as for willing and able community members and stakeholders. These trainings have specifically focused on the following areas (please refer theory of change matrix in "MTC_ACABA_RIO PEPE_04_2019.xlsx" for supporting evidence/documentation):

- Improving the administrative capacity of community members: courses and/or workshops offered in i) accounting, ii) financial analysis and evaluation of projects; iii) environmental and social project management; iv) marketing; v) administration and management; and vi) leadership
- Environmental education, specifically aimed at women
- Training in MRV: REDD+ concepts, GPS data management, social and biodiversity monitoring, verification processes
- Forest patrolling and community environmental promoters (promoters that help publicize the activities and objectives of the REDD + project, and who collect community comments to prioritize social investment).
- Agriculture: Techniques to increase crops and yields, pest control, development of value chains

When working with community members, the community itself has selected the people participating in the proposed activities. Contents and tools for capacity building activities have all been designed to be culturally appropriate. In particular, the HARMOS scheme (an organizational coaching strategy designed by Fondo Acción) includes a module for “Practice in Context” oriented to develop particular skills necessary for specific community enterprises and activities. In the case of staff turnover, training has been passed on to new workers so that local capacity is not lost. In addition, all training and capacity building activities enacted during this monitoring period have been conducted with the vision of allowing community members to one day to take over the complete management of resources and implementation of the REDD+ project. This will ensure long-term ownership and sustainability of the project long after the crediting period.

The project will also continue to support on-going workshops and awareness campaigns to increase awareness about the project, as well as its scope and benefits. Included in such workshops will be community input in order to prioritize social investments based on community needs at the time. Increased capacity from these activities will lead to net positive community impacts by increasing community leadership and participation in the project. Fundamental business and management training and education are paramount in encouraging women and families to fully contribute to the project and economic development of the area as a whole. Without the project, there would be no resources to implement these programs. These skills have and will continue to lead to more resilient and self-sufficient communities within the project area.

The specific training modules or sessions given to all personnel related to the REDD + project activities during this monitoring period are as follows. Please refer to “Rio PEPE ACABA_SOPs” for a complete listing of all the relevant training and other Standard Operating Procedures related to the project, along with their documented evidence.

- Local REDD + teams
 - Local coordinators
 - Induction in formats for USAID indicators
 - Capture of information through surveys Baseline, selection of beneficiaries and farm plans.
 - Formats for presentation of monthly and quarterly reports.
 - Event evaluation formats.
 - Format is followed by the PMA environmental management plan.
 - Handling and capturing information with GPS equipment
 - Community monitoring
- Local promoters
 - REDD + concepts and climate change
 - Workshops appropriation of the territory
 - Handling and capturing information with GPS equipment
 - Technical staff-productive activities
 - REDD + concepts and climate change
 - Formats Production base line
 - Formats farm plans

- Formats technical visit minutes
- Formats progress reports activities
- MRV links
 - Preparation for the verification process: Report sections, media review, document coding, important elements for auditing, plan activities.
 - Matrices theory of change - progress report and monitoring activities.
 - Monitoring parameters / indicators Community, Climate and Biodiversity
 - Community monitoring of social and biodiversity indicators.
 - Information collection formats social indicators (participatory impact evaluation)
 - Biodiversity monitoring protocol - formats and methods for collecting Biodiversity indicators
 - REDD + safeguards workshop
 - Induction to the participatory development of the benefit-sharing mechanism
 - Induction in review and participatory construction of REDD + documents. SOP`s., PDD, Matrices, MDB
 - Induction in administrative, legal and financial issues related to legalization processes of resources and agreements.

2.3.14 Community Employment Opportunities (G3.10)

As the project's main implementing partner, Fondo Acción has, and continues to be, an equal opportunity employer, aiming to include community members in its work regardless of age, gender, ethnicity or other characteristics. Fondo Acción has also strived to provide in-depth training for their own staff as well as for local community members involved in project implementation.

Fondo Acción continues to be structured around implementing objective and transparent RFP processes and as such has developed tools to run competitive processes to select recipients. These protocols (please refer to section 2.3.11) guarantee equal opportunity to all organizations submitting a proposal if they comply with published terms of reference for the corresponding RFP. Fondo Acción's employees and consultants are also selected through a competitive procedure as part of their Quality Control System (ISO 9000 – 2008), based on predefined terms of reference. Terms of reference are generally published on Fondo Acción's web page or circulated among professional networks. Short list selection processes are also common. Only in cases where there is a strong reason, does Fondo Acción hire a person without a competitive process.

Additionally, a key component of the benefit sharing distribution schemes currently being developed is to ensure that benefits (including employment opportunities) reach women and the most vulnerable and/or marginalized people in the community. For this purpose, the benefit distribution plans for REDD+ projects with the local indigenous communities are rooted in locally created development plans, and for Fondo Acción to consider these plans as legitimate, they will continue to be developed with broad community participation following the internal rules of the Community Assemblies.

Additional procedures that guarantee equal opportunities for community members, including women and vulnerable and/or marginalized people, to fill all positions, including management positions, include the hiring process itself for each position. This process follows a joint construction of the terms of reference with community leaders, in which the technical requirements for the activity to be hired are included and the eligibility criteria in which the preference for persons is manifested and detailed, mainly that they be members of the community or residents of the territory, and, whenever possible, that these include women and other vulnerable and/or marginalized people. Once the terms of reference are built, they were disseminated through different channels, including through the government boards. Applicants then apply and present documentation in the community offices or through the local MRV links.

Some of the considerations that are included in the selection processes are that the person hired: i) have specific knowledge of the public, social, political and community dynamics of Afro-Colombian and / or indigenous organizations where the REDD + project is carried out; ii) is living within the collective

territories and iii) positive discrimination actions would be carried out in favor of local social groups, iv) candidates for the position be presented by the community for evaluation and selection; v) to have been part of the community process of the Community Council or indigenous Cabildo; vi) have recognition of the communities. These considerations can be observed in the selection process and terms of reference that were drafted for positions during this initial monitoring period.

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

During this monitoring period, the project has ensured compliance with all existing laws regarding workers and their rights. As the project's main implementing partner, Fondo Acción has informed all workers of their employment rights during community meetings and during other participatory spaces. Documents explaining national rules on worker's rights and the obligations of both contracting parties have even been made available in local languages when relevant.

Fondo Acción continues to operate under the general "Codigo Sustantivo del Trabajo", law of 1950, which establishes all worker rights in Colombia and all other laws in force today. Since 1950, several laws have been approved to regulate, complement, or modify the "Codigo". The following is a list of some of the laws which include worker rights provisions: Law 100 1993, Law 1496 2011, Law 962 2005, Law 1280 2009, Law 1468 2011, Law 789 2002, Law 1429 2010, Law 50 1990, National Decree 089 2014, National Decree 2264 2013, National Decree 535 2009, Law 584 2000.

Workers are informed of their rights through contracts with Fondo Acción. Fondo Acción contracts (staff and consultants, including community members) are governed by all worker-rights-related laws. In contracts with staff there is a clause that explicitly mentions these laws and by signing the two parties acknowledge these relevant laws. In contracts with consultants, a clause lists all of Fondo Acción's obligations to the consultant, according to these same laws and regulations. All workers are allowed enough time to carefully read and comment on the content of their contracts before signing.

To ensure that the project meets or exceeds all applicable laws and/or regulations covering worker rights, the technical teams of Fondo Acción conduct a startup workshop called *Preparation for Project Management* (PGP for its name in Spanish) with all project implementers. During this workshop there is a session devoted to explaining the formal engagement of workers in the project. Staff and consultant contracts are reviewed and the requirements of each type of contract are presented. During regular evaluations of all projects, Fondo Acción supervisors are entitled to look into all contracting information of people hired with project funds and may suspend project disbursements if there is any evidence that worker rights are not being respected, according to the law.

In summary, Fondo Accion's worker's rights policy, which has been implemented as part of the project's activities since its inception, not only ensures compliance with all existing national laws regarding workers and their rights, but also exceeds many of these national regulations in various instances.

2.3.16 Occupational Safety Assessment (G3.12)

Colombia has strong legislation regarding worker's safety. Decree 1295 of 1994 establishes the general system of professional risk, and sets the basis for preventing and addressing worker's risks. The decree was modified in 2012, by Law 1562. According to the decree, all workers under contract are required to be affiliated with the General Work Risk System. The law enables worker risk prevention companies to administer risk training at the companies. These regulations have grown strong in Colombia and help companies to pursue good practice in relation to work safety and occupational health.¹²

Fondo Acción has complied with all relevant Colombian law regarding worker safety, as have all occupational activities created under the project. All staff members are covered with insurance for work

¹²See <http://www.arlsura.com/index.php/imgprevenimos> for more info on the system and laws

related risks. There is a risk assessment for each person according to the kind of work they are performing. According to national regulation (Resolución 2013 de 1986) all institutions that have 10 or more workers have to set up an internal Committee for Occupational Safety (COPASO for its name in Spanish), and have to produce a Risk Management Plan. Fondo Acción has both in place, and adheres to the following procedures:

1. Comprehensively assess situations and occupations that might arise through the implementation of the project and pose a substantial risk to worker safety;
2. Describe measures needed to inform workers of risks and to explain how to minimize such risks; and
3. Where worker safety cannot be guaranteed, project proponents must show how the risks are minimized using best work practices in line with the culture and customary practices of the communities.

In areas where there are security issues for field teams, Fondo Acción has developed security protocols with best practices specifically for project staff. Additionally, Fondo Acción also implements a system entitled “Sistema de Gestion de la Seguridad y Salud en el Trabajo”, or SGSST for its initials in Spanish. Through this Occupational Health and Safety Management System employers receive appropriate trainings and learn how to identify potential risks at their workplace:

- <http://fondoacción.org/wp-content/uploads/2018/04/Marco-de-Gesti%C3%B3n-Ambiental-y-Social.pdf>
- <http://fondoacción.org/wp-content/uploads/2018/04/Pol%C3%ADtica-ambiental-y-social.pdf>

2.4 Management Capacity

2.4.1 Required Technical Skills (G4.2)

The coalition of organizations involved in this project has a large amount of experience in international forest carbon projects and other development projects both in Colombia and internationally. Each organization provided various areas of expertise, together forming an experienced team working together to ensure this project was implemented using best practices and monitored using rigorous and accurate practices.

Fondo Acción, or The Fund for Environmental Action and Children, is a private, non-profit entity of the Special Tax Regime, subject to the rules set forth in the Civil Code and other pertinent provisions. The Fund was created in 2000 within the framework of a bilateral agreement between the governments of Colombia and the United States of America, with the missionary objective of promoting activities aimed at preserving, protecting or managing natural and biological resources in a sustainable and ecologically viable manner, and to promote the survival and development of children within a sustainable development model.

Fondo Acción supports the design and implementation of participatory, innovative and high-value solutions, aimed at changing behavior in our society and producing positive and lasting results in the following thematic areas: sustainable rural development, conservation and sustainable use of biodiversity and biodiversity, ecosystem services, adaptation, mitigation and finance of climate change, green growth and protection and development of children within a framework of sustainable development. Additionally, it stimulates the generation and circulation of knowledge through the Knowledge Management and Advocacy Program in Public Policy and strengthens the capacities of community leaders and high-performance teams through the HARMOS Program (executive coaching for local leaders and high-performance teams) and the outline of accompaniment to trainers.

To date, Fondo Acción manages a system of multiple accounts constituted with resources contributed by its clients and donors, and has a portfolio of assets (US \$ 49 million) that provides long-term financial sustainability to the organization and to a set of strategic programs. The patrimony covers the basic costs of operation (set staff of 22 people), as well as recurrent costs. The main offices of the Fund are in Bogotá are also a heritage asset.

The technical and operational structure of the Fund has developed in its 18 years of activities, allowing it to offer its clients several options for the execution of programs and products in the mission areas, achieving basic social transformation and incidence in public policy. In recognition of the solidity, transparency and capacity of technical and administrative management, in October 2018, the Fund was accredited as a national implementing entity before the Green Climate Fund, the main financial tool of the United Nations Framework Convention for Climate Change.

The Fund, when necessary, may constitute a decisive body and / or a specific supervisory committee for a program, chosen in the manner agreed upon in the respective agreement or contract, within the framework of the agreements or contracts signed for administering funds contributed by third parties. The management of each of the accounts may be different and independent of that given to the Americas Initiative Account, and shall be done under the terms and conditions agreed upon in the corresponding agreements or contracts.

The business model of Fondo Acción is structured around three modalities for executing the resources managed in the multi-account system: (i) traditional modality, (ii) operator modality and (iii) direct execution modality. In all the options offered by the Fund, the execution is done in accordance with the certified processes and procedures of the Quality Management System, the Internal Control System and the Environmental and Social Management Framework, but following the particular conditions and requirements to each donor. Fondo Acción makes available to this call the three modalities of execution described below, in the case of being chosen as executing entity of resources.

In the traditional modality, Fondo Acción exercises technical and financial fiduciary tasks (second-tier entity). The technical component includes the competitive selection of projects that are executed in the field by grassroots organizations and NGOs and the realization of subgrants, in accordance with the conditions agreed upon with donors. The follow-up to the execution of the subgrants is done by the Fund in the field, with a team composed of technical, administrative, financial and legal personnel, so that the donor is guaranteed compliance with the quality of the products and agreed objectives, as well as the development of capacities with beneficiary entities (sub-beneficiaries). This structure also guarantees quality in financial administration and facilitates timely reports to clients about execution. In this modality Fondo Acción has worked with more than 900 organizations in Colombia, in different geographies of the country.

In the operator modality, the Fund takes advantage of the tools built for monitoring and reporting developed and tested in the traditional mode, but does not make calls as it is not in the interest of the client or donor to make sub-grants to third parties. The Fund, as responsible for the achievement of products and deliverables, hires the professional services it requires.

In the direct execution modality, Fondo Acción designs innovative and high-impact intervention modes for complex social realities, based on its learning in the previous modalities, and executes projects in the field with its own capacity. For this operation, the Fund maintains two principles: (i) the design of the interventions with the direct and active participation of the people who inhabit the intervention areas and (ii) the execution of tasks supported by the base organizations in each region. Although this modality does not correspond to what is required in the tender, the work carried out by land-use planning models, incentives to rural producers, forest conservation schemes and sustainable production systems is relevant.

The Fund currently also manages sinking accounts and endowments created with funds contributed by the US Government (debt-for-nature swaps under the Enterprise for the Americas Initiative and the Tropical Forest Conservation Act), The Nature Conservancy, WWF Inc., Conservation International, The

Global Environment Facility, the Forest Carbon Partnership Fund, The Gordon and Betty Moore Foundation, the MacArthur Foundation and the corporate sector.

In addition to this, The Forest Carbon Capacity Building Program was designed and developed by Fondo Acción and several international and local partners. The majority of Colombia's tropical forests are under communal forms of ownership such as reserves of indigenous ethnic communities and Afro Colombian communal lands. The program was therefore originally conceived for indigenous and afro descendent community leaders and communities from the Amazon region and the Biogeographic Chocó region. Due to growing demand, it was adapted to include participants from regional and local public environmental authorities and professionals interested in climate change, ecosystem services, and payment for environmental services (PES) and REDD/REDD+ issues. Grassroots organizations participate in a three step program: the first level introduces basic technical, legal and policy contents; the second level supports internships and exchanges between organizations; and the third level develops a practical exercise geared at strengthening their understanding of PES/REDD+ projects. For both local authorities and regional professionals, a technical training on climate change, PES and REDD/REDD+ was designed and developed.

Fondo Acción was also selected by ARD to systematize and communicate the community forest management model implemented by four local grassroots organizations in the Chocó Biogeographic region of Colombia. This model has laid the groundwork for the development of REDD+ projects.

Fondo Acción has also implemented a capacity building program for the community based organization COCOMASUR of Acandí, Chocó. COCOMASUR, an Afro-Colombian local organization, owns and manages the "Chocó-Darién Conservation Corridor Project", the first VCS-validated REDD+ project in a communal territory in Colombia. In collaboration with COCOMASUR and Anthrotect, Fondo Acción designed and implemented a financial mechanism to facilitate fund administration in the "Chocó-Darién Project".

Fondo Acción has also successfully managed a grant from the Forest Carbon Partnership Fund (FCPF) for the formulation of the first phase of the Readiness Preparation Proposal (R-PP) for Colombia. In order to become eligible for this task, Fondo Acción was carefully screened by the World Bank and the FCPF administrator. The World Bank and the Colombian Ministry of the Environment have ratified Fondo Acción as manager of the second phase of the R-PP (\$3.4 million), which is scheduled to start by mid-2014.

The Fund is an active stakeholder of the REDD+ National Roundtable, a national forum created by NGOs with the purpose of carrying out joint actions and stimulating policy dialogue with the national public authorities. The Forest Carbon Capacity Building Program is an example of an initiative implemented under the REDD+ Roundtable framework.

Fondo Action team has proven capacity as part of the implementation team for another gold certified CCBA and VCS registered project in Colombia. In a similar setting, on the Colombian Bio-geographical Choco Region, and with community owned lands, Fondo Acción has been leading the community engagement, coaching and socialization processes. With enough financial and administrative capacity, the Fund has the required institutional and human resources to perform as financial mechanism for the Rio Pepe y Acaba REDD+ Project. Its strengths are related to community engagement, governance strengthening and institutional development, for which Fondo Acción has a good group of qualified staff, and ISO certified procedures and protocols.

Key technical skills were provided by ecoPartners LLC with regards to the monitoring and quantification of project GHG emissions reductions. ecoPartners LLC is a forestry-based company that works with project developers, forest owners and verification bodies to build successful carbon offset projects. ecoPartners possesses expertise in the technical aspects of project design, planning and development including biometrics, accounting methodologies and remote sensing. ecoPartners has extensive experience validating and verifying projects under multiple carbon standards, including both VCS and CCB. During this monitoring period, ecoPartners has provided technical input with remote sensing, land use change

analysis, carbon stock inventory design and quantification, emissions reductions calculations, project documentation and guidance support through verification.

2.4.2 Management Team Experience (G4.2)

Fondo Acción's track record in the fields of climate change adaptation and mitigation began in 2010 when Columbia University's Center for Environment, Economy, and Society (CEES) (NY, USA) and Fondo Acción led an initiative to design an international standard for REDD projects in the Amazon region. This work was carried out with the participation of four other Environmental Funds in the region (Funbio from Brazil, FAN from Ecuador, PROFONANPE from Peru and PUMA Environmental Fund from Bolivia), with which the Amazon Forest Carbon Partnership was established. The project (2010-2012) strengthened and prepared the technical, administrative and legal team of Fondo Acción and led to the creation of the Climate Change area within the organization.

In the last four years, Fondo Acción has consolidated its work on climate change in three levels of intervention: capacity building, trusteeship and public policies. This track record is presented in the cases below:

Capacity building of community based organizations and other climate change actors, PES, REDD+, leadership and performance

1. **Capacity building Program in community based organizations**
 - a. **Community forestry and REDD.** In 2011, the MIDAS/ARD Program of USAID selected Fondo Acción to design and implement a project oriented to the Capacity Building in Community Forestry, Climate Change and REDD, in the Colombian Pacific region.
 - b. **BioREDD+ Portfolio.** In 2014, Fondo Acción was selected by Chemonics/BioREDD+ to work with 20 communities that participate in the preparation of a portfolio of REDD+ Projects in the Pacific region. USAID cooperation resources are funding the designing process of the eight projects of BioREDD+ Portfolio. Through a Memorandum of Understanding signed by USAID, BioREDD+ and Fondo Acción, Fondo Acción has been in charge of receiving and administrating this portfolio from the first semester of 2015. Fondo Acción has signed memoranda of understanding with potential investors of international private funds interested in the portfolio.
2. **HARMOS Program.** In 2013, Fondo Acción started the HARMOS Program, which aims at capacitating leaders and high performance teams in community based organizations. HARMOS is based on high level coaching and the strengthening of practices prioritized by the communities themselves. In 2013, the team of the Community Council of Black Communities from the Tolo River and the South Coastal Area (Cocomasur) (REDD+ Chocó-Darién Conservation Corridor Project) participated actively in HARMOS. The Program is being developed with the communities that are currently finishing the design of the BioREDD+ Portfolio.
3. **Chocó-Darién Conservation Corridor.** Fondo Acción is a key ally in the first and one-off community REDD+ project that has been validated and verified by VCS and CCB. The REDD+ Chocó-Darién was designed and is being executed by Cocomasur and the firm Anthroctect. Fondo Acción has played the role of trustee of the project resources, coming from third party grants and from forest carbon certificates. As part of the trusteeship, Fondo Acción has built administrative and accounting capacities in Cocomasur.

Support to the design of public policy

1. **REDD Readiness Preparation R-PP– Phase 1.** In 2010, Fondo Acción was selected by the National Planning Department (DNP for its name in Spanish), the Agency for Social Action and International Cooperation of the Presidency of the Republic (Acción Social) and the Ministry of Environment and Sustainable Development (MADS for its name in Spanish), to administrate a

grant for the formulation of the Readiness Preparation Proposal for the REDD+ National Strategy of Colombia. Fondo Acción performed an efficient role as trustee of this grant from the Forest Carbon Partnership Facility (FCPF). The World Bank acts as trustee.

2. **REDD Readiness Preparation R-PP – Phase 2.** In 2014, DNP, Presidential Agency for International Cooperation (APC) and MADS confirmed Fondo Acción as the selected entity to be the trustee of the second phase of R-PP, with an additional contribution of US\$3.6 million from FCPF.

The objective of this project is to develop a participatory and inclusive process with stakeholders for the preparation of the national REDD+ strategy in Colombia. The project will implement activities for the strengthening of the institutional capacities of the MADS, consultation and participation of stakeholders, design and implementation of the communications strategy, design of a mechanism for addressing and resolving complaints, environmental and social strategic evaluation, and formulation of a framework for environmental and social management to implement the REDD+ mechanism.

3. **UN-REDD Program.** In 2013, Fondo Acción was selected to perform technical support to the Environmental Ministry (MADS) in order to finish the R-PP document, under the modality of targeted support, by conducting a process of consultation and participation at national level. The results of this process were key to assign US \$ 4 million to the government of Colombia in the form of a national program. In 2014, Fondo Acción was selected by the UNDP in Colombia to implement activities of the component “consultation and participation” of the REDD national program, which will be implemented between the end of 2015 and 2016.
4. **Green Climate Fund Readiness Plan.** In September 2014, Fondo Acción was selected by DNP and UNDP Colombia to execute the readiness resources associated to the Green Climate Fund (GCF), coming from the German Government. The project aims to support the Colombian government in preparing the country for the access and management of climate funding, especially resources from the Green Climate Fund.

Fondo Acción will be responsible for activities to strengthen national capacities to access and manage climate funding. In particular, Fondo Acción supports the country's Financial Management Committee of SISCLIMA (an inter-institutional coordination and public-private dialogue on finance and climate change) to increase its effectiveness through a strategy of positioning, consolidation and knowledge management. Additionally, Fondo Acción seeks to build capacity in the central and regional governments for budgetary and fiscal management related to climate change.

5. **Climate Finance 2015, Art and climate change.** Fondo Acción supported planning, implementation and evaluation of the event *Climate Finance 2015*, which is an annual event organized by the Committee on Financial Management SISCLIMA to share the results achieved by the country and to identify the main challenges to be addressed.

In this event in 2015, held as an innovative element to generate a transformational change in citizens towards climate change, Fondo Acción, in partnership with the French Development Agency (AFD Colombia), developed two cultural elements to bring climate change closer to citizens. The first was a contest, in which three ideas were rewarded to raise awareness about the challenges and opportunities of climate change. The second was the performance “Recreating Vivaldi, because your change sounds”, performed by the Symphony Orchestra of Bogota, combining performing and visual arts in the form of chamber orchestra to represent climate change from the perspective of art, with the 4 Seasons by Antonio Vivaldi.

6. **AFD Program – Climate Change.** In 2015, Fondo Acción and the French Development Agency (AFD Colombia) signed a cooperation agreement to carry out activities aimed at the integration of strategies for climate change adaptation in strategic sectoral territorial development projects for

Colombia, as well as strengthening national capacity to achieve sustainable funding for climate change.

7. **Technical advice to the MADS for the REDD+ readiness from the NGO and Environmental Funds table.** Fondo Acción is part of the REDD+ table, where it performs technical contributions related to normative processes, safeguards, consultation and participation.
8. **Connecting Landscapes Program.** In two distinct geographies, this program seeks to address challenges associated with the agents and drivers of deforestation and forest degradation, through the strengthening of local governance arrangements, promotion of sustainable livelihoods, and the creation of enabling conditions for payment schemes based on results.

Fondo Acción has constituted an MRV unit for this REDD + project that has been operating since 2016. It is made up of foresters, professionals in remote sensing, and experts in the formulation, validation and verification of CDM, VCS and CCB projects in the AFOLU sector.

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

Since the validation of the projects and with the completion of the BioREDD program (year 2014-2015) funded by USAID, Fondo Acción assumed all functions to implement the REDD + activities for the project. In the period between 2015 and 2018, activities were developed with funds from the Pacifico Connected Landscapes Program, USAID (<http://fondoaccion.org/proyecto/paisajes-connectados-pacifico/>), which included strengthening governance, promoting alternative productive activities, training and education. Although the purpose of the USAID funding was to help the project reach verification through a loan with an agreed upon investor (Fondo Althelia), this plan ultimately fell through as it was not approved by the Community Councils and the indigenous council of Mutatá. USAID continues with the commitment to help finance the REDD + project through Fondo Acción, a non-profit Colombian organization that has already had successful experiences managing and accompanying the implementation of REDD + projects, such as the validated and verified Chocó-Darién Conservation Corridor project with Cocomasur.

By 2018, and as a response to the continued implementation and development of the project, the work has once again been strengthened by the implementation of a new USAID program, this time entitled, Paramos y Bosques, which has designated resources to provide continuity to the implementation of the REDD+ activities and to achieve their verification. This program is now executed by Chemonics International, with partners Wildlife Works and EcoPartners, both entities with extensive experience in the formulation and verification of REDD + projects at the international level.

With the linkage of these new actors, and with Fondo Acción still acting as the main implementing partner of the REDD + project, a new cooperation agreement with Chemonics International was signed at their Colombia Branch in August of 2018, with the firm objective of joining forces to jointly carry out the activities required for the successful the implementation and verification of project. In this manner, the new consortium of cooperating entities is now strengthened more than ever in the technical, social and financing spheres needed for the implementation, monitoring and verification of the REDD + project.

In addition to this new alliance, Fondo Acción also has a mechanism in place for hiring and linking suitable personnel to carry out other tasks within the framework of the REDD + project. This mechanism, when implemented as a policy of the entity, remains in force and is transmitted to each of the projects that it accompanies and develops as a framework for quality management.

Likewise, SOPs have been created to develop the internal calls for personnel that will work in the communities and within the framework of REDD projects and that have knowledge in the project proposals.

Regarding the accompaniment to improve the monitoring, reporting and verification processes, two specific consultancies have been developed with professionals with extensive experience in AFOLU

projects under international standards such as CDM, VCS and CCB (contracts and products can be made available upon request from Fondo Acción) .

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

As the main implementing partner of the project, Fondo Acción's original Investment Plan for 2017-2020 contemplated the implementation of \$14.6 million in projects and \$1.9 million in operation (all funding sources), for a total budget of \$16.5 million (annual average \$4.1 million). Because of successful fundraising during 2017 and 2018, the budget has increased by \$15.8 million to \$32.4 million (annual average \$8.1 million).

Fondo Acción has extensive experience managing successful programs in environmental governance and private sector work. The main examples include: (1) a partnership with Corporación PBA to promote technological development and transfer for clean production in smallholder agriculture; (2) the EcoGourmet program, jointly implemented with Conservation International, artisanal fisheries and restaurants, to stimulate sustainable fisheries and responsible consumption; and (3) a USAID-funded project to strengthen clean production in value chains in the Pacific coast (agricultural products, fisheries, ecotourism and forest carbon), involving 19 Afro Colombian and ethnic community organizations and private sector agents. Please refer to "Financial Health and Administration" for supporting and further information regarding the financial health and administrative capacities of the project's main implementing partner.

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

As the project's main implementing partner, Fondo Acción has a very clear cut process, protocol, and policy to ensure that any entity involved with the project is not involved in or complicit in any form of corruption such as bribery, embezzlement, fraud, favoritism, cronyism, nepotism, extortion, and collusion:

- http://fondoaccion.org/wp-content/uploads/2018/04/Politica_anticorrupcion_esp_eng_jun_2017.pdf

2.4.6 Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

All documentation related to the financial health of the implementing organizations and the projects is considered commercially sensitive information. These documents have been provided to auditors in a separate confidential annex. There is no commercially sensitive information related to the monitoring of GHG emissions and removals.

2.5 Legal Status and Property Rights

2.5.1 Recognition of Property Rights (G5.1)

During this monitoring period the project proponents have made sure that the project has continued to comply with all applicable laws, statutes, property rights and other regulatory frameworks. The main project proponents, the communities themselves, are still the legal owners of the land and forests in the project areas. Through the laws and policies detailed in Section 3.1 of the PDD, specifically the Colombian Constitution and several additional pieces of legislation—including Law 70 of 1993 (Consejos Comunitarios)—these lands still belong to the communities and cannot, be sold, transferred, or have liens set upon them. The community lands continue to be autonomous, and continue to have their own governance structure. Specific titling is still formalized through resolution bills issued by INCODER, the national agency in charge of land title issuance in Colombia; and the REDD+ territories are still governed by Community Councils.

ILO Convention 169, article 15 still provides a legal safeguard for the communities on their right to use, manage, and conserve the natural resources present in their territories. The government has recognized

that the last right to use or not use the forests in the REDD+ territories belong to the communities. Therefore, it is still commonly understood that all carbon rights derived from the use or non-use of the natural resources pertain to the holders of the rights of use of the natural resources. Nonetheless, the Government is developing a new decree to clarify the carbon rights, tenure, and accounting, which is expected in the months to come. Since the project inception, the project proponents have patrolled and protected their boundaries in order to protect their Right of Use from outsiders and these conditions and practices have not changed since validation.

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

The main project proponents continue to be the project area communities themselves, who have been granted property rights on their lands by means of INCORA resolutions, and that plan to remain in their territory. Forced resettlement was never a component of the project design nor would it be acceptable under Colombian Law. None of the project activities carried out by the project have required any relocation, voluntary or involuntary.

Through a broad socialization process, the communities themselves agreed to receive support to develop their own REDD+ projects; and signed Hojas de Ruta documents, which stated the will of the communities to advance in the preparation of REDD+ projects have remained, and are still, valid, thus, showing that the communities are freely pursuing the BioREDD+ program opportunities at their own will. Free Prior Informed Consent (FPIC) criteria has been met precisely through the free and unfettered participation of the communities in the all the REDD+ activities carried out to date, which, as has been shown in the preceding stakeholder engagement section of this report, and which has followed a thorough process of internal consultation and community approval, reflecting the communities own institutional governance structure and by-laws. The letters of intent to participate in the REDD+ project, which were signed and socialized at the highest political level (that of the General Assembly) at the project's commencement, are still valid. Through these Letters of Intent, the communities have entitled Fondo Accion to negotiate on behalf of, and in coordination with, the communities (under conditions of exclusivity and confidentiality), as well as the sale of emission reductions generated from the project.

2.5.3 Property Right Protection (G5.3)

The main project proponents continue to be the communities themselves, who have been granted property rights on their lands by means of INCORA resolutions, and that plan to remain in their territory in perpetuity. Forced resettlement was never a component of the project design nor would it be acceptable under Colombian Law. None of the project activities carried out by the project have required any relocation, voluntary or involuntary; nor have any rights holders been forced to relocate activities important to their culture and livelihood. These conditions have not changed since the project's validation.

2.5.4 Identification of Illegal Activity (G5.4)

The project is designed to combat all illegal activities within the project areas and project zones. The most common illegal activity in the community forest areas is illegal timber harvesting. See Section 5.3.3 of the PDD for a complete description of illegal drivers of deforestation. There are also some sparse cocaine plantations distributed in small plots that only occupy minor areas. Illicit crops of cocaine in Community Council zones are scarce and have been decreasing over time, despite increases elsewhere in the country in recent times.

It is clear that the largest interventions of illicit crops in the Colombian Pacific have been located in the south of Colombia, especially in the department of Nariño, near the border area with Ecuador. As part of project monitoring, there are no procedures to monitor this type of illegal interference, and even more so because they are promoted by actors external to the community and in some cases in areas of difficult access. The patrols and tours that communities do within the framework of the project allow them to identify this type of intervention within their territories, if and when it happens. As support for the monitoring in Colombia there are entities that do a continuous and highly technical follow-up to identify

areas with increased and / or permanent presence of illicit crops, among these are the Integrated Illicit Crop Monitoring System - SIMCI of UNODC (United Nations Office on Drugs and Crime). Conducting this type of monitoring by external agents reduces the vulnerability of the communities with the promoters of the illegal activity. In this way, UNODC draws up periodic reports on illicit drug plantations in Colombia (eg: Colombia_Monitoreo_territorios_afectados_cultivos_ilicitos_2017.

[https://www.unodc.org/documents/crop-](https://www.unodc.org/documents/crop-monitoring/Colombia/Colombia_Monitoreo_territorios_afectados_cultivos_ilicitos_2017_Resumen.pdf)

[monitoring/Colombia/Colombia_Monitoreo_territorios_afectados_cultivos_ilicitos_2017_Resumen.pdf](https://www.unodc.org/documents/crop-monitoring/Colombia/Colombia_Monitoreo_territorios_afectados_cultivos_ilicitos_2017_Resumen.pdf)).

A number of project activities have been carried out to mitigate the impacts of these illegal activities on the project's climate, community, and biodiversity benefits. Specifically, the project proponents have strengthened land tenure status and forest governance, increased patrolling and enforcement of forest boundaries, and improved livelihood/productive programs. These programs have and will continue to reduce the incidence of illegal activities in the future.

All project advances have been undertaken in accordance with the Colombian Interior Ministry regulations pertaining to projects that involve communities of Afro-Colombian descent. As a result, none of the project benefits have or will be derived from illegal activities.

2.5.5 Ongoing Disputes (G5.5)

Through various socialization seminars and participatory workshops, all community members and other stakeholders have received all of the relevant information regarding the REDD+ project and have been given a space where disputes and differences of opinion have been aired out with regards to the development and implementation of the project. At present, no disputes have been identified between the communities or with any other relevant stakeholders as they pertain to the REDD+ project. As reinforcement to this process, the project proponents make sure that all other types of complaints that can be reported through the complaints and claims mechanism are dealt with in an efficient, fair, and transparent manner.

2.5.6 National and Local Laws (G5.6)

The project has remained in compliance with all of the relevant national and local laws listed at time of validation. All of these laws were, and are still, applicable at the time of the end of the reporting period.

The following table lists new legislation and regulations that have also come into effect since the project's validation. The project is also in compliance with all of these new relevant regulations. The table below describes these new regulations and also highlights how the project is in compliance with them, when applicable. In other instances, the new laws touch on larger themes, like that of climate change and national-level monitoring systems, which have yet to affect or alter any of the project activities or procedures.

Table 7 below lists new legislation and regulations as well as project compliance.

Table 7: National and Local Laws

New Applicable Legislation/Regulation	Description and Compliance (if directly applicable)
Decreto 298 Año: 2016	Topic: Climate Change Responsible Entity: MADS Description: By which the organization and operation of the National System of Climate Change is established, and other provisions are dictated.
Decreto 1655 Año: 2017	Topic: National Forest Information System Description: By means of which book 2, part 2, title 8 chapter 9 of Decree 1076 of 2015 is added, five new sections in the sense of establishing the organization and functioning of the National Forestry Information System,

	the National Forest Inventory and the Monitoring System of Forests and Carbon that are part of the Environmental Information System for Colombia and other provisions are dictated.
870 Año: 2017.	Topic: Payment for environmental services. Responsible Entity: Ministry of Environment and Sustainable Development. Description: By which the Payment for Environmental Services and other incentives for conservation are established.
Decreto 1007 del 2018	By which Chapter 8 of Title 9 of Part 2 of Book 2 of Decree 1076 of 2015 is modified. Sole Regulatory Decree of the Environment and Sustainable Development Sector, in relation to the regulation of the general components of the payment incentive for environmental services and the acquisition and maintenance of properties in strategic areas and ecosystems that deal with Decree Law 870 of 2017 and articles 108 and 111 of Law 99 of 1993, modified by articles 174 of Law 1753 of 2015 and 210 of Law 1450 of 2011, respectively.
Decreto 2613 Año 2013	Topic: Prior Consultation Responsible Entity: Ministry of the Interior, Ministry of Agriculture and MADS Description: By which the Inter-institutional Coordination Protocol is adopted for prior consultation. This decree is of strict compliance when the projects are not submitted by the community and generate impacts on the community. Compliance: In the case of this REDD + project, it has been proposed by the community and by their authorities, and has already gone through a process of free and informed prior consent, which serves as a prior consultation.
Resolución 1447 de 2018	Whereby the monitoring, reporting and verification system for mitigation actions at the national level referred to in article 175 of Law 1753 of 2015 is regulated, and other provisions are issued. Compliance: - Article 2 provides a general disposition for initiatives that reduce greenhouse gas emissions, which in the full scope of the law resolves for the due consideration of both public programs and private projects. - Article 6 specifies that Validation and Verification Bodies in conformance with Decreto Unico 1074 de 2015 and ISO14065, respective accreditation requirements are eligible to realize activities of Validation and Verification. (WWC has analyzed these requirements and received the verbal confirmation from the lead authority, ONAC, that these VCS projects can be validated or verified by internationally accredited auditing firms. - Articles 10 through 17 that define various requirements for a project proponent/owner to register within the RENARE platform and follow its Technical Guideline, and provide necessary documentation on project design and implementation, as well as to report results, are all dependent upon RENARE platform and accounting system being functional. This registry that REDD+ projects will need to inscribe, is not yet functional. As of January 30, 2019, it remains in a beta / testing phase. - Article 54 is clear that projects have a period of 3 months to register their initiative within the RENARE platform, once it is operational. - Article 39 starts those related to REDD+ project accounting. This is important with respects to acceptance of VCS programs and requirements, as Article 39 establishes the characteristics for project methodologies. It is evident that VCS methodologies and programmatic requirement meet all of these criteria. - Article 40, in the first bold paragraph, it is established that projects with validated baselines may use these, at a minimum, through January 1, 2018

	if there is not an applicable NREF for the area of the project and furthermore that the Maximum Mitigation Potential accepted will be that of the validated project baseline. In addition, with the support of USAID, various actors in the carbon market convened on November 27, 2018 an event that included the MADS, DIAN, and ONAC, among other key authorities for the very purpose of validating that the BioREDD+ projects are eligible to participate in the existing domestic and international voluntary carbon markets without prejudice or penalty respective of the new legislation. In early 2019, WWC joined a newly-formed association of carbon market organizations and businesses, ASOCARBONO for the expressed objective that this association would be able to facilitate understanding, improvement, and implementation of the resolution 1447 and other existing laws, for the intent of assisting members with project compliance.
Ley 1931 de 2018	Through which guidelines are established for the management of climate change.

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 with the exception of 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

Data / Parameter	CF
Data unit	[Mg C (Mg DM) ⁻¹]
Description	Carbon fraction of dry matter in wood
Source of data	Default value of 0.5 (IPCC GPG-LULUCF 2003) Conservative value of 0.485 (Annex AA GeoEcoMap Task 8 & 9)
Value applied	0.485
Justification of choice of data or description of measurement methods and procedures applied	According to the IPCC, the default value of 0.5 Mg C (Mg DM) ⁻¹ is applicable for all three tiers when remaining forest land, forest land or biomass carbon is a key or non-key category. However, for this project a more conservative value of 0.485 was used as per (Annex AA GeoEcoMap Task 8 & 9).
Purpose of the data	Calculation of baseline emissions

Data/parameter [EA1]:	<i>E</i>
Data unit:	[-]
Description:	Average combustion efficiency of the aboveground tree biomass
Sources of data (*):	Project-specific measurements Regionally valid estimates Estimates from Table 3.A.14 of IPCC GPG LULUCF If no appropriate combustion efficiency can be used, use the IPCC default of 0.5
Value applied:	0.3
Justification of choice of data or description of measurement methods and procedures applied:	IPCC 2006 gives this value for tropical moist primary forest types.
Purpose of the data	Calculation of baseline emissions
Any comment:	The value of 0.40 is provided as an average combustion efficient for aboveground tree biomass in tropical moist secondary forests.

Data/parameter [EA2]:	<i>P</i>
Data unit:	[-]
Description:	Average proportion of mass burned from the aboveground tree biomass.
Sources of data:	GPG-LULUCF Table 3A.1.13
Value applied:	83.9
Justification of choice of data or description of measurement methods and procedures applied:	83.9 is the mean provided by the IPCC for the average proportion of mass burned from the aboveground tree biomass in primary tropical forests which is the forest type the project for the most part, aligns with.
Purpose of the data	Calculation of baseline emissions
Any comment:	For secondary tropical forests, 8.1 is provided as an average value for young secondary tropical forests, 41.1 for intermediate secondary tropical forests, and 46.4 for advanced secondary tropical forests. These are provided here because some of growth within the project area is secondary but as a majority, it is still primary forest.

Data/parameter [EA3]:	<i>GWP_{CH4}</i>
Data unit:	[-]
Description:	Global Warming Potential for CH ₄
Sources of data:	IPCC default value of 25
Value applied:	25
Justification of choice of data or description of measurement methods and procedures applied:	IPCC 2007 Fourth Assessment Report: Climate Change 2007 states that over a 100 year time horizon, the GWP for CH ₄ is 25.
Purpose of the data	Calculation of baseline emissions

Data/parameter [EA4]:	ER_{CH_4}
Data unit:	Proportion
Description:	Emission ratios for CH ₄
Sources of data:	Table 3A.1.15 in IPCC GPG-LULUCF 2003
Value applied:	0.012
Justification of choice of data or description of measurement methods and procedures applied:	IPCC default value of 0.012 provided.
Purpose of the data	Calculation of baseline emissions
Any comment:	(0.009-0.015) Delmas, 1993 asterisked in IPCC table

Data/parameter [EA5]:	sc_1
Data unit:	[-]
Description:	First shape factor for the forest scarcity equation; steepness of the decrease in deforestation rate (greater is steeper).
Sources of data:	Statistical fitting procedure. Using remotely sensed forest cover data in heavily deforested areas close to the project area such as neighboring provinces, states or countries
Value applied:	See Project Description
Justification of choice of data or description of measurement methods and procedures applied:	Use procedure from VM0006 v2.1
Purpose of the data	Calculation of baseline emissions

Data/parameter [EA6]:	sc_2
Data unit:	[-]
Description:	Second shape factor for the forest scarcity equation; relative deforested area at which the deforestation rate will be 50% of the initial deforestation rate.
Sources of data:	Statistical fitting procedure. Using remotely sensed forest cover data in heavily deforested areas close to the project area such as neighboring provinces, states or countries
Value applied:	See Project Description
Justification of choice of data or description of measurement methods and procedures applied:	Use procedure from VM0006 v2.1
Purpose of the data	Calculation of baseline emissions

Data/parameter [EA7]:	$wwf(ty)$
Data unit:	[-]
Description:	Fraction of carbon in harvested wood products that are emitted immediately because of mill inefficiency for wood class ty . This can be estimated by multiplying the applicable fraction to the total amount of carbon in different harvested wood product category.
Sources of data:	The default applicable fraction is 24% and 19% respectively for developing and developed countries (Winjum et al. 1998).
Value applied:	24%
Justification of choice of data or description of measurement methods and procedures applied:	Winjum et al. 1998 states that the default fraction is 24% for developing countries.
Purpose of the data	Calculation of baseline emissions
Any comment:	Any new updates from locally generated results can be used

	instead of the default values.
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Data/parameter [EA8]:	$slp(ty)$
Data unit:	[-]
Description:	Proportion of short lived products
Sources of data:	Default values are 0.2, 0.1, 0.4 and 0.3 respectively for wood class ty , i.e., sawnwood, wood-based panel, paper and paper boards and other industrial round woods as described in Winjum et al. (1998).
Value applied:	0.2
Justification of choice of data or description of measurement methods and procedures applied:	Winjum et al. provides the above values for sawnwood, wood-based panel, paper/paper boards and industrial roundwood
Purpose of the data	Calculation of baseline emissions
Any comment:	Any new updates from locally generated results can be used instead of the default values. The methodology assumes that all other classes of wood products are emitted within 5 years.

Data/parameter [EA9]:	$fo(ty)$
Data unit:	[-]
Description:	Fraction of carbon that will be emitted to the atmosphere between 5 and 100 years of harvest for wood class ty .
Sources of data:	See (Winjum et al. 1998).
Value applied:	0.84, no change from validation
Justification of choice of data or description of measurement methods and procedures applied:	Winjum et al. provides these values for the fraction of carbon that will be emitted into the atmosphere between 5 and 100 years after harvest for tropical wood classes.
Purpose of the data	Calculation of baseline emissions
Any comment:	Any new updates from locally generated results can be used instead of the default values.

Data/parameter [EA10]:	$\rho_{wood,j}$
Data unit:	[Mg DM m ⁻³]
Description:	Average basic wood density of species or species group j
Sources of data:	Wood densities derived from project-specific inventory measurements.
Value applied:	No change from validation
Justification of choice of data or description of measurement methods and procedures applied:	Project specific wood densities reflect more accurately the site specific factors.
Purpose of the data	Calculation of baseline emissions

Data/parameter [EA11]:	BEF_2
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Data unit:	[-]
Description:	Biomass expansion factor for converting volumes of extracted round wood to total aboveground biomass (including bark).
Sources of data:	IPCC GPG LULUCF Table 3A.1.10 or published data from scientific peer reviewed literature
Value applied:	Broadleaf = 3.4 (2.0 – 9.0)
Justification of choice of data or description of measurement methods and procedures applied:	BEF2 value for tropical broadleaf trees values according to IPPCC LULICF table 3A.1.10.
Purpose of the data	Calculation of baseline emissions

Data/parameter [EA12]:	$EF_{rice,max}$
Data unit:	[kg CH ₄ ha ⁻¹ day ⁻¹]
Description:	Maximal emission factor for methane
Sources of data:	By default, an emission rate of 36 kg CH ₄ ha ⁻¹ day ⁻¹ must be used, which is 25% greater than the maximal value found in a review study comparing 23 studies of CH ₄ fluxes in rice fields (Le Mer and Roger, 2001). Project proponents may use a smaller emission rate if it can be demonstrated from empirical data or other supporting information such as published data that the rate remains conservative for the project conditions.
Value applied:	36
Justification of choice of data or description of measurement methods and procedures applied:	Default provided by Le Mer and Roger, 2001.
Purpose of the data	Calculation of project emissions
Any comment:	Only to be included if rice production is increased as a leakage prevention measure. Currently this project activity is not planned and thus this parameter is not applied.

Data/parameter [EA13]:	$NCV_{biomass}$
Data unit:	[TJ (Mg DM) ⁻¹]
Description:	Net calorific value of non-renewable biomass that is substituted.
Sources of data:	0.015 TJ (Mg DM) ⁻¹ IPCC default value.
Value applied:	0.015
Justification of choice of data or description of measurement methods and procedures applied:	IPCC default provided
Purpose of the data	Calculation of project emissions
Any comment:	Currently livestock grazing is not planned and thus this parameter is not applied.

3.1.2 Data and Parameters Monitored

3.1.2.1 Sizes, Areas, and Transitions

Data/parameter [MN1]:	$size_{projectArea}, size_{leakageArea} \cdot size_{referenceRegion}, size_{referenceForest}$
Data unit:	[ha]
Description:	Size of project area, leakage area, reference region, and forest area in the reference region
Sources of data:	Project design
Description of measurement methods and procedures to be applied:	Coverage and demarcations will be monitored and created through the use of satellite imagery.
Frequency of monitoring/recording:	$size_{projectArea}$ and $size_{leakageArea}$ may be adjusted during crediting period per the rules for grouped projects and updated at verification, but only for the additional instances that were added after the project start date.
Value applied:	Set at validation
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Double check area sizes used for verification accounting with original validated shapefiles and Project Description
Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	

Data/parameter [MN2]:	$\Delta area_{projectAreaEAH,baselineScenario}(t,i)$
Data unit:	[ha yr ⁻¹]
Description:	Hectares undergoing transition <i>i</i> within the project area, excluding the ANR area, and harvest areas, under the baseline scenario for year <i>t</i> .
Sources of data:	Land-use change modeling
Description of measurement methods and procedures to be applied:	Procedures should be described in the Monitoring Report
Frequency of monitoring/recording:	At least once before every baseline. For added instances, may be recalculated at verification.
Value applied:	No change from validation
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of baseline emissions
Calculation method:	Activity data from classified images across historical baseline based on VM0006 Methodology criteria
Any comment:	

Data/parameter [MN3]:	$\Delta area_{projectAreaWithANR,baselineScenario}(t,i)$
Data unit:	[ha yr ⁻¹]
Description:	Hectares undergoing transition <i>i</i> within the leakage area under the project scenario for year <i>t</i> .
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of leakage
Calculation method:	None
Any comment:	No ANR activities included for the project

Data/parameter [MN4]:	$\Delta area_{leakageArea,projectScenario}(t,i)$
Data unit:	[ha yr ⁻¹]
Description:	Hectares undergoing transition <i>i</i> within the leakage area under the project scenario for year <i>t</i>
Sources of data:	Remote sensing analysis
Description of measurement methods and procedures to be applied:	Procedures should be described in the Monitoring Report
Frequency of monitoring/recording:	At least once before verification
Value applied:	See Accounting Model: VM0006_Acaba Rio Pepe_Ex_Post, LULC Data Tab
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of leakage
Calculation method:	Activity data from classified images at project start and end of project monitoring period based on VM0006 Methodology criteria
Any comment:	

Data/parameter [MN5]:	$\Delta area_{leakageArea,baselineScenario}(t,i)$
Data unit:	[ha yr ⁻¹]
Description:	Hectares undergoing transition <i>i</i> within the leakage area under the baseline scenario during year <i>t</i>
Sources of data:	Land-use change modeling
Description of measurement methods and procedures to be applied:	Procedures should be described in the Monitoring Report
Frequency of monitoring/recording:	Once every baseline update. May also be updated at the time of instance inclusion that requires new leakage area.
Value applied:	Same value applied as validation
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.

Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	

Data/parameter [MN6]:	$\Delta area_{historical}(CS_1 \rightarrow CS_2, t_1 \rightarrow t_2)$
Data unit:	[ha yr ⁻¹]
Description:	Area of transition from LULC class or forest stratum 1 to 2 from time 1 to 2 during the historical reference period
Sources of data:	Remote sensing analysis
Description of measurement methods and procedures to be applied:	Procedures should be described in the Monitoring Report
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	Same as validation
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	

Data/parameter [MN7]:	$RFRGrate(CS_1 \rightarrow CS_2)$
Data unit:	[yr ⁻¹]
Description:	Relative annual forest cover increase and regeneration factor for the transition from class or stratum 1 to 2.
Sources of data:	Remote sensing analysis
Description of measurement methods and procedures to be applied:	Procedures should be described in the Monitoring Report
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	Conservatively assumed to have no regeneration for the project case in the first monitoring period
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of

	the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	It can be used for producing baseline transition matrix for new instances to be added into the project area.

Data/parameter [MN8]:	$area_{historical}(CS_1, t_1)$
Data unit:	[ha]
Description:	Total area of LULC class or forest stratum 1 at time 1
Sources of data:	Remote sensing analysis
Description of measurement methods and procedures to be applied:	Procedures should be described in the Monitoring Report
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	No change since validation
Monitoring equipment:	GIS software, Landsat imagery
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	

Data/parameter [MN9]:	$area_{biomssLos}(i)$
Data unit:	[ha yr ⁻¹]
Description:	Total annual area of LULC class that was cleared for creating firebreaks
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions

Calculation method:	
Any comment:	No fire breaks were applied for this project.

Data/parameter [MN10]:	$area_{fireBiomassLoss}(i)$
Data unit:	[ha yr ⁻¹]
Description:	Annual area of forest stratum that was cleared by using prescribed burning
Sources of data:	
Description of measurement methods and procedures to be applied::	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No fire breaks were applied for this project.

Data/parameter [MN11]:	$area_{fireBiomassLoss,ANR}(t,i)$
Data unit:	[ha]
Description:	Area of biomass removed by prescribed burning within ANR stratum i during year t
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	No prescribed burning was applied for this project.
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No prescribed burning was applied for this project.

Data/parameter [MN12]:	$area_{projectAreaWithANR,projectScenario}(t,i)$
Data unit:	[ha]
Description:	Amount of land on which ANR activities are planned under the project scenario for year t and in stratum i
Sources of data:	
Description of measurement	

methods and procedures to be applied:	
Frequency monitoring/recording: of	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculations of project emissions
Calculation method:	
Any comment:	No ANR activities were applied for this project.

Data/parameter [MN13]:	$area_{harvest}(t, i)$
Data unit:	[ha]
Description:	Area of forest in harvest stratum i that is harvested at time t .
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency monitoring/recording: of	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No harvesting activity in project area.

Data/parameter [MN14]:	$area_{projectAreaWithHarvest, projectScenario}(t, i)$
Data unit:	[ha yr ⁻¹]
Description:	Size of strata i within the project area with harvest activities during year t under the project scenario.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency monitoring/recording: of	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	

Any comment:	No harvesting activity in project area.
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Data/parameter [MN15]:	$\Delta area_{projectAreaWithHarvest,baselineScenario}(t,i)$
Data unit:	[ha yr ⁻¹]
Description:	Hectares undergoing transition <i>i</i> within the harvest areas under the baseline scenario during year <i>t</i> .
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	No harvesting activity within project area.

Data/parameter [MN16]:	$BetaReg_{DF}(t)$ and $BetaReg_{DG}(t)$
Data unit:	[ha yr ⁻¹]
Description:	Beta regression model describing the relationship between time and deforestation/degradation rate in the reference region during the historical reference period.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	Not applicable to original baseline estimates.

3.1.2.2 Locations, Descriptions, Qualitative and Social Data

Data/parameter [MN17]:	Area under agricultural intensification
Data unit:	[ha]
Description:	Size of the area of agricultural intensification separated for each agricultural intensification measure
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No agricultural intensification activities were applied within the project area.

Data/parameter [MN18]:	Yields under agricultural intensification
Data unit:	[Mg ha ⁻¹]
Description:	Harvested yield for agricultural intensification practices
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No agricultural intensification activities were applied within the project area.

Data/parameter [MN19]:	NTFP harvest rate
Data unit:	[m ³ yr ⁻¹] or [kg yr ⁻¹]
Description:	Annual volumes of non-timber forest products extracted
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No major NTFP harvesting occurred within the project area.

Data/parameter [MN20]:	Local NTFP price
Data unit:	Local currency
Description:	Price of non-timber forest products on local markets
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	No major NTFP harvesting occurred within the project area.

3.1.2.3 Dates on Drivers and Actions

Data/parameter [MN21]:	$CFW_{baseline}$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annual volume of fuel wood gathering for commercial sale and charcoal production in the baseline scenario
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	No major fuel wood collection activities occurred in the baseline scenario for commercial sale and charcoal production.

Data/parameter [MN22]:	$DFW_{baseline}$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annual volume of fuel wood gathered for domestic and local energy in the baseline scenario
Sources of data (*):	
Description of measurement methods and procedures to be applied:	

Frequency monitoring/recording:	of	
Value applied:		NA
Monitoring equipment:		
QA/QC procedures to be applied:		
Purpose of the data		Calculation of baseline emissions
Calculation method:		
Any comment:		No major fuel wood collection activities occurred in the baseline scenario domestic and local energy.

Data/parameter [MN23]:		$DFW_{project}$
Data unit:		$[m^3 yr^{-1}]$
Description:		Biomass (dry matter) of fuel wood collected by project participants under the project scenario.
Sources of data (*):		
Description of measurement methods and procedures to be applied:		
Frequency monitoring/recording:	of	
Value applied:		
Monitoring equipment:		
QA/QC procedures to be applied:		
Purpose of the data		Calculation of project emissions
Calculation method:		
Any comment:		No major fuel wood collection activities occurred in the project scenario.

Data/parameter [MN24]:		$DFW_{allowed}$
Data unit:		$[m^3 yr^{-1}]$
Description:		Biomass (dry matter) of allowed fuel wood collection in the project area under the project scenario. This amount is typically fixed in a management plan. $[m^3 yr^{-1}]$
Sources of data (*):		
Description of measurement methods and procedures to be applied:		
Frequency monitoring/recording:	of	
Value applied:		
Monitoring equipment:		
QA/QC procedures to be applied:		
Purpose of the data		Calculation of project emissions

Calculation method:	
Any comment:	No major fuel wood collection activities occurred in the project scenario.

Data/parameter [MN25]:	$VG_{baseline}$
Data unit:	[m ³ yr ⁻¹]
Description:	Biomass (dry matter) of understory vegetation extraction by project participants under the baseline scenario. [Mg DM yr-1]
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	No biomass from understory vegetation was predicted to be extracted in the baseline scenario.

Data/parameter [MN26]:	$VG_{project}$
Data unit:	[Mg DM yr-1]
Description:	Biomass (dry matter) of understory vegetation extraction by project participants under the project scenario.
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	At least once before verification
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	Not applicable in baseline or project scenarios.

Data/parameter [MN27]:	$VG_{allowed}$
Data unit:	[Mg DM yr-1]
Description:	Biomass (dry matter) of allowed as understory vegetation extraction under the project scenario. This amount is typically fixed in a management plan

Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	Not applicable in baseline or project scenarios.

Data/parameter [MN28]:	$CT_{baseline}(h, j, ty, t)$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annually extracted volume of harvested timber round-wood for commercial on-sale under the baseline scenario during harvest by species j and wood product class ty during year t
Sources of data (*):	Timber Study from validated baseline.
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	See Project Description for estimated illegal timber extraction in baseline
Monitoring equipment:	None
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	Calculated using EQ4 of VM0006 v2.1
Any comment:	

Data/parameter [MN29]:	$CT_{allowed}$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annually allowed volume of harvested timber round-wood for commercial on-sale under the project scenario
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	

QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No harvesting activity in project area.

Data/parameter [MN30]:	$CT_{project}(h, j, ty, t)$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annually extracted volume of harvested timber round-wood for commercial on-sale inside the project area under the project scenario during harvest h by species j and wood product class ty during year t .
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No harvesting activity in project area.

Data/parameter [MN31]:	$DT_{baseline}(h, j, ty, t)$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annually extracted volume of timber for domestic and local use, round wood under the baseline scenario during harvest h by species j and wood product class ty during year t .
Sources of data (*):	Timber Study from validation data
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	See Project Description.
Monitoring equipment:	None
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made

	available to auditors.
Purpose of the data	Calculation of baseline emissions
Calculation method:	Calculated using EQ5 of VM0006 v2.1
Any comment:	

Data/parameter [MN32]:	$DT_{allowed}$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annually allowed volume of harvested timber round-wood for domestic and local use under the project scenario
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No harvesting activity in project area.

Data/parameter [MN33]:	$DT_{project}(h, j, ty, t)$
Data unit:	$[m^3 yr^{-1}]$
Description:	Annually extracted volume of timber for domestic and local use, round wood inside the project area under the project scenario during harvest h by species j and wood product class ty during year t .
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No harvesting activity in project area.

Data/parameter [MN34]:	$contribution_{DF}(d)$ and $contribution_{DG}(d)$
Data unit:	$[-]$

Description:	Relative contribution of driver i respectively to total deforestation and forest degradation.
Sources of data:	Use procedure from VM0006 v2.1
Description of measurement methods and procedures to be applied:	Remote sensing LULC analysis and emissions factors
Frequency of monitoring/recording:	At least once before baseline update.
Value applied:	No change from validation. See Accounting Model: VM0006_Acaba Rio Pepe_Ex_Post, Parameters Tab
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	VM0006 v2.1 8.1.3.2
Any comment:	

Data/parameter [MN35]:	$RelativeDriverImpact_{DF}(t, d)$ and $RelativeDriverImpact_{DG}(t, d)$
Data unit:	[-]
Description:	Relative impact of the geographically unconstrained driver d at time t of the crediting period respectively on deforestation and forest degradation.
Sources of data:	Use procedure from VM0006 v2.1
Description of measurement methods and procedures to be applied:	Remote sensing LULC analysis and emissions factors
Frequency of monitoring/recording:	At least once before baseline update.
Value applied:	No change from validation. See Accounting Model: VM0006_Acaba Rio Pepe_Ex_Post, Parameters Tab
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	VM0006 v2.1 8.1.3.2

Any comment:	
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Data/parameter [MN36]:	$leakage_{unconstrained}(d)$
Data unit:	[-]
Description:	Leakage cancellation rate for avoiding deforestation/degradation from geographically unconstrained drivers.
Sources of data:	
Description of measurement methods and procedures to be applied:	NA
Frequency of monitoring/recording:	At least once before baseline update.
Value applied:	No change from validation. See Accounting Model: VM0006_Acaba Rio Pepe_Ex_Post, Parameters Tab
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of leakage
Calculation method:	NA
Any comment:	Unless a lower rate can be justified, a default rate of 100% must be used.

Data/parameter [MN37]:	$effectiveness(a, d)$
Data unit:	[-]
Description:	Effectiveness of every project activity a in decreasing any deforestation driver d relative to that driver's contribution to deforestation and forest degradation,
Sources of data:	
Description of measurement methods and procedures to be applied:	NA
Frequency of monitoring/recording:	At least once before baseline update.
Value applied:	No change from validation. See Accounting Model: VM0006_Acaba Rio Pepe_Ex_Post, Parameters Tab
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of

	the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	NA
Any comment:	The <i>effectiveness(a,d)</i> factor represents the maximal effectiveness during the crediting period.

Data/parameter [MN38]:	$\Delta A_{rice}(t)$
Data unit:	[ha]
Description:	Annual increase in harvested area of rice due to leakage prevention measures.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No rice cultivation was practiced as part of project activities.

Data/parameter [MN39]:	$t_{flooded,max}$
Data unit:	[days yr ⁻¹]
Description:	Maximal period of time a field is flooded
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No rice cultivation was practiced as part of project activities.

Data/parameter [MN40]:	$GR_{baseline}$
Data unit:	[-]

Description:	Number of grazing animals of type g within the project boundary baseline
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	No estimation of grazing animals was included in the baseline, was estimated to be de minimis at validation and conservatively excluded.

Data/parameter [MN41]:	$GR_{allowed}$
Data unit:	[-]
Description:	Number of grazing animals of type g allowed for grazing within the project boundary in the project scenario
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	Increased grazing activities are not allowed in the project area.

Data/parameter [MN42]:	$Fuelwood(t)$, $Fuel(t)$
Data unit:	$[m^3 yr^{-1} HH^{-1}]$
Description:	Average annual volume of biomass fuel consumed by households in the absence of the project activity in year t for cooking purpose.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	

Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	No fuel wood activity in project area. Cook stoves not included as activities in project area.

Data/parameter [MN43]:	$HH_{non-CFE}(t)$
Data unit:	[-]
Description:	Total number of households in the project area that collect biomass fuel from the project area and do not use CFE in year t .
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of leakage

Calculation method:	
Any comment:	No fuel wood activity in project area. Cook stoves not included as activities in project area.

Data/parameter [MN44]:	η_{old}
Data unit:	[-]
Description:	Efficiency of the project cook stoves or appliances.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	No cook stove activity in project area.

Data/parameter [MN45]:	η_{new}
Data unit:	[-]
Description:	Efficiency of the baseline cook stoves or appliances.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	No cook stove activity in project area.

Data/parameter [MN46]:	$U_{CFE}(t)$
Data unit:	[-]
Description:	Fraction of cumulative usage rate for technologies in project scenario in year t. [-]
Sources of data:	

Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	Not applicable to project.

Data/parameter [MN47]:	$DF_{LeakageCFE}(t)$
Data unit:	[-]
Description:	Leakage discount factor applicable to GHG emissions reduction benefits from CFE activities [-]
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	No leakage discount factor included in project area.

Data/parameter [MN48]:	$EF_{non-CO2,fuel}, EF_{CO2,fuel}$
Data unit:	[t CO ₂ TJ ⁻¹]
Description:	Respectively, non-CO2 emission factor of the fuel that is reduced and CO2 emission factor for the substitution of non-renewable woody biomass by similar consumers.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	

applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	Not included in project emissions estimates, no relevant project activities.

Data/parameter [MN49]:	EF_{forest}
Data unit:	[t CO ₂ e]
Description:	Emission factor related to leakage.
Sources of data:	Derived from project specific carbon stock data, estimated through field measurements and LiDAR data collection.
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	At least once before verification
Value applied:	Emissions factors for the project can be found in the accounting model: VM0006_Acaba Rio Pepe_Ex_Post "Report – Emissions Factors" Tab
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of leakage
Calculation method:	
Any comment:	

3.1.2.4 Data on Organic Matter and Carbon Densities

Data/parameter [MN50]:	$OM_o(i)$
Data unit:	[Mg DM ha ⁻¹]
Description:	Plant-derived organic matter of LULC class or forest stratum <i>i</i> in pool <i>o</i> . [Mg DM ha ⁻¹]
Sources of data:	Estimates using Lidar data
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	Updated within degraded area class based on LiDAR and carbon inventory field measurements
Monitoring equipment:	

QA/QC procedures to be applied:	Follow uncertainty deduction procedures described in methodology. Ensure calibrated Lidar data.
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	

Data/parameter [MN51]:	$proportion_{DF}(d)$ and $proportion_{DG}(d)$
Data unit:	[-]
Description:	Proportion of the gradual carbon loss that leads to deforestation or forest degradation, respectively, due to driver d
Sources of data:	
Description of measurement methods and procedures to be applied:	LULC and emissions factors
Frequency of monitoring/recording:	At least once before every baseline update
Value applied:	No change since validation
Monitoring equipment:	NA
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	

Data/parameter [MN52]:	$C(t, i)$
Data unit:	[Mg C ha ⁻¹ yr ⁻¹]
Description:	Carbon stock density at time t in stratum i .
Sources of data:	Estimate using calibrated Lidar data
Description of measurement methods and procedures to be applied:	Carbon stocks measured using Lidar and field based measurements in degraded forest class.
Frequency of monitoring/recording:	Once before verification and before every baseline update
Value applied:	See Accounting model: VM0006_Acaba Rio Pepe_Ex_Post
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of

	the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	Used in estimating change in carbon stock density

Data/parameter [MN53]:	$f_{allometric}(y)$
Data unit:	Equation
Description:	Allometric relationship to convert a tree metric such as DBH or tree height into biomass
Sources of data (*):	Derived from project-specific destructive sampling measurements and field data.
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	May be updated at baseline update
Value applied:	No change in allometric equations since validation.
Monitoring equipment:	NA
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	

Data/parameter [MN54]:	$f_{belowground}(y)$
Data unit:	Equation
Description:	Relationship between aboveground and belowground biomass, such as a root-to-shoot ratio
Sources of data (*):	Standard root-to-shoot ratios as found in Table 4.A.4 of the IPCC GPG-LULUCF 2003
Description of measurement methods and procedures to be applied:	NA
Frequency of	May be updated at baseline update

monitoring/recording:	
Value applied:	No change since validation.
Monitoring equipment:	
QA/QC procedures to be applied:	NA
Purpose of the data	Calculation of baseline emissions
Calculation method:	NA
Any comment:	

Data/parameter [MN55]:	$C_{Harvest}(t, i)$
Data unit:	Mg C ha-1
Description:	Biomass carbon stock density at time t in stratum i in harvested areas.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No harvesting activity in project area.

Data/parameter [MN56]:	$CE_{inventory, harvest}(t, i)$
Data unit:	[-]
Description:	Combined error in estimate of average biomass stock density in harvest areas in stratum i at time t .
Sources of data (*):	
Description of measurement methods and procedures to be applied:	NA
Frequency of monitoring/recording:	At least once before verification
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made

	available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	NA
Any comment:	No legal harvesting activity allowed in project area

Data/parameter [MN57]:	$CE_{inventory,ANR(t,i)}$
Data unit:	[-]
Description:	Combined error in estimate of average biomass stock density in ANR areas in stratum i at time t .
Sources of data (*):	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	NA
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of project emissions
Calculation method:	
Any comment:	No ANR activities in project area

Data/parameter [MN58]:	$u_{classification}$
Data unit:	[-]
Description:	Discounting factor for NERs from avoided deforestation, based on the accuracy of classification, i.e. dividing land into broad land use types.
Sources of data:	
Description of measurement methods and procedures to be applied:	VM006 v2.1, 8.1.2.7
Frequency of monitoring/recording:	At least once before verification
Value applied:	No change since validation
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	NA
Any comment:	

Data/parameter [MN59]:	$u_{stratification}$
Data unit:	[-]
Description:	Discounting factor for NERs from avoided degradation, based on

	the accuracy of stratification, i.e. dividing forest into individual forest biomass classes.
Sources of data:	
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	
Value applied:	No change in value applied since validation.
Monitoring equipment:	
QA/QC procedures to be applied:	
Purpose of the data	Calculation of baseline emissions
Calculation method:	
Any comment:	

Data/parameter [MN60]:	$u_{transition}(i)$
Data unit:	[]
Description:	Discounting factor for the emission factor for the transition from LULC class or forest stratum 1 to class 2 according to the uncertainty of the biomass inventory.
Sources of data:	LULC analysis, classification
Description of measurement methods and procedures to be applied:	
Frequency of monitoring/recording:	At least once before verification
Value applied:	Uncertainty calculated in the accounting model: VM0006_Acaba Rio Pepe_Ex_Post
Monitoring equipment:	
QA/QC procedures to be applied:	Data is to be entered into internal archive. Archive is accessed by qualified, authorized technical experts. All documents for monitoring, validation, verification and certification are reviewed and signed off by several team members. Data will be reported to project proponents and stakeholders. Discrepancies or disagreements will be justified by explanation or by visitation of the activities in question. All available satellite data for monitoring, validation, verification and certification will be archived and made available to auditors.
Purpose of the data	Calculation of project emissions
Calculation method:	NA
Any comment:	All measurements within allowed threshold Analysis must be completed in order to fill this section in.

3.1.3 Monitoring Plan

In the context of the Acaba Rio Pepe project in Colombia, the purpose of the monitoring plan is to measure and record data and indicators used to measure the effect on climate indicators of the project

compared to the baseline, or without project scenario. In accordance with project verification standards, Chemonics has set up the necessary follow-up mechanisms in order to ensure monitoring of all relevant variables and indicators, especially forest cover, forest degradation, and the intensity of any deforestation or degradation activities. Methodologies used to estimate and model values correspond to those proscribed by VM006 v1.1, with more detail provided in section 8 of the PD.

The climate impact on the project and other areas was monitored using remote sensing, biomass plots measuring the carbon content of the forest, and updated LiDAR data, along with a suite of monitoring strategies to climate-related activities within the leakage belt and the project area itself. While models of carbon savings will be created to predict the impacts, empirical evidence from the project area and similar control areas outside of the project will be used at verification to confirm the carbon savings generated.

All project activities within the Project Area and Project Zone monitored during this reporting period were consistent with the project activities discussed in the Project Description Document. If any project activities are to be phased out or incorporated at a later date due to adaptive management, the monitoring and implementation plans for this project will be updated accordingly.

Each parameter measured will have an associated measurement SOP for each monitoring period, created by the Director for each sector. If an SOP is adapted from one monitoring period to the next, the documents shall be versioned and archived and the monitoring report reference the version and title of the SOP used for that monitoring period. All updates to SOPs shall be approved by the sector director in the national office. The sector directors are responsible for ensuring that all relevant SOPs are adhered to by the regional directors and staff.

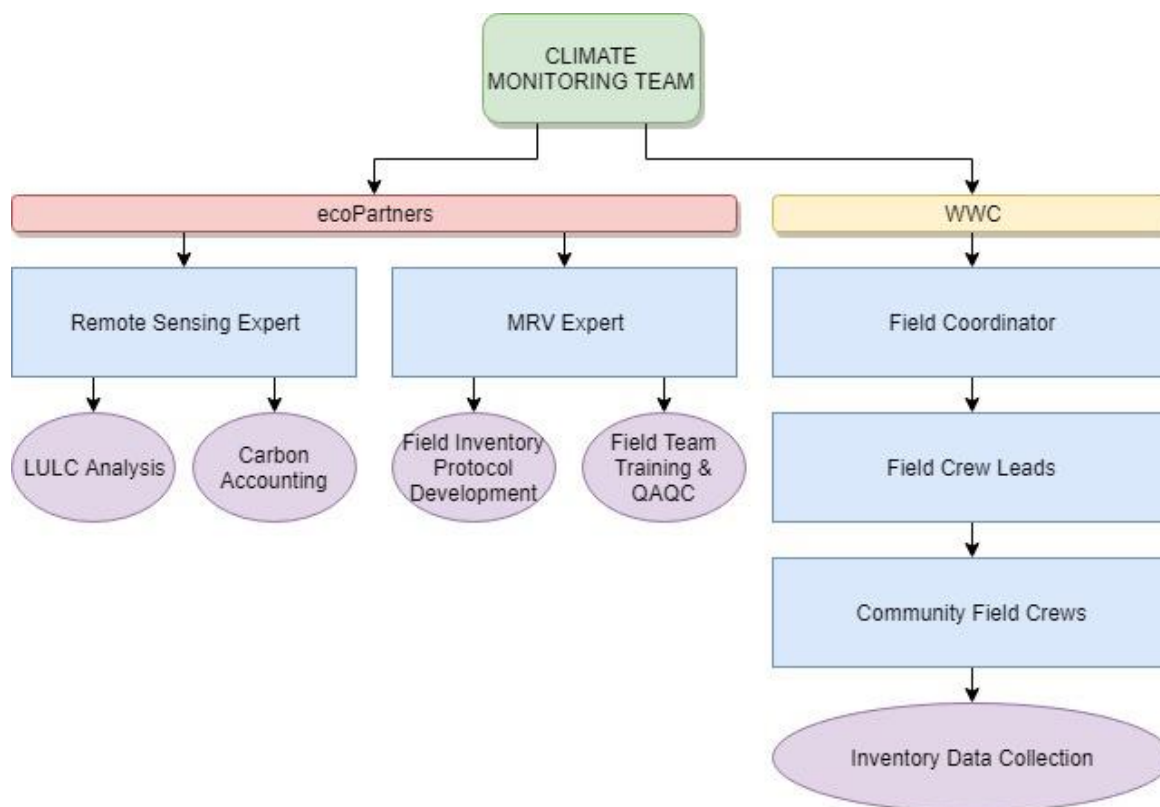
The Acaba Rio Pepe community, along with partnering organizations, quantified the net climate benefit of the project through monitoring according to the methodology prescribed by VM006 v1.1, including monitoring the required areas using remote sensing techniques and biomass forest plots installed and measured in the project area.

There were two main monitoring components required for quantification of GHG emission reductions and removals. The first was with regards to updating carbon stock estimates based on new data. This was done through the completion of an inventory using a new protocol along with the collection of new LiDAR data. Secondly, a new LULC map was created using various types of remote sensing imagery in order to calculate transitions within each LULC class type from the project beginning.

3.1.3.1 Organizational Structure and Responsibilities

Figure 1 below depicts the organizational structure of the climate monitoring team. The two organizations involved in the management of climate monitoring activities for this project are ecoPartners (depicted in red) and Wildlife Works Carbon (depicted in yellow). The blue fields are the experts and managers involved in the project's climate monitoring activities through, and the purple fields depict the roles and duties of those managers/experts.

Figure 1: Organizational chart for climate monitoring activities



The technical skills and oversight for the project's climate monitoring were provided by ecoPartners LLC. ecoPartners LLC is a forestry-based company that works with project developers, forest owners and verification bodies to build successful carbon offset projects. ecoPartners possesses expertise in the technical aspects of project design, planning and development including biometrics, accounting methodologies and remote sensing. ecoPartners has extensive experience validating and verifying projects under multiple carbon standards, including both VCS and CCB. During this monitoring period, ecoPartners has provided technical input with remote sensing, land use change analysis and project documentation as well as guidance support through verification. This included the development of an inventory protocol and the necessary training of local people to carry out this inventory in collaboration with WWC that was used to update carbon stocks in degraded areas.

ecoPartners provided two skilled technical experts to assist in project monitoring. Their roles were that of remote sensing expert and MRV expert. The remote sensing expert was involved in the LULC analysis as well as the project carbon accounting, and has 10+ years of remote sensing and carbon accounting experience as well as previous involvement in REDD+ carbon projects. The MRV expert was tasked with the development of field inventory protocol and the training and QAQC processing of the field team. The MRV expert has extensive experience in carbon measurements, inventory protocol development, as well as monitoring and research experience.

The WWC team was responsible for the implementation of field activities including the collection of inventory data. The field coordinator for WWC has extensive experience in forestry, as well as implementing and auditing REDD+ projects, field-based data collection experience. The field coordinator

assists with the training of field crew leads, QAQC checks, and the management and direction of the field teams as a whole. The field team leads were individuals with previous field experience in forestry or biology, who received special training from the Field Coordinator and the MRV expert. The role of the team leads was to direct the community field crews and conduct occasional QAQC checks. The community field crews were made up of community members from in and around the project area who showed interest in being involved in project activities and who often have had previous experience working in forest-based industries such as logging.

The implementation partners are well-qualified within their respective fields and community members involved in climate monitoring have received extensive training and have demonstrated their capacity to carry out monitoring activities with a high degree of accuracy.

3.1.3.2 Monitoring of Activity Data

3.1.3.2.1 LULC Image Classification

Creating an updated LULC classification map is an essential part of monitoring, especially for quantifying GHG emission reductions. This updated map allows for estimates of the amount of area that transitioned to each other class during this monitoring period. This data, calculated in units of hectares, can then be multiplied by the emissions factors (tC/ha) in order to calculate total GHG emissions during the monitoring period. As a result, an accurate LULC map is a crucial part of monitoring for any forest carbon project.

The project and leakage areas for all BioREDD projects were monitored for LULC change using remote sensing techniques that meet the requirements of the VM0006 methodology. The final LULC map was produced by ecoPartners, which mostly followed procedures noted in the monitoring plan developed at project validation. However, new data sources in the years since the initial classification allowed for improved data to be used for this classification. This data was then processed and analyzed by updating the procedures discussed in the monitoring plan to accommodate updates in technology since the initial LULC map was created.

Two types of remote sensing data were utilized in order to produce the final LULC map. The first type was multi-spectral data from the Sentinel-2 earth observation satellite. Sentinel data was selected over the previously used Landsat due to its higher resolution and shorter revisit time, which allowed for a greater number of scenes to choose from when selecting imagery to process and analyze. Since imagery in this region tends to be highly impacted by large amounts of cloud cover, this quicker revisit time allowed for higher quality imagery with less cloud cover to be selected. Classified scenes were selected for their relatively low cloud cover and multiple scenes were classified over the same area in order to ensure minimal areas of no data due to cloud obfuscation. Between all the BioREDD project and leakage areas, 29 Sentinel-2 scenes were processed, with 13 scenes specifically covering this project area (Table 9). These scenes were downloaded as 1-C data products that are already radiometrically and geometrically corrected. They were pre-processed to level 2-A data products using the Sentinel Application Platform (SNAP), open source software included in the Sentinel 2 toolbox.

Table 8: List of Sentinel-2 images processed and analyzed for final LULC map

Sentinel-2 SceneID included in Classification	Acquisition Date	Applicable Project(s)
---	------------------	-----------------------

S2B_MSIL2A_20180427T153619_N0206_R068_T18NTL_20180427T190042.SAFE	27/04/2018	Acaba Rio Pepe
S2B_MSIL2A_20170929T153609_N0205_R068_T18NTL_20170929T153932.SAFE	29/09/2017	Acaba Rio Pepe
S2A_MSIL2A_20170805T153621_N0205_R068_T18NUL_20170805T153620.SAFE	05/08/2017	Acaba Rio Pepe
S2A_MSIL2A_20170805T153621_N0205_R068_T18NTL_20170805T153620.SAFE	05/08/2017	Acaba Rio Pepe
S2A_MSIL2A_20170805T153621_N0205_R068_T18NTM_20170805T153620.SAFE	05/08/2017	Acaba Rio Pepe

While Sentinel-2 multi-spectral data can provide an accurate map of forest and non-forest areas, it is unable to penetrate the dense forest canopy cover prevalent throughout the project region. As a result, it cannot by itself be used to delineate between intact forest and degraded forest areas and it was necessary to supplement this imagery with radar data collected by the Japanese Aerospace Exploration Agency's (JAXA's) Advanced Land Observing Satellite 2 (ALOS-2). The ALOS-2 satellite utilizes a Phased Array L-band Synthetic Aperture Radar (PALSAR). This longer band radar is capable of penetrating both dense canopy cover and clouds. Since this data is not impacted by cloud or other weather patterns, the latest data providing full coverage of the areas of interest could be purchased and downloaded. Consequently, all purchased scenes are from 2018. Altogether, 11 scenes were purchased and downloaded through the PASCO Corporation, JAXA's foreign broker for ALOS-2 imagery. One of these images was needed in order to provide coverage of the Acaba Rio Pepe project and leakage areas.

Table 9: List of PALSAR-2 scenes classified for Degradation analysis

ALOS2-SceneID	Acquisition Date	Applicable Project(s)
ALOS2217070080-180531	31/05/2018	Acaba Rio Pepe
ALOS2217070090-180531	31/05/2018	Acaba Rio Pepe
ALOS2223280080-180712	12/07/2018	Acaba Rio Pepe
ALOS2223280090-180712	12/07/2018	Acaba Rio Pepe

All scenes were initially pre-processed before undergoing the classification procedure. Since the baseline classification was completed using imagery from the since retired ALOS-1 satellite, new pre-processing procedures had to be developed since the software previously used does not support PALSAR-2 imagery. Instead, similar pre-processing was completed using the Sentinel Application Platform (SNAP), a free tool available for processing and viewing remote sensing imagery. The first correction was made by completing orthorectification of each image to correct for any distortions from the terrain and satellite sensor tilt. Images were also radiometrically corrected in order to improve the quality of the imagery by reducing the number of errors. Once pre-processing was completed, these images were included in the classification procedure.

Processing

Sentinel and PALSAR data were classified with a Bayesian MAP classifier. This classifier is concerned with estimating the parameters of a posterior distribution conditional on observed data and prior distributions. Using conventional statistical notation in the context of the present classification problem, we define the posterior distribution $p(\omega_i|x, y, \hat{\theta}_i) \propto p(x|\omega_i, \hat{\theta}_i) \times p(\omega_i|y)$ where ω_i indicates the prior detection of degraded forest for a particular pixel, $\hat{\theta}_i$ are the estimated class parameters by training, x are

the pixel elements of an image at a particular pixel and y is an indicator vector on prior class labels of the benchmark map in the neighborhood of a particular pixel for the i^{th} class. We assume x are normally distributed while ω_i follow a binomial (two classes, not degraded and degraded) distribution conditional on the values of a $m \times m$ spatial window centered at the pixel coordinate of x in the benchmark map. Following from the selected model, its discriminant function is

$$g_i(x) = -\frac{1}{2} \ln |\hat{\Sigma}_i| - \frac{1}{2} (x - \hat{\mu}_i)^T \hat{\Sigma}_i^{-1} (x - \hat{\mu}_i) - \ln w^T y$$

where $\hat{\theta}_i = (\hat{\mu}_i, \hat{\Sigma}_i)$, $\hat{\mu}_i$ is the estimated class mean and $\hat{\Sigma}_i^{-1}$ is the estimates class variance-covariance matrix and w_i is the neighborhood weight vector whose elements sum to one (see Figure 2). Discriminant functions as they relate to classification models are thoroughly described in Richards 2013 As g_i is a function $\hat{\theta}_i$, these parameters must be estimated by training prior to pixel discrimination.

Figure 2: The $m \times m = 3 \times 3$ neighborhood weight vector w arranged in a spatial window.

0.05	0.1	0.05
0.1	0.4	0.1
0.05	0.1	0.05

Training

Prior to pixel discrimination, class parameters $\hat{\theta}_i$ were estimated using standard maximum likelihood techniques conditional on training data. Training data were obtained by labeling a subset of the pixels in a scene as observed in the benchmark map (2012 LULC). A generative k-means process was applied to each subset to automatically segment pixel elements into similar classes each sharing the label of the training subset.

This generative process minimizes the risk of violating the normality assumption of x by using the subset as a Gaussian mixture. Each subclass comprising the mixture was tested for divergence from the whole subset using a chi-squared test on the likelihood ratio of $\hat{\theta}_i$ and its equivalent for the subset (Richards 2013). Where the test was statistically significant, inference was that the subclass was not of the same class as the subset and was therefore dropped from the training process. Depending on the result of the test and presence of available, labeled subsets in a scene, a total of 25 possible subclasses could be trained for each scene.

Implementation

The discriminant function was applied to all pixel elements in each scene (including both Sentinel bands and PALSAR data layers) for up to 25 times per pixel corresponding to the number of trained subclasses for each scene. The label associated with that particular subclass giving the highest value of g_i was assigned to each pixel in the scene to produce the updated LULC map for that particular scene. In the cases of cloud and cloud shadow where no prior information existed, the term $\ln w^T y$ in the discriminant function was simply set to zero. The training process and discriminant function were implemented using custom software written in a combination of C#, C++ and CUDA. Compiled CUDA implementations ran on a Quadro GPU to accelerate classification as compared to CPU-based software (approximately 10 minutes per scene versus 10 hours per scene). All parameterized classes were checked for sufficient sample size, singularity in $\hat{\Sigma}_i$ and rationality of $|\hat{\Sigma}_i|$. Insufficient class distributions were dropped from the classification processes.

Post-Processing

The statistical classification process described above produced thirty-three raster files indicating LULC classification. These thirty-three rasters were processed to standardize reference extents and set pixel alignment before being mosaicked together into a single raster file.

A final set of post-processing adjustments were made to the classified 2018 image to generate a final map product that conservatively excludes any areas of regeneration from non-forest to forest or degraded

forest to primary forest observed in the project or leakage areas from 2012 to 2018. This was done by applying a raster calculator equation such that all areas of deforestation or degradation observed in 2018 were retained and any areas of regeneration were conservatively removed prior to accounting (see Table 10). Maps then were created for each project using this updated 2018 thematic classification.

The maps below are the final results of the classification. Figure 3 displays the final LULC classification within the leakage area, while Figure 4 shows the classification within the project area. Figure 5 shows the transition of previously forested areas within the project area into deforested or degraded forest areas between 2012 and 2018, while Figure **Error! Reference source not found.** shows that same transition within the leakage area.

Table 10: Post-Processing Adjustments to 2018 LULC Classification

2012 Classification	2018 Initial Classification	2018 Final Adjusted Classification
Primary Forest	Degraded Forest	Degraded Forest
Primary Forest	Any Non-Forest Class	Any Non-Forest Class
Degraded Forest	Any Non-Forest Class	Any Non-Forest Class
Degraded Forest	Primary Forest	Degraded Forest
Pastureland	Primary Forest or Degraded Forest	Pastureland
Cropland	Primary Forest or Degraded Forest	Cropland
Wetland	Primary Forest or Degraded Forest	Wetland
Settlement	Primary Forest or Degraded Forest	Settlement
Other	Primary Forest or Degraded Forest	Other
Water	Any Class	Water

Figure 3: LULC Classification in Leakage Area

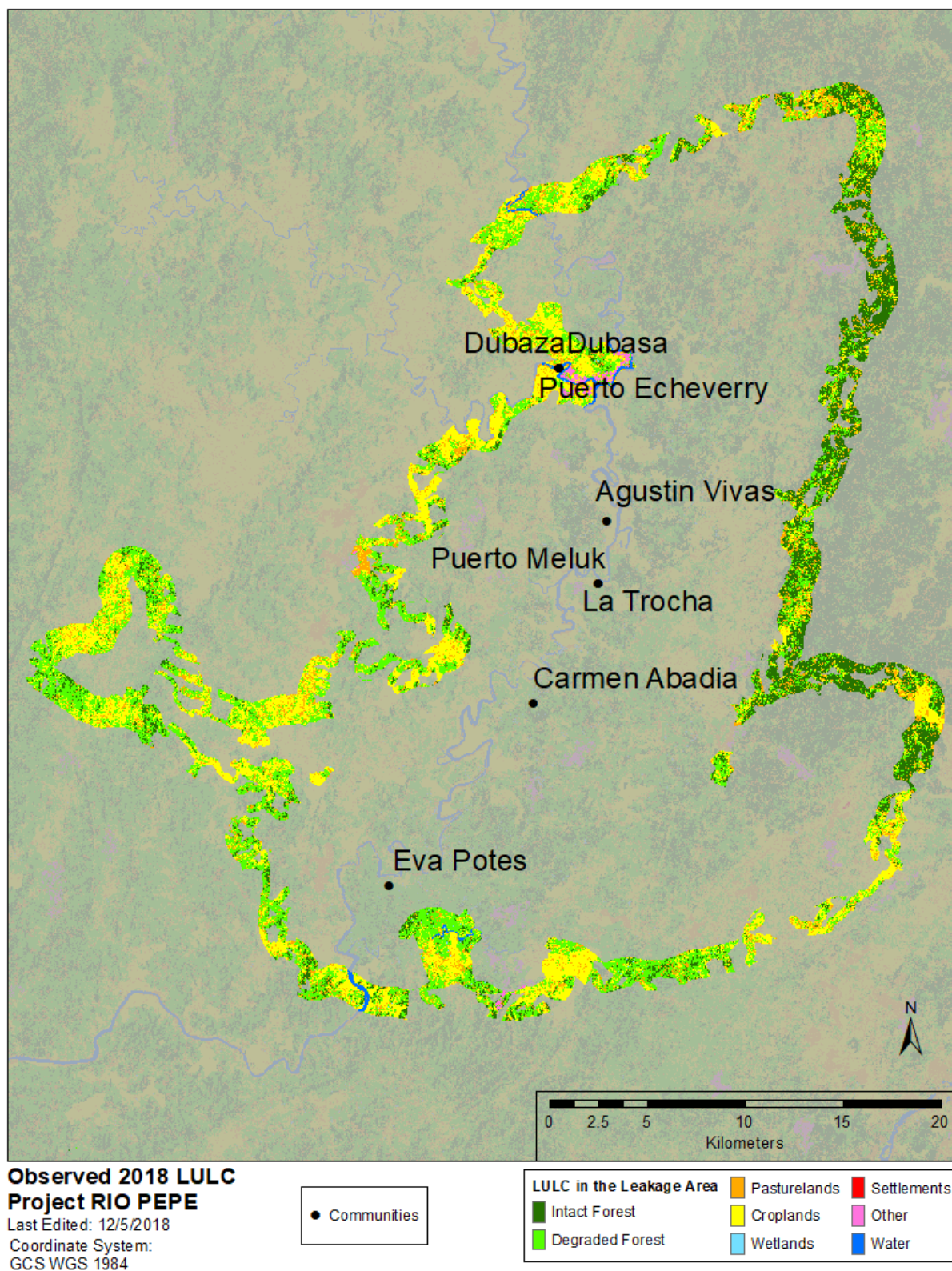


Figure 4: LULC Classification in Project Area

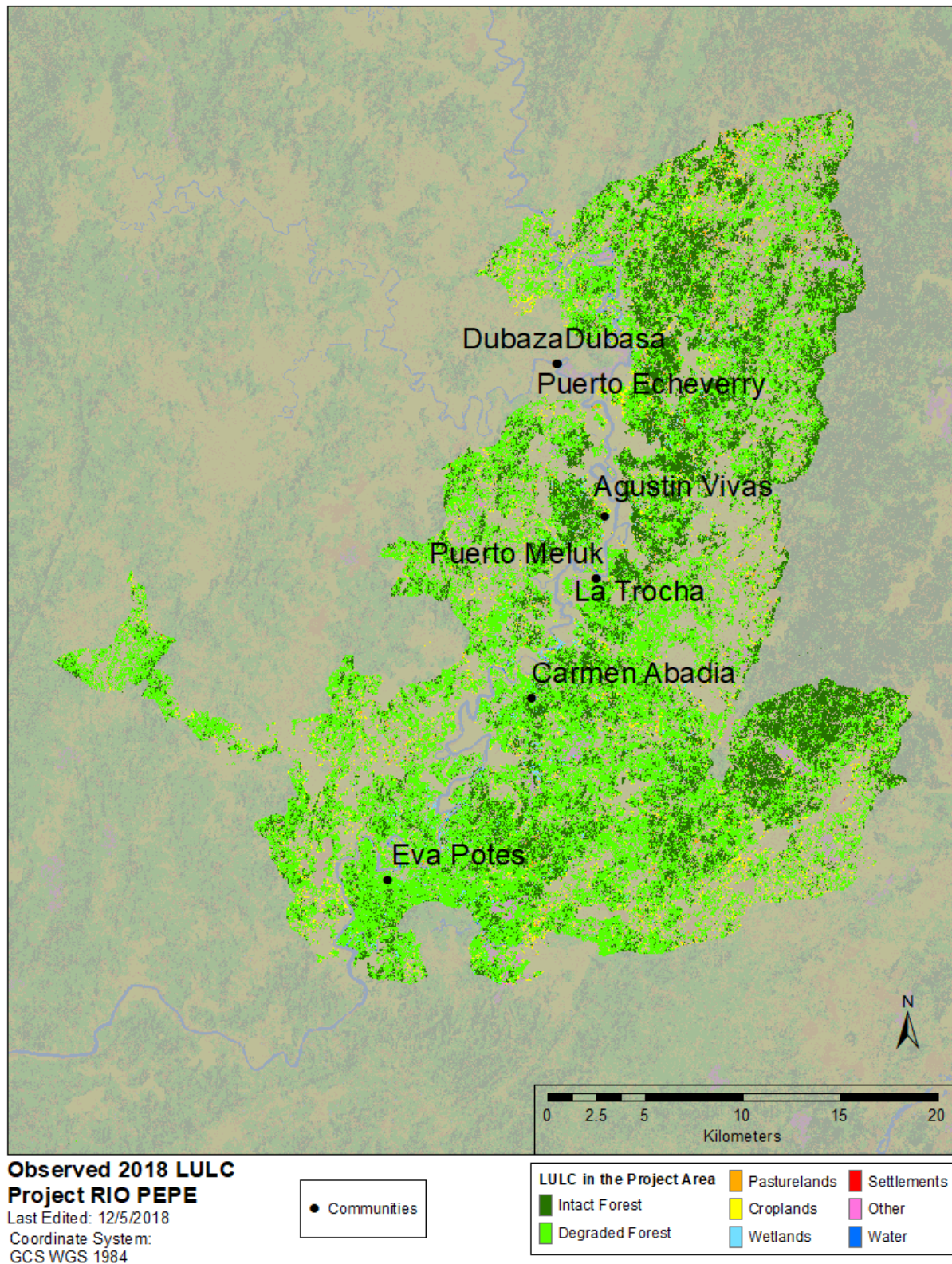
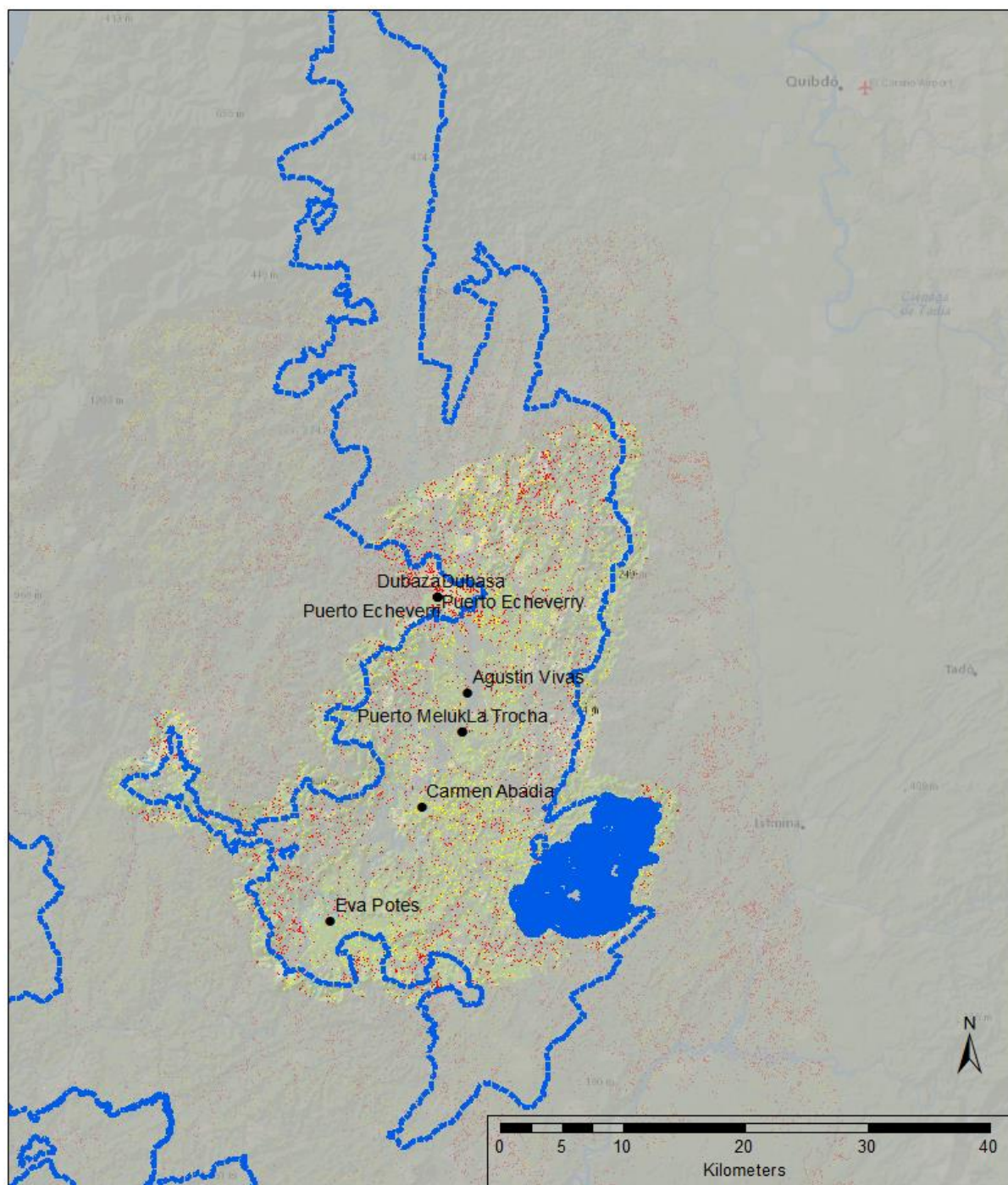


Figure 5: LULC Transitions 2012-2018 in Project and Leakage Areas



Observed 2018 LULC Classification

Project RIO PEPE

Last Edited: 12/5/2018

Coordinate System:

GCS WGS 1984

• Communities

Consejo Boundary

Transitions in the Project and Leakage Areas

Deforestation

Degradation

3.1.3.2.2 QA / QC

To ensure that the 2018 LULC classification map produced for this monitoring period met the accuracy thresholds of VM0006, a thematic accuracy assessment was conducted by comparing the results of the classification against reference data. The accuracy assessment completed used similar methods as those utilized for the project's validation.

A total of 1,000 accuracy assessment points were randomly assigned to forest and non-forest classes within the union of the project, leakage, and reference areas, following similar accuracy assessment procedures used for the initial project validation by GeoEcoMap. In keeping with the VM0006 methodology requirements, a minimum of 75 points were allocated to each class that was greater than 50,000 ha. Each point was then buffered by 25m and then clipped down again to the respective forest or non-forest class so that only the pixels of the class of interest were assigned classifications. Each of these points was manually assigned a classification of either forest or non-forest using reference remote sensing imagery, including Sentinel-2, Landsat-8, or Google Earth. After assigning a class to each grid point, a confusion matrix was created in order to assess the accuracy for each class. The accuracy achieved across the projects was 91% (see Table 11).

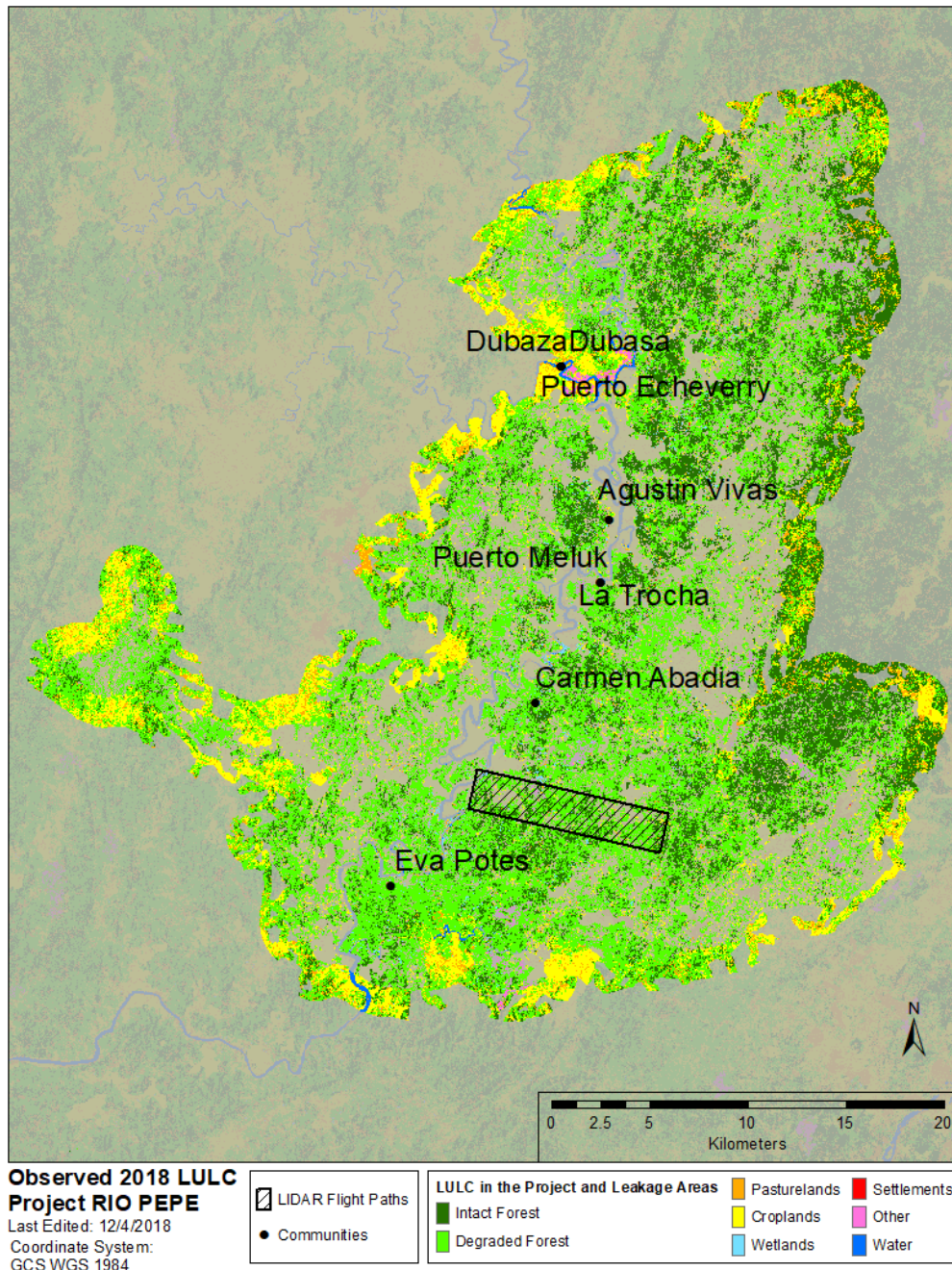
Table 11: Results of Accuracy Assessment

		CLASS ASSIGNED BY LULC CLASSIFICATION			
	ALL PROJECTS	Forest	Non-Forest	Total Points Classified	Classified Correctly (%)
CLASS ASSIGNED BY ACCURACY ASSESSMENT	Forest	644	45	689	93.5%
	Non-Forest	45	266	311	85.5%
	Total Reference Points	689	311	Total Correct:	910
	Classified Correctly (%)	93.5%	85.5%	Total Accuracy (%):	91.0%

3.1.3.3 LiDAR Estimations of Carbon Stocks

LiDAR surveying was performed via aircraft to capture higher resolution data for areas of degraded forests within the project and leakage area boundaries. In order to ensure unbiased sampling of degraded areas, a random flight path was allocated for the project. To select the flight path for the project, 100 points were randomly allocated across areas previously classified as degraded forest in the project and leakage areas. A single point was randomly chosen through a random number generator as was the direction of the flight path. A rectangular flight path of 2,000 ha was then outlined along the established flight line. This flight path was flown in September of 2018 and Figure 6 below is a map of this path.

Figure 6: LiDAR Flight Path



Detailed specifications were compiled and provided to the LiDAR contractor to ensure the quality of the obtained LiDAR data was in alignment with the original LiDAR data collected and processed at validation. Checks were made with the LiDAR contractor that these specifications could be met before any data collection occurred. After data collection, the data products provided by the contractor were checked against the list of specifications to ensure their compliance. For example, the data format was checked to ensure proper formatting and normalization, and positioning of the data was compared to the proposed flight paths using ArcGIS software. The point density of the data products were calculated to ensure the data resolution matched or improved upon the original LiDAR data used in validation. Additionally, the LiDAR contractor provided several important requested metadata documents, including a survey report detailing ground survey data, a collection report detailing mission planning and flight logs from collection

flights, and a QAQC report detailing analysis done to evaluate accuracy of data (see “4C- InformeCapturaLiDAR_Final_20182912_v2.pdf”).

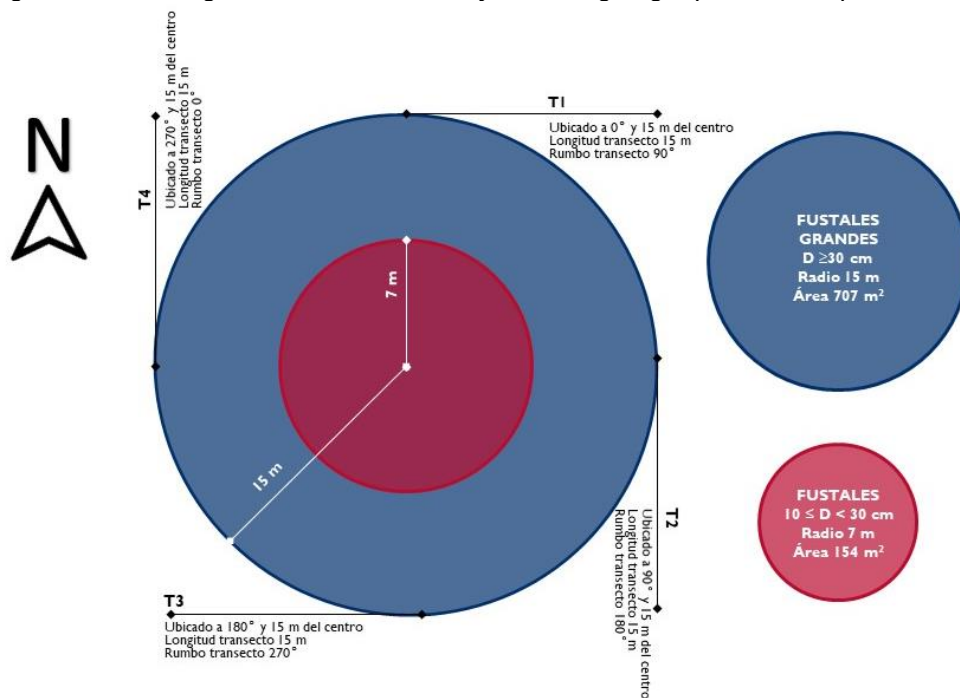
The results of the LiDAR data were analyzed using the original biomass expansion models developed during validation by GeoEcoMap Inc. The carbon stock estimates in degraded areas derived from the application of these models were used to observe any potential state change in these dynamic forest areas.

3.1.3.4 Carbon Stock Field Data

In order to supplement LiDAR data, especially in degraded forest areas, a biomass inventory was completed within areas classified as degraded forest during the 2012 LULC classification. Since project validation, Colombia had developed national guidelines for completing forest inventories in order to standardize biomass inventories nationally. The Paramos y Bosques project team took the primary elements and characteristics of this *Inventario Forestal Nacional* (IFN) and combined them with the original inventory protocol proposed by GeoEcoMap at validation in order to produce an updated protocol. This protocol conforms to the principles of the IFN while still meeting the statistical requirements put forth in the original monitoring plan. Additionally, this inventory was designed so that local communities could participate and be involved in the monitoring work, a guideline proposed by the United Nations Framework Convention on Climate Change (UNFCCC). This local involvement is meant to build local technical and scientific capacities for implementation of REDD+ projects while also generally strengthening governance and institutions at the community level. Additional co-benefits to this approach include monitoring for biodiversity and employment opportunities for local workers.

Since these plots are not being used to calibrate or validate LiDAR data, it was not necessary to use the same plot type as was used for project validation and was included in the monitoring plan, which required plots to be at minimum 0.25 ha. Instead, a nested plot approach was selected, with a total plot size of 707 m² (Figure 7). These smaller plots are much less resource and time intensive while helping achieve the goals of participatory monitoring.

Figure 7: Plot design for biomass inventory, including larger plot, nested plot, and transects.



Total number of allocated plots were calculated for the project in order to reach target precision levels within a 95% confidence interval with a 10% sampling error. This was calculated by using the equation:

$$n = \frac{t^2 \times (CV\%)^2}{(E\%)^2}$$

Where:

N

T

CV%

E%

Number of total measurement plots

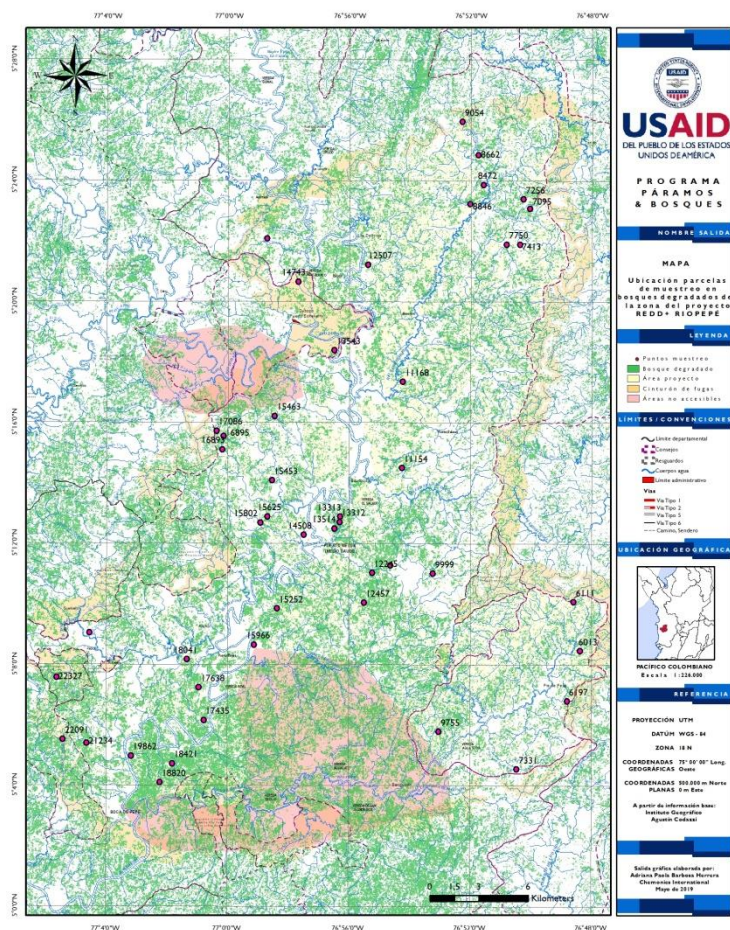
T-student value at a 95% confidence interval

Coefficient of variation expressed as a percentage

Admissible error (10%)

Before these calculations were made, the minimum number of plots was set at 30 to guarantee the desired precision while the maximum number of plots was limited at 60. For this project, plots were assigned. Additional specifics of this inventory protocol can be found in "Protocolo inventario forestal." Figure 8 below shows the distribution of plots in the project area.

Figure 8: Map of Plot Allocations



Training for this inventory was completed in two parts. First, the inventory was designed so that crews would work in teams of 5, with a designated team leader. For this reason, these team leaders were trained by members of the Paramos y Bosques project team that worked on creating the inventory protocol. Next, these same trainers completed training sessions with the rest of the team members. This process ensured that all members of the team received sufficient training to ensure quality data and that

team leaders would receive additional training so that they would be better equipped to make final decisions any time questions were raised in the field.

Once the field data was collected, it was compiled into a treelist. The treelist was then used to analyze carbon stocks in degraded areas. Quality control checks were implemented (as described in the section below) to ensure accuracy of data. The final calculation of carbon stocks and precision estimates can be found in “RP ACABA Tree List.”

3.1.3.4.1 QA/QC

Field-Based Quality Checks

Once the field data was collected, a QA/QC team was sent into the field to verify the consistency and reputability of the field measurements. The team inspected 5% of the parcels established in the project area. In these inspections, the team was given the original field data with the goal of identifying any errors in measurement and their underlying causes.

The QA/QC team evaluated the original data, correcting any measurements, providing feedback, and reconciling any other data discrepancies. A report was then returned to the field team which presented the evaluation alongside the original data. All comparisons and corrections by the QA/QC team were made in agreement with the Measurement Quality Objectives (MQO), presented in Table 12 below.

The MQO is a range of tolerance that gives acceptable amounts of variation for each variable. The project adopted tolerance ranges proposed by Barreto et al. (2018), a forestry expert and employee of the National Forest Inventory of Colombia. For more information on field data and QA/QC checks, refer to “Informe QAQC 05122018.”

Table 12: Measurement Quality Objectives

Variable	MQO	Tolerance
Coordinates	99%	No errors
Pitch	99%	No errors
Azimuth	99%	± 0.5°
Diameter	99%	± 0.3 cm for each 20 cm
DBH	99%	± 0.1 m for each 10 m
Height	90%	± 10 %

Data and Technical Quality Checks

Quality assurance and control is an essential part of company procedures in order to assure the accuracy of inventory data, modeling results, and carbon accounting. Quality assurance procedures are done in order to minimize and correct any potential data transcription, calculation, or formatting errors that may result in inaccurate carbon accounting results.

After field QA/QC assessments had been completed, the data was then entered into a database. This data was diligently reviewed by field supervisors and compared to information from the digital archives, ensuring field data accuracy.

Data from each plot was combined into a single Excel workbook after which QA/QC procedures were employed separately for the tree data and the lying deadwood data. Outliers or missing values for Height, Diameter, Angle 1, Angle 2 and Distance were cross-checked against the scanned version of the original plot sheets. Errors made by field crews were corrected in the combined inventory workbook. The QA/QC'd data was then input into the allometric carbon equations, after which the outputs were examined for errors and outliers.

3.1.3.5 Internal Audit and QAQC Procedures

Before the dissemination of data, releasing of monitoring reports, or submission of other data, a series of internal QAQC checks are always completed by qualified staff. QAQC is always completed by independent persons, and revisions to data and reports are submitted if necessary. These checks by various staff help to prevent errors in final climate monitoring results and ensure the most accurate data possible.

Internal auditing and QAQC checks include:

- Review of LULC classification by experts to ensure proper match-up of data and pixel sizes
- Audit checks of the carbon accounting model through the creation of independent manually calculated accounting models and checks to ensure conformance with VM0006 requirements
- Checking for and correcting any errors in equations and calculations in carbon stock data or models
- The submission of errors to technical managers and the application of corrective actions to ensure compliance with the VM0006 methodology

Through these QAQC and internal auditing processes, we are able to ensure the accuracy of data and confidently assess the project's climate benefits.

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

The project proponent recognizes the importance in ensuring that both the monitoring plan and the results of monitoring be communicated to communities. The monitoring activities were divided between organizations in support of the proponents for social (community), carbon (climate), and biodiversity. The plan for completing the monitoring report as related to biodiversity was discussed in community meetings in Bogota (June 1), Cali (June 21-22), and during visits from Fondo Accion, Wildlife Works, and members of Paramos y Bosques (July – August 2018).

The timeline for completion has been discussed, especially as it was updated. The summary of monitoring results was shared with the community members of the REDD+ project in December 2018 through in-person visit.

The project's MRV liaisons conducted workshops in the project area communities to report on the results and evaluations of the project activities to date, as well as provide descriptions and a timeline for the verification audit activities that are to follow (preparation of final monitoring reports, public comment period, auditor visits and possible interviews, verification report and results.)

In June 2019, once the Implementation and Monitoring Report was finalized, pedagogical material was designed to help present the results of the monitoring, reporting and verification process to the communities in a summarized fashion. This report was presented at publicized community meetings, which informed stakeholders about the visit of the auditing entity, the place, date, and purpose of that visit, and of the possibility of stakeholders' ability to interacting freely with this verifying entity during the visit (see "Lista de Productos de Comunicaciones" for references).

Per the CCBA rules, this monitoring report will also be made available online before the start of the verification site visit for a period of public comments.

3.2 Quantification of GHG Emission Reductions and Removals

Project, baseline and leakage emissions were estimated by parameterizing the VM0006 equations EQ107-EQ113 in a new form that is equivalent to EQ106, though these values are never directly applied in accounting. Rather in accounting EQ107-EQ113 are applied to determine NERs per EQ106. The document “VM0006_ACABA RIO PEPE_Ex_Post” is the underlying accounting model, in which baseline emissions remain unchanged from the validated accounting model. Project, baseline and leakage emissions at time t as presented in the Project Description are based on the following parameterizations not equivalent to EQ106:

$$\begin{aligned}
 ProjectEmissions_t &= \sum_{i=1}^{nr} \Delta area_{projectAreaEAH,projectScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} \\
 &\quad + EF(i, t - tt)_{BG} + EF(i, t - tt)_{SOM}) \\
 BaselineEmissions_t &= \sum_{i=1}^{nr} \Delta area_{projectAreaEAH,baselineScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} \\
 &\quad + EF(i, t - tt)_{BG} + EF(i, t - tt)_{SOM}) \\
 LeakageEmissions_t &= \sum_{i=1}^{nr} \Delta area_{leakageArea,projectScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} \\
 &\quad + EF(i, t - tt)_{BG} + EF(i, t - tt)_{SOM})
 \end{aligned}$$

Conversely, project, baseline and leakage emissions at time t are presented in the monitoring report based on the following parameterizations that sum exactly to EQ106:

$$\begin{aligned}
 ProjectEmissions_t &= \sum_{i=1}^{nr} \Delta area_{projectAreaEAH,projectScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} \\
 &\quad + EF(i, t - tt)_{BG} + EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i) \\
 BaselineEmissions_t &= \sum_{i=1}^{nr} [\Delta area_{projectAreaEAH,baselineScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} \\
 &\quad + EF(i, t - tt)_{BG} + EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i) + EQ113] \\
 LeakageEmissions_t &= \sum_{i=1}^{nr} \Delta area_{leakageArea,projectScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} + EF(i, t - tt)_{BG} \\
 &\quad + EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i) \\
 &\quad - \sum_{i=1}^{nr} \Delta area_{leakageArea,baselineScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} + EF(i, t - tt)_{BG} \\
 &\quad + EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i) - EQ111
 \end{aligned}$$

Where u^* is $u_{classification}$ or $u_{stratification}$ for deforestation or degradation emissions, respectively. The sum these equations and EQ115 are mathematically equivalent to EQ106 and therefore the values presented in this monitoring report differ slightly by approximately the amount of $u^* \times u_{transition}(i)$ as compared to values in the validated Project Description. These parameterizations are required for the VCS monitoring report template but for which equations are not explicitly provided in VM0006. Though the values presented here vary from those presented in the Project Description, the underlying baseline scenario has not changed as demonstrated by the ex-post accounting model, VM0006_ACABA RIO PEPE_Ex_Post.

3.2.1 Baseline Emissions

As mentioned in Section 3.2 above, the baseline data has remained unchanged since validation, however, two updates have been included in the ex-post accounting model that have resulted in differences in the emissions from the original baseline data. The first change is the use of the equations detailed in Section 3.2, due to the fact that the VM0006 methodology calculations do not provide equations to estimate baseline emissions. The format in which the baseline emissions have been calculated has been updated to be a more accurate reflection of the overall baseline emissions from the validation baseline data. Second, baseline emissions have changed slightly due to the use of updated carbon stocks in the degraded forest class collected during this monitoring period. According to the monitoring plan detailed in “GeoEcoMap Task 14”, “The baseline emission factors as outlined in the Project Description is valid until the first verification event when the baseline values will be revised using updated carbon stocks.” Additional biomass inventories and LiDAR flights have led to new carbon stocks for various carbon pools within degraded areas. No change in emissions factors has occurred for any LULC classes other than degraded forest, as shown in Table 13. All data and calculations can be found in the accounting model “VM0006_ACABA RIO PEPE_Ex_Post.”

Table 13. Carbon stock estimates at Validation (Val) and updates due to monitoring for this Verification (Ver). See VM0006 for pool designations.

LULC Class	AGT (tC/ha)		AGNT (tC/ha)		BG (tC/ha)		LDW (tC/ha)		SDW (tC/ha)		DTS (tC/ha)		Total (tC/ha)	
	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver
Primary Forest	168.27	168.27	2.87	2.87	46.82	46.82	11.36	11.36	3.12	3.12	1.82	1.82	0.00	0.00
Degraded Forest	52.51	59.63	2.63	2.63	16.47	18.20	17.50	9.38	6.13	4.98	2.86	2.86	0.00	0.00
Pastureland	15.88	15.88	1.53	1.53	8.78	8.78	10.18	10.18	2.83	2.83	1.63	1.63	0.00	0.00
Cropland	27.70	27.70	1.73	1.73	12.27	12.27	11.54	11.54	3.26	3.26	1.85	1.85	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Settlement	16.96	16.96	1.11	1.11	12.05	12.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	32.55	32.55	1.58	1.58	10.76	10.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Standard error was calculated for all newly measured carbon pools within degraded areas, as shown in Table 14.

Table 14. Standard errors of carbon stock estimates at Validation (Val) and updates due to monitoring for this Verification (Ver). See VM0006 for pool designations.

LULC Class	AGT (tC/ha)		AGNT (tC/ha)		BG (tC/ha)		LDW (tC/ha)		SDW (tC/ha)		DTS (tC/ha)		Total (tC/ha)	
	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver
Primary Forest	3.72	3.72	0.46	0.46	2.93	2.93	0.73	0.73	0.37	0.37	0.60	0.60	0.00	0.00
Degraded Forest	3.90	5.93	0.44	0.44	2.90	1.62	1.17	0.97	0.76	1.12	0.99	0.99	0.00	0.00
Pastureland	3.79	3.79	0.43	0.43	2.90	2.90	1.14	1.14	0.65	0.65	0.95	0.95	0.00	0.00
Cropland	3.11	3.11	0.35	0.35	2.37	2.37	0.93	0.93	0.55	0.55	0.78	0.78	0.00	0.00
Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Settlement	0.91	0.91	0.10	0.10	0.74	0.74	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other	3.56	3.56	0.40	0.40	2.70	2.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

These new carbon stock estimates have led to changed emissions factors for each transition involving a degraded forest (Table 15). Furthermore, new standard errors have changed the uncertainty involved in each transition, which has led to changes in the uncertainty deduction attributed with each transition.

Table 15: Emissions factors and uncertainties for LULC transitions over one year of decay (see VM0006 for pool designations).

LULC Transition	AGL (tCO ₂ e/ha)		AGD (tCO ₂ e/ha)		BG (tCO ₂ e/ha)		CE_transition		U_transition	
	Val	Ver	Val	Ver	Val	Ver	Val	Ver	Val	Ver
Primary Forest to Primary Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Primary Forest to Degraded	425.38	399.25	-3.74	-0.33	11.13	10.50	0.10	0.12	1.00	1.00

Forest										
Primary Forest to Pastureland	563.69	563.69	0.61	0.61	13.95	13.95	0.07	0.07	1.00	1.00
Primary Forest to Cropland	519.61	519.61	-0.13	-0.13	12.67	12.67	0.07	0.07	1.00	1.00
Primary Forest to Wetland	627.53	627.53	5.98	5.98	17.17	17.17	0.04	0.04	1.00	1.00
Primary Forest to Settlement	561.26	561.26	5.98	5.98	12.75	12.75	0.05	0.05	1.00	1.00
Primary Forest to Other	502.39	502.39	5.98	5.98	13.22	13.22	0.07	0.07	1.00	1.00
Primary Forest to Water	627.53	627.53	5.98	5.98	17.17	17.17	0.04	0.04	1.00	1.00
Degraded Forest to Primary Forest	-425.38	-399.25	3.74	0.33	-11.13	-10.50	0.10	0.12	1.00	1.00
Degraded Forest to Degraded Forest	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Degraded Forest to Pastureland	138.31	164.44	4.34	0.94	2.82	3.45	0.25	0.28	0.75	0.72
Degraded Forest to Cropland	94.23	120.36	3.60	0.20	1.54	2.17	0.33	0.38	0.67	0.62
Degraded Forest to Wetland	202.14	228.28	9.71	6.31	6.04	6.67	0.10	0.13	1.00	1.00
Degraded Forest to Settlement	135.88	162.01	9.71	6.31	1.62	2.25	0.15	0.19	0.85	0.81
Degraded Forest to Other	77.00	103.14	9.71	6.31	2.09	2.73	0.25	0.29	0.75	0.71
Degraded Forest to Water	202.14	228.28	9.71	6.31	6.04	6.67	0.10	0.13	1.00	1.00
Pastureland to Primary Forest	-563.69	-563.69	-0.61	-0.61	-13.95	-13.95	0.07	0.07	1.00	1.00
Pastureland to Degraded Forest	-138.31	-164.44	-4.34	-0.94	-2.82	-3.45	0.25	0.28	0.75	0.72
Pastureland to Pastureland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pastureland to Cropland	-44.08	-44.08	-0.74	-0.74	-1.28	-1.28	0.73	0.73	0.27	0.27
Pastureland to Wetland	63.84	63.84	5.37	5.37	3.22	3.22	0.24	0.24	0.76	0.76
Pastureland to Settlement	-2.43	-2.43	5.37	5.37	-1.20	-1.20	0.95	0.95	0.05	0.05
Pastureland to Other	-61.30	-61.30	5.37	5.37	-0.73	-0.73	3.26	3.26	0.00	0.00
Pastureland to Water	63.84	63.84	5.37	5.37	3.22	3.22	0.24	0.24	0.76	0.76
Cropland to Primary Forest	-519.61	-519.61	0.13	0.13	-12.67	-12.67	0.07	0.07	1.00	1.00

Cropland to Degraded Forest	-94.23	-120.36	-3.60	-0.20	-1.54	-2.17	0.33	0.38	0.67	0.62
Cropland to Pastureland	44.08	44.08	0.74	0.74	1.28	1.28	0.73	0.73	0.27	0.27
Cropland to Cropland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cropland to Wetland	107.92	107.92	6.11	6.11	4.50	4.50	0.14	0.14	1.00	1.00
Cropland to Settlement	41.65	41.65	6.11	6.11	0.08	0.08	0.30	0.30	0.70	0.70
Cropland to Other	-17.22	-17.22	6.11	6.11	0.55	0.55	0.89	0.89	0.11	0.11
Cropland to Water	107.92	107.92	6.11	6.11	4.50	4.50	0.14	0.14	1.00	1.00
Wetland to Primary Forest	-627.53	-627.53	-5.98	-5.98	-17.17	-17.17	0.04	0.04	1.00	1.00
Wetland to Degraded Forest	-202.14	-228.28	-9.71	-6.31	-6.04	-6.67	0.10	0.13	1.00	1.00
Wetland to Pastureland	-63.84	-63.84	-5.37	-5.37	-3.22	-3.22	0.24	0.24	0.76	0.76
Wetland to Cropland	-107.92	-107.92	-6.11	-6.11	-4.50	-4.50	0.14	0.14	1.00	1.00
Wetland to Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Wetland to Settlement	-66.27	-66.27	0.00	0.00	-4.42	-4.42	0.08	0.08	1.00	1.00
Wetland to Other	-125.14	-125.14	0.00	0.00	-3.95	-3.95	0.20	0.20	0.80	0.80
Wetland to Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Settlement to Primary Forest	-561.26	-561.26	-5.98	-5.98	-12.75	-12.75	0.05	0.05	1.00	1.00
Settlement to Degraded Forest	-135.88	-162.01	-9.71	-6.31	-1.62	-2.25	0.15	0.19	0.85	0.81
Settlement to Pastureland	2.43	2.43	-5.37	-5.37	1.20	1.20	0.95	0.95	0.05	0.05
Settlement to Cropland	-41.65	-41.65	-6.11	-6.11	-0.08	-0.08	0.30	0.30	0.70	0.70
Settlement to Wetland	66.27	66.27	0.00	0.00	4.42	4.42	0.08	0.08	1.00	1.00
Settlement to Settlement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Settlement to Other	-58.87	-58.87	0.00	0.00	0.47	0.47	0.62	0.62	0.38	0.38
Settlement to Water	66.27	66.27	0.00	0.00	4.42	4.42	0.08	0.08	1.00	1.00
Other to Primary Forest	-502.39	-502.39	-5.98	-5.98	-13.22	-13.22	0.07	0.07	1.00	1.00
Other to Degraded Forest	-77.00	-103.14	-9.71	-6.31	-2.09	-2.73	0.25	0.29	0.75	0.71

Other to Pastureland	61.30	61.30	-5.37	-5.37	0.73	0.73	3.26	3.26	0.00	0.00
Other to Cropland	17.22	17.22	-6.11	-6.11	-0.55	-0.55	0.89	0.89	0.11	0.11
Other to Wetland	125.14	125.14	0.00	0.00	3.95	3.95	0.20	0.20	0.80	0.80
Other to Settlement	58.87	58.87	0.00	0.00	-0.47	-0.47	0.62	0.62	0.38	0.38
Other to Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other to Water	125.14	125.14	0.00	0.00	3.95	3.95	0.20	0.20	0.80	0.80
Water to Primary Forest	-627.53	-627.53	-5.98	-5.98	-17.17	-17.17	0.04	0.04	1.00	1.00
Water to Degraded Forest	-202.14	-228.28	-9.71	-6.31	-6.04	-6.67	0.10	0.13	1.00	1.00
Water to Pastureland	-63.84	-63.84	-5.37	-5.37	-3.22	-3.22	0.24	0.24	0.76	0.76
Water to Cropland	-107.92	-107.92	-6.11	-6.11	-4.50	-4.50	0.14	0.14	1.00	1.00
Water to Wetland	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00
Water to Settlement	-66.27	-66.27	0.00	0.00	-4.42	-4.42	0.08	0.08	1.00	1.00
Water to Other	-125.14	-125.14	0.00	0.00	-3.95	-3.95	0.20	0.20	0.80	0.80
Water to Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00

Table 16 compares the baseline emissions for this monitoring period at validation with the updated emissions as a result of these changes to baseline calculations described in Section 3.2 and updated carbon stock estimates. Leakage emissions in the baseline scenario were not calculated separately at validation, so this information is currently unknown. The baseline itself has not been updated since validation. It should also be noted that validation data in Table 16 has been included to clarify the changes from what was provided in the PD. However, this validation data is not used in any credit calculations, and in all instances the updated verification baseline emissions are used.

Table 16: Estimated emissions or removals in the baseline scenario for the project area and leakage area both at time of validation and updated for this verification. For all credit generation calculations, the updated values for verification are used.

Year	Baseline Emissions in Project Area (tCO ₂ e)		Baseline Emissions in Leakage Area (tCO ₂ e)	
	Validation	Verification	Validation	Verification
2014	58,321	46,168		24,354
2015	683,083	533,410		262,081
2016	651,249	502,117		261,657
2017	652,319	501,868		261,371
Total	2,044,972	1,583,563		809,463

3.2.2 Project Emissions

Ex-post project emissions for this verification period were calculated by summing emissions from deforestation and forest degradation transitions observed during this monitoring period. Per Section 5.4 of the PD, all project activities are meant to reduce these two emissions types. No emissions estimates outlined in VM0006 are included in this project since they are not part of the project activities (i.e. cookstoves, ANR, etc.). Calculating project emissions required primarily two data sources. First, the latest monitored carbon stock data for LULC classes, as discussed in section 3.1.3.3, was also used for updated emissions factors for each transition. Secondly, an updated land cover classification map for the project area was created in order to calculate areas of transition and emissions factors for each transition (see Section 3.1.3.1.1).

Project deforestation and degradation emissions were calculated following the guidelines of section 9.3.2 of the VM0006 methodology. These guidelines require that an annual rate of change, $\Delta area_{projectAreaEAH,t,i}$, be calculated for each transition. This rate of change is then used in the calculations for final NERs as discussed in section 3.2.4 below. The updated LULC class map completed for this monitoring period was used to generate results for this rate of change for each transition over the entire monitoring period, t_period ($\Delta area_{projectAreaEAH,projectScenario}(t_period,i)$). These results can then be divided by the length of the monitoring period in order to convert this rate to an annual rate. Both these values can be found in Table 17 below.

While the VM0006 methodology does not calculate project emissions separately, instead requiring the calculation of NERs on category by category basis such as avoided deforestation or degradation (the method utilized in section 3.2.4 Net GHG Emission Reductions and Removals), it is possible to calculate project emissions separately by using the following equation adapted from equation 106 of the methodology:

$$ProjectEmissions_t = \sum_{i=1}^{nr} \Delta area_{projectAreaEAH,projectScenario}(t,i) \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} + EF(i, t - tt)_{BG} + EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i)$$

Table 17: Total area of transitions that happened within the project area during the monitoring period and the associated emissions accounted for in each transition.

LULC Transition	$\Delta area_{projectAreaEAH,projectScenario}(t_period,i)$ (ha)	GHG Emissions (Project_t_period) (tCO2e)
Primary Forest to Primary Forest	15,566.1	0.0
Primary Forest to Degraded Forest	1,278.0	402,453.6
Primary Forest to Pastureland	200.6	107,125.6
Primary Forest to Cropland	325.5	159,683.4
Primary Forest to Wetland	19.6	9,916.9
Primary Forest to Settlement	1.6	872.3

Primary Forest to Other	2.5	1,193.9
Primary Forest to Water	4.6	0.0
Degraded Forest to Primary Forest	0.0	0.0
Degraded Forest to Degraded Forest	29,127.7	0.0
Degraded Forest to Pastureland	200.4	22,465.1
Degraded Forest to Cropland	814.2	56,796.0
Degraded Forest to Wetland	19.1	3,650.0
Degraded Forest to Settlement	3.8	493.9
Degraded Forest to Other	33.8	2,618.3
Degraded Forest to Water	8.6	0.0
Pastureland to Primary Forest	0.0	0.0
Pastureland to Degraded Forest	0.0	0.0
Pastureland to Pastureland	0.0	0.0
Pastureland to Cropland	0.0	0.0
Pastureland to Wetland	0.0	0.0
Pastureland to Settlement	0.0	0.0
Pastureland to Other	0.0	0.0
Pastureland to Water	0.0	0.0
Cropland to Primary Forest	0.0	0.0
Cropland to Degraded Forest	0.0	0.0
Cropland to Pastureland	0.0	0.0
Cropland to Cropland	0.0	0.0
Cropland to Wetland	0.0	0.0
Cropland to Settlement	0.0	0.0
Cropland to Other	0.0	0.0
Cropland to Water	0.0	0.0
Wetland to Primary Forest	0.0	0.0
Wetland to Degraded Forest	0.0	0.0
Wetland to Pastureland	8.9	0.0
Wetland to Cropland	26.7	0.0
Wetland to Wetland	534.8	0.0
Wetland to Settlement	0.0	0.0

Wetland to Other	0.1	0.0
Wetland to Water	0.0	0.0
Settlement to Primary Forest	0.0	0.0
Settlement to Degraded Forest	0.0	0.0
Settlement to Pastureland	0.0	0.0
Settlement to Cropland	0.0	0.0
Settlement to Wetland	0.0	0.0
Settlement to Settlement	0.0	0.0
Settlement to Other	0.0	0.0
Settlement to Water	0.0	0.0
Other to Primary Forest	0.0	0.0
Other to Degraded Forest	0.0	0.0
Other to Pastureland	0.0	0.0
Other to Cropland	0.0	0.0
Other to Wetland	0.0	0.0
Other to Settlement	0.0	0.0
Other to Other	0.0	0.0
Other to Water	0.0	0.0
Water to Primary Forest	0.0	0.0
Water to Degraded Forest	0.0	0.0
Water to Pastureland	0.0	0.0
Water to Cropland	0.0	0.0
Water to Wetland	0.0	0.0
Water to Settlement	0.0	0.0
Water to Other	0.0	0.0
Water to Water	0.0	0.0

Project emissions were calculated for both deforestation and forest degradation. The specific values for transition specific emissions factors and $u_{\text{transition}(i)}$ are found in Table 18 since the same values are used for calculating baseline and project emissions.

Total project emissions were equivalent to 767,269 tCO₂e during this monitoring period. They have been divided between the years as shown in table 18 based on the fraction of days that each year takes over the total monitoring period.

Table 18: Total annual GHG emissions within the project area during the current monitoring period.

Project Year	Degradation Emissions within Project Area (tCO ₂ e)	Deforestation Emissions within Project Area (tCO ₂ e)	Total Annual GHG Emissions (tCO ₂ e)
2014	10,559	8,937	19,496
2015	131,794	111,407	243,200
2016	135,240	114,177	249,417
2017	138,428	116,728	255,156
Total	416,021	351,249	767,269

3.2.3 Leakage

Leakage GHG emissions were estimated from LULC transition data and calculated using the adapted equation referenced below. The results for each transition are separated out in table 19 while table 20 provides degradation, deforestation, and total GHG emissions.

$$\begin{aligned}
 & LeakageEmissions_t \\
 &= \sum_{i=1}^{nr} \Delta area_{leakageArea,projectScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} + EF(i, t - tt)_{BG} \\
 &+ EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i) \\
 &- \sum_{i=1}^{nr} \Delta area_{leakageArea,baselineScenario(t,i)} \times (EF_{AGL}(i) + EF(i, t - tt)_{AGD} + EF(i, t - tt)_{BG} \\
 &+ EF(i, t - tt)_{SOM}) \times u^* \times u_{transition}(i) - EQ111
 \end{aligned}$$

Table 19: Total area of transitions that happened within the leakage area during the monitoring period and the associated emissions accounted for in each transition.

LULC Transition	$\Delta area_{leakageArea,EAH,projectScenario(t_period,i)}$ (ha)	GHG Emissions (Leakage_t_period) (tCO ₂ e)
Primary Forest to Primary Forest	5,453.0	0.0
Primary Forest to Degraded Forest	446.6	140,643.5
Primary Forest to Pastureland	97.4	52,019.0
Primary Forest to Cropland	139.3	68,349.9
Primary Forest to Wetland	1.8	917.3
Primary Forest to Settlement	.	26.4
Primary Forest to Other	1.3	620.8
Primary Forest to Water	0.9	0.0
Degraded Forest to Primary Forest	385.5	0.0
Degraded Forest to Degraded Forest	7,333.2	0.0
Degraded Forest to Pastureland	143.4	16,071.6
Degraded Forest to Cropland	652.9	45,544.8
Degraded Forest to Wetland	1.8	336.9
Degraded Forest to Settlement	0.1	19.2
Degraded Forest to Other	19.6	1,516.3
Degraded Forest to Water	1.1	0.0

Pastureland to Primary Forest	243.7	0.0
Pastureland to Degraded Forest	276.4	0.0
Pastureland to Pastureland	2,131.6	0.0
Pastureland to Cropland	0.0	0.0
Pastureland to Wetland	1.4	0.0
Pastureland to Settlement	0.0	0.0
Pastureland to Other	0.0	0.0
Pastureland to Water	0.0	0.0
Cropland to Primary Forest	155.2	0.0
Cropland to Degraded Forest	511.8	0.0
Cropland to Pastureland	0.0	0.0
Cropland to Cropland	6,786.5	0.0
Cropland to Wetland	1.5	0.0
Cropland to Settlement	0.0	0.0
Cropland to Other	0.0	0.0
Cropland to Water	0.0	0.0
Wetland to Primary Forest	2.9	0.0
Wetland to Degraded Forest	7.3	0.0
Wetland to Pastureland	2.2	0.0
Wetland to Cropland	5.6	0.0
Wetland to Wetland	24.4	0.0
Wetland to Settlement	0.0	0.0
Wetland to Other	0.1	0.0
Wetland to Water	0.0	0.0
Settlement to Primary Forest	0.0	0.0
Settlement to Degraded Forest	0.0	0.0
Settlement to Pastureland	0.0	0.0
Settlement to Cropland	0.0	0.0
Settlement to Wetland	0.0	0.0
Settlement to Settlement	0.2	0.0
Settlement to Other	0.0	0.0
Settlement to Water	0.0	0.0
Other to Primary Forest	0.3	0.0
Other to Degraded Forest	7.0	0.0
Other to Pastureland	0.0	0.0
Other to Cropland	0.0	0.0
Other to Wetland	.	0.0
Other to Settlement	0.0	0.0
Other to Other	129.8	0.0
Other to Water	0.0	0.0
Water to Primary Forest	1.8	0.0
Water to Degraded Forest	10.7	0.0
Water to Pastureland	0.0	0.0
Water to Cropland	0.0	0.0
Water to Wetland	0.0	0.0
Water to Settlement	0.0	0.0
Water to Other	0.0	0.0
Water to Water	180.6	0.0

Table 20: Total annual GHG emissions within the leakage area during the current monitoring period.

Project Year	Baseline Leakage (tCO2e)	Ex-Post Activity Shifting Leakage (tCO2e)		Market Leakage (tCO2e)	Total Annual GHG Emission Total Ex-Post Leakage (tCO2e)
		Degradation	Deforestation		
2014	24,354	3,604	4,689	5,457	5,457
2015	262,081	44,968	58,432	59,444	59,444
2016	261,657	46,127	59,864	51,851	51,851
2017	261,371	47,199	61,182	50,627	50,627
Total	809,463	141,898	184,167	167,379	167,379

3.2.4 Net GHG Emission Reductions and Removals

Net GHG emission reductions and removals are calculated using equation 105 of the methodology. This project only credits project and leakage area emissions for avoided deforestation and degradation as explained in the above sections. Thus, equation 105 for calculating NERs can be simplified for this project:

$$\begin{aligned}
 \text{Net Emission Reductions (NERs)} &= \Delta \text{GHG from avoided deforestation (EQ107)} \\
 &+ \Delta \text{GHG from deforestation due to leakage (EQ108)} \\
 &+ \Delta \text{GHG from avoided degradation (EQ109)} \\
 &+ \Delta \text{GHG from degradation due to leakage (EQ110)}
 \end{aligned}$$

Equations 107-110 from the methodology (Figure 9) were used to respectively calculate each of these emissions types. All the parameters for these equations have been explained in the preceding sections, including area transitioned, emissions factors, and uncertainty.

Figure 9: Required step equations for calculating NERs (Source: VM0006 Methodology v2.1)

ΔGHG from avoided deforestation:

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

ΔGHG from deforestation due to leakage:

$$\text{EQ108} = \sum_{i=1}^{nrFNFTtransitions} \sum_{tt=1}^t u_{classification} \cdot u_{transition}(i) \cdot \left(\begin{array}{l} +\Delta area_{leakageArea,projectScenario}(t,i) \\ -\Delta area_{leakageArea,baselineScenario}(t,i) \end{array} \right) \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \quad [\text{EQ108}]$$

ΔGHG from avoided degradation:

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

ΔGHG from degradation due to leakage:

$$\text{EQ110} = \sum_{i=1}^{nrStrataTransitions} \sum_{tt=1}^t u_{stratification} \cdot u_{transition}(i) \cdot \left(\begin{array}{l} +\Delta area_{leakageArea,projectScenario}(t,i) \\ -\Delta area_{leakageArea,baselineScenario}(t,i) \end{array} \right) \cdot (EF_{AGL}(i) + EF_{AGD}(i, t - tt) + EF_{BG}(i, t - tt) + EF_{SOM}(i, t - tt)) \quad [\text{EQ110}]$$

The results of these equations are listed annually in table 21 below.

Table 21: NERs generated during this monitoring period as a result of sub-step calculations as required by the VM0006 methodology.

Year	ΔGHG from avoided deforestation (EQ107) (tCO ₂ e)	ΔGHG from deforestation due to leakage (EQ108) (tCO ₂ e)	ΔGHG from avoided degradation (EQ109) (tCO ₂ e)	ΔGHG from degradation due to leakage (EQ110) (tCO ₂ e)	ΔGHG due to market effects leakage (EQ111) (tCO ₂ e)	ΔGHG due to wood products (EQ113) (tCO ₂ e)	ΔGHG due to other sources (EQ115) (tCO ₂ e)	Net Emission Reductions (EQ106) (tCO ₂ e)
2014	-17,554		-9,730		5,457	612		21,215
2015	-175,805		-121,416		59,444	7,011		230,766
2016	-134,841		-124,412		51,851	6,553		200,849
2017	-125,866		-127,269		50,627	6,423		196,085
Total	-454,066		-382,827		167,379	20,599		648,915

Although not required by the methodology, baseline, project, and leakage emissions have been separated out from each other and included in table 22 as included in the monitoring report template required by VCS.

Table 22: Baseline, project, and leakage emissions as well as NERs achieved by the project during this monitoring period.

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2014	46,168	19,496	5,457	21,215
2015	533,410	243,200	59,444	230,766
2016	502,117	249,417	51,851	200,849
2017	501,868	255,156	50,627	196,085
Total	1,583,563	767,269	167,379	648,915

Finally, after calculating NERs, VCUs are calculated by removing the buffer credits. Per equation 106 of the methodology, applied to this project:

$$VCUs = NERs - buffer * (\Delta GHG \text{ from avoided deforestation} + \Delta GHG \text{ from avoided degradation} + \Delta GHG \text{ from changes in long lived wood products})$$

The non-permanence risk rating for this project is 10%. Final annual VCUs for this project during this monitoring period were calculated by removing buffer credits from NERs, as shown in table 23 below. During this monitoring period, the Acaba Rio Pepe project generated 567,286 VCUs.

Table 23: NERs, buffer credit allocation and VCUs generated by the project.

Year	Net Emissions Reductions (tCO ₂ e)	Buffer credits (tCO ₂ e)	Verified Carbon Units (tCO ₂ e)
2014	21,215	2,667	18,548
2015	230,766	29,021	201,745
2016	200,849	25,270	175,579
2017	196,085	24,671	171,414
Total	648,915	81,629	567,286

3.3 Optional Criterion: Climate Change Adaptation Benefits

The project is not seeking Gold Level validation or verification for climate change adaption benefits at this time.

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

The project is not seeking Gold Level validation or verification for climate change adaption benefits at this time.

4 COMMUNITY

4.1 Net Positive Community Impacts

4.1.1 Community Impacts (CM2.1)

The tables below describe all impacts on each community group resulting from project activities under the with-project scenario. Please refer to “MTC_ACABA_RIO PEPE_04_2019.xlsx” for supporting documentation/reference.

The project team has utilized appropriate methodologies to assess the predicted impacts, including direct and indirect benefits, costs, risks and changes in well-being, on each of the identified Community Groups presented below. The assessment of impacts has been carried out in a participatory manner with community stakeholders and is based on clearly defined and defensible assumptions about changes in well-being of these Community Groups under the with-project scenario, and as presented in the original project design document at time of validation.

An initial socio-economic baseline was conducted with the help of University of Antioquia to develop these socio-economic assessments. The socio-economic assessment for Rio Pepe was conducted using the following methods:

- Initial identification of local and regional stakeholders, which included: the governor of Chocó, territorial governments, municipalities, NGOs, Community Councils, Indian Associations, Corporations, Social and Indigenous Communities of African Descent;
- Through a literature review, secondary information about different social, economic, productive, environmental and other studies were analyzed;
- Tools were designed, along with facilitators of African and indigenous descent, contextually aware of the social, cultural, economic, productive, and environmental realities in the territories;
- The statistical parameter set by the team of professionals corresponded to a sampling unit of 10% of the total population for implementation of the survey, with the family as the sampling parameter; and
- Participatory workshops were held with Legal Representatives of Community Councils, Indigenous Governors, and other key stakeholders.

As the project's main implementing partner, the Fondo Accion team has been systematically engaged with stakeholders in socialization meetings from the start of the project. Through these meetings, community stakeholders have been participating in the identification of deforestation and degradation drivers, agents, and the best strategies to address and mitigate them. The project activities have resulted from these participatory meetings where stakeholders have set priorities with the support of the Fondo Accion team, including the climate change technical team and outside specialists. Throughout the socialization process, emphasis has been placed on the development of appropriate community level engagement processes and materials to ensure complex issues are presented in a way that communities can understand. This included participatory mapping of the project area, identification of risks to the communities, prioritization of project activities, and role-playing to better understand potential financing and implications for the project.

In order to assess and continually monitor the impacts that the project is having on communities; as well as allowing affected groups within the community to also have effective participation in the evaluation of such impacts, the project has conducted Participatory Evaluation of Social Impact surveys as part of the project's monitoring efforts, and these have shown equitable training and benefit sharing to date through

the high marks received on the social well-being and stakeholder satisfaction of project outcomes. Adjustment to the benefits distribution mechanism will also be made as necessary, and according to the result of these surveys. Please refer to "Social Impact Evaluations" for details and documentary evidence of the social impact evaluations carried out by the project proponents at the end of the reporting period.

Community Group	All community members
Impact	2 updated, participatory land-use maps of the project territory, based on identified community priorities
Type of Benefit/Cost/Risk	Predicted/Indirect/Benefit
Change in Well-being	Increased governance capacity, Increased territorial appropriation

Community Group	Loggers, or corteros.
Impact	6 former loggers participating in regeneration and/or maintenance of areas of carbon reserves and/or biodiversity conservation
Type of Benefit/Cost/Risk	Predicted/Indirect/Benefit; Actual/Direct/Benefit
Change in Well-being	Increased territorial appropriation; Alternative livelihoods

Community Group	All Community Members
Impact	A forest monitoring and surveillance team for community monitoring of the territory and to facilitate project communication. Comprised by: 6 local REDD+ promoters carrying out surveillance.
Type of Benefit/Cost/Risk	Actual/Direct/Benefit
Change in Well-being	Increased administration & management; Alternative livelihoods

Community Group	All Community Members
Impact	2 kits for project monitoring activities, consisting of: 2 LENOVO 640-30 laptop computers, 2 Garmin GPS, 2 Bushnell binoculars, 2 cameras, 7 backpacks, 2 dry bags
Type of Benefit/Cost/Risk	Predicted/Indirect/Benefit
Change in Well-being	Increased administration & management; Increased governance capacity

Community Group	All Community Members Interested in Achiote and Cacao
Impact	Increased agricultural production, disease control, and community participation in value chain development for cacao and achiote. 5 fulltime employees hired to give agricultural and technical assistance to community members.

	30 families trained via workshops in sustainable achiote and derivatives production.
	153 families trained via workshops in sustainable cacao production.
Type of Benefit/Cost/Risk	Actual/Direct/Benefit
Change in Well-being	Sustainable intensification of agriculture and productive activities; Alternative livelihoods; Increased administration & management

Community Group	Female Community Members Interested in Environmental Education
Impact	105 Women trained during environmental education campaigns aimed at women.
Type of Benefit/Cost/Risk	Actual/Direct/Benefit
Change in Well-being	Sustainable intensification of agriculture and productive activities; Alternative livelihoods; Increased administration & management; Increased governance capacity, Increased territorial appropriation

Community Group	All community members
Impact	Improved administrative capacity in communities. Capacity-building workshops attended by 347 community members; courses specifically relevant to REDD+ project success included: preparation for validation audits, leadership coaching & communication, territorial appropriation, basic REDD+ and climate change concepts, MRV, and participatory project document development; 6 local workshop facilitators trained
Type of Benefit/Cost/Risk	Predicted/Direct/Benefit
Change in Well-being	Increased administration & management; Increased governance capacity

4.1.2 Negative Community Impact Mitigation (CM2.2)

The project has been designed to improve the social and economic well-being of community groups and to enhance and maintain the HCV attributes of the project (identified in Section 1.3.8 of the PDD). To achieve this, the project proponents have ensured the equitable distribution of all types of project benefits and activities to date through capacity building and training process undertaken by Fondo Acción.

Participatory Evaluation of Social Impact surveys have also been conducted as part of the project's monitoring efforts, and these have shown equitable training and benefit sharing to date through the high marks received on the social well-being and stakeholder satisfaction of project outcomes. Adjustment to the benefits distribution mechanism will be made as necessary, according to the result of these surveys. Please refer to "Social Impact Evaluations" for details and documentary evidence of the social impact evaluations carried out by the project proponents at the end of the reporting period.

In addition, no unanticipated negative community well-being impacts have been identified during the monitoring period and no major grievances have been presented through the established Grievance and Redress Mechanism, implemented by the REDD+ Implementation Unit of the Community Council. In order to continue mitigating against any potential negative well-being impacts on Community Groups, the project will continue to follow the World Bank and other donor agency drafted safeguards, as well as the SBIA guidelines, and will continue to promote the use of the Grievance and Redress Mechanism should any negative impacts arise in the future.

Project activities have been focused at the family or household level and decisions have all been made at a local level, by “veredales” and zonal boards, which has guaranteed that marginalized and vulnerable groups – such as women, children, and elderly – have benefited and have been involved in decision-making and benefits distribution decisions. Furthermore, in order to identify community groups that are the most marginalized and/or vulnerable, the project team engaged the Autonomous University of the Department of Valle, the University of Antioquia, and the Laurel Foundation (former professors from the University of Nariño) to develop socio-economic assessments at the time of validation. The socio-economic assessment of the communities involved in the project determined that most of the families in the project area are economically marginal and/or vulnerable, generating only roughly 200,000- 400,000 pesos per month, respectively from the sale of agricultural products, fishing and forest use for a family of four people. These data demonstrate that most families are considered below the poverty line, with incomes below 482,352 pesos per nuclear family of four people.

To ensure that benefits (including employment opportunities) reach women and the most vulnerable and/or marginalized people in the community, Fondo Acción continues consulting with the project communities to enact a benefits distribution scheme that has, as a key component, the selection of beneficiaries based on clearly established criteria (i.e. to support those with the greatest need and who request to be included in the project activities). There are also a number of other activities in place to ensure that vulnerable and/or marginalized people are able to participate in project design and development activities such as participatory risk assessments and community meetings. Specifically:

- The project has provided the transportation needed to attend project meetings, and other stipends, particularly for those who set aside basic daily subsistence activities to attend meetings;
- The “veredales” Committees and Zonal Boards have had clear information about the project activities and have had full participation in any decision-making, including individual cases that require special attention;
- The project is ensuring the most vulnerable groups have access to training that enhances their capacity to participate in productive chains;
- In cases where families do not have clear usufruct rights, the Community Council has advanced procedures for assignment of such rights;
- The selection of personnel has been based on clear procedures that ensure equal opportunities for employment for vulnerable and marginalized groups; and
- The project considers the household as the basic unit of intervention and has analyzed the different roles of men and women within the productive processes in order to address the needs of men and women differently and improve conditions within households.

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

To demonstrate that the net well-being impacts of the project have been positive for all identified community groups as compared with their well-being conditions under the without-project land use scenario, the project proponents have carried out Participatory Evaluation of Social Impact surveys which show that the activities of the project carried out to date have resulted in net positive community well-being results.

The Rio Pepe y Acaba Project carried out its Participatory Evaluation of Social Impacts through 5 workshops held in the territory, in which 103 people participated, 43 of them women. The attendees considered 4 different social issues which have presented improvements within their territory as a result

of the project. 69% of the participants said that income, work, and productivity had improved; 83% of participants said that technical capacity had improved; 88% said that territorial consolidation, or strengthening of tenure, had improved; and 59% of participants consider that the conservation of forests in the project area has also improved. These proportions are generally similar when information is disaggregated for female participants (72%, 84%, 86%, and 51%, respectively), meaning that project-induced changes have been felt in relatively the same way by both men and women. Please refer to “Social Impact Evaluations” for details and documentary evidence of the social impact evaluations carried out by the project proponents at the end of the reporting period.

Of the total of activities identified by participants as generators of positive change, 31% were identified as activities directly implemented by the REDD + project. For activities valued by the community as generators of positive change in terms of income, work and productivity, community members felt that 6% of all those activities could be attributed directly to the REDD + project. Regarding the generation of technical skills in the community, 20% attributed improvements in this category to the REDD+ project. Project activities related to the appropriation of rights and to the sustainable use of the territory contributed to 87% of these benefits overall, according to participants. Finally, 63% of forest conservation benefits were generated by the REDD+ project according to the survey. In this case, female perception of positive change was higher for two of the four survey categories at 5%, 21%, 87%, and 60%, respectively. This finding may indicate that women are experiencing more positive change through the REDD+ project, or alternatively may be skewed by a small sample size of female participants.

4.1.4 Protection of High Conservation Values (CM2.4)

Mangrove and dry land forests in various locations throughout the project zone were identified as having High Conservation Value (HCV) using the methodologies outlined by the HCV Resource Network. Three specific types of HCVs relating to community well-being were identified in mangroves and forests in the project area at time of validation: areas that provide Critical Ecosystem Services (HCV-4), areas that meet fundamental needs (HCV-5), and areas that are vital for the preservation of cultural identity (HCV-6). See Section 1.3.8 of the PDD for detailed description of Community HCVs.

Given that forest conservation, including the protection and maintenance of HCV areas, is one of the key objectives of the project, and multiple project activities are dedicated specifically to maintaining or enhancing forest ecosystems, impacts on HCVs have been positive as compared to the without project scenario. Project activities such as training and capacity building for improved governance, demarcation of degraded “reserve” and conservation areas, and strengthening of land tenure for communities, have all served to protect community HCVs.

Monitoring activities have been intermittently carried out for areas critical to ecosystem services (HCV-4) within the project zone, and no threats to these areas have been detected during the monitoring period. Dry land forest and mangrove areas have been protected through boundary demarcation and pilot runs of patrolling routes to ensure the maintenance or improvement of the HCVs generated by their presence. Mangroves in particular provide multiple ecosystem services that are fundamental to the well-being of local populations: they serve as natural barriers against flooding due to climate change, assist in climate and temperature regulation, protect watershed resources, and prevent soil erosion. By targeting a reduction in mangrove degradation and deforestation during this monitoring period, the project has therefore contributed to ensuring the protection of these ecosystem services.

The same mangrove areas also play a key role in meeting the fundamental needs (HCV-5) of local communities, and in preserving their cultural identity (HCV-6). Ecologically, many marine faunal species can only reproduce in the shelter of a mangrove environment; some of these species are staples in the diet of Afro-Colombian communities, and others represent important facets of their cultural identity. The water itself also meets many fundamental needs: when rainwater is limited, creeks and rivers serve as an important source of water for drinking, transport, and washing. In the case of dry forest areas, non-timber forest resources such as medicinal plants, sources of protein garnered via sustainable hunting and gathering activities, construction materials (e.g. thatch), and materials for handicrafts also comprise cornerstones of both the cultural identity and fundamental needs that characterize local communities.

Ironically, HCV-5 and HCV-6 can often be in direct conflict with conservation aims. To mitigate for that possibility, restrictions have been placed on hunting and fishing, specifying only the seasonal, local, and non-commercial harvesting or species, and community members have been trained in HCV-relevant monitoring techniques including species identification, data collection, and reporting methodology.

The project has made concrete progress toward the establishment of fisheries regulations and practices, and has trained community members in the recolonization and biological monitoring of local and viable fish populations. Project interventions do not directly address hunting in the project area, however, the improved crop yields, sustainable fishing activities, and resultant greater economic means are likely to reduce reliance on hunting to meet basic needs. Also supporting this aim, the project developed a participatory draft for the establishment of forest regulations in the territory, with clearly defined conservation regulations for each of the communities that make up the project.

4.2 Other Stakeholder Impacts

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

An analysis of potential negative impacts on offsite stakeholders was carried out by the project proponents at time of validation, and mitigation measures were identified. Outside of the project zone, potential negative impacts included an increase in unregulated logging and cutting of mangroves due to leakage, an increase in cost of living due to a reduction in transportation, and a potential decrease in revenue due to increased governance in the project zone.

Traditionally, transportation that took wood out of the project zone also brought in daily commodities. Thus, it was reasoned that the reduction in logging and transportation of materials may result in an increased cost of living for communities surrounding the project zone. To mitigate this potential impact, the project aimed to replace the timber that was transported out of the project zone with agricultural commodities. Given the logistics and costs of transport in the remote Pacific Coast region, there is an obvious economic rationale for reducing overall costs by importing commodities using available space on boats and road transport, when available. Observations of transport cost for daily commodities during this first monitoring period indicate that prices have not yet increased; this is fortunate, as the production of agricultural products has yet to scale to a significant level capable of replacing timber volumes.

In the event that leakage is not managed adequately, offsite communities could have experienced an increase in unregulated logging in their forest. Negative impacts from this logging could be felt as a decrease in access to High Conservation Value areas including access to non-timber forest products and declining watershed health, yet these potential negative impacts appear to have been mitigated by successfully adhering to the leakage management plan during the monitoring period. Leakage mitigation strategies for the project include the implementation of productive activities which improve socio-economic status, the strengthening of governance, and the establishment of forest patrols. Productive activities enable communities to market and add value to certain choice commodities, which in turn provides these families with an alternative source of income that is not derived from illegal logging. The strengthening of local governance has improved the ability of the community councils to manage local participation in project activities that can generate income in the future (not from illegal logging), and to effectively distribute those economic benefits, thereby mitigating the incentive to illegal logging. Finally, the presence of forest patrols may have also discouraged illegal logging in the leakage area that directly borders project area boundaries.

Loggers and others within the timber value chain located outside the project zone (who traditionally have logged within the project zone) could have potentially seen a reduction in revenue due to increased governance in the project zone. The project has worked to mitigate against these potential negative impacts by trying to involve those currently involved in wood cutting in alternative livelihood activities, reducing the likelihood that they will move logging operations into neighboring areas. Additionally, the

participation of the municipality in developing appropriate regulations and regional environmental authorities in enforcing control measures (e.g. land use planning) has also served to mitigate this impact.

4.2.2 Net Impacts on Other Stakeholders (CM3.3)

As part of the social impact evaluation assessments (refer to “Social Impact Evaluations”), the project’s communities identified some negative situations, or situations that have not improved, since the project began. These situations were related to specific activities that the impact evaluation database can verify were deemed *not* to be part of the planned project activities, or as a direct consequence of any project related activities. Prime examples are armed groups threatening community rights, pronounced structural situations of government neglect in the region, and the continuing pervasiveness of poverty (as economic alternatives are still in early stages of development). None of the project related activities were identified as being responsible for negative impacts on any local and/or outside stakeholders and no further net negative impacts to other stakeholders have been identified for the project during this reporting period.

4.3 Community Impact Monitoring

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

Presented in the tables below are the results of the community impact monitoring, which includes all communities and stakeholders, monitoring information, and results (see MTC_ACABA_RIO PEPE_042019.xlsx” for supporting documentation/reference).

In order to assess and continually monitor the impacts that the project is having on communities; as well as allowing affected groups within the community to also have effective participation in the evaluation of such impacts, the project has conducted Participatory Evaluation of Social Impact surveys as part of the project’s monitoring efforts, and these have shown equitable training and benefit sharing to date through the high marks received on the social well-being and stakeholder satisfaction of project outcomes. Adjustment to the benefits distribution mechanism will also be made as necessary, and according to the result of these surveys. Please refer to “Social Impact Evaluations” for details and documentary evidence of the social impact evaluations carried out by the project proponents at the end of the reporting period.

Data/parameter:	Involvement of the community in the surveillance and patrolling of forests
Data unit:	7 people hired in the REDD+ units (number of rangers)
Description:	There will be a record of the people hired for the REDD+ Units.
Sources of data:	Registration form of people engaged in the REDD+ Units
Description of measurement methods and procedures to be applied:	There will be a form for each registered person in the REDD+ Units. There will be an update of the information of the people in the REDD+ Units, every month. Each person must fill in a data base with basic information, such as identification number, gender, age, location, and number of people in beneficiary household.
Frequency monitoring/recording:	of Monthly
Value applied:	Cost included in the tasks of the community leader and / or rangers
Monitoring equipment:	Engagement/register form. Spreadsheet or database project.
QA/QC procedures to be applied:	Predefined form for the collection of basic data will be used. Identification number is used to avoid double counting of a person. There will be analog and digital records. FONDO ACCIÓN will be responsible for hiring and supervising the staff responsible for carrying out QA/QC.
Calculation method:	
Any comment:	

Data/parameter:	Involvement of Corteros in the regeneration and maintainance of the conservation areas
Data unit:	45 corteros (and/or piangueras)
Description:	People recognized as 'corteros' (or 'piangueras') linked through the Community Council in regeneration tasks and / or maintenance of forest. A "cortero" is a person whose income depends mainly on logging.
Sources of data:	Registration form of people engaged in the regeneration and maintenance of forests, and households benefited
Description of measurement methods and procedures to be applied:	There will be a form for each related person and household, which includes basic information such as identification number, gender, age, location and number of people in beneficiary household (discriminated by gender and age). Data should be recorded on the form, once the person is engaged to regeneration activities and / or maintenance of the forest. The information recorded on the form will be typed into a spreadsheet or a database designed for the project.
Frequency monitoring/recording:	of Monthly
Value applied:	Cost included in the tasks of the community leader and / or rangers
Monitoring equipment:	Engagement form and recipient household. Spreadsheet or database project.
QA/QC procedures to be applied:	Predefined form for the collection of basic data will be used. Identification number is used to avoid double counting of a person. There will be analog and digital records. FONDO ACCIÓN will be responsible for hiring and supervising the staff responsible for carrying out QA/QC.
Calculation method:	
Any comment:	

Data/parameter:	Trained and equipped people
Data unit:	1138 people
Description:	A qualified person is one who participates in training activities which can be formal, informal, or virtual. These activities are supported by the project, and may include training modules such as short courses, workshops, job training or exchanges of experiences, within others. A person who completes this training course is considered a qualified or trained person. A training course will allow a person to appropriate of a specific subject. It has a leader or instructor, and its' objectives, methodology and activities are designed to achieve and ensure learning.
Sources of data:	Records of training follow-ups
Description of measurement methods and procedures to be applied:	At the start of the training course there will be a registration of the participants. At the end the trainer will send the attendance list of the trainees to the Project Coordinator, in order record it in a spreadsheet or database.
Frequency of monitoring/recording:	Quarterly
Value applied:	Cost included in the tasks of the community leader and / or rangers
Monitoring equipment:	Registration form, digital and spreadsheet data base
QA/QC procedures to be applied:	Predefined form for the registration data. Identification number is used to avoid double counting of a person. There will be analog and digital records. FONDO ACCIÓN will be responsible for hiring and supervising the staff responsible for carrying out QA/QC.
Calculation method:	N/A
Any comment:	

Data/parameter:	Households receiving technical assistance
Data unit:	296 households
Description:	A household with technical assistance has access to advisory activities, technical training and education about establishing, maintaining, harvesting and post-harvesting agricultural products.
Sources of data:	Track records of households training
Description of measurement methods and procedures to be applied:	The Technical Assistant will carry a record of counseling and training activities offered to the households visited.
Frequency of monitoring/recording:	Monthly
Value applied:	N/A
Monitoring equipment:	Register form, assistance list, digital database generated by th Technical Assistant.
QA/QC procedures to be applied:	FONDO ACCIÓN will be in charge of contracting and supervising the staff needed to carry out the QA/QC.
Calculation method:	N/A
Any comment:	

Data/parameter:	Establishment of new productive agricultural activities
Data unit:	242 new hectares of naidi established.
Description:	The new established hectares for each agricultural product will be counted, as an indicator of project implementation and new activities adoption.
Sources of data:	Track record of households properties
Description of measurement methods and procedures to be applied:	Technical register format (digital and physical) of the new established hectares per family engaged to REDD+ Project. This register will be recorded by the Technical Assistant of the REDD+ Project. Each Assistant must have a register form per each household visited.
Frequency monitoring/recording: of	Biannual
Value applied:	N/A
Monitoring equipment:	
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring the personnel needed for QA/QC
Calculation method:	N/A
Any comment:	

Data/parameter:	Employed people in the value chains
Data unit:	None reported for this reporting period.
Description:	There will be a record of the people hired in the in the Special Purpose Vehicle (SPV) companies, as well as in the different steps in the value chain, such as crop setting, transport and logistics, stockpiling, transformation and packaging.
Sources of data:	Records of families involved in the REDD + Project and contracts of people hired in the Special Purpose Vehicle (SPV) companies
Description of measurement methods and procedures to be applied:	Keep a digital record of the people who are working in the in the Special Purpose Vehicle (SPV) companies
Frequency monitoring/recording: of	Semestral
Value applied:	N/A
Monitoring equipment:	Register form and copy of contracts
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring the personnel needed for QA/QC
Calculation method:	
Any comment:	

Data/parameter:	Sales volume of the Special Purpose Vehicle (SPV) companies
Data unit:	None reported for this reporting period.
Description:	There will be a daily record of sales of transformed products, in digital format, specifying national and international sales. This will contribute to the indicator of business growth.
Sources of data:	Sales formats; bills; sales tracking sheets
Description of measurement methods and procedures to be applied:	Daily records of sales, in digital format, identifying the market in which the product is sold. In addition, a bi-monthly sales report, including information of buyers, market trends, sales and customer feedback will be presented to the Community Council
Frequency of monitoring/recording:	Daily
Value applied:	N/A
Monitoring equipment:	Sales formats
QA/QC procedures to be applied:	The Manager of the Special Purpose Vehicle (SPV) companies Company will be responsible for creating a Quality Control department. FONDO ACCIÓN will supervise.
Calculation method:	N/A
Any comment:	

Data/parameter:	Net income of the Special Purpose Vehicle (SPV) companies
Data unit:	None reported for this reporting period.
Description:	There will be a daily record of sales of transformed products, in digital format, specifying national and international sales. This information will be gathered and analyzed bi-monthly, in order to keep track of business growth and income to be able to control an equitably benefit distribution amongst the habitants of the communities of the REDD+ Projects.
Sources of data:	Sales formats; bills; sales tracking sheets
Description of measurement methods and procedures to be applied:	Daily records of sales, in digital format, identifying the market in which the product is sold. In addition, a bi-monthly sales report, including information of buyers, market trends, sales and customer feedback will be presented to the Community Council
Frequency of monitoring/recording:	Daily recording of sales. Bi-monthly reports
Value applied:	N/A
Monitoring equipment:	Sales formats
QA/QC procedures to be applied:	The Manager of the Special Purpose Vehicle (SPV) companies Company will be responsible for creating a Quality Control department. FONDO ACCIÓN will supervise.
Calculation method:	N/A
Any comment:	

Data/parameter:	Sales volume of cash crops established by the REDD+ Project
Data unit:	None reported for this reporting period.
Description:	There will be a daily record of sales of raw agricultural products, grown by the families engaged in the REDD+ Projects, to the SPV companies. This will contribute to monitor the project implementation, as well as the successful engagement of families in the alternative activities set by the REDD+ Projects.
Sources of data:	Sales formats; bills; sales tracking sheets
Description of measurement methods and procedures to be applied:	Families will keep a daily record of sales. In addition, a bi-monthly sales report, including information of buyers, market trends, sales and customer feedback will be presented to the Community Council. The REDD+ Project Coordinator must collect the physical formats that families fill in, and make a digital spreadsheet with the information.
Frequency of monitoring/recording:	Daily record of sales. Bi-monthly report.
Value applied:	N/A
Monitoring equipment:	Sales formats; spreadsheets.
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring the personnel needed for QA/QC
Calculation method:	N/A
Any comment:	

Data/parameter:	Families benefited from the Social investments of the REDD+ Projects
Data unit:	None reported for this monitoring period
Description:	This indicator keeps track of the number of families/households that benefit from the Social Investments of the REDD+ Projects.
Sources of data:	Annual household surveys executed; PRAs
Description of measurement methods and procedures to be applied:	Conducting annual household surveys to determine access to the benefits generated by the REDD+ Project social investments. The sample chosen for the survey will be statistically significant.
Frequency of monitoring/recording:	Annual
Value applied:	N/A
Monitoring equipment:	Survey format
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for contracting the personnel needed for QA/QC
Calculation method:	Statistical analysis of the results
Any comment:	All the areas that have been positively affected by the social investments will be considered for the implementation of surveys

Data/parameter:	Strengthened governance
Data unit:	44 Initiatives in all. Territory Consolidation: 32 Land Management: 4 Cultural Events: 1 Environmental Education Activities: 4 Demarcation of culturally sensitive sites: 3
Description:	Each Community Council must keep a monthly register of activities carried out (such as assemblies, meetings, socialization, etc), that are required to approve governance tools such as Management Plans and Internal By-laws. There will also be a record of the plans and laws approved and implemented. If needed the case, each plan must develop implementation monitoring indicators. This will contribute to the monitoring of the strengthening of the board governance capacity in the territory, and thereby strengthens the development of REDD + Project.
Sources of data:	Meeting minutes, attendance lists and resolutions adopted by the Board regarding governance issues, such as Management Plans, Bylaws, among others.
Description of measurement methods and procedures to be applied:	Carry a physical and digital record of attendance lists, meeting minutes and resolutions implemented.
Frequency of monitoring/recording:	Monthly
Value applied:	N/A
Monitoring equipment:	Physical and digital formats record.
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring/contracting the qualified staff needed to perform QA/QC
Calculation method:	N/A
Any comment:	

Data/parameter:	Operation of the Grievances Redress Mechanism
Data unit:	None reported for this monitoring period
Description:	The Coordinator of each REDD + project will be responsible for keeping a monthly record of complaints, requests and claims that are registered/filed in the Administrative REDD+ Project Office. This will allow to control if the Mechanism is operating and if the community is getting involved in the REDD+ Project.
Sources of data:	Requests, complaints or claims that are registered/filed
Description of measurement methods and procedures to be applied:	There will be a monthly record (physical and digital) of the number of requests, complaints and claims filled out.
Frequency of monitoring/recording:	Monthly
Value applied:	N/A
Monitoring equipment:	Grievances register format
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring/contracting the qualified staff needed to perform QA/QC
Calculation method:	N/A
Any comment:	

Data/parameter:	Effectiveness of the Grievances Redress Mechanism
Data unit:	None reported for this monitoring period
Description:	The Coordinator of each REDD + Project will be responsible for keeping a monthly record of complaints, requests and complaints that are resolved, in order to track the effectiveness of the management of conflict resolution in the REDD + Project.
Sources of data:	Requests, complaints or claims that are registered/filed
Description of measurement methods and procedures to be applied:	There will be a monthly record (physical and digital) of the number of requests, complaints and claims that are solved
Frequency of monitoring/recording:	Monthly
Value applied:	N/A
Monitoring equipment:	Grievances register format
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring/contracting the qualified staff needed to perform QA/QC
Calculation method:	N/A
Any comment:	

Data/parameter:	Women benefited from the Social investments of the REDD+ Projects
Data unit:	None reported for this monitoring period
Description:	This indicator keeps track of the number of women that benefit from the Social Investments of the REDD+ Projects.
Sources of data:	Annual surveys executed; PRAs
Description of measurement methods and procedures to be applied:	Conducting annual surveys targeted to women to determine access to the benefits generated by the REDD+ Project social investments. The sample chosen for the survey will be statistically significant.
Frequency of monitoring/recording:	Annual
Value applied:	N/A
Monitoring equipment:	Survey format
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring/contracting the qualified staff needed to perform QA/QC
Calculation method:	Statistical analysis of the results
Any comment:	All the areas that have been positively affected by the social investments will be considered for the implementation of surveys

Data/parameter:	Employed women in the value chains
Data unit:	None reporting for this period.
Description:	There will be a record of the women hired in the Special Purpose Vehicle (SPV) companies, as well as in the different steps in the value chain, such as logistics, transformation and packaging.
Sources of data:	Records of women involved in the REDD + Project and contracts of women hired in the Special Purpose Vehicle (SPV) companies
Description of measurement methods and procedures to be applied:	Keep a digital record of women who are working in the Special Purpose Vehicle (SPV) companies
Frequency of monitoring/recording:	Semestral
Value applied:	N/A
Monitoring equipment:	Register form and copy of contracts
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring/contracting the qualified staff needed to perform QA/QC
Calculation method:	
Any comment:	

Data/parameter:	Involvement of women in the surveillance and patrolling of forests
Data unit:	1 woman formed part of the surveillance patrols.
Description:	There will be a record of women hired for the REDD+ Units.
Sources of data:	Registration form of women engaged in the REDD+ Units
Description of measurement methods and procedures to be applied:	There will be a form for each registered women in the REDD+ Units. There will be an update of the information in the REDD+ Units, every month. Each woman must fill in a data base with basic information, such as identification number, age, location, and number of people in beneficiary household.
Frequency of monitoring/recording:	Monthly
Value applied:	Cost included in the tasks of the community leader and / or rangers
Monitoring equipment:	Engagement/register form. Spreadsheet or database project.
QA/QC procedures to be applied:	Predefined form for the collection of basic data will be used. Identification number is used to avoid double counting of a person. There will be analog and digital records. FONDO ACCIÓN will be responsible for hiring and supervising the staff responsible for carrying out QA/QC.
Calculation method:	
Any comment:	

Data/parameter:	Women participation in decision-making processes
Data unit:	670
Description:	Each Community Council must keep track of the number of women that participate in representative bodies and decision-making processes such as assemblies.
Sources of data:	Records of women participation in meeting minutes, women attendance to meetings and assemblies and number of women per representative body.
Description of measurement methods and procedures to be applied:	Carry a physical and digital record of attendance lists, meeting minutes and resolutions which name women as part of representative bodies such as the Governing Board and Zonal Board.
Frequency of monitoring/recording:	Monthly
Value applied:	N/A
Monitoring equipment:	Physical and digital formats record.
QA/QC procedures to be applied:	FONDO ACCIÓN will be responsible for hiring/contracting the qualified staff needed to perform QA/QC
Calculation method:	N/A
Any comment:	

4.3.2 Monitoring Plan Dissemination (CM4.3)

The project's MRV liaisons are scheduled to conduct workshops in the project area communities to report on the results and evaluations of the project activities to date, as well as provide descriptions and a timeline for the verification audit activities that are to follow (preparation of final monitoring reports, public comment period, auditor visits and possible interviews, verification report and results.)

In June 2019, once the Implementation and Monitoring Report was finalized, pedagogical material was designed to help present the results of the monitoring, reporting and verification process to the communities in a summarized fashion. This report will be presented at publicized community meetings, which will inform stakeholders about the visit of the auditing entity, the place, date, and purpose of that visit, and of the possibility of stakeholders' ability to interacting freely with this verifying entity during the visit (see "Lista de Productos de Comunicaciones" for references).

Per the CCBA rules, this monitoring report will also be made available online before the start of the verification site visit for a period of public comments.

4.4 Optional Criterion: Exceptional Community Benefits

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

The project continues to expect to generate long-term net positive well-being benefits for community members at the individual and/or family level, based on the theory of change model developed at the time of validation and put into use during the monitoring period. Examples include strengthening of local governance over natural resources; improvements in land use planning and implementation; support for the development of alternative livelihoods through training and technical assistance; improved social wellbeing; enhanced administrative and leadership capacity, and strengthening of local institutions.

The indicators of community well-being are included in both the theory of change model and the monitoring plan. For this monitoring period, assessment of impacts also included Participatory Evaluation of Social Impact surveys. At the family level, multiple achievements currently indicate that the project is on track to generate well-being benefits for communities as planned, including:

- 347 people trained in the construction and implementation of internal governance and land-use regulations.
- 30 families trained in the establishment and transformation of products derived from achiote.
- 135 families benefited from the implementation of cacao production.
- 234 people trained in increasing awareness and the identification of priority community investments.
- 239 people trained in leadership techniques, and in the construction of a contingency plan for the territory of ACABA and Rio Pepé.
- 160 people trained in leadership issues, and in the mitigation of risks associated with forced recruitment.
- 220 people received training related to gender issues and on sexual violence based on gender (SGVB).

It is expected that the short-term net positive benefits generated by these investments in productive activities will manifest at a broad scale in the near future, as market-driven income streams begin to gain momentum. This is especially true in the case of coconut, acai, and naidi, due to the number of participants. At present, employment as part of the REDD+ unit and patrolling squads is a definitive short-term positive benefit that the project has generated.

At the community level, progress made since project validation in strengthening the capacity of both the Community Council and the local agro-organizations, also contributing to the probability of long-term net positive well-being benefits.

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

Tables 24 and 25 below identifies the marginalized and/or vulnerable community groups that the project is engaging with and how the communities have or are on track to gain net positive benefits. Refer to "MTC_ACABA_RIO PEPE_04-2019.xlsx" for supporting documentation/reference.

Table 24: Net Positive Impacts on Women

Community Group	Women
Net positive impacts	During this monitoring period, 105 Women were trained during environmental education campaigns aimed at women. 670 Women now actively participate in
Benefit access	Procedures were instated to guarantee equal opportunities for all community members, including vulnerable and/or marginalized people. For these marginalized sectors of the population to attend trainings and fill all available hiring positions including management, specific socialization and hiring processes were carried out by the implementing partner. These process follows a joint construction of the terms of reference with community leaders, in which the technical requirements for the activity to be carried out or position to be filled are included and the eligibility criteria in which the preference for persons is manifested and detailed, mainly that they be members of the community or residents of the territory, and, whenever possible, that these include women and other vulnerable and/or marginalized people. Once the terms of reference are built, they are then disseminated through different channels, including through government boards. Applicants can then apply and present documentation to participate in activities through community offices or through the local MRV project links.
Negative impacts	Throughout the monitoring period, a number of activities and processes were put in place to ensure that the well-being of vulnerable and/or marginalized groups, such as women, was not negatively impacted by the project. The following specific mitigation actions were taken to avoid such impacts, thereby enabling their participation in project design and development activities. - The project provided transportation needed to attend project meetings, and other stipends, particularly for those who set aside basic daily subsistence activities to attend meetings; - The township committees "veredales" and Zonal

	Boards received clear information about the project activities and have had full participation in any decision-making, including individual cases that require special attention; • The project has ensured that the most vulnerable groups have access to training that enhances their capacity to participate in productive chains, including women; • In cases where families do not have clear usufruct rights, the Community Council has tried to advance procedures for the assignment of such rights, including for women; • The selection of project personnel has been based on clear procedures that ensure equal opportunities for employment for vulnerable and marginalized groups; and • The project has considered the household as the basic unit of intervention, and has analyzed the different roles of men and women within the productive processes in order to address the needs of men and women differently, to try and improve conditions within households.
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Table 25: Net Positive Impact on Corteros

Community Group	Corteros (loggers)
Net positive impacts	45 corteros involved in the regeneration and maintenance of conservation areas as an alternative livelihood option.
Benefit access	Procedures were instated to guarantee equal opportunities for all community members, including vulnerable and/or marginalized people. For these marginalized sectors of the population to attend trainings and fill all available hiring positions including management, specific socialization and hiring processes were carried out by the implementing partner. These process follows a joint construction of the terms of reference with community leaders, in which the technical requirements for the activity to be carried out or position to be filled are included and the eligibility criteria in which the preference for persons is manifested and detailed, mainly that they be members of the community or residents of the territory, and, whenever possible, that these include women and other vulnerable and/or marginalized people. Once the terms of reference are built, they are then disseminated through different channels, including through government boards. Applicants can then apply and present documentation to participate in activities through community offices or through the local MRV project links.
Negative impacts	Throughout the monitoring period, a number of activities and processes were put in place to ensure that the well-being of vulnerable and/or marginalized groups, such as women, was not negatively impacted by the project. The following specific

	mitigation actions were taken to avoid such impacts, thereby enabling their participation in project design and development activities. • The project provided transportation needed to attend project meetings, and other stipends, particularly for those who set aside basic daily subsistence activities to attend meetings; • The township committees “veredales” and Zonal Boards received clear information about the project activities and have had full participation in any decision-making, including individual cases that require special attention; • The project has ensured that the most vulnerable groups have access to training that enhances their capacity to participate in productive chains, including women; • In cases where families do not have clear usufruct rights, the Community Council has tried to advance procedures for the assignment of such rights, including for women; • The selection of project personnel has been based on clear procedures that ensure equal opportunities for employment for vulnerable and marginalized groups; and • The project has considered the household as the basic unit of intervention, and has analyzed the different roles of men and women within the productive processes in order to address the needs of men and women differently, to try and improve conditions within households.
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4.4.3 Net Impacts on Women (GL2.5)

As evidenced in the community benefits and stakeholder engagement portions of this report, as well as the Rio Pepe y Acaba Social Impact Evaluation report, the project has generated net positive impacts on the welfare of women and has also ensured that women have participated in key decision-making as it relates to the project. The project continues to work with the organizational structures that are already in place, rather than imposing external conditions on project activities. Traditionally, women are already involved in agricultural activities because they have access to land. Unlike in other cultures, Afro-Colombian women do not have an inherent barrier to be able to inherit land, which is the principle source of wealth transfer in rural areas. Both women and men have full rights to inheritance: “direct blood relatives have full rights; hence, women and men have the same right to claim their part [of their inheritance]” (Camacho 1999). Since women have access to land, they are involved in productive activities and, due to the roles that women have been developing; they participate and have control over resources and are not excluded from decision-making processes.

4.4.4 Benefit Sharing Mechanisms (GL2.6)

As of this monitoring period, the original benefit sharing mechanism provided at validation has been implemented for the project. However, the communities are currently working in collaboration with Fondo Acción on the development of an Integrated Development Plan that will include an updated benefit

sharing mechanism. As of the close of this monitoring period, the new benefit sharing mechanism is in early stages of development and has not yet been officially approved or adopted by the communities.

The design and implementation of a benefits sharing mechanism will be developed in a participatory manner with community members, based on existing Development Plans. If a legitimate Development Plan does not exist, Fondo Acción will invest in a broader planning exercise with community participation, to design the plan to reflect current needs of the community.

If an Integrated Development Plan does exist and is complete, the benefits sharing mechanism will need to be consistent with it. If the plan does not exist or does not reflect community priorities, Fondo Acción will work closely with community members to adjust the Integrated Development Plan.

The Integrated Development Plan will serve as a framework for all community development activities, including those funded by the REDD+ project. Within this framework, Fondo Acción will develop with the communities a REDD+ Investment Plan, which will serve as a starting point for benefits distribution and reflect communities' priorities on how REDD+ revenues will be distributed. Throughout this process, Fondo Acción will ensure that any policies protect and benefit the most marginalized and vulnerable members of the community, including women, children, and elderly.

With this plan in place, Fondo Acción will establish new and independent accounts within Fondo Acción's non-profit organizational structure, and governed by Fondo Acción's existing investment policies, for each project. Each account will have a committee that decides on investments and approves budgets on an annual basis, and receives reports from outside technical experts and Fondo Acción for administrative matters. Fondo Acción will establish an in-house team of REDD+ experts that will undertake the technical management of the project; advise the committee on expenditures based on spatially-explicit monitoring information and project needs; and ensure that the community and biodiversity objectives of the project are being met. The committee will be comprised of a Fondo Acción board member and representatives of the community.

4.4.5 Governance and Implementation Structures (GL2.8)

The project governance and implementation structure is guided by the existing self-governance structures in the Afro-Colombian communities. By definition, a Community Council is an Afro-Colombian community that decides to constitute legally; specifically, that it is formally associated to the State to acquire "the maximum authority of Administration within the territory of the Afro-Colombian Community." The State then acknowledges by a Resolution of the Ministry of Interior, that this Council and every Community Council has right to its defined territory.

The Community Council follows both the laws stated by the Government and the internal laws that are assigned by each community, as long as they are not contrary to the Constitution. Internal laws (*derecho propio*) is the set of customs, traditions, norms and duties commonly accepted by all members that share an identity and serve to auto-regulate. These internal laws are only valid between members of the community within the territory.

The Community Council is constituted by the General Assembly and the Governing Board of the Community Council. The General Assembly consists of all members of the Council and is the highest authority of the Community Council. The Governing Board of the Community Council is the authority that provides direction, coordination, implementation and internal administration of the community and performs the duties of Act 70 of 1993 and Decree 1995 1745 (see below).

The law also creates the position of Legal Representative of the Community Council (Article 12) whose role is to legally represent the community in the efforts and actions before institutions or businesses. The legal representative is elected by the General Assembly but operates under the direction of the Governing Board of the Council.

The General Assembly normally meets once a year at which time it selects the Community Council Board, evaluates their performance and discusses issues of general interest. Special meetings are held when needed, as established in the bylaws and/or internal regulations of the Community Council. Decisions of the General Assembly are generally made by consensus or by most attendees. The Governing Board is elected for a period of three years from among the Community Council members.

With a large population spread over very large areas communities form sub-level local community-based organizations called Minor Councils (Consejos Menores), which in some cases are called Veredal Committees (local level), whose structures are established in the internal rules. In some cases, the General Assembly corresponds to an Assembly of Delegates of the Minor Councils, which solves the problem of making numerous Assemblies, which are impossible to fund and manage.

There are some general statutory minimum functions (See Articles 6, 11 Decree 1745/95) and limits on the authority of the Governing Board of the Community Council. Specifically, the law states that the scope of municipal authority is limited to administrative acts. The Governing Board then administers "based on the rules and regulations in force and the use and conservation of natural resources ... in the territories of afro-Colombian Communities" (Article 11, paragraph 10).¹³

The Community Council is required by law to make "the rules of territorial administration and management of natural resources, and ensure their compliance," which are only valid with the approval of the Assembly. The contents of the regulations depend on the system of each community's customary law and include, for example: the management of family and communal lands, zoning of the territory, including permitted and prohibited activities; conflict resolution; norms for use and exploitation of natural resources, regulation of commercial activities, management plans and internal authorizations; establishing companies based on the use of common goods; and creating regulations for implementing programs and budgets for community welfare.

Thus, most aspects of the REDD+ project have been written into law, and approved by the General Assembly. The law includes the economic governance of land and resources within the territory, including management plans and economic development projects.

In the case of a REDD+ project, it should be noted that the law does not exclude the possibility that the Councils are constituted in business development instruments or ventures which seek to produce, distribute and consume jointly and efficiently, goods and services to meet the needs economic conditions of its members. Additionally, under Colombian law non-profits are able to have surpluses so long as they are distributed amongst community members. Thus, the productive activities of the project have and will be differentiated between the actions of individuals or families and those of the community, which have collective benefits, administered by the Community Council.

Neither of these options precludes the creation of new associations or businesses to meet the specific interests of groups within a Council so long as these activities are implemented on communal resources, such as forests.

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

Over the course of the monitoring period, Fondo Acción has facilitated and provided a number of training and capacity building activities for both people working directly under the REDD+ project as well as for community members and stakeholders. As mentioned earlier in this report, these trainings have specifically focused on the following areas. Please refer to "MTC_ACABA_RIO PEPE_04_2019.xlsx" and "Rio PEPE ACABA_SOPs" for additional information and evidence regarding these trainings:

¹³ <http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=7389>

- Improving the administrative capacity of community members: courses and/or workshops offered in i) accounting, ii) financial analysis and evaluation of projects; iii) environmental and social project management; iv) marketing; v) administration and management; and vi) leadership
- Environmental education, specifically aimed at women
- Training in MRV: REDD+ concepts, GPS data management, social and biodiversity monitoring, verification processes
- Forest patrolling and community environmental promoters (promoters that help publicize the activities and objectives of the REDD + project, and who collect community comments to prioritize social investment).
- Agriculture: Techniques to increase crops and yields, pest control, development of value chains

When working with community members, the community itself has selected the people participating in the proposed activities. Contents and tools for capacity building activities have all been designed to be culturally appropriate. In particular, the HARMOS scheme (an organizational coaching strategy designed by Fondo Acción) includes a module for “Practice in Context” oriented to develop particular skills necessary for specific community enterprises and activities. In the case of staff turnover, training has been passed on to new workers so that local capacity is not lost. In addition, all training and capacity building activities enacted during this monitoring period have been conducted with the vision of allowing community members to one day to take over the complete management of resources and implementation of the REDD+ project. This will ensure long-term ownership and sustainability of the project long after the crediting period. The project will also continue to support on-going workshops and awareness campaigns to increase awareness about the project, as well as its scope and benefits. Included in such workshops will be community input in order to prioritize social investments based on community needs at the time.

Increased capacity from these activities have and will continue to lead to net positive community impacts by increasing community leadership and participation in the project. Fundamental business and management training and education are paramount in encouraging women and families to fully contribute to the project and economic development of the area as a whole. Without the project, there would be no resources to implement these programs. These skills have and will continue to lead to more resilient and self-sufficient communities within the project area.

5 BIODIVERSITY

5.1 Net Positive Biodiversity Impacts

During the monitoring period, the estimation of biodiversity impacts within the project area was monitored according to two data parameters. The first parameter was amount of intact forest area as a measure of forest habitat cover. The second parameter was the amount of above-ground forest biomass as a measure of the maintenance or recuperation of biodiversity attributes in semi-intact forests. These data parameters were measured and analyzed utilizing remotely-sensed data representing the land use classification and land use change during the monitoring period.

A biodiversity monitoring protocol was developed by Fondo Acción in consultation with the project proponents during the monitoring period. The biodiversity monitoring protocol served as a guide that was adapted for use by the project as a standard operating procedure for biodiversity monitoring prepared by the Southpole Group (see “Protocolo censos fauna v1.4”). The development of this protocol was the primary step undertaken to support the project in preparing for future activities of community-based and/or led biodiversity monitoring. The content and guidance within this protocol—which describe the data parameters, indicators, measurement methods, equipment, training needs, formats and analysis of data

results—relate to the theory of change and the on-going monitoring of the net biodiversity impacts and are discussed in 5.3.1 below.

In-field and community-based biodiversity monitoring as described in the monitoring protocols for data collection and observations of flora or fauna was not conducted in the project area during the first monitoring period. However, other indicators of biodiversity were monitored in order to assess the state of biodiversity in the project area and confirm species' presences as compared with statuses during validation. It is also notable that significant steps were taken to set up biodiversity monitoring of other key indicators in subsequent monitoring periods.

5.1.1 Biodiversity Changes (B2.1)

The causal model and theory of change for attribution of net-positive biodiversity impacts expected and realized by the project explicitly stated in the PDD that the change in biodiversity will be primarily measured through:

1. Greater area of intact forest and connectivity between intact areas.
2. Improved plant species composition, forest structural integrity and natural habitat.

The principle technique to monitor these impacts was planned around the “changes in measurable forest vegetation cover conditions.” In following the PD, the biodiversity changes were subject to monitoring at species and ecosystem level. The original strategy proposed to achieve this mostly by remote sensing and to be corroborated through ground-based bio-resource inventories in future monitoring periods. This has been justified in Richards and Panfil (2011) in that biodiversity change correlates strongly to changes in vegetation cover and Pitman (2011) that size and connectedness of forest ecosystems correlate with levels of natural ecological function.

The biodiversity change variables measured were, first:

Change in Biodiversity	Intact forest area
Monitored Change	Primary Forest: 15,562 ha Degraded Forest: 29,121 ha Wetlands (Mangroves): 534 ha <i>Total Intact Forest: 45,217 ha</i> Total project area: 48,158 ha Change in Project Area under Project Scenario: 1,618 ha Change in Project Area under Baseline Scenario: 2,600 ha Net avoided Deforestation: 982 ha As shown by the net avoided deforestation of 982 ha, the project has had a net positive effect on intact forest area and thus, a net positive impact on biodiversity. It is notable that degraded forests harbor extensive species and ecosystem diversity. Positive changes in relation to biodiversity present in intact forest area will be corroborated with in-field monitoring and community-based observations in future monitoring periods.
Justification of Change	The presence of the project and corresponding project activities are factors that have contributed to the positive change in intact forest cover in the project area in comparison to intact forest

	cover that would be expected in the baseline. Rationale provided in the PDD stated that reduced deforestation and forest degradation will result in the improved maintenance of, and in many cases the recuperation (through natural regeneration) of forest biodiversity attributes as compared to conditions in the without-project scenario. Improvements to the amount (measured in hectares) of intact or semi-intact forest vegetation cover result in forest species composition and structural attributes including crown closure, height, diameter and density which better reflect natural conditions and support natural habitat for native fauna. Details about methods and assumptions used to calculate and document changes can be found in the table below.
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As explained in the following data/parameter and monitoring table:

Data/parameter:	Intact Forest Area
Data unit:	Hectares of intact forest area
Description:	Forest conservation was monitored through the area of intact forest.
Sources of data:	Data was obtained from the Land use Land Cover classification, as described in Section 3.1.3.2.
Description of measurement methods and procedures to be applied:	Area of intact forest is measured through the classification of aerial imagery during the monitoring period. See Section 3.1.3.2 for a description of monitoring procedures.
Frequency of monitoring/recording:	Annual
Monitoring equipment:	Satellite imagery
QA/QC procedures to be applied:	Accuracy assessments as specified by the VM0006 Methodology. See Section 3.1.3.2 for more details.
Calculation method:	According to VM006 methodology

The biodiversity change variables measured were, second:

Change in Biodiversity	Above-ground tree carbon in degraded forest
Monitored Change	<u>Degraded Forest</u> Above-ground tree carbon at validation: 52.51 tC/ha Above-ground tree carbon at verification: 59.63 tC/ha Net change in Above-ground tree carbon: 7.12 tC/ha Changes in above-ground tree carbon were only monitored in degraded forest. Changes in the aboveground carbon in forest areas has been monitored to improve sampling accuracy and to set a benchmark under which future gains or losses in carbon stock density in degraded areas can be monitored.

Justification of Change	As degraded forest areas often undergo the most change, it is important to assess the carbon stocks in degraded forest areas over time. It is likely that the observed changes are due to sampling variation, however, this update will help us quantify any gains or losses in degraded areas at future monitoring periods.
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As explained in the following data/parameter and monitoring table:

Data/parameter:	Above-ground tree biomass in degraded forest
Data unit:	Ton/ha
Description:	Change in aboveground biomass was calculated to update the carbon stocks and assist with monitoring the state of the forest and the impact of the REDD+ Project on forest regeneration.
Sources of data:	Carbon stock data was obtained from field data
Description of measurement methods and procedures to be applied:	Inventory field data was input into a database and used to calculate carbon stocks
Frequency of monitoring/recording:	Before the first verification and before every subsequent baseline update.
Value applied:	N/A
Monitoring equipment:	Inventory plots
QA/QC procedures to be applied:	Field-based QAQC checks as well as desk-checks on tree-list database
Calculation method:	According to VM0006 methodology

5.1.2 Mitigation Actions (B2.3)

The mitigation of negative impacts on forest habitat *is* the predominant strategy of REDD+ conservation projects, which are therefore low risk for negative impacts. The HCV assessment and monitoring of negative impacts are at a relatively low-intensity, emphasizing changes in forest cover, either by conversion of intact forests to degraded forests or non-forest land uses and the further degradation of semi-intact forests.

Mitigation activities primarily rested upon the efforts of Fondo Accion during the monitoring period, whereby the principle achievements were to 1) strengthen the sense of ownership, self-determination and governance of the project stakeholders so that they could promote and to some extent enforce improved uses of their territories; 2) increase technical capacities across a wide-range of REDD+ project management and implementation skills, which enable increased participation and understanding of the REDD+ project objectives and help to change behavior; and, 3) promote productive activities that can generate employment and income through economic development that serves as a viable alternative to logging or forest clearing. To establish these mitigation activities, various workshops, training, and meetings were hosted by Fondo Accion in order to build capacity for governance and consultation. More details about these specific occurrences can be found in Sections 2.2.1, 2.3.3, 2.3.7-2.3.9, and 4.1.1 of this report.

Mitigation actions have, by necessity, needed to focus upon those families or individual community members who have historically depended upon logging or clearing of forest, including for illicit crops, for most or much of their income. Another measure to monitor the mitigation of negative impacts to

biodiversity is the extent, frequency, and timing by which such actors changed their livelihoods' strategies to be involved in other pursuits to generate income. In June of 2018, local MRV teams conducted stakeholder workshops as part of the project's participatory rural assessment process to assess these measures and evaluate progress of related project activities to date.

Mitigation measures were proposed to address the potential negative impact of families and/or individuals continuing to log or clear the forest. Firstly, the use of wood for sustenance (e.g. construction, cooking) and cultural traditions would not be limited. These uses were not limited as they are essential for daily life and customary traditions in the communities. Since forest conservation can sometimes conflict with food security by limiting access to non-timber forest products or by regulating against clearing new land for agriculture, communities determined that the project would not generate conflict for them by including planned and improved agricultural production as part of the project activities, including the expansion of crops to non-forest / marginal land areas, which continues to be a central objective of the project, as well as the improvement of fish farming. The project also helps through project activities related to the generation of alternative sources of income to improve food health, crop yields, and adaptability. Through these project activities, potential negative impacts on biodiversity are limited (habitat is preserved) while communities maintain security in their food and income

Secondly, is a central focus of the project to develop thorough and agreed upon, land use/land allocation plans. While alternative livelihood options have been created by the project, unsanctioned logging still creates a potential negative impact on biodiversity. Mitigation actions in this respect have included the construction, approval, dissemination, and socialization of new management and land use/ allocation plans that delimit the areas of land use based on the project's priorities, and assigns specific zones for particular activities, such as the use of wood for construction, to predestined communal areas set aside for this purpose. The hope is that unsanctioned logging will continue to diminish as the applicability, enforcement, and socialization of these new management plans progresses and as new and existing alternative livelihood options for community members are created and improved upon. As the risk of unsanctioned logging and clearing of forests decreases, loss of habitat for species in the project region also decreases. As such, potential negative impacts related to biodiversity are mitigated. More details can be found in Sections 2.2.5 and 4.1.1.

The results of mitigating negative impacts to biodiversity and identified HCVs has utilized remote sensing to characterize intact forest, conditions of deforestation and degradation and regeneration based on parameters of forest cover change and forest biomass, as per discussions in section 5.1 and 5.1.1. As mentioned in 5.1.1, the changes monitored, including where mangroves occurred in the REDD+ project, applies to approximately 0.2 hectares.

A final measure, not yet monitored, would be of situations where families or individual community members depended upon or practiced hunting of wild animals, and the extent to which project activities had incentivized reduction in hunting as this may be a negative impact species' level biodiversity. Hunting was not explicitly included as a data/parameter variable to monitor, yet it is advised that hunting pressures be formally addressed through a monitoring variable, particularly if hunted species are also HCVs, in subsequent monitoring periods.

Planned mitigation actions for potential negative impacts on biodiversity were created with recognition of the precautionary principle. No mitigation actions were offered that could create additional adverse effects. Providing pathways for alternative livelihood for community members whose primary source of income came from logging or clearing of forest was a notable mitigation measure. Alternative livelihood opportunities included training, workshops, and in many cases, supplies. This ensured that participants had a proper foundation to pursue their alternative livelihood and that such livelihoods would be reliable sources of income moving into the future. Alternative livelihoods that were created (see earlier in this section) were sustainable, locally based, and did not create new and separate issues in relation to biodiversity. Creation of thorough and mutually agreed upon land use allocation plans was another important mitigation measure which was carried out in accordance with the precautionary principle. It was ensured that creation of these plans included input from all community members and that no additional adverse effects would accompany the creation of these plans. Additionally, provision of alternative

livelihoods by the project ensured that communities would not be limited in their income or food security by agreeing to certain constraints of forest use.

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

The project theory of change model depicted below provides an overview of the long-term expected net positive biodiversity impacts.

Activities	Outputs	Immediate Outcomes	Intermediate Outcomes	Impacts
Governance	Management plans assessed, updated, approved and implemented.	Greater clarity and commitment re land-use and sustainable strategies.	Reduced infringement and unsustainable forest exploitation, including mangrove forest.	Greater area of intact forest area and connectivity between intact areas.
	Demarcation of titled properties, land-use zones, protected areas.	Greater awareness and respect for land title and land-use designations.		
	Bylaws updated to reflect REDD; and communicated.			
Support development of productive activities	Train communities on improved techniques for crop yield.	Increased yields	Reduced reliance on unsustainable timber extraction	Improved species composition, forest structural integrity and natural habitat. Net benefits for biodiversity HCVs.
	Establish new crops. Technical assistance for crops, sustainable fishing.	Local production and employment alternatives. Dividends to the community.		
	Establish processing plants (for crops) and cold storage (fish). Training on value chain development.			
Capacity building, administration and management.	Courses in accounting, project management, marketing, leadership, environment.	Community members capable of project management. Greater awareness and concern for biodiversity.	Effective, locally driven project mgt. Greater awareness of biodiversity, the importance of land-use practices	
	Funding for REDD+ activity execution.	Adequate resources for implementation.		

Due to the demonstrated reductions in relation to deforestation and degradation in the *project area between 2014 and 2017* from project activities, the net impacts on biodiversity were positive. (See the monitoring of data parameters of intact forest area and forest biomass from 5.1.1 and 5.1.2 above). As demonstrated in the tables from 5.1.1, intact forest area and above-ground forest biomass would be significantly less in the without-project scenario.

5.1.4 High Conservation Values Protected (B2.4)

The HCVs identified in the PDD were primarily to be maintained by habitat condition and habitat quality, including connectivity. The project provided lists of RTE species in the PDD and the biodiversity monitoring protocol identifies the selection of indicator species that communities can observe and methods for their monitoring.

The HCVs to protect for biological diversity in the project are:

HCV1 – Concentrations of biological diversity:

Threatened species: vulnerable, endangered and critically endangered bird and animal species

Endemic species: significant endemism associated with the region and the project forest types

HCV2 – Landscape level ecosystems and mosaics:

Intact and partially intact forest area sufficient to support naturally occurring species in natural patterns of distribution and abundance.

HCV3 – Rare, threatened or endangered ecosystems

Humid tropical zonal biome

For HCV1 related to species the suggested approach is the remote sensing data analysis of intactness and habitat condition that will be corroborated over time through field-based measurements for RTEs and endemics, particularly plants, birds, and mammals. This approach has been justified in Richards and Panfil (2011) in that biodiversity change correlates strongly to changes in vegetation cover and Pitman (2011) that size and connectedness of forest ecosystems correlate with levels of natural ecological function. As the results from the remote sensing analysis (see Section 5.1.1) show, the project has maintained intact habitat for species, presumably including those potentially threatened and endemic species. Thus, there have been no negative impacts on HCV1 due to the project. As mentioned, field-based measurements and observations will corroborate results of remote sensing analyses in future monitoring periods.

For HCV2 and HCV3 the suggested approach is predominantly through remote sensing data analysis.

The primary means of demonstrating net positive impact through the REDD+ project protection of HCVs was through habitat protection, intact and semi-intact forest cover and connectivity. As the results from the remote sensing analysis (see Section 5.1.1) show, the project has protected intact and semi-intact forest cover thus there have been no negative impacts on HCV2 and HCV3 due to the project. In subsequent monitoring periods this will be corroborated by additional field-based fauna- and flora-specific monitoring data based on indicators derived from the theory of change analysis.

5.1.5 Invasive Species (B2.5)

There were no known invasive species introduced to the project during the monitoring period. This condition remains as per the validated PDD, thus there has been nothing new to report. At project start, the species designated for use within project activities were: cocoa, coconut and acai. These species are native or naturalized, commonly-occurring in the project area, and none are considered invasive. No other project activities involved the introduction of invasive species into the project area.

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

There were no new non-native species introduced to the project during the monitoring period. Cacao and acai are native to the region. Coconut is a naturalized species that has existed in Colombia for hundreds of years. There are no impacts to report during the monitoring period involving non-native species.

5.1.7 GMO Exclusion (B2.7)

The exclusion of GMOs issued at the time of project validation remains in effect. No GMOs were used during the monitoring period nor will they be used by the project in the future.

5.1.8 Inputs Justification (B2.8)

Complete the table below to describe the use of any fertilizers, chemical pesticides, biological control agents and other inputs used for the project. Copy and paste as needed.

Name	Organic fertilization/pest control
Justification of Use	These are the methods which have been effectively used in the project region long into the past, without any negative consequences. Furthermore, community members are accustomed to using these methods.
Adverse Effect	There are no potential or realized adverse effects on biodiversity in the region or on communities. As all methods are organic and natural, there is no threat to species in the area or to community members. In fact, these methods have had a net positive impact on communities, hence why they have been used throughout the past and continue to be used.

5.2 Offsite Biodiversity Impacts

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

During the period of implementation, the potential negative impacts on biodiversity outside the project area were evaluated through remote sensing of the leakage belt. The analyses examined the displacement of deforestation or forest degradation outside the project area to characterize negative impacts related to decline in available forest habitat for species in the project region. The activities potentially related to such negative impacts were identified as mining, logging, animal husbandry, and agricultural conversion that may have been displaced to locations outside the project zone. There was no observed leakage that occurred within the leakage belt during this monitoring period as compared with the baseline scenario. As such, there were no significant observed negative impacts on habitat, and thus, biodiversity outside of the project area.

5.2.2 Net Offsite Biodiversity Benefits (B3.3)

While there were in fact no significant observed negative impacts on biodiversity outside of the project zone, during the period of implementation there were actually net positive offsite benefits observed. As monitored within the leakage belt outside of the project area, there was a demonstrable reduction in deforestation and degradation (covered in section 5.2.1) that was similar to that which was monitored in the project area.

It is likely that these results are indicative of offsite positive impacts for biodiversity that are important in providing habitat for wide-ranging wildlife that live outside, but move through, the project area, project zone, and possibly beyond. Likewise, these positive impacts contribute toward the provision of corridors that improve connectivity between intact forest areas. These potential offsite benefits, not monitored through the parameters for intact forest area but associated with the reduction in deforestation and degradation in the leakage belt, were not monitored in this period.

5.3 Biodiversity Impact Monitoring

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

Monitoring activities for biodiversity were carried out in 2018 in accordance with the methodology and VCS Standard. Monitoring activities and biodiversity status updates were used to confirm the state of species diversity throughout the project region and to revisit the status of biodiversity as it was reported during project validation. Also significant was the development of a formal biodiversity monitoring protocol. Monitoring activities were executed following this monitoring protocol developed by the project implementation team of Fondo Accion. Although in-field and community-based monitoring did not take place during this monitoring period, assessment of progress towards biodiversity-related goals still occurred by way of examination of two key indicators. Likewise, significant organizational foundations were constructed, upon which future biodiversity monitoring activities will occur. To review results of biodiversity monitoring activities and status updates for this monitoring period, please see “Acaba Rio Pepe Censo Fauna and Acaba Rio Pepe Observaciones.”

Remote Sensing of Biodiversity Indicators

As described in section 5.1, remote sensing data and analysis was used to determine a proxy monitoring indicator for biodiversity and ecosystem health. In addition to the development of field protocols for biodiversity monitoring, remote sensing data was collected and analyzed in order to determine the amount of forest lost or degraded in the project and leakage areas as compared to the “without project” or baseline scenario. As discussed in Richards and Panfil (2011), changes in biodiversity are strongly correlated with changes in forest cover, making it possible to measure and analyze biodiversity health by using proxy indicators within the environment. The fact that biodiversity abundance is directly correlated with habitat (i.e. forest cover), and ecosystem health is possible to determine impacts on biodiversity from broader-scale assessments on an ecosystem or regional level. Sentinel imagery and PALSAR data covering the project and leakage areas from late 2017-early 2018 was classified in order to determine the intact and degraded forest cover as of January 2018. The forest cover area classified in the 2018 LULC map was then compared with the validated 2012 LULC map at the start of the monitoring period to determine the total area of deforestation and degradation transitions observed. This allowed the project to compare the ex-post land use changes with the predicted ex-ante land use change in the project and leakage areas. If the project achieved a reduction in the expected area deforested between the ex-ante baseline estimates and ex-post monitoring, this was interpreted as a net positive impact achieved by the project for onsite and offsite biodiversity.

As described in section 5.1.1, an analysis of biodiversity benefits using remote sensing data determined that the project had achieved net avoided deforestation of 1,481 hectares in the first monitoring period within the project area. In order to bolster monitoring biodiversity metrics for future monitoring periods, the project is working on ways engage with other neighboring communities to reduce deforestation pressure and to implement additional monitoring criteria to assess biodiversity impacts not related to forest cover. The monitoring criteria for using remote sensing to estimate biodiversity benefits are shown in the table below, including dates analyzed, monitoring frequency, and results.

Requested Information	Response
Date	Spatial analysis of Sentinel 2A imagery and PALSAR data from 2017 and 2018
Frequency	Analysis conducted once during the first monitoring period, and will be performed at least once during each monitoring period.
Locations	Imagery analyzed over Project Area and Leakage Belt
Sampling Methods Used	Classification of imagery for spatial analysis; in-field surveys in degraded forests also used to ground-truth LULC analysis
Results and Evaluation of Monitoring	Primary Forest: 15,562 ha Degraded Forest: 29,121 ha Wetlands (Mangroves): 534 ha

Total Intact Forest: 45,217 ha
Total project area: 48,158 ha
Change in Project Area under Project Scenario: 1,618 ha
Change in Project Area under Baseline Scenario: 2,600
Net avoided Deforestation: 982 ha

Monitoring Protocol Developed

Fondo Accion created the biodiversity monitoring protocol document, “Protocolo censos fauna v1.4” in December 2017 with the goal of being easy to use for community members, while drawing upon scientific methods, provided there would be adequate expert accompaniment to enable community-based monitoring. The monitoring protocol addresses variables that will be measured and monitored by the project over time. These biodiversity indicators were defined in the PDD and based upon the theory of change; they are: 1) changes in forest cover; 2) changes in forest biomass; 3) tree species dynamics; 4) populations of rare, endemic, and endangered species; 5) health of mangrove swamps; and 6) hunting pressure. [Note: some of the PDs did not include hunting as a parameter to be monitored. However, we will recommend that future monitoring will address hunting pressure as a variable for all projects.]

In design of the monitoring protocol, the methods proposed for indicators 3 and 4 identified the indicator species that would be the most evident, conspicuous, and possible to identify by community members, while still being important indicators of faunal and floral diversity. For this purposes of this monitoring period, the project monitored indicators 1 and 2, laying the grounds for future monitoring incorporating field wildlife surveys. The field biodiversity data collection by communities is designed to be based upon opportunistic sightings and observations, or systematic line transects through the project area, and will be complemented by both remotely-sensed monitoring and periodic in-depth scientific surveys.

The methods laid out in the biodiversity monitoring protocol for surveys of mammals, birds, and flora incorporate both transects and sample plots and these require professional supervision and leadership from trained professionals to be executed properly. The protocol calls for the use of 1km transects for selected indicator species, especially rare, threatened and endangered species monitored in different seasons (wet and dry) and for birds at different times of day (morning and night). Transects are laid out across representative ecosystems. The methods for identification of species' presence, especially using indirect evidence such as scat, footprints, eggs, burrows, caves, fur or markings on trees are relatively simple but require supervision and guidance by those with professional and specialized experience. The transect length, number per project per year, as well as ecosystem representativeness and timing frequency throughout the year and during the extent of a day is planned out prior to execution.

In-field and community-based biodiversity monitoring is also included in the project. The first efforts of biodiversity data collection occurred during initial community training sessions and included learning about the most efficient and practical means of data collection by the community members. For example, in addition to supplementing transects and plots, the protocol suggests complimentary methods that are basic for community members or enumerators, such as biodiversity maps based on collective input of community members through structured interviews and memory of species and their distributions. Systematic reporting of observations from monitoring patrols or other community-based activities in the project are also key elements outlined in the monitoring protocol. The increased uses of camera traps and sound recordings— techniques known as bioacoustics which can measure values of intactness or degradedness in forests—were considered. Use of smartphone apps such as ODK or Naturalista Colombia were also piloted.

The biodiversity monitoring protocol prepared by Fondo Accion is the first tangible planning document needed for regular biodiversity monitoring. An important consideration for planning monitoring actions by the project in accord with this and other complementary biodiversity monitoring protocols is to achieve a balance between remotely-sensed data, community-led data, and scientific researcher data with the management of costs, completeness, and quality of data obtained. The methods that have been adopted depend upon the decisions of the project that weigh and ultimately balance these elements.

Monitoring for the Second Verification

The second monitoring period, including 2018 and 2019, will reflect the advances to come from the introduction and increased support to capacity building and project implementation from the USAID-funded Paramos y Bosques program. In addition to the data from remotely-sensed information, there will be training of community members and professional technical assistance to enable the project to undertake field and community-based implementation of the existing monitoring protocol. There will likely be improvements and modifications to the preliminary protocols. Paramos y Bosques, together with the communities, will continue to combine field-based biological monitoring using randomized transects and plot sampling, carried out with support by professional biologists from research institutions or individual scientists, and a simpler form of community-led monitoring that is based upon systematic reporting of opportunistic observations by community members, including REDD+ teams and patrols.

In summary, improvements to the biodiversity monitoring will likely address these objectives: a) the short-term needs of verification of 2018-2019, b) the mid-term needs of replicable and cost-effective methods, and c) the long-term needs for a highly participatory, community-led system for biodiversity monitoring.

5.3.2 Biodiversity Monitoring Plan Dissemination (B4.3)

The project proponent recognizes the importance in ensuring that both the monitoring plan and the results of monitoring be communicated to communities. The monitoring activities were divided between organizations in support of the proponents for social (community), carbon (climate), and biodiversity. The plan for completing the monitoring report as related to biodiversity was discussed in community meetings in Bogota (June 1), Cali (June 21-22), and during visits from Fondo Accion, Wildlife Works, and members of Paramos y Bosques (July – August 2018).

The timeline for completion has been discussed, especially as it was updated. The summary of monitoring results was shared with the community members of the REDD+ project in December through in-person visit.

The project's MRV liaisons conducted workshops in the project area communities to report on the results and evaluations of the project activities to date, as well as provide descriptions and a timeline for the verification audit activities that are to follow (preparation of final monitoring reports, public comment period, auditor visits and possible interviews, verification report and results.)

In June 2019, once the Implementation and Monitoring Report was finalized, pedagogical material was designed to help present the results of the monitoring, reporting and verification process to the communities in a summarized fashion. This report was presented at publicized community meetings, which informed stakeholders about the visit of the auditing entity, the place, date, and purpose of that visit, and of the possibility of stakeholders' ability to interacting freely with this verifying entity during the visit (see "Lista de Productos de Comunicaciones" for references).

Per the CCBA rules, this monitoring report will also be made available online before the start of the verification site visit for a period of public comments.

5.4 Optional Criterion: Exceptional Biodiversity Benefits

Not applicable.

5.4.1 Trigger Species Population Trends (GL3.3)

Not applicable.

6 ADDITIONAL PROJECT IMPLEMENTATION INFORMATION

All relevant project implementation information has been discussed in previous report sections.

7 ADDITIONAL PROJECT IMPACT INFORMATION

All relevant project implementation information has been discussed in previous report sections