VERIFICATION REPORT GENERATION FOREST GROUP PROJECT

icontec

Document Prepared by Colombian Institute for Technical Standards and Certification – ICONTEC

Project Title	Generation Forest Group Project
Version	V2. 27-09-2021
Report ID	VER- MI-VCS-CCB-003

Report Title	Verification report "Generation Forest Group Project"
Client	Futuro Forestal (FF)
Pages	60
Date of Issue	03-11-2021
Prepared By	Colombian Institute for Technical Standards and certification - ICONTEC
Contact	Martha Ivon Corredor Rodríguez Carrera 37 Nº 52 - 95 Bogotá, Colombia PBX: (57)(1) 607 8888 Ext 1380 or 1381 or 8040 FAX: (57)(1) 222 0569 / 222 1435 mcorredor@icontec.org www.icontec.org
Approved By	Juan Camilo Serna- technical reviewer
Work Carried Out By	Claudia Polindara – Lead auditor and technical expert

Summary

The Generation Forest Group Project is a VCS/CCB AFOLU (Agriculture, Forestry and Other Land Use) grouped project implemented in the Republic of Panama, and it falls under the ARR (Afforestation, Reforestation, and Revegetation) category.

The project aim is to reforest 1,100 hectares of degraded land which was formerly used mainly for cattle ranching and pasture during its project lifetime. The project is designed to continually increase its project zone, project area, and the number of project instances within the expansion area during the project lifetime. The project promotes sustainable forest management and innovative silvicultural practices, using mainly native hardwood species for its reforestation sites as well as enrichment planting and assisted natural regeneration when appropriate. The Monitoring Report contains information about the project benefits (Climate, Community, and Biodiversity benefits), project implementation, legal status, and property rights. Furthermore, the results about the community and biodiversity impacts.

In accordance with the VCS and CCB rulers, the purpose and scope of verification comprehend documental review, remote visit, interviews, and consultation of secondary information sources, findings statements, feedback with the project proponent, and elaboration of the final report. The visit was remote considering that the project validation is recent, this was validated by ICONTEC, which made the inspection on-site and was carried out from 10/06/2021 to 14/06/2021. ICONTEC to collect enough evidence to fully evaluate the verification criteria and determine that the project is implemented in accordance with the Project Description (V3. August 10, 2021) and the Monitoring Report (V2. September 27, 2021) is in accordance with the Monitoring Plan.

The first VCS – CCB verification period is 15 August 2016 – 05 June 2021.

In addition, according to Section 4.3.13 of the CCB Program Rules, v3.1, states that VVBs may conduct a verification audit without a site visit where bother of the following criteria are met:

- *The posting of the current project description and/or monitoring report for public comment is within three years of the first day of the public comment period for the audit during which the same validation/verification body last conducted a CCB site visit; and*

- *The validation/verification body decides that current information provided by the project proponent combined with information from the last CCB site visit conducted by the same validation/verification body provides sufficient evidence for issuance of an opinion about whether the project meets the rules and requirements of the CCB Program.*

In consequence and taking account that the validation was recently, and de information is enough for the first verification, ICONTEC decided realized the audit remotely. For this purpose, the respective risk analysis was carried out.

During the verification, the ICONTEC team identified 8 findings (1 Clarification Request, 4 Corrective Action Requests and 3 Future Action Request) that were addressed satisfactorily by the project proponent during the verification process to ensure that the Monitoring Report fulfils the VCS and CCB program requirements.

The project complies with all of the verification criteria, and the assessment team has no restrictions or uncertainties with respect to the compliance of the project with the verification criteria.

ICONTEC verified the emission reductions of 57,019 tCO_2e in the verification period: 15 August 2016 – 05 June 2021. The project does not have gold level.

TABLE OF CONTENTS

1   INTRODUCTION

1.1   Objective

Following the VCS and CCB rulers, the objective of verification is assessing the methods and procedures, including monitoring procedures, that the project proponent has implemented per the validated project description. This includes ensuring conformance with the monitoring plan, verify the GHG emission reductions and removals reported in the monitoring report are materially accurate. In addition, verify complies with the CCB rules. The monitoring period reporting is 15 August 2016 – 05 June 2021.

1.2   Scope and Criteria

The scope of work covered in the verification is describe below:

- VCS standard V4.1
- VCS Validation and Verification manual V3.2
- VCS Program guide V4.0
- VCS Methodology Requirements, v4.0
- CCB Standard V3.1
- CCB program rules V3.1.
- VCS AFOLU Non-Permanence Risk Tool version 4.0
- Guidance for ARR Calculating Long-Term Average Carbon Stock
- Methodology AR-ACM0003. Afforestation and reforestation of lands except for wetlands. Version 2.0 and Tools.
 - To evaluate whether the monitoring plan is in conformance with the applied methodology front e VCS
- To confirm that the information presented are completed, consistent, transparent and free of omission or material error
 - Background investigation and follow up interviews
 - Issuance of draft verification report with CARs, CLs and FAR
 - Final Verification Report.

1.3   Level of Assurance

In accordance with VCS Standard 4.1, the level of assurance of this report, insofar as it describes work performed, is reasonable.

1.4   Summary Description of the Project

The Generation Forest Group Project is a VCS/CCB AFOLU (Agriculture, Forestry and Other Land Use) grouped project implemented in the Republic of Panama, and it falls under the ARR (Afforestation, Reforestation, and Revegetation) category.

The project aim is to reforest 1,100 hectares of degraded land which was formerly used mainly for cattle ranching and pasture during its project lifetime.

The first forest management unit is Darién, the area is distributed in the greater part in the province of Darién, District of Chepigana, and another part is located in the province of Panama, District of Chepo. It comprises a current project area of 952 ha of which 710 are eligible for the project, within these areas we find the life zone of humid tropical forest and very humid premontane forest with slightly undulating topography, rainfall between 1801 and 2100 mm, temperatures per year of 26.4 and 26.5 ° C. The second forest management unit is Colón, located in the province of Colón, District of Colón, on the road to Sierra Llorona, with a project area of 935 ha where 429 ha are eligible for the project, where the very premontane forest predominates. Humid, with annual rainfall between 3001 and 3300 mm and average temperature between 24.6 and 25 ° C.

The project is designed to continually increase its project zone, project area, and the number of project instances within the expansion area during the project lifetime. The project promotes sustainable forest management and innovative silvicultural practices, using mainly native hardwood species for its reforestation sites as well as enrichment planting and assisted natural regeneration when appropriate.

The Monitoring Report contains information about the project benefits (Climate, Community, and Biodiversity benefits), project implementation, legal status, and property rights. Furthermore, the results about the community and biodiversity impacts.

2   VERIFICATION PROCESS

2.1   Audit Team Composition (*Rules* 4.3.1)

Table 1 indicates the team audit is expertise in the following areas:

Table 1 Audit Team

Name	Role	Developed Phase	Summary of Relevant Qualifications
Claudia Polindara	Lead Auditor and technical expert	Document review. Site inspections. Interviews. Issuance of findings. Final Report	Relevant forestry and land use experience in the project region: Relevant ecological and biodiversity expertise
Juan Camilo Serna	Technical Review	Review and evaluation of the Draft Report and Final Report	

The auditor team is qualified in accordance with ICONTEC qualification scheme for VCS/CCB validation and verification.

2.2   Method and Criteria

Verification was performed using ICONTEC procedures in line with the requirements specified in the VCS Standard V4.1, VCS Methodology requirements V4.0 and CCB Standard V3.1, the applied methodology "AR- ACM0003 Afforestation and Reforestation of lands except wetlands. Version 2.0. Sectorial scope(s): 14" and its associated tools as well as applying standard auditing techniques. During the audit process made the follows activities: document review, interviews with relevant personnel, and remote visit, considering that the project validation is recent, and this was validated

by ICONTEC, which made the inspection on-site which made the inspection on-site and was carried out from 10/06/2021 to 14/06/2021.

In addition, according to Section 4.3.13 of the CCB Program Rules, v3.1, states that VVBs may conduct a verification audit without a site visit where bother of the following criteria are met:

- *The posting of the current project description and/or monitoring report for public comment is within three years of the first day of the public comment period for the audit during which the same validation/verification body last conducted a CCB site visit; and*

- *The validation/verification body decides that current information provided by the project proponent combined with information from the last CCB site visit conducted by the same validation/verification body provides sufficient evidence for issuance of an opinion about whether the project meets the rules and requirements of the CCB Program.*

In consequence and taking account that the validation was recently, and de information is enough for the first verification, ICONTEC decided realized the audit remotely. For this purpose, the respective risk analysis was carried out. (View Appendix 4).

2.3   Document Review

The Monitoring Report (CCB_VCS_Monitoring_Report_Generation_Forest_Group_v2_270921) was reviewed for conformance to the verification criteria. The Project Description ("01. PD Generation Forest Group. V3. August 10, 2021") was also referenced in conducting this review. The following additional documentation is set out below:

Table 2 Document Review

Number	Document Name
/1/	CCB VCS Monitoring Report Generation Forest Group. V1. June 7, 2021. V2. September 27, 2021. V3. April 8, 2022
/2/	Procedimiento Monitoreo Carbono.09.21 - (Forest Inventory Procedure for Carbon Monitoring)
/3/	Total VCUs Project
/4/	VCUs Native
/5/	VCUs Teak
/6/	Annex – Stratification
/7/	Annex - Database Natives Colon
/8/	Annex – List of species in PMP
/9/	Annex – Wood Densities
/10/	Videos: Natural Resources Management, Waste Management.
/11/	VCS-Non-Permanence-Risk-Report-FF. Internal, External, Natural Risks. V1. May 16, 2021
/12/	01. PD Generation Forest Group. V5. February 14, 2022
/13/	Legal Status and Property Rights. V1. July 9, 2021
/14/	Land tenure legislation. V.1. July 8, 2021

Number	Document Name
/15/	GIS and Maps. V1. June 7, 2021
/16/	Climate CO2. CO2 Estimates References. V1. May 14, 2021
/17/	Climate CO2. CO2 Model Carbon. V1. May 16, 2021
/18/	Climate CO2. CO2 Monitoring. V1. May 13, 2021
/19/	Community. Social Impact Assessments
/20/	Biodiversity. Monitoring. V1. May 13, 2021
/21/	Biodiversity. Endangered Species. V1. May 13, 2021
/22/	Biodiversity. Use of exotic sp. V1. May 13, 2021
/23/	Response Verra Start Date. February 25, 2021
/24/	Annex. Request to the Environment Ministry of Panama
/25/	Annex. Seeds: - Purchase of seeds and provenance - Compra semillas y procedencia.pdf - Importing Seeds Procedure - PROCEDIMIENTO PARA IMPORTACION DE SEMILLAS.docx
/26/	Procedimiento para resolver quejas y demandas de actores interesados
/27/	Código de conducta de futuro forestal
/28/	Reglamento interno de trabajo

2.4 Interviews

The interviews applied to project staff, extern consultors, and the indigen community directly involved in monitoring.

Table 3 Interviews

Actor	Entity/Organisation	Role	Date(s) interviewed
Juan González	Futuro Forestal	Operations Manager, Supervision Monitoring Team	10/09/2021
Jonathan Domínguez	Futuro Forestal	Project manager in Darién (cooperative, Kapok)	10/09/2021
Iliana Armien	Futuro Forestal	Forestry Director, Co-founder Futuro Forestal	10/09/2021
Danilo Cedeno	Futuro Forestal	General Manager	10/09/2021
Viverka Conte	Futuro Forestal	Accounting manager	10/09/2021
Jennifer Hernández	Futuro Forestal	Project Manager in Darién, Supervision Monitoring Team	10/09/2021
Octavio Cunampio	Community Emberá	Monitoring team, responsible for height measurements with hypsometer	10/09/2021

Actor	Entity/Organisation	Role	Date(s) interviewed
Ángel Flores	EcoWoods	External audit of plantations	10/09/2021
Iraida Cuellar	Futuro Forestal	Administration	10/09/2021
Susanne Guamba	Futuro Forestal	Science and Carbon Manager	10/09/2021
Militza Cunampio	Community Emberá	Monitoring Team. (Ex-employee)	10/09/2021
Marlon Medrano	Futuro Forestal	Project manager in Colón	10/09/2021
Albert Aji	Community Emberá	Monitoring team (Ex-employee)	10/09/2021
Elio Barrigón	Community Emberá	Monitoring Team Ejua Wadra Foundation (young environmentalists) . (Ex-employee)	10/09/2021
Harold Viquez	Ambere	Consultant Monitoring, Carbon Calculations	10/09/2021
Keegan Eisenstadt	Clear Sky Climate Solution	Consultant Monitoring, Carbon Calculations	10/09/2021

In addition, given the recent nature of the validation interviews (10/06/2021 to 14/06/2021), this data was utilized to supplement the process of conducting interviews with other stakeholders who are not involved in the project but may benefit directly or indirectly, as well as governmental entities:

Table 4 Interviews other stakeholders (Validation Report)

Actor	Entity/Organisation/Role
Father Paul Kasuboski	Neighbor, entrepreneur
Robinson Trujillo	Neighbor
Jefferson Hall	Smithsonian Tropical Research Institute, biodiversity plot in Colon
Julius Rye	Agrochemical supplier, Chiriqui.
Emilio Quintana	Min Environment Forestry Management
Ignacio Pimentel	Neighbor, entrepreneur
Lucy Cano	Neighbor, former owner
Doña Reyna	Merchant, Shop in Palmas Bellas, Bonus food workers

2.5   Site Inspections

As mentioned in section 2.2., the audit was conducted in a remote manner, and to undertake it, ICONTEC, has generated an instruction manual for the development of remote audits (I-PS-011 Remote Field Audit Instruction), which is in line with the measures and protocols accepted in Colombia and was supported to present the Verification Plan to the VERRA Secretariat for this audit.

Additionally, the audit team used the information from this year's on-site project validation visit (June 2021). The visit was carried out in Darien, considering that in this unit, the three strata of the project are found, and as a result, 15 plots of total of 269 were visited. This on-site review was carried out from 10/06/2021 to 14/06/2021, the grouped project was visited, in addition to the monitored plots, the validation of the 1100 hectares of Generation Forests, with mainly native tree species, but also Teak, of which 710ha correspond to Management Unit Darien and 429 ha correspond to Management Unit Colon.

The objectives of the on-remote inspections performed were to:

- Select samples of data and information to meet a reasonable level of assurance and to meet the materiality requirements of the project, as required by the VCS Standard.

- Perform review of the project activities to ensure that the project conformed to the requirements of the verification

- Assess the extent to which any monitoring was conducted in accordance with the requirements of the validated monitoring plans.

2.6   Resolution of Findings

As part of the processes for the verification, ICONTEC detected findings (4 CAR, 01 CL, 03 FAR) were presented to the person in charge of the project and were resolved through communications or meetings between the two parties. Appendix 1 of this verification report describes the findings found, the responses provided by the person responsible or head of the GHG mitigation initiative.

The project adequately corrected all non-conformities, delivering and modifying the missing information, adjusting the document, reviewing, and proposing corrective actions, with which the findings found were closed.

The identification of the findings was determined after the documentary review delivered by the project, these non-conformities respond to the requirements of the Climate, Community, and Biodiversity Standard and VCS Version 4.1 and present a support in the attached folders, as well as verifiable sources and approved.

2.6.1   Forward Action Requests

During this audit, the audit team identified 3 FARs. FAR 1 corresponds to the land tenure of some farms, while FAR 2 is generated for verification activities supplementing the development of the Biodiversity Monitoring Plan. FAR 3 is related to the project's dissemination to the community that doesn't have internet access.

The Forward Action Request must be referred to and solved in the next verification of the project.

2.7   Eligibility for Validation Activities

This section is not applicable.

3   VALIDATION FINDINGS

This section is not applicable. During this verification, the project doesn't present gap validation, or validation of methodology deviations, or project description deviations, neither present the inclusion of new project activity instances into grouped projects.

3.1   Participation under Other GHG Programs

This section does not apply, as indicated in section 3.

3.2   Methodology Deviations

This section does not apply, as indicated in section 3.

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

This section does not apply, as indicated in section 3.

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

This section does not apply, as indicated in section 3.

3.5   Grouped Project (G1.13 – G1.15, G4.1)

This section does not apply, as indicated in section 3.

4   VERIFICATION FINDINGS

4.1   Public Comments (*Rules* 4.6)

The project was open for public comment from 02/08/2021 to 01/09/2021. No comments were submitted during the public comment period.

4.2   Summary of Project Benefits

Section 1 of the monitoring report provides complete information about the project's benefits and as well affords in other sections of the monitoring report explains these benefits in more detail. Data are sufficiently supported with evidence, which was verified during the remote audit as well as the desk review conducted. The project benefits are credible based on the supporting documents provided by the project proponents and evidence during the interviews applied.

The Standardized Benefit Metrics of the Generation Forest Group Project are summarized in table in Section 1 of the Monitoring Report and the assessment is provided as below:

Table 5 Standardized Benefit Metrics

Category	Metric	Achievements during Monitoring Period	Achievements during the Project Lifetime
GHG emission reductions & removals	Net estimated emission removals in the project area, measured against the without-project scenario	57,019 tCO2e	57,019 tCO2e
	Net estimated emission reductions in the project area, measured against the without-project scenario	Not applicable	Not applicable
Forest cover	For REDD projects: Number of hectares of reduced forest loss in the project area measured against the without-project scenario	Not applicable	Not applicable
	For ARR projects: Number of hectares of forest cover increased in the project area measured against the without-project scenario	MU Darien: 414ha MU Colon: 259ha Total: 673ha	MU Darien: 414ha MU Colon: 259ha Total: 673ha
Improved land management	Number of hectares of existing production forest land in which IFM practices have occurred as a result of the project's activities, measured against the without-project scenario	Not applicable	Not applicable
	Number of hectares of non-forest land in which improved land management has occurred as a result of the project's activities, measured against the without-project scenario	Not applicable	Not applicable
Training	Total number of community members who have improved skills and/or knowledge resulting from the training provided as part of project activities	30 workshops were conducted with workers, and in fire control training neighbors were included. All new workers received initial training and induction. 36 indigenous young people trained in reforestation and forest management	30 workshops were conducted with workers, and in fire control training neighbors were included. All new workers received initial training and induction. 36 indigenous young people trained in reforestation and forest management

4.3   General

4.3.1   Implementation Status (G1.9)

ICONTEC inspected the monitoring plans contained in Project Description (01. PD Generation Forest Group. V3. August 10, 2021) and compared them with the latest version of the proponent's implementation report. The audit team confirmed that the implementation of project activities was in conformity with the monitoring plans. The proponent project presents the achievements during the Monitoring Period:

Table 6 Achievements during Monitoring Period

Outcome or Impact	Achievements during the Monitoring Period	Achievements during the Project Lifetime
1) 1,100 hectares of reforested area in Panama, in regions where soils have been degraded due to earlier land use	673ha reforested within the 2 Management Units (Darien and Colon) in Panama.	673ha reforested within the 2 Management Units (Darien and Colon) in Panama.
2) Establishment of Generation Forests, i.e., creating permanent multi-aged, multi-species, native tropical forests	Generation Forests were established on an area of 321ha using native species.	Generation Forests were established on an area of 321ha using native species.
3) Increase sustainable forest management practices in the region	Sustainable forest management practices are implemented by the project, and trainings for workers on sustainable practices were conducted on a regular basis. 36 young indigenous people were trained in reforestation and forest management.	Sustainable forest management practices are implemented by the project, and trainings for workers on sustainable practices were conducted on a regular basis. 36 young indigenous people were trained in reforestation and forest management.
4) Creation of new habitats for biodiversity, restoration of landscapes, and increase in wildlife by recruitment of plant and animal species	673ha were reforested, restoring formerly pastureland into forests. Baseline inventory on flora and fauna in 2015 was established, and camara traps used for wildlife monitoring.	673ha were reforested, restoring formerly pastureland into forests. Baseline inventory on flora and fauna in 2015 was established, and camara traps used for wildlife monitoring.

Through the interviews, the remote visit, and the documentary review it was possible to confirm that the achievements reported in the monitoring report are in accordance with what was reported, in addition, this information was validated with what was proposed in the Project Description.

In addition, the audit teams confirm following:

- Material discrepancies: The project proponent doesn´t present material discrepancies between the actual monitoring system, neither present description nor methodology deviations. Just as, the project demonstrated that within the monitoring period (2016 to 2021), the increase in forest cover and sequestration of carbon in living biomass has contributed to the reduction of GHG emissions by acting as sinks and sequestering 57,019 tCO2e.

- The audit team confirms that the project's GHG emission removals generated by the project have not become included in an emissions trading program or any other mechanism that

includes GHG and adds that there is a low probability that the project, recently validated by VERRA, is incorporated in another mechanism that includes GHG allowance trading.

- The audit team only has information about the current process of the verification and has not received any information from another environmental crediting program since validation or previous verification.

- The audit team isn't informed about whether the project has participated in any other GHG programs since validation or previous verification, and there isn't a probability that the project is currently in another process. Furthermore, the project proponent submitted a request to the Ministry of Environment of Panama for the establishment of the Carbon Absorption Register and was informed that the project is registered in Verra /24/.

- The project aims to recover degraded lands that are expected to remain degraded or continue to degrade in the absence of the project. This is obtained through GHG emission removals, which generate environmental and social co-benefits such as the conservation of biodiversity. In section 2.1.10 of the Monitoring Report, the project proponents argue that the project contributes to the following sustainable development goals in SDG: 1,5, 6, 8, and 12. The audit team believes that the project complies and contributes to long-term development.

The audit process confirmed that the project has economic viability with social and ecological benefits, providing commercially high-value tropical hardwoods, ecosystem services, and permanent restoration of forest landscapes. Furthermore, ICONTEC identified that the project managed to engage neighbors and communities in the region, especially the indigenous communities, such as the Emberá community in Piriatí, Darien. Also, the project has shown evidence that it has increased forest cover through the creation of permanent generation forests and has enrichment planting in existing intervened secondary forest.

In accordance with the above, ICONTEC can confirm that the project has been implemented as described in the validated Project Description.

4.3.2 Risks to the Community and Biodiversity Benefits (G1.10)

The project proponent demonstrated that there are no risks to the community and presented the benefits to biodiversity. This data was analyzed using VCS-Non-Permanence-Risk-Report-FF. Internal, External, and Natural Risks/11/, which identified well-being benefits and non-risks. The procedure was carried out by the methodology. Furthermore, interviews with the Forestry Director (Iliana Armien) and the Science and Carbon Manager (Susanne Guamba) confirmed this.

4.3.3 Community and Biodiversity Benefit Permanence (G1.11)

Through the interviews (Science and Carbon Manager, Forestry Director and Operations Manager, Supervision Monitoring Team), ICONTEC confirmed that the project seeks permanence the climate, community, and biodiversity benefits, with the following approaches: Permanent employment through reforestation activities and sustainable forestry activities, the establishment of permanent bio-corridors for the fauna of the region, assisted natural regeneration and enrichment planting, and protected forest areas, which include the protection of watersheds, riparian areas, and watersheds.

Through Monitoring Report /1/ and annex /10/, /19/, /20/, /21/, the project proponent demonstrates that the project defined the necessary measures to protect the Community and Biodiversity Benefit Permanence.

4.3.4 Stakeholder Access to Information (G3.1- G3.3)

The project documentation is available on the public project website of VERRA, and the project proponents sent the summary project description to the stakeholders by email (NGOs, Municipality, MinAmbiente, and Indigenous Foundation).

The documentation has enough and is appropriate for access to communities and other stakeholders.

4.3.5 Stakeholder Consultation (G3.4 – G3.5)

The project proponent has consulted stakeholders on project implementation, the community groups identified are authorities, consultants, extern auditor, and the neighbors of the project instances (Community Emberá), this information was presented in the Monitoring Report /1/.

The above information was verified through interviews with members of the Embera community, including Militza Cunampio, Albert Aji, Elio Barrigón, and another neighbor (Father Paul Kasuboski). The audit team confirmed that various stakeholders were consulted.

Similarly, ICONTEC confirmed in interviews with the Ministry of Environment and Forestry that the project has been presented to environmental authorities. However, the project's proponent stated that some people who do not have access to the internet were informed through mobile and other options. As a result, the audit team created the FAR3 for the subsequent verification.

4.3.6 Stakeholder Participation in Decision-making and Implementation (G3.6)

The Communication in Futuro Forestal is managed by the central administration of the company, the policy includes channels for internal communication with workers and external communication with other stakeholders. Through interviews and review documentary was proved effective communication.

4.3.7 Anti-discrimination (G3.7)

The project proponent demonstrated that the participation of the community and all stakeholders in the project has been inclusive, according to individual and gender-independent capacities, cultural identity, and religion. This information was corroborated in interviews performed with the project workers, in addition, the enterprise has documents that allow avoiding the discrimination: /26/, /27/, /28/.

4.3.8 Stakeholder Feedback and Grievance Redress Procedure (G3.8)

The project proponent proved that no grievance was received in the monitoring period.

4.3.9   Worker Relations (G3.9 – G3.12)

During the verification evaluated the relationship between the project and direct and indirect workers. The interviews evidenced that the workers have expectations about the growth of the company (Futuro Forestal), and the indirect workers want back to the company and consider that they gained great knowledge in the activities carried out.

4.3.10   Management Capacity (G4.2 – G4.3)

The project proponent has interdisciplinary staff, who are qualified according to the established functions. The management team includes professionals with experience in the establishment and management of reforestation activities with natives and teak, who have been trained to develop project activities in the Project Area.

In terms of Financial Health, the project has investors are based on the management agreement, projected work plan, and annual budgets. For all project instances, more than 80% of the funding needed for implementation is secured before the breakeven point.

Furthermore, in remote visit, the audit team interviewed personnel that participle directly at the project, also, interviewed temporal workers who belong to community Embera. The interviews evidenced the organizational structure and the approach of engaging (indigenous) communities for community development requires continuous training and capacity building of the field staff, which is also documented by the FSC, and B-Corp certifications held by Futuro Forestal.

In summary, the project has the appropriate management capacity.

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

No commercially sensitive information has been excluded from the public version of the monitoring report.

4.3.12   Rights Protection and Free, Prior and Informed Consent (G5.1-G5.5)

The project instances are private, and the project has a procedure for securing the selection of legal lands. ICONTEC reviewed the legal documents of land tenure and identified that Futuro Forestal is the legal representative of the entities that own the project activity instances. Through written agreements Futuro Forestal is entitled to manage the project and the instances, which includes the design of the project, the creation, registration and brokerage of carbon credits on behalf of the owner. However, the owners of the farms Gatún I, Bartoly I y II y Lauhan I y II, are currently in the process with the ANATI for the titulation of property of these farms, at this time they have possessory rights. (FAR 1).

The audit team verified that the project does not encroach on private, community, or government property. The audit process evidenced that the project has protected the rights of Indigenous

Peoples, communities, and other stakeholders in accordance with the third edition of the Climate, Community & Biodiversity Standards, and the validated project description.

4.3.13   Legal Status (G5.6)

The project proponent provided legal documents that demonstrated compliance with national and local laws and regulations relevant to project activities. Additionally, the Forestry Director (Iliana Armién) explains the procedure for selecting the legal lands in new instances.

4.4   Climate

4.4.1   Accuracy of GHG Emission Reduction and Removal Calculations

The GHG emission reductions and removals have been quantified correctly in accordance with the Project Description. The data and parameters used to calculate the GHG emission reductions and removals, follows:

Data / Parameter	A
Data unit	ha
Description	Project Area (eligible planted area)
Source of data	Survey databases of each polygon that is part of the Project.
Description of measurement methods and procedures to be applied	Field measurement: the area was delineated on the ground using a GPS device.
Frequency of monitoring/recording	At the beginning of site preparation, in the final establishment of the Reforestation Area and each time a verification is conducted.
Value monitored	Darien: 414,8 ha Colon: 258,6 ha
Monitoring equipment	GPS equipment (precision 1- 5 m) and Remote Sensing data.
QA/QC procedures to be applied	The delineated area is verified using a GPS device.
Purpose of data	Calculation of Project GHG emission reductions or removals.
Calculation method	Measurement
Steps taken by audit team	Verification: control points, validation tracks, and geographic information

Data / Parameter	A_i
Data unit	ha
Description	Area of stratum i

Source of data	Monitoring of stratum and stand boundaries is done employing Geographical Information Systems (GIS) allowing the integration of data from different sources (including GPS coordinates and Remote Sensing data).
Description of measurement methods and procedures to be applied	Field measurement: the area was delineated on the ground using GPS device.
Frequency of monitoring/recording	Each time a verification is conducted.

Value monitored	**STRATA**		**Management Unit**	**Area, in ha**
	Stratum 1	Teak	Darien	316.8
	Stratum 2	Natives	Darien	85.8
			Colon	224.9
	Stratum 3	Enrichment	Darien	12.2
			Colon	33.6
			TOTAL	673.3

Monitoring equipment	GPS equipment (precision 1- 5 m) and Remote Sensing data.
QA/QC procedures to be applied	The delineated area is verified using a GPS device
Purpose of data	Calculation of Project emissions.
Calculation method	Measurement.
Comments	The stratification for ex-post estimations is based on the actual implementation of the project planting/management plan. New instances might be added in future verifications. It may even be necessary to evaluate the possibility of re-stratification of the project boundary, according to the development of the stand models, as it would enable the merging of several strata in order to optimize the costs and improve the outcomes of annual forest inventories.
Steps taken by audit team	Verification: control points, validation tracks, and geographic information.

Data / Parameter	n
Data unit	Dimensionless
Description	Number of plots established in each stratum
Source of data	Sampling error estimations.
Description of measurement methods and procedures to be applied	This value was estimated based on a pre-sampling development in the Project Area prior to designing the monitoring program, and then adjusted during groundwork. 2% of the reforested area was used to establish the number of monitoring plots.
Frequency of monitoring/recording	Each time a verification is conducted.
Value monitored	**STRATA**	**Management Unit**	**Number of plots**	**Number of subplots**

Stratum 1	Teak	Darien	166	32
Stratum 2	Natives	Darien	18	18
		Colon	74	74
Stratum 3	Enrichment	Darien	5	5
		Colon	6	6
		Total	**269**	**135**

Monitoring equipment	
QA/QC procedures to be applied	Quality control/quality assurance (QA/QC) procedures described within the monitoring system of the Project were applied.
Purpose of data	Estimate the number of plots needed for complying with a 90% confidence interval, at infinite degrees of freedom. The acceptable margin of error is less than 10% of biomass stock. Uncertainty of the estimated mean of all monitored parameters is to be less than 10%.
Calculation method	MR_Section 3.1.3 for the calculation method.
Steps taken by audit team	Verification: parcel sampling, review of calculation

Data / Parameter	Ap.i
Data unit	m²
Description	Area of sample plot in stratum *i*.
Source of data	Field measurement.
Description of measurement methods and procedures to be applied	Methods according to Monitoring Procedures Manual of the Project were applied.
Frequency of monitoring/recording	Each time a verification is conducted.
Value monitored	500 m^2
Monitoring equipment	Tape measure and GPS.
QA/QC procedures to be applied	To verify that plots were installed, and the measurements were taken correctly; field measurements were checked by the supervisor to compare with the original measurement data and to correct any errors in techniques.
Purpose of data	Calculation of Project emissions.
Calculation method	
Comments	Sample plot location was registered with a GPS and marked on the Project map.
Steps taken by audit team	Verification: control points, validation tracks, geographic information. Forestry inventory procedure for carbon monitoring (Finding CAR1)

Data / Parameter	Asubp.i
Data unit	m²
Description	Area of sample subplot in stratum *i*.
Source of data	Field measurement.

Description of measurement methods and procedures to be applied	Methods according to Monitoring Procedures Manual of the Project were applied.
Frequency of monitoring/recording	Each time a verification is conducted.
Value monitored	Teak: 3m radius circle (28.27 m²)
	Natives: 2x2m square (4m²)
Monitoring equipment	Tape measure and GPS.
QA/QC procedures to be applied	To verify that plots were installed, and the measurements were taken correctly; field measurements were checked by the supervisor to compare with the original measurement data and to correct any errors in techniques.
Purpose of data	Calculation of Project emissions.
Calculation method	
Steps taken by audit team	Verification: control points, Forestry inventory procedure for carbon monitoring (Finding CAR1)

Data / Parameter	Sample Plot Location
Data unit	Coordinates (Lat/Long)
Description	Localization of each sampling plots.
Source of data	GIS database and maps, and field sampling.
Description of measurement methods and procedures to be applied	Measured with GPS.
Frequency of monitoring/recording	Each time a verification is conducted.
Value monitored	Latitude and longitude of every plot
Monitoring equipment	GPS.
QA/QC procedures to be applied	Methods according to Monitoring Procedures Manual of the Project will be applied.
Purpose of data	Calculation of Project emissions
Calculation method	
Comments	Sample plot location was registered with a GPS and marked on the Project map within the GIS project database.
Steps taken by audit team	Verification: control points, Forestry inventory procedure for carbon monitoring (Finding CAR1), geographic information

Data / Parameter	DBH
Data unit	cm
Description	Diameter at Breast Height of the trees.
Source of data	Field measurements in sample plots.
	Measured at 1.3 m above-ground.

Description of measurement methods and procedures to be applied	All the trees with DBH ≥ 10 cm in the PMP were measured and all trees with total height > 1.50 cm in the sub-plots were measured.
Frequency of monitoring/recording	Each time a verification is conducted.
Value monitored	The forest inventory database is presented in the supporting information.
Monitoring equipment	Measuring tape.
QA/QC procedures to be applied	Staff involved in the field measurement work were fully trained in field data collection. Field measurements were checked by the supervisor to correct any errors in techniques.
Purpose of data	Calculation of Project emissions
Calculation method	
Comments	MR_Section 3.1.3 provides the detailed procedures to be applied.
Steps taken by audit team	Verification: control points, Forestry inventory procedure for carbon monitoring (Finding CAR1), geographic information, parcel sampling, review of calculation

Data / Parameter	Hc
Data unit	m
Description	Commercial height of trees.
Source of data	Field measurements in sample plots and nested sub-plots.
Description of measurement methods and procedures to be applied	Measure all the trees' commercial height in the permanent sample plots that result in the Project activity.
Frequency of monitoring/recording	Each time a verification is conducted.
Value monitored	The forest inventory database is presented in the supporting information.
Monitoring equipment	Hypsometer used in this monitoring period.
QA/QC procedures to be applied	Staff involved in the field measurement work were fully trained in field data collection. Field measurements were checked by the supervisor to correct any errors in techniques.
Purpose of data	Calculation of Project emissions.
Calculation method	MR_See section 3.1.3 Monitoring Plan
Comments	In the future new technology might be used to measure tree height, such as LIDAR, drone video images, digital DEM extrapolation, or others.

Steps taken by audit team	Verification: control points, Forestry inventory procedure for carbon monitoring (Finding CAR1), geographic information, parcel sampling, review of calculation

The GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology proposed in the Project Description.

4.4.2   Quality of Evidence to Determine GHG Emission Reductions and Removals

In process Audit verified the procedure for the collection of data, this verification made through the interviews (Consultant Monitoring, Carbon Calculations, monitoring team), and the Forestry inventory procedure for carbon monitoring /2/. Additionally, validation audit visit on-site information was used (See Appendix 2).

The forest inventory and monitoring system established 269 PMP (the plots including plots with DAP < 10cm) The following table presents the area of the strata per year of planting (2007-2020).

Table 7 Stratum Monitoring Plan (With plots <10cmDAP)

Management Unit	Year of planting	Area (ha)	No PPM
STRATUM 1 - TEAK			
Darién	2007	17,75	9
	2008	35,1	18
	2010	12,14	6
	2011	48,03	25
	2012	51,44	27
	2013	71,78	40
	2014	25,43	15
	2015	13,8	7
	2016	12,44	10
	2017	9,46	6
	2018	1,07	3
TOTAL		**298,44**	**166**
STRATUM 2 - NATIVES			
Darién	2007	18,5	8
	2008	8	4
	2015	2,3	2
	2016	6,9	3
	2018	3,3	1
	Sub-Total	39	18
Colón	2011	5,9	4
	2014	25,4	13
	2017	16,2	7
	2019	97	34

Management Unit	Year of planting	Area (ha)	No PPM
	2020	35,9	16
	Sub-Total	180,4	74
TOTAL		**219,4**	**92**
STRATUM 3 - ENRICHMENT			
Darién	2011	12,2	5
	Sub-Total	12,2	5
Colón	2019	13,97	6
	Sub-Total	13,97	6
TOTAL		**26,17**	**11**
TOTAL		**544,01**	**269**

For the carbon calculations, only 258 plots were considered and included for the carbon calculation, which is shown in the Table 8. Therefore, it is necessary to clarify that the project decided it as a conservative measure, and currently doesn't´ benefit from the remaining 11 plots because those monitoring plots have not reached a DBH > 10cm yet.

Table 8 Stratum for Carbon Calculation (With plots >10cmDAP)

Management Unit	Year of planting	Area (ha)	No PPM
STRATUM 1 - TEAK			
Darién	2007	17,75	9
	2008	35,1	18
	2010	12,14	6
	2011	48,03	25
	2012	51,44	27
	2013	71,78	40
	2014	25,43	15
	2015	13,8	7
	2016	12,44	10
	2017	9,46	6
	2018	1,07	3
TOTAL		**298,44**	**166**
STRATUM 2 - NATIVES			
Daríen	2007	18,5	8
	2008	8	4
	2016	6,9	3
	Sub-Total	33,4	15
Colón	2011	5,9	4
	2014	25,4	13
	2017	16,2	7
	2019	97	35

Management Unit	Year of planting	Area (ha)	No PPM
	2020	35,9	13
	Sub-Total	180,4	72
TOTAL		**213,8**	**87**
STRATUM 3 - ENRICHMENT			
Daríen	2011	12,2	5
TOTAL		**12,2**	**5**
TOTAL OF 3 STRATA			
Total Strata (3)		**524,44**	**258**

The establishing PMP for teak corresponds to circular plots of 500m^2, and the native stratum corresponds to rectangular plots of 500m^2.

Equation to estimate the biomass of trees of *Tectona grandis* on the function of basal area per tree (Fonseca, 2021).

C total (kg) = exp (-2.79561 + 2.54144*ln (DBH))

Where,

C total (kg) = Carbon, total in tree, aboveground and belowground biomass
exp = exponent
Ln = Natural logarithm
DBH = Diameter at breast height

As to Baseline net GHG reductions and removals by sinks, the project's baseline emissions or removals at the start date are zero, as explained in the project description. However, the project started its reforestation activities in some project instance sites prior to the 2016 project start date.

The project, therefore, counts the emissions reductions in the reforestation prior to the project start date as baseline carbon reductions. This information was clarified by VERRA (Appendix 3).

In the case of Stratum 1 – Teak – historic monitoring data on tree growth from 2015 were used as a baseline. In the case of Stratum 2 and 3 for Native tree species, the existing monitoring data were too thin, for which estimates using the carbon model of the Generation Forest (as set out in the PDD), was used.

According with the review document, interviews and the Monitoring Report, the information is enough of quantity, and appropriateness of quality describe, for the determination the GHG reductions and removals.

Based on the information detailed in MR and the estimations tools and files, ICONTEC could confirm that the sources used are quoted correctly and interpreted adequately. All assumptions, sources and data are indicated and, all relevant information about the project, was confirmed and checked

completely. In consequence, we can conclude that the methodology was applied following all the requirements, equations, and methodological procedures.

Finally, the methodology and referenced tools have been applied correctly to calculate baseline emissions, project emissions, leakage and net GHG emission reductions. ICONTEC confirms that the GHG removals have been quantified correctly, in accordance with the Project Description version 2, the Monitoring Report v.2 and the applied methodology.

4.4.3   Non-Permanence Risk Analysis

Proponent project was conducted following the guidance of the VCS AFOLU Non-Permanence Risk Tool" Version 4.0. The result of the non-permanence risk for the grouped project was 5.75%, in accordance with the supporting documents. According to VCU standard, a minimum of 10% of the risk buffer will be defined. The information is described in section 3.2.4, and the assumption is that the methodology result´s is reasonable.

Below, it is explained the assessment of the non-permanence risk rating determined by the project participant and issues raised to them in this regard:

Table 9 Assessment of non-permanence risk rating

Risk Factor		Risk rating	Mitigation description	Corrective Actions/Clarifications
Internal Risk	Project Management	-2	The management has significant experience in AFOLU project design and implementation with NatSource in Nicaragua and CO_2OL-USA. In addition, the team of project developers contains the carbon expert and consulting company ClearSky Climate Solutions with vast experience related to carbon markets and AFOLU projects.	In the Report of Risk of Non-permanence and the annexes, it can be verified that the mitigation of the risk and the evaluation of the same one is correct.
	Project cash flow breakeven point is greater than 10 years from the current risk assessment	3	Project cash flow breakeven point is greater than 10 years from the current risk assessment, typically between 17 and 25 years	
	NPV from project activities is expected to be at least 50% more profitable than the most	-4	The baseline activities are cattle farming. Simple cost analysis showed that the project activity compared to the baseline scenario is expected to be at least 50 % more profitable.	
	profitable alternative land use activity		expected to be at least 50 % more profitable.	
	Without legal agreement or requirement to continue the management practice	4	The project instances have a lifetime of at least 100 years as stated in our documents and cash flow / financial projections (24 (100/5) = 4).	
			The project instances are FSC certified	
			since 2019 and Futuro Forestal is B Corp certified since 2016.	

	Risk Factor	Risk rating	Mitigation description	Corrective Actions/Clarifications
External Risk	Ownership and resource access/use rights are held by same entity(s)	0	Ownership and resource access/use rights are held by same entity(s).	In the Report of Risk of Non-permanence and the annexes, it can be verified that the mitigation of the risk and the evaluation of the same one is correct.
	The project generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area	-5	The project generates net positive impacts on the social and economic well- being of the local communities who derive livelihoods from the project area, by providing employment, facilitating the access to the social security benefits, including health care and also by executing trainings related to the forest management of the planting area, as well as by improving public paths and roads	
	Governance score of -0.32 to less than 0.19	2	Panama: 0.14	
			Calculation can be found in the supporting documents. Governance score estimated for Panama between the years 2015-2019.	
	Country is implementing REDD+ Readiness or other activities	2	Panama is a UN-REDD+ partner country and has completed the REDD+ readiness phase in 2019. As a result of this process, the country currently has a National REDD + Strategy, a National Forest Monitoring System, a Forest Emission Reference Levels as a baseline, and an Environmental and Social Safeguards Information System with which to guarantee the rights of indigenous peoples and of all users of forests.	
Natural Risk	Fires, forest pests, and disease outbreaks can negatively impact climate and biodiversity. This is because these conditions will affect the established forest within the Project Areas.	4.75	The project plants biodiverse species, selecting resistant native species that are well adapted to site conditions. Pest and disease monitoring is permanently established and regularly conducted throughout the project instances.	In the Report of Risk of Non-permanence and the annexes, it can be verified that the mitigation of the risk and the evaluation of the same one is correct.

As result, the project presents the overall risk rating:

Table 10 Overall Risk Rating

Risk Category	Rating
Internal Risk	1
External Risk	0
Natural Risk	4,75
Overall Risk Rating (a+b+c)	5,75

The methodology and results are appropriateness and according with the VCU standard-

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

The project proponent explain that the Monitoring Plan was published on the platforms of VERRA, and it was submitted to the public consultation on the VERRA platform; no comments received to date. In addition, the Monitoring Report was regarding and shared with stakeholders via Email (NGOs, Municipality, MinAmbiente, and Indigenous Foundation).

4.4.5   Optional Gold Level: Climate Change Adaptation Measures (GL1.3)

Not applicable.

4.4.6   Optional Gold Level: Climate Change Adaptation Benefits (GL1.4)

Not applicable.

4.5   Community

4.5.1   Community Impacts (CM2.1)

The project proponent identified three topics of community group:

- Workers
- Communities, and
- Indigenous Communities, Piriatí and Arimae (Darien)

The Change in Well-being corresponds to new employment opportunities for local workers with social benefits. A measurable increase in employment and employee earnings. The impact is positive. It increases the living conditions and well-being of employees. Without the Project, this change is not foreseeable, Improvement in quality of life through improved infrastructure, and Improvements in income, access to health, personal training, environmental sensitivity.

Interviews performed with ex-workers, current project workers, and neighbors (table 2 and table 3) verified the positive community impacts, likewise, section 3.4.1 of the Monitoring Report/1/ identified adequately the impacts and Change in Well-being in the community, and there and are properly separated by community groups.

4.5.2   Negative Community Impact Mitigation (CM2.2)

The project proponent don´t identified negative community impacts and argued that the local labor cannot be found, it may be necessary to hire workers from more distant communities. The culture of temporary mobility of employees can be a factor in family fragmentation. As a mitigation measure, in some cases, the project creates infrastructure conditions and access to health and education for employees' family members that allow them to stay with their families.

The information was corroborated through interviews and review documental.

4.5.3   Net Positive Community Well-being (CM2.3)

The project proponent argued that the project generates positive changes in the community, offering them long-term employment opportunities, and support for the community, and informs that between 2018 to 2021, the number of permanent employees has increased from 18 to 28. Currently, the program counts on 28 permanent staff (including Vivero), and a total of 68 employees, including seasonal workers, of which 8 are women (12%). This information was described in Section 3.4.3 of the Monitoring Report/1/and was corroborated through the interview performed with the Forestry Director and Co-founder of Futuro Forestal, Iliana Armien.

In addition, the project presented other activities concerning access road, the rescue of the forest culture, through reforestation and training, as a tool for the recovery of the traditional and ancestral culture of an Emberá community in Piriatí, and technical education for activities forestry, this information was verified through interviews to neighbors (Father Paul Kasuboski).

4.5.4   Protection of High Conservation Values (CM2.4)

The project proponent informs in section 3.4.4 of the Monitoring Report that there are no high conservation values related to the community.

4.5.5   Other Stakeholder Impacts (CM3.2-CM3.3)

Negative impacts have not been identified in this monitoring report.

4.5.6   Community Monitoring Plan (CM4.1, CM4.2, GL2.2, GL2.3, GL2.5)

In Section 4.3.1. of the Monitoring Report, is described the results and indicators referred to Community Monitoring Plan, and details each of the indicators.

Table 11 Results and Indicators Monitoring Topic Social

Assumption	Indicator	Monitoring	Source of verification
Create formal employment	By 2025, at least 25 permanent jobs created; at least 15% of the jobs are held by women.	May 2021: 28 permanent jobs created, 5 are women (18%). Average of 60 workers including seasonal workers (2018-2021).	Social Security.Monitoring Report Section 3.4.1; 3.4.3; 3.6.1. Interview Forestry Director, Co-founder Futuro Forestal.
Labor conditions	By the year 2026, at least 80% of workers are satisfied with their working conditions.	Improved housing conditions, investments into house, safety, and worker conditions.	Job Satisfaction Surveys. Interview with the ex-employees and current employees.
	By 2026, at least 80% of workers are satisfied with their jobs.		*Due to COVID-19 restrictions, no job satisfaction survey could be*

Assumption	Indicator	Monitoring	Source of verification
			implemented. Interview with the ex-employees and current employees.
Increase in knowledge, skills, and capacity of employees	By 2026, 100% of the workers received some technical training in forest management skills, procedures, or approaches.	Over 30 training sessions were implemented between 2019-2021. Most permanent and seasonal staff received technical training.	Training reports. Interview with the ex-employees and current employees;/19/
	By 2026, 100% of workers are trained in health and occupational safety.	100% of workers trained in health and occupational safety.	Training reports. Interview with the ex-employees and current employees.
Improve the living conditions of the community	Access roads are maintained and repaired, where feasible.	Improved infrastructure in many access and public roads (2020: Darien: Garden Eden, Quebrada Bonita,2021: Darien: Brainforest, Clarita; 2020: Colon, Santa Rita)	Activity reports of project instances. Interview with the ex-employees and current employees.
Improve the living conditions of the community	By 2026, at least 20 members of nearby communities or indigenous communities received training as part of project activities.	In 2019, 36 young people from the Emberá community in Piriati received training in reforestation and forest management. 8 received training in monitoring and forest inventory (2020,2021).	Project activity report. Interview with the ex-employees and current employees.
Increase community livelihood opportunities	By the year 2026, at least 70% of tree seedlings, of locally available species, are purchased from tree nurseries within the region.	Project design finished creating a local tree nursery within Darien Management Unit.	Project purchase orders and database. Interview with the ex-employees and current employees.

The information was corroborated through interviews and review documental.

4.5.7   Community Monitoring Plan Dissemination (CM4.3)

The project proponent explain that the Monitoring Plan was published on the platforms of VERRA, and it was submitted to the public consultation on the VERRA platform; no comments received to date. In addition, the Monitoring Report was regarding and shared with stakeholders via Email (NGOs, Municipality, MiAmbiente, and Indigenous Foundation).

4.5.8   Optional Gold Level: Short-term and Long-term Community Benefits (GL2.2)

Not applicable.

4.5.9   Optional Gold Level: Smallholder/community member Risks (GL2.3)

Not applicable.

4.5.10   Optional Gold Level: Marginalized and/or Vulnerable Community Groups (GL2.4)

Not applicable.

4.5.11   Optional Gold Level: Net Impacts on Women (GL2.5)

Not applicable.

4.5.12   Optional Gold Level: Benefit Sharing Mechanisms (GL2.6)

Not applicable.

4.5.13   Optional Gold Level: Governance and Implementation Structures (GL2.8)

Not applicable.

4.5.14   Optional Gold Level: Smallholders/Community Members Capacity Development (GL2.9)

Not applicable.

4.6   Biodiversity

4.6.1   Biodiversity Changes (B2.1)

In section 4.1.1. of the Monitoring Report/1/, presented the changes identified related to the results of the established camara traps. The reports from the biodiversity partner SOMASPA show an increase in wildlife species, and presented information referred to reforestation activity with mixed native tree species. The information was corroborated with results camara traps/20/;/21/, and forestry inventory/6/;/7/. Follows presents the species related whit flora and fauna:

- Increased flora species richness
- Restored habitats and enhanced local biodiversity
- Created conservation buffers and provided ecosystem protection

The information was corroborated through interviews (Consultant Monitoring Carbon Calculations; Science and Carbon Manager) and review documental.

4.6.2   Mitigation Actions (B2.3)

The Monitoring Report informs that don´t identified negative impacts to the biodiversity were presented. However, the project implemented different mitigation measures, related to the forestry management of the reforestation, care of vegetation on slopes, maintained of biological corridors,

connection natural forest areas, training of workers and sensitization of workers to biodiversity principles realized.

The information described above was verified through interviews, and information on the validation site.

4.6.3   Net Positive Biodiversity Impacts (B2.2)

The activities implemented by the Grouped Reforestation Project seek to generate diverse benefits to biodiversity are described in section 4.1.3 of the Monitoring Report/1/. In follows table presents the summary impacts achieved during the monitoring period:

Table 12 Results and Indicators Monitoring Topic Biodiversity

Impact	Effect	Direct/ Indirect
Increase of forest cover and creation of permanent Generation Forest (673ha)	Positive	Direct
Increase of biodiversity (flora) using more than 20 native tree species in reforestation activity.	Positive	Direct
Increase of biodiversity (fauna) counting 26 mammal species.	Positive	Indirect
Carbon sequestration as the forest is acting as a carbon sink.	Positive	Indirect
678ha of protected existent forest, providing ecosystem protection	Positive	Indirect

The information was corroborated through interviews and review documental.

4.6.4   High Conservation Values Protected (B2.4)

The project proponent claims in section 4.1.4 of the Monitoring Report that the project does not have HCV attributes on the grouped project activity instances. The information was corroborated through the interview with the Forestry Director, Co-founder of Futuro Forestal, and Science and Carbon Manager. The enterprise has established guidelines for wildlife conservation and the protection of endangered species within the project area of /10/; /11/; and/12/.

4.6.5   Invasive Species (B2.5)

It was verified that the project does not introduce or manage invasive species. Instead, the project promotes the use of native species and sustainable use of local flora.

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

The project used one non-native species which is Teak (Tectona grandis), and the project proponents justified its use informs that Futuro Forestal has been carrying out reforestation projects for 25 years for small and large investors, because the teak have been mainly its high market value and adaptability to the climate that exists in Panama, but with high site requirements. In many areas of the country, this species has been planted in places where it is not suitable to produce wood or to

provide environmental benefits, and the project proponents has been planting the specie in suitable areas, for this reason, only planting on suitable soils, and areas with slopes of less than 12 degrees.

It was verified that the established Teak there are don't in protection areas, through geographic information, documental information, and interviews.

4.6.7   GMO Exclusion (B2.7)

The proponent project informs that no GMOs were used in the project activities. The Project is certified under FSC and complies with FSC requirements regarding the use of chemicals. During the remote audit, interviews were conducted with the External auditor of plantations for certification FSC and verified the information indicated in section 5.1.8.

4.6.8   Inputs Justification (B2.8)

The Project is certified under FSC and complies with FSC requirements regarding the use of chemicals. During the remote audit, interviews were conducted with the External auditor of plantations for certification FSC and verified the information indicated in section 5.1.8. In FSC, the project proponent reports that he does not use genetically modified material. The following describes the procedure for the seeds:

- Native seeds: most are searched in natural forests and taken directly to the own nursery. After germination, they are put either in tubes or in jiffys. When the seedlings are ready, they are planted in the reforestation area.
- Native seeds are not available locally, or teak: certified seeds are purchased. The purchase process has a specific procedure. Additionally, the project proponent presents evidence of provenance, indicating that it comes from a natural forest and is of indigenous origin /25/.

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

In section 4.2.1 of the Monitoring report the project doesn´t reported the negative impacts on biodiversity because there weren't negative impacts outside of the project zone. Quite the opposite, with the actions done to protecting, there were improvements in biodiversity, species richness, forest conditions, and reduction of degraded lands, resulting in the increase of ecosystem services provision.

Through the documentary review was corroborated the information, specifically /10/, /11/, /21/, /22/, /25/, and section 4.3 of the Monitoring Report.

4.6.10   Net Offsite Biodiversity Benefits (B3.3)

The project doesn´t reported negative impacts on biodiversity outside the Project Zone resulting from Project activity. Through the documentary review was corroborated the information, specifically /10/, /11/, /21/, /22/, /25/, and section 4.3 of the Monitoring Report.

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

The project indicates that to determine the biodiversity monitoring sites, frequency, and intensity of sampling, the project proponent has close collaboration with SOMASPA, other fauna biodiversity partners, universities, NGOs, or other specialists in biodiversity monitoring (national and international). The project proponent adequately describes the management and procedures to comply with the Biodiversity Monitoring Plan.

In terms of fauna, the project identified species captured by camara traps, following tables showed the results the 2018 and 2020:

Table 13 Results Monitoring Fauna (2018; 2020)

Species - Scientific Name	2018	2020
Didelphis marsupialis	x	x
Metachirus nudicaudatus	x	x
Tamandua mexicana	x	x
Dasypus novemcinctus	x	x
Sciurus granatensis	x	x
Hydrochoerus isthmius*	x	x
Dasyprocta punctata	x	x
Cuniculus paca	x	x
Proechimys semispinosus	x	x
Sylvi/agus gabbi	x	x
Nasua narica	x	x
Eira barbara	x	x
Leopardus pardalis*	x	x
Leopardus wiedii*	x	x
Herpailurus yagouaroundi*		x
Puma concolor*		x
Pecari tajacu		x
Mazama temama*		x
Hop/omys gymnurus		x
Procyon cancrivorous		x
Cerdocyon thous		x
Galictis vittata		x
Panthera onca		x
Cabassous centralis		x
Myrmecophaga tridactyla		x
Cebus capucinus		x
N Species	*18*	**26**

* High conservation concern

In terms of flora, in this monitoring period, the project identified that the project activities reduce the threats of four 1 Critically Endangered flora species listed in IUCN: *Dalbergia retusa,* and 3 nationally endangered or vulnerable flora species which are *Swietenia macrophylla, Cedrela Odorata, Guzmania musaica,* and *Zanthoxylum acuminatum*. According to the project proponent, this information was taken off the permanent plots.

The information was correctly justified, and ICONTEC concludes that the biodiversity monitoring plan was carried out in accordance with the validated project design, however, PP must complement the development of the Biodiversity Monitoring Plan provided in order to comply with the project description (5.3.1) (FAR2).

4.6.12 Biodiversity Monitoring Plan Dissemination (B4.3)

The project proponent explain that the Monitoring Plan was published on the platforms of VERRA, and it was submitted to the public consultation on the VERRA platform; no comments received to date. In addition, the Monitoring Report was regarding and shared with stakeholders via Email (NGOs, Municipality, MiAmbiente, and Indigenous Foundation).

4.6.13 Optional Gold Level: Trigger Species Population Trends (GL3.3)

Not applicable.

4.6.14 Optional Gold Level: Effectiveness of Threat Reduction Actions (GL3.4)

Not applicable.

4.7   Additional Project Implementation Information

The project doesn´t include additional Implementation Information.

4.8   Additional Project Impact Information

The project doesn´t include additional Implementation Information. .

5   VERIFICATION CONCLUSION

ICONTEC affirms that according to the information provided by the project proponent, it can conclude follows:

- The project complies with the verification criteria for Standard CCB Version 3.1 and VCS Version 4.1.
- The project has been implemented in accordance with the validated project description and show no deviation.
- The project employed correctly the methodologies selected.

Furthermore, ICONTEC concludes that the climate change adaptive capacity and resilience, community and biodiversity benefits achieved by the project during the project implementation period are net positive and that the project has achieved, or is on track to achieve, its stated climate change adaptive capacity and resilience, community, and biodiversity objectives.

According to above, the GHG emission reductions or removals in tCO_2 equivalents achieved by the project during the monitoring period from 15 August 2016 to 05 June 2021, corresponds to 57,019 tCO_2e

Verified GHG emission reductions and removals in the above verification period:

Year of planting	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
Year 2007	6,613	10,615	0	4,002
Year 2008	6,964	12,909	0	5,944
Year 2010	979	3,357	0	2,378
Year 2011	3,867	15,341	0	11,475
Year 2012	4,726	9,333	0	4,607
Year 2013	3,371	13,11	0	9,738
Year 2014	1,017	5,946	0	4,928
Year 2015	0	2,332	0	2,332
Year 2016	0	2,277	0	2,277
Year 2017	0	2,861	0	2,861
Year 2018	0	74	0	74
Year 2019	0	4,306	0	4,306
Year 2020	0	2,097	0	2,097
Total	**27,537**	**84,556**	**0**	**57,019**

The quantity of VCUs to be issued to the project minus the quantity of VCUs to be issued to the buffer pool is 51,317.

APPENDIX 1: FINDINGS

CAR No.	1	Reference	VCS Standard V4.0 (19 September 2019) 3.14; 3.15 Monitoring Report Generation Forest CCB-VCS Version 1-	**Date:** 12-09-2021
Description of CAR 1				
The strata described in Monitoring Report demonstrate heterogeneity, and the calculation information shows more strata (per year). Clarify the condition of the strata into the Monitoring Report with all strata defined for the calculation. This information better explain the process performed.				

Project participant response	Date: 24-09.2021

The description of the stratification and detailed calculation information per strata was explained to the auditor, supported by several attachments, and the information added to the Monitoring report.

Summary of project participant response:

The Generation Forest Grouped Project instances are stratified into three strata that correspond to sites planted with Teak (Stratum 1 – Teak), Native species on grassland (Stratum 2 – Natives), and Native species in shrubland or stubble (Stratum 3 - Enrichment). For the monitoring system to provide disaggregated data on tree and stand development, two regions were defined: Colon and Darien (in alignment with the 2 management units of the project). In Darien, all three strata are represented (Teak, Natives, Enrichment). In Colon only 2 strata are represented (Natives and Enrichment), as the forest sites are not suitable for teak. Furthermore, the strata were defined according to actual planting dates (year of planting), area's location (management unit) and stand models (see table below). Within the management units, the permanent monitoring plots (PMP) were established in the different instances. Neither natural nor anthropogenic impacts (e.g. topography, local fires) nor other factors (e.g. soil type) significantly altered the pattern of biomass distribution in the project area.

In total, 269 PMP and 135 subplots were established, including younger reforestation sites to gather relevant monitoring data on species and stand development. However, considering the fact that only trees with a DBH greater than 10cm are counted for the carbon calculations, only 258 plots and 124 subplots were considered and included for the carbon calculation, which are shown in the following table:

Strata and PMP where DAP > 10cm, counting for this carbon monitoring period:

STRATA		Management Unit	Area, in ha	Number of plots	Number of subplots
Stratum 1	Teak	Darien	298.44	166	32
Stratum 2	Natives	Darien	33.4	15	15
		Colon	213.8	72	72
Stratum 3	Enrichment	Darien	12.2	5	5
		TOTAL	524.44	258	124

Conclusion	Date: 27-09-2021

The information is conclusive and explains what was requested.

CAR Closed

CAR No.	2	Reference	VCS Standard V4.0 (19 September 2019) 2.2; 3.14; 3.15 Monitoring Report Generation Forest CCB-VCS Version 1-	Date: 12-09-2021
Description of CAR 2				

The names of the species presented in the forest inventory must have the scientific name, additionally, the proponent project must explain why presents "unknown" species and how determined the parameters for these species.

Project participant response	Date: 24-09.2021

The scientific names were added to the project database (see annex "Base de datos_Nativas_Colón_Darién").

Regarding the case of having "unknown" species within the inventory:

The project uses mainly 20 well-known native species for reforestation, and a single exotic species as shown in the table below (List of species used for reforestation activities). In addition to the planted species, the project assists the natural regeneration of native species, both valuable timber species, but also species that grow naturally in the understory, which are allowed and preserved for the creation of the generation forest. In 2021 was the first time that the project inventoried all native species, including those of natural regeneration, as before, only planted species and protected species (either endemic or endangered) were monitored. Due to the great diversity and richness of species in the region, some species were difficult to identify correctly within the same permanent sampling plots. In this case, the project preferred the conservative approach of classifying these species as "unknown" rather than using a classification with some uncertainty. For the calculation of carbon using the methodology proposed by IPCC and for reforestation with native species whose DBH is greater than or equal to 10 cm (Volume-Biomass-Carbon-Carbon-Dioxide; with expansion factors for above and below ground biomass), the wood density of each species was used if and only if it was planted; for other species identified by common name and unknown, a conservative wood density of 0.5 kg/cm3 was used by default. This is in line with the orientation of IPCC (2006) that states that "Tier 1 users who do not have wood density measurements at the required substrate level can estimate wood density by the proportion of total forest biomass contributed by the 2 or 3 dominant species and using species-specific wood density values (Tables 4.13 and 4.14) to calculate a weighted average wood density value." The value of 0.5 Kg/cm3 used is conservative since 405 density data were averaged according to the previous reference and the value is 0.62 Kg/cm3 (see Annex "Wood densities")

Conclusion	Date: 27-09-2021
The information is conclusive and explains what was requested. CAR Closed	

CAR No.	3	Reference	VCS Standard V4.0 (19 September 2019) Monitoring Report Generation Forest CCB-VCS Version 1-	Date: 12-09-2021
Description of CAR 3				
The forestry inventory information presented is disaggregated, and it difficult verify the information. It is required to compile data information by category (Natives, Teak, Enrichment).				
Project participant response			Date: 24-09.2021	
Data information were compiled in one Excel sheet by category (Teak, Natives, Enrichment) and presented. (See Annex "Annex - Carbon summary by stratum"). Furthermore, reference was made to the subfolders that present aggregated information per stratum within the carbon calculation documents.				
Conclusion			Date: 27-09-2021	
The information provided is sufficient. CAR Closed				

CAR No.	4	Reference	CCB Standard V3.1 CM2 Monitoring Report Generation Forest CCB-VCS Version 1	Date: 12-09-2021

Description of CAR 4				

Some related projects as community benefits may come from the company, but not directly from the project specifically, therefore only the benefits related to the project should be included.

Project participant response	Date: 24-09.2021

The project implements its community activities together with its foundation "Fundación Bosque de Generaciones" (formerly known Community and Forest Foundation) which aims to create and protect tropical forests and their biodiversity and at the same time encourage and promote research and scientific development of innovative models of sustainable development. Furthermore it collaborates closely to the foundation Ejwã Wãdrã from the Emberá community in Piriatí. The grouped project together with both organizations works in synergy in the implementation of training and community reforestation projects.

In the monitoring period, the project, in collaboration with the Foundation Fundacion Bosque de Generaciones and with co-funding of UNDP, has implemented a community project in the indigenous Emberá community Piriatí, working together with the Foundation Ejuã Wãdrã, of young people. They believe that the loss of their forest is the cause of the loss of their culture and feel that the way to recover it is to learn to reforest. The Emberá youth organization from Piriatí, Ejwã Wãdrã, motivated by the need to recover their traditional and ancestral culture, were selected by the United Nations Small Grants Program (SGP) to receive training in forest nursery and reforestation activities. The financial participation of the grouped project was 50% of the budget (corresponding to 20,000 USD), as those funds always require financing by the counterpart, which was the grouped project. Furthermore the project provided its infrastructure, workers, transportation, and use of the forest sites for the practical training part.

This community project called "Rescue of the forest culture, through reforestation and training, as a tool for the recovery of the traditional and ancestral culture of an Emberá community in Piriatí" was implemented in 2018 and 2019. The grouped projects main contribution was to train the youth in tree nursery, reforestation, and to assist in the establishment of their reforestation area. 36 people (16 women, 20 men) of the community were trained in topics of reforestation, tree nursery, and forest management. 10ha of community land was reforested with native tree species, using a total of 7,000 tree seedlings.

Training topics were:

Nursery training, planting establishment training.

Plantation maintenance

Identification of species of cultural interest

The strategy was to train them, but also to offer on-site practical training within the forest sites of the grouped project, taking them to the different operations to learn through practice, reforestation with native species.

Reforestation requires planning, organization, and execution. The Ejwã Wãdrã organization has the vision of becoming an organization that can provide reforestation services. In the context of climate change, reforestation is the most important mitigation alternative; these young people see economic possibilities in forestry activities. The grouped project through its project proponent Futuro Forestal shares with them all the experience of its technicians and its forests.

As result, some of the trained people were hired by the project for forest inventory and monitoring. Currently, some of the members are hired, work and continue training and learning the use of technology for the project's geographic information system. Furthermore, the project is planning to establish a tree nursery together with the community and its partner Ejuã Wãdrã in the Darien region.

Conclusion				Date: 27-09-2021

The information is conclusive and explains what was requested.

CAR Closed

CL No.	1	Reference	VCS Standard V4.0 (19 September 2019) 3.8; 2.4 VCS-Non-Permanence-Risk-Report-FF Monitoring Report Generation Forest CCB-VCS Version 1	Date: 12-09-2021

Description of CL 1

Clarify Calculation of Total VCUs: The project made a risk analysis over a period of 100 years, but the proponent calculated until for 50 years. Explain this information.

Project participant response				Date: 24-09.2021

According to VCS Standard v4.0, the long-term average GHG benefit (LA) is determined by averaging

the expected total GHG benefit for the length of the project. In our case it means an average benefit over the 100 years lifetime of the project, for which the risk analysis and CO2 estimates were calculated.

In section 3.2.20 and 3.2.21 of the VCS Standard v4.0, the long-term average GHG benefit is defined and specified for ARR activities including harvesting, which is our case. As stated in the Standard "A project may claim GHG credits during each verification event until the long-term average GHG benefit is reached. Once the total number of GHG credits issued has reached this average, the project can no longer issue further GHG credits."

As reported in the PD version 03 p.166, the period over which the long-term average GHG benefit is calculated is 100 years. The total GHG benefit calculated as the sum of stock changes along the crediting period (100 years) is 2.726.629tCO2e. The table is shown in p.166-167 of the PD v3. Following the steps of calculating the long-term average GHG benefit for our project (according to VCS standard section 3.2.21 and to the "AFOLU Guidance: Example for Calculating the Long-Term Average Carbon Stock for ARR Projects with Harvesting"), the projects long-term average GHG benefit is 1.306.814 tCO2e (see document "VCU acumulado"). The long-term GHG benefit will be reached at year 49 of the lifetime of the project, for which VCUs could only be calculated for that period of time. As stated in the VCS standard, section 3.2.21 (6) the "long-term average GHG benefit shall be calculated at each verification event, meaning the long-term average GHG benefit may change over time based on monitored data".

Conclusion				Date: 27-09-2021

The information is conclusive and explains what was requested.

CL Closed

FAR No.	1	Reference	VCS Standard V4.1 (22 April 2021) 3.6.11 Monitoring Report Generation Forest CCB-VCS Version 2	Date: 07-10-2021

Description of FAR 1	
Currently, in the identification of the land tenure, the land possession of some farms is pending (Gatún I, Bartoly I y II y Lauhan I y II). For this reason, to de next verification, the project shall demonstrate the full possession from Futuro Forestal.	
Project participant response	**Date:**
N.A.	
Conclusion	**Date:**

FAR No.	2	Reference	VCS Standard V4.1 (22 April 2021) B4.1, B4.2, GL1.4, GL3.4Monitoring Report Generation Forest CCB-VCS Version 2	**Date:** 03-04-2022
Description of FAR 2				
The PP in conjunction with its biodiversity partners must supplement the development of the Biodiversity Monitoring Plan provided in order to comply with the project description (5.3.1), and it must be examined in the next verification.				
Project participant response				**Date:**
N.A.				
Conclusion				**Date:**

FAR No.	3	Reference	CCB Standard V3 CL4.2; CM4.3; B4.3	**Date:** 03-04-2022
Description of FAR 3				
The PP must ensure that project dissemination is effective for all stakeholders, particularly those in the community who have limited internet access and have difficulty accessing project information via the website.				
Project participant response				**Date:**
N.A.				
Conclusion				**Date:**

APPENDIX 2: RESULT OF PARCEL SAMPLING

Natives

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
Brain forest	x: 801249 y: 576653	1	Cocobolo	14,2	14,2	0	0,2	9,5	9	0,5	5,3	2013	4
Brain forest	x: 801249 y: 576653	2	Cocobolo	15,7	15,3	0,4	2,5	10,5	8,5	2	19	2013	4
Brain forest	x: 801249 y: 576653	3	Cocobolo	17,3	16,7	0,6	3,5	10,7	10	0,7	6,5	2013	4
Brain forest	x: 801249 y: 576653	4	Cocobolo	13,9	13,8	0,1	0,7	10	8,5	1,5	15	2013	4
Brain forest	x: 801249 y: 576653	5	Cocobolo	19,9	19,6	0,3	1,5	12,5	10,5	2	16	2013	4
Brain forest	x: 801249 y: 576653	6	Cocobolo	20	19,5	0,5	2,5	12	11	1	8,3	2013	4
Brain forest	x: 801249 y: 576653	7	Cocobolo	12,5	12,4	0,1	0,8	9,9	7	2,9	29,3	2013	4
Brain forest	x: 801249 y: 576653	8	Cocobolo	15,2	15,2	0	0	11,5	8,5	3	26,1	2013	4
Brain forest	x: 801249 y: 576653	9	Cocobolo	11,4	11,3	0,1	0,9	9,5	8,5	1	10,5	2013	4
Brain forest	x: 801249 y: 576653	10	Cocobolo	24,9	24,1	0,8	3,2	12	12	0	0	2013	4
Brain forest	x: 801249 y: 576653	11	Cocobolo	11,9	11,9	0	0	8,5	8,5	0	0	2013	4
Brain forest	x: 801249 y: 576653	12	Cocobolo	19,1	18,9	0,2	1	12	11	1	8,3	2013	4
Brain forest	x: 801249 y: 576653	13	Cocobolo	12,9	12,9	0	0	12	11,5	0,5	4,2	2013	4
Brain forest	x: 801249 y: 576653	14	Cocobolo	21	20,6	0,4	1,9	13	11,5	1,5	11,5	2013	4
Brain forest	x: 801249 y: 576653	15	Cocobolo	25,5	24,8	0,7	2,7	13,5	12,5	1	7,4	2013	4
Brain forest	x: 801249 y: 576653	16	Cocobolo	17,8	17,5	0,3	1,7	13	12,5	0,5	3,8	2013	4
Brain forest	x: 801249 y: 576653	17	Cocobolo	14,7	14,4	0,3	2	12	10,5	1,5	12,5	2013	4

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
Brain forest	x: 801249 y: 576653	18	Cocobolo	15	14,7	0,3	2	10,7	10,5	0,2	1,9	2013	4
Brain forest	x: 801249 y: 576653	19	Cocobolo	12,2	12,2	0	0	12,5	10,5	2	16	2013	4
Brain forest	x: 801249 y: 576653	20	Cocobolo	15,9	15,6	0,3	1,9	11,9	10,5	1,4	11,8	2013	4
Brain forest	x: 801249 y: 576653	21	Cocobolo	12,9	12,9	0	0	9,5	9	0,5	5,3	2013	4
Brain forest	x: 801249 y: 576653	22				0				0		2013	4
Brain forest	x: 801249 y: 576653	23	Cocobolo	15,3	15	0,3	2	12	11	1	8,3	2013	4
Brain forest	x:801222 y:977733	1	Caoba	13,2	13,1	0,1	0,8	7,9	7,6	0,3	3,8	2008	2
Brain forest	x:801222 y:977733	2	Cedro espino	31,5	31,4	0,1	0,3	13	13,6	-0,6	-4,6	2008	2
Brain forest	x:801222 y:977733	3	Cedro espino	33,6	33,4	0,2	0,6	13,2	12,4	0,8	6,1	2008	2
Brain forest	x:801222 y:977733	4	Cedro espino	29,6	29,5	0,1	0,3	15,5	12	3,5	22,6	2008	2
Brain forest	x:801222 y:977733	5	Cedro espino	38,8	38,4	0,4	1	14	12	2	14,3	2008	2
Brain forest	x:801222 y:977733	6	Cedro espino	21	20,8	0,2	1	14,7	12,8	1,9	12,9	2008	2
Brain forest	x:801222 y:977733	7	Cedro espino	33,5	33,6	-0,1	-0,3	14	12,2	1,8	12,9	2008	2
Brain forest	x:801222 y:977733	8	Cedro espino	28,5	28,4	0,1	0,4	12	11	1	8,3	2008	2
Brain forest	x:801222 y:977733	9	Cedro espino	26,3	25,9	0,4	1,5	12	11	1	8,3	2008	2
Brain forest	x:801222 y:977733	10	Cedro espino	34,5	24,2	10,3	29,9	13	13	0	0	2008	2
Brain forest	x:801222 y:977733	11	Cedro espino	33,7	33,2	0,5	1,5	13	12,8	0,2	1,5	2008	2
Brain forest	x:801222 y:977733	12	Cedro espino	27,2	27,1	0,1	0,4	14	13	1	7,1	2008	2
Brain forest	x:801222 y:977733	13	Cedro espino	21,4	21,4	0	0	5,9	4,8	1,1	18,6	2008	2
Brain forest	x:801222 y:977733	14	Caoba	16	15,8	0,2	1,3	17	11	6	35,3	2008	2

Farm	Coordinates of the National System of Panama	#Arb ol	Species	Audi t DAP (cm)	DAP Inventor y	DAP Audit-	error DAP	Htot (m) Audi t	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plo t
Brain forest	x:801222 y:977733	15	Cedro espino	23,3	23,2	0,1	0,4	12	12	0	0	2008	2
Brain forest	x:801222 y:977733	16	Caoba	16,9	16,8	0,1	0,6	15	11,5	3,5	23,3	2008	2
Brain forest	x:801222 y:977733	17	Cedro espino	25,1	25	0,1	0,4	13	14	-1	-7,7	2008	2
Brain forest	x:801222 y:977733	18	Cedro espino	27,9	27,7	0,2	0,7	12,3	13	-0,7	-5,7	2008	2
Brain forest	x:801222 y:977733	19	Cedro espino	26,4	26,4	0	0	13	13	0	0	2008	2
kapok	x:805392 y:975752	1	Roble	10,8	10,4	0,4	3,7	10,3	9	1,3	12,6	2011	11
kapok	x:805392 y:975752	2				0				0		2011	11
kapok	x:805392 y:975752	3	Roble	16,1	11,1	5	31,1	8,1	9,5	-1,4	-17,3	2011	11
kapok	x:805392 y:975752	4				0				0		2011	11
kapok	x:805392 y:975752	5				0				0		2011	11
kapok	x:805392 y:975752	6				0				0		2011	11
kapok	x:805392 y:975752	7				0				0		2011	11
kapok	x:805392 y:975752	8	Mora	11,5	10,9	0,6	5,2	9	8	1	11,1	2011	11
kapok	x:805392 y:975752	9	Cedro amargo	18,4	18,9	-0,5	-2,7	15,9	16,5	-0,6	-3,8	2011	11
kapok	x:805392 y:975752	10				0				0		2011	11
kapok	x:805392 y:975752	11				0				0		2011	11
kapok	x:805392 y:975752	12				0				0		2011	11
kapok	x:805392 y:975752	13				0				0		2011	11
kapok	x:805392 y:975752	14				0				0		2011	11
kapok	x:805392 y:975752	15	Laurel	10,4	10,1	0,3	2,9	11,1	12	-0,9	-8,1	2011	11
kapok	x:805392 y:975752	16	Cedro amargo	15,6	15,6	0	0	12	13	-1	-8,3	2011	11
kapok	x:805392 y:975752	17				0				0		2011	11
kapok	x:805392 y:975752	18				0				0		2011	11
kapok	x:805392 y:975752	19				0				0		2011	11

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
kapok	x:805392 y:975752	20				0				0		2011	11
kapok	x:805392 y:975752	21	Espave	29,6	29,1	0,5	1,7	18	17,5	0,5	2,8	2011	11
kapok	x:805392 y:975752	22	Cedro amargo	17	16,9	0,1	0,6	15,3	15	0,3	2	2011	11
kapok	x:805392 y:975752	23	Espave	36	35,3	0,7	1,9	18,7	19	-0,3	-1,6	2011	11
kapok	x:805392 y:975752	24				0				0		2011	11
kapok	x:805392 y:975752	25				0				0		2011	11
kapok	x:805392 y:975752	26	Mora	18	17,9	0,1	0,6	11,5	11,5	0	0	2011	11
kapok	x:805392 y:975752	27				0				0		2011	11
kapok	x:805392 y:975752	28	Laurel	18,5	18,5	0	0	14,5	13,5	1	6,9	2011	11
kapok	x:805392 y:975752	29				0				0		2011	11
kapok	x:805392 y:975752	30	Mora	10,3	10,4	-0,1	-1	8,7	9	-0,3	-3,4	2011	11
kapok	x:805392 y:975752	31	Roble	10,2	10,2	0	0	7	9	-2	-28,6	2011	11
kapok	x:805392 y:975752	32				0				0		2011	11
kapok	x:805392 y:975752	33	Almendro	11,9	11,6	0,3	2,5	11	12	-1	-9,1	2011	11
kapok	x: 805509 y: 976569	1	Cedro espino	21	20,8	0,2	1	9	9	0	0	2007	5
kapok	x: 805509 y: 976569	2	Cedro espino	20	20	0	0	11	11,5	-0,5	-4,5	2007	5
kapok	x: 805509 y: 976569	3	Cedro espino	20,1	19,9	0,2	1	8	9	-1	-12,5	2007	5
kapok	x: 805509 y: 976569	4	Guaba	13	13,7	-0,7	-5,4	7	7	0	0	2007	5
kapok	x: 805509 y: 976569	5	Cedro espino	25,7	25,2	0,5	1,9	11	12	-1	-9,1	2007	5
kapok	x: 805509 y: 976569	6	Cedro espino	23,9	23,9	0	0	12	12	0	0	2007	5
kapok	x: 805509 y: 976569	7	Cedro espino	25,2	24,7	0,5	2	13,5	13,5	0	0	2007	5
kapok	x: 805509 y: 976569	8	Guaba	10,3	10	0,3	2,9	8	7,5	0,5	6,3	2007	5

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
kapok	x: 805509 y: 976569	9	Mora	11,4	11,3	0,1	0,9	9	9	0	0	2007	5
kapok	x: 805509 y: 976569	10	Cedro espino	23,9	23,6	0,3	1,3	12	13	-1	-8,3	2007	5
kapok	x: 805509 y: 976569	11	Cedro espino	36,3	36	0,3	0,8	14,7	15,5	-0,8	-5,4	2007	5
kapok	x: 805509 y: 976569	12	Cedro espino	27,7	27,5	0,2	0,7	14,7	15,5	-0,8	-5,4	2007	5
kapok	x: 805509 y: 976569	13	Guasimo	12,3	12,2	0,1-	0,8	9	11	-2	-22,2	2007	5
kapok	x: 805509 y: 976569	14	Guarumo	15,7	15,6	0,1	0,6	12	11	1	8,3	2007	5
kapok	x: 805509 y: 976569	15	Guaba	11,9	11,6	0,3	2,5	8,5	10	-1,5	-17,6	2007	5
kapok	x: 805509 y: 976569	16	Cedro espino	28,8	28	0,8	2,8	13	15	-2	-15,4	2007	5
kapok	x: 805509 y: 976569	17	Cedro espino	28,6	28,6	0	0	6,7	15	-8,3	-123,9	2007	5
kapok	x: 805509 y: 976569	18	Cedro espino	23,3	22,6	0,7	3	14,5	14	0,5	3,4	2007	5
kapok	x: 805509 y: 976569	19	Cedro espino	27,2	26,8	0,4	1,5	15	15	0	0	2007	5
kapok	x: 805509 y: 976569	20	Guasimo	11,1	11,1	0	0	8	9	-1	-12,5	2007	5
kapok	x: 805509 y: 976569	21	Guasimo	11,7	11,7	0	0	7	9	-2	-28,6	2007	5
kapok	x: 805509 y: 976569	22	Guasimo	19,3	19,3	0	0	13,5	13,5	0	0	2007	5
kapok	x: 805395 y: 976225	1	Cocobolo	18	18	0	0	13	13,5	-0,5	-3,8	2007	6
kapok	x 805395 y: 976225	2	Cocobolo	18	18	0	0	13	13	0	0	2007	6
kapok	x: 805395 y: 976225	3	Cocobolo	13,3	13,2	0,1	0,8	11,9	12	-0,1	-0,8	2007	6
kapok	x: 805395 y: 976225	4	Roble	23,6	23,5	0,1	0,4	11,9	11	0,9	7,6	2007	6
kapok	x: 805395 y: 976225	5	Cocobolo	17	17	0	0	12,3	12	0,3	2,4	2007	6
kapok	x: 805395 y: 976225	6	Cocobolo	15,9	15,8	0,1	0,6	12,3	11,5	0,8	6,5	2007	6

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
kapok	x: 805395 y: 976225	7	Cocobolo	14,6	14,6	0	0	12,7	13	-0,3	-2,4	2007	6
kapok	x: 805395 y: 976225	8	Cocobolo	19,8	19,6	0,2	1	13,3	13,5	-0,2	-1,5	2007	6
kapok	x: 805395 y: 976225	9	Cocobolo	14,2	14,2	0	0	12,5	10,5	2	16	2007	6
kapok	x: 805395 y: 976225	10	Cocobolo	26,8	26,6	0,2	0,7	13,3	13	0,3	2,3	2007	6
kapok	x: 805395 y: 976225	11	Cocobolo	22,8	22,6	0,2	0,9	13,9	12	1,9	13,7	2007	6
kapok	x: 805395 y: 976225	12	Cocobolo	17,7	17,6	0,1	0,6	14,9	14,5	0,4	2,7	2007	6
kapok	x: 805395 y: 976225	13	Cocobolo	21,5	21,1	0,4	1,9	14,5	15	-0,5	-3,4	2007	6
kapok	x: 805395 y: 976225	14	Cocobolo	14,6	14,7	-0,1	-0,7	12,5	13	-0,5	-4	2007	6
kapok	x: 805395 y: 976225	15	Cocobolo	15,2	15,4	-0,2	-1,3	11,7	11	0,7	6	2007	6
kapok	x: 805395 y: 976225	16	Cocobolo	20,5	20,2	0,3	1,5	12,7	13	-0,3	-2,4	2007	6
kapok	x: 805395 y: 976225	17	Cocobolo	18,7	16,9	1,8	9,6	12	10	2	16,7	2007	6
kapok	x: 805395 y: 976225	18	Cocobolo	13	13	0	0	10,9	12	-1,1	-10,1	2007	6
kapok	x: 805395 y: 976225	19	Cocobolo	16,3	16,3	0	0	12,9	13	-0,1	-0,8	2007	6
kapok	x: 805395 y: 976225	20	Cocobolo	24,4	24,2	0,2	0,8	15	15	0	0	2007	6
kapok	x: 805395 y: 976225	21	Caoba	11,5	11,4	0,1	0,9	9	9	0	0	2007	6
kapok	x: 805395 y: 976225	22	Cocobolo	12,8	12,8	0	0	14,5	15	-0,5	-3,4	2007	6
kapok	x: 805395 y: 976225	23	Cocobolo	17,2	17	0,2	1,2	14,5	14	0,5	3,4	2007	6
kapok	x: 805395 y: 976225	24	Caoba	11	11	0	0	7	7,5	-0,5	-7,1	2007	6
kapok	x: 805395 y: 976225	25	Cocobolo	23,1	23	0,1	0,4	13,9	13	0,9	6,5	2007	6
kapok	x: 805395 y: 976225	26	Cocobolo	26,9	26,5	0,4	1,5	13,9	13,5	0,4	2,9	2007	6

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
kapok	x: 805395 y: 976225	27	Cocobolo	15,7	13,6	2,1	13,4	12,9	11,5	1,4	10,9	2007	6
kapok	x: 805395 y: 976225	28	Cocobolo	16,7	16,6	0,1	0,6	13	11	2	15,4	2007	6
kapok	x: 805395 y: 976225	29	Cocobolo	16,5	16,4	0,1	0,6	12,3	13	-0,7	-5,7	2007	6
kapok	x: 805395 y: 976225	30	Cocobolo	13,7	13,5	0,2	1,5	10,5	11,5	-1	-9,5	2007	6
Red Lotus	x: 808111 y: 979362	1				0				0		2011	8
Red Lotus	x: 808111 y: 979362	2				0				0		2011	8
Red Lotus	x: 808111 y: 979362	3				0				0		2011	8
Red Lotus	x:808111 y: 979362	4	Zapatero		10	-10			5	-5		2011	8
Red Lotus	x: 808111 y: 979362	5	Guasimo	22,8	22,8	0	0	10	10	0	0	2011	8
Red Lotus	x: 808111 y: 979362	6				0				0		2011	8
Red Lotus	x: 808111 y: 979362	7	Guaba		10,6	-10,6			8	-8		2011	8
Red Lotus	x: 808111 y: 979362	8	Zapatero	17,5	17,5	0	0	10,5	10,5	0	0	2011	8
Red Lotus	x: 808111 y: 979362	9	Naranjillo	15,9	16	-0,1	-0,6	8,3	10	-1,7	-20,5	2011	8
Red Lotus	x: 808111 y: 979362	10	Guarumo	14,5	17,2	-2,7	-18,6	10,1	10,1	0	0	2011	8
Red Lotus	x: 808111 y: 979362	11	Guasimo	12,3	12,2	0,1	0,8	10	10,1	-0,1	-1	2011	8
Red Lotus	x: 808111 y: 979362	12				0				0		2011	8
Red Lotus	x: 808111 y: 979362	13	Jobo	45,7	46,8	-1,1	-2,4	25	25	0	0	2011	8
Red Lotus	x: 808111 y: 979362	14	Jobo	17,4	17,8	-0,4	-2,3	20	20,3	-0,3	-1,5	2011	8
Red Lotus	x: 808111 y: 979362	15				0				0		2011	8
Red Lotus	x: 808111 y: 979362	16	Guarumo	11,7	11,8	-0,1	-0,9	15,2	15,4	-0,2	-1,3	2011	8
Red Lotus	x: 808111 y: 979362	17	Guarumo	12	12,2	-0,2	-1,7	15	15	0	0	2011	8
Red Lotus	x: 808111 y: 979362	18	Guarumo	13,5	13,7	-0,2	-1,5	14,9	15,6	-0,7	-4,7	2011	8
Red Lotus	x: 808111 y: 979362	19				0				0		2011	8

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
Red Lotus	x: 808111 y: 979362	20	Guasimo	10,7	13,3	-2,6	-24,3	13	16	-3	-23,1	2011	8
Red Lotus	x: 808111 y: 979362	21				0				0		2011	8
Red Lotus	x: 808111 y: 979362	22	Guasimo	14,2	14,1	0,1	0,7	10,7	10	0,7	6,5	2011	8
Red Lotus	x: 808111 y: 979362	23				0				0		2011	8
Red Lotus	x: 808111 y: 979362	24				0				0		2011	8
Red Lotus	x: 808111 y: 979362	25				0				0		2011	8
Red Lotus	x: 808111 y: 979362	26	Guasimo	15,1	15,2	-0,1	-0,7	8,9	9	-0,1	-1,1	2011	8
Red Lotus	x: 808111 y: 979362	27	Zapatero	11,1	11,2	-0,1	-0,9	10,1	10	0,1	1	2011	8
Red Lotus	x: 808111 y: 979362	28				0				0		2011	8
Red Lotus	x: 808111 y: 979362	29	Guarumo	29,2	29,4	-0,2	-0,7	18,5	18	0,5	2,7	2011	8
Red Lotus	x: 808111 y: 979362	30	Guarumo	25,1	25,2	-0,1	-0,4	18	18	0	0	2011	8
Red Lotus	x: 808111 y: 979362	31	Guarumo	29,1	29,1	0	0	14,9	15	-0,1	-0,7	2011	8
Red Lotus	x: 808111 y: 979362	32	Guarumo	15	14,5	0,5	3,3	10	10	0	0	2011	8
Red Lotus	x: 808111 y: 979362	33	Guasimo	11,1	11,1	0	0	10,2	10	0,2	2	2011	8
Red Lotus	x: 808111 y: 979362	34	Guasimo	12,3	12,4	-0,1	-0,8	6,7	7,7	-1	-14,9	2011	8
Red Lotus	x: 808111 y: 979362	35	Guasimo	11	11,1	-0,1	-0,9	9,9	10	-0,1	-1	2011	8
Red Lotus	x: 808111 y: 979362	36	Zapatero	17,3	12,3	5	28,9	10,1	10,2	-0,1	-1	2011	8
Red Lotus	x: 808111 y: 979362	37				0				0		2011	8
Red Lotus	x: 808111 y: 979362	38				0				0		2011	8
Red Lotus	x: 808111 y: 979362	39				0				0		2011	8
Red Lotus	x: 808111 y: 979362	40	Cocobolo	11,2	11	0,2	1,8	5,2	5,4	-0,2	-3,8	2011	8
Red Lotus	x: 808111 y: 979362	41				0				0		2011	8
Red Lotus	x: 808111 y: 979362	42				0				0		2011	8
Red Lotus	x: 808111 y: 979362	43	Zapatero	10	10	0	0	7	7	0	0	2011	8

Farm	Coordinates of the National System of Panama	#Arbol	Species	Audit DAP (cm)	DAP Inventory	DAP Audit-	error DAP	Htot (m) Audit	Htot Inventario	Htot Audit-Invent	error Htot	Year planted	Plot
Red Lotus	x: 808111 y: 979362	44	Laurel	12,9	13,6	-0,7	-5,4	10,3	10	0,3	2,9	2011	8
							146,8				90,1		
							0,9128				1,4872		

Teak

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
Brain forest	x: 801249 y: 576653	1	Cocobolo	14,2	14,2	0	0,2	9,5	9	0,5	5,3	2013	4
Brain forest	x: 801249 y: 576653	2	Cocobolo	15,7	15,3	0,4	2,5	10,5	8,5	2	19	2013	4
Brain forest	x: 801249 y: 576653	3	Cocobolo	17,3	16,7	0,6	3,5	10,7	10	0,7	6,5	2013	4
Brain forest	x: 801249 y: 576653	4	Cocobolo	13,9	13,8	0,1	0,7	10	8,5	1,5	15	2013	4
Brain forest	x: 801249 y: 576653	5	Cocobolo	19,9	19,6	0,3	1,5	12,5	10,5	2	16	2013	4
Brain forest	x: 801249 y: 576653	6	Cocobolo	20	19,5	0,5	2,5	12	11	1	8,3	2013	4
Brain forest	x: 801249 y: 576653	7	Cocobolo	12,5	12,4	0,1	0,8	9,9	7	2,9	29,3	2013	4
Brain forest	x: 801249 y: 576653	8	Cocobolo	15,2	15,2	0	0	11,5	8,5	3	26,1	2013	4
Brain forest	x: 801249 y: 576653	9	Cocobolo	11,4	11,3	0,1	0,9	9,5	8,5	1	10,5	2013	4
Brain forest	x: 801249 y: 576653	10	Cocobolo	24,9	24,1	0,8	3,2	12	12	0	0	2013	4
Brain forest	x: 801249 y: 576653	11	Cocobolo	11,9	11,9	0	0	8,5	8,5	0	0	2013	4
Brain forest	x: 801249 y: 576653	12	Cocobolo	19,1	18,9	0,2	1	12	11	1	8,3	2013	4
Brain forest	x: 801249 y: 576653	13	Cocobolo	12,9	12,9	0	0	12	11,5	0,5	4,2	2013	4
Brain forest	x: 801249 y: 576653	14	Cocobolo	21	20,6	0,4	1,9	13	11,5	1,5	11,5	2013	4

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
Brain forest	x: 801249 y: 576653	15	Cocobolo	25,5	24,8	0,7	2,7	13,5	12,5	1	7,4	2013	4
Brain forest	x: 801249 y: 576653	16	Cocobolo	17,8	17,5	0,3	1,7	13	12,5	0,5	3,8	2013	4
Brain forest	x: 801249 y: 576653	17	Cocobolo	14,7	14,4	0,3	2	12	10,5	1,5	12,5	2013	4
Brain forest	x: 801249 y: 576653	18	Cocobolo	15	14,7	0,3	2	10,7	10,5	0,2	1,9	2013	4
Brain forest	x: 801249 y: 576653	19	Cocobolo	12,2	12,2	0	0	12,5	10,5	2	16	2013	4
Brain forest	x: 801249 y: 576653	20	Cocobolo	15,9	15,6	0,3	1,9	11,9	10,5	1,4	11,8	2013	4
Brain forest	x: 801249 y: 576653	21	Cocobolo	12,9	12,9	0	0	9,5	9	0,5	5,3	2013	4
Brain forest	x: 801249 y: 576653	22				0				0		2013	4
Brain forest	x: 801249 y: 576653	23	Cocobolo	15,3	15	0,3	2	12	11	1	8,3	2013	4
Brain forest	x:801222 y:977733	1	Caoba	13,2	13,1	0,1	0,8	7,9	7,6	0,3	3,8	2008	2
Brain forest	x:801222 y:977733	2	Cedro espino	31,5	31,4	0,1	0,3	13	13,6	-0,6	-4,6	2008	2
Brain forest	x:801222 y:977733	3	Cedro espino	33,6	33,4	0,2	0,6	13,2	12,4	0,8	6,1	2008	2
Brain forest	x:801222 y:977733	4	Cedro espino	29,6	29,5	0,1	0,3	15,5	12	3,5	22,6	2008	2
Brain forest	x:801222 y:977733	5	Cedro espino	38,8	38,4	0,4	1	14	12	2	14,3	2008	2
Brain forest	x:801222 y:977733	6	Cedro espino	21	20,8	0,2	1	14,7	12,8	1,9	12,9	2008	2
Brain forest	x:801222 y:977733	7	Cedro espino	33,5	33,6	-0,1	-0,3	14	12,2	1,8	12,9	2008	2
Brain forest	x:801222 y:977733	8	Cedro espino	28,5	28,4	0,1	0,4	12	11	1	8,3	2008	2
Brain forest	x:801222 y:977733	9	Cedro espino	26,3	25,9	0,4	1,5	12	11	1	8,3	2008	2
Brain forest	x:801222 y:977733	10	Cedro espino	34,5	24,2	10,3	29,9	13	13	0	0	2008	2
Brain forest	x:801222 y:977733	11	Cedro espino	33,7	33,2	0,5	1,5	13	12,8	0,2	1,5	2008	2

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
Brain forest	x:801222 y:977733	12	Cedro espino	27,2	27,1	0,1	0,4	14	13	1	7,1	2008	2
Brain forest	x:801222 y:977733	13	Cedro espino	21,4	21,4	0	0	5,9	4,8	1,1	18,6	2008	2
Brain forest	x:801222 y:977733	14	Caoba	16	15,8	0,2	1,3	17	11	6	35,3	2008	2
Brain forest	x:801222 y:977733	15	Cedro espino	23,3	23,2	0,1	0,4	12	12	0	0	2008	2
Brain forest	x:801222 y:977733	16	Caoba	16,9	16,8	0,1	0,6	15	11,5	3,5	23,3	2008	2
Brain forest	x:801222 y:977733	17	Cedro espino	25,1	25	0,1	0,4	13	14	-1	-7,7	2008	2
Brain forest	x:801222 y:977733	18	Cedro espino	27,9	27,7	0,2	0,7	12,3	13	-0,7	-5,7	2008	2
Brain forest	x:801222 y:977733	19	Cedro espino	26,4	26,4	0	0	13	13	0	0	2008	2
kapok	x:805392 y:975752	1	Roble	10,8	10,4	0,4	3,7	10,3	9	1,3	12,6	2011	11
kapok	x:805392 y:975752	2				0				0		2011	11
kapok	x:805392 y:975752	3	Roble	16,1	11,1	5	31,1	8,1	9,5	-1,4	-17,3	2011	11
kapok	x:805392 y:975752	4				0				0		2011	11
kapok	x:805392 y:975752	5				0				0		2011	11
kapok	x:805392 y:975752	6				0				0		2011	11
kapok	x:805392 y:975752	7				0				0		2011	11
kapok	x:805392 y:975752	8	Mora	11,5	10,9	0,6	5,2	9	8	1	11,1	2011	11
kapok	x:805392 y:975752	9	Cedro amargo	18,4	18,9	-0,5	-2,7	15,9	16,5	-0,6	-3,8	2011	11
kapok	x:805392 y:975752	10				0				0		2011	11
kapok	x:805392 y:975752	11				0				0		2011	11
kapok	x:805392 y:975752	12				0				0		2011	11
kapok	x:805392 y:975752	13				0				0		2011	11
kapok	x:805392 y:975752	14				0				0		2011	11
kapok	x:805392 y:975752	15	Laurel	10,4	10,1	0,3	2,9	11,1	12	-0,9	-8,1	2011	11
kapok	x:805392 y:975752	16	Cedro amargo	15,6	15,6	0	0	12	13	-1	-8,3	2011	11

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
kapok	x:805392 y:975752	17				0				0		2011	11
kapok	x:805392 y:975752	18				0				0		2011	11
kapok	x:805392 y:975752	19				0				0		2011	11
kapok	x:805392 y:975752	20				0				0		2011	11
kapok	x:805392 y:975752	21	Espave	29,6	29,1	0,5	1,7	18	17,5	0,5	2,8	2011	11
kapok	x:805392 y:975752	22	Cedro amargo	17	16,9	0,1	0,6	15,3	15	0,3	2	2011	11
kapok	x:805392 y:975752	23	Espave	36	35,3	0,7	1,9	18,7	19	-0,3	-1,6	2011	11
kapok	x:805392 y:975752	24				0				0		2011	11
kapok	x:805392 y:975752	25				0				0		2011	11
kapok	x:805392 y:975752	26	Mora	18	17,9	0,1	0,6	11,5	11,5	0	0	2011	11
kapok	x:805392 y:975752	27				0				0		2011	11
kapok	x:805392 y:975752	28	Laurel	18,5	18,5	0	0	14,5	13,5	1	6,9	2011	11
kapok	x:805392 y:975752	29				0				0		2011	11
kapok	x:805392 y:975752	30	Mora	10,3	10,4	-0,1	-1	8,7	9	-0,3	-3,4	2011	11
kapok	x:805392 y:975752	31	Roble	10,2	10,2	0	0	7	9	-2	-28,6	2011	11
kapok	x:805392 y:975752	32				0				0		2011	11
kapok	x:805392 y:975752	33	Almendro	11,9	11,6	0,3	2,5	11	12	-1	-9,1	2011	11
kapok	x: 805509 y: 976569	1	Cedro espino	21	20,8	0,2	1	9	9	0	0	2007	5
kapok	x: 805509 y: 976569	2	Cedro espino	20	20	0	0	11	11,5	-0,5	-4,5	2007	5
kapok	x: 805509 y: 976569	3	Cedro espino	20,1	19,9	0,2	1	8	9	-1	-12,5	2007	5
kapok	x: 805509 y: 976569	4	Guaba	13	13,7	-0,7	-5,4	7	7	0	0	2007	5
kapok	x: 805509 y: 976569	5	Cedro espino	25,7	25,2	0,5	1,9	11	12	-1	-9,1	2007	5
kapok	x: 805509 y: 976569	6	Cedro espino	23,9	23,9	0	0	12	12	0	0	2007	5
kapok	x: 805509 y: 976569	7	Cedro espino	25,2	24,7	0,5	2	13,5	13,5	0	0	2007	5
kapok	x: 805509 y: 976569	8	Guaba	10,3	10	0,3	2,9	8	7,5	0,5	6,3	2007	5

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
kapok	x: 805509 y: 976569	9	Mora	11,4	11,3	0,1	0,9	9	9	0	0	2007	5
kapok	x: 805509 y: 976569	10	Cedro espino	23,9	23,6	0,3	1,3	12	13	-1	-8,3	2007	5
kapok	x: 805509 y: 976569	11	Cedro espino	36,3	36	0,3	0,8	14,7	15,5	-0,8	-5,4	2007	5
kapok	x: 805509 y: 976569	12	Cedro espino	27,7	27,5	0,2	0,7	14,7	15,5	-0,8	-5,4	2007	5
kapok	x: 805509 y: 976569	13	Guasimo	12,3	12,2	0,1	0,8	9	11	-2	-22,2	2007	5
kapok	x: 805509 y: 976569	14	Guarumo	15,7	15,6	0,1	0,6	12	11	1	8,3	2007	5
kapok	x: 805509 y: 976569	15	Guaba	11,9	11,6	0,3	2,5	8,5	10	-1,5	-17,6	2007	5
kapok	x: 805509 y: 976569	16	Cedro espino	28,8	28	0,8	2,8	13	15	-2	-15,4	2007	5
kapok	x: 805509 y: 976569	17	Cedro espino	28,6	28,6	0	0	6,7	15	-8,3	-123,9	2007	5
kapok	x: 805509 y: 976569	18	Cedro espino	23,3	22,6	0,7	3	14,5	14	0,5	3,4	2007	5
kapok	x: 805509 y: 976569	19	Cedro espino	27,2	26,8	0,4	1,5	15	15	0	0	2007	5
kapok	x: 805509 y: 976569	20	Guasimo	11,1	11,1	0	0	8	9	-1	-12,5	2007	5
kapok	x: 805509 y: 976569	21	Guasimo	11,7	11,7	0	0	7	9	-2	-28,6	2007	5
kapok	x: 805509 y: 976569	22	Guasimo	19,3	19,3	0	0	13,5	13,5	0	0	2007	5
kapok	x: 805395 y: 976225	1	Cocobolo	18	18	0	0	13	13,5	-0,5	-3,8	2007	6
kapok	x 805395 y: 976225	2	Cocobolo	18	18	0	0	13	13	0	0	2007	6
kapok	x: 805395 y: 976225	3	Cocobolo	13,3	13,2	0,1	0,8	11,9	12	-0,1	-0,8	2007	6
kapok	x: 805395 y: 976225	4	Roble	23,6	23,5	0,1	0,4	11,9	11	0,9	7,6	2007	6
kapok	x: 805395 y: 976225	5	Cocobolo	17	17	0	0	12,3	12	0,3	2,4	2007	6
kapok	x: 805395 y: 976225	6	Cocobolo	15,9	15,8	0,1	0,6	12,3	11,5	0,8	6,5	2007	6
kapok	x: 805395 y: 976225	7	Cocobolo	14,6	14,6	0	0	12,7	13	-0,3	-2,4	2007	6
kapok	x: 805395 y: 976225	8	Cocobolo	19,8	19,6	0,2	1	13,3	13,5	-0,2	-1,5	2007	6

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
kapok	x: 805395 y: 976225	9	Cocobolo	14,2	14,2	0	0	12,5	10,5	2	16	2007	6
kapok	x: 805395 y: 976225	10	Cocobolo	26,8	26,6	0,2	0,7	13,3	13	0,3	2,3	2007	6
kapok	x: 805395 y: 976225	11	Cocobolo	22,8	22,6	0,2	0,9	13,9	12	1,9	13,7	2007	6
kapok	x: 805395 y: 976225	12	Cocobolo	17,7	17,6	0,1	0,6	14,9	14,5	0,4	2,7	2007	6
kapok	x: 805395 y: 976225	13	Cocobolo	21,5	21,1	0,4	1,9	14,5	15	-0,5	-3,4	2007	6
kapok	x: 805395 y: 976225	14	Cocobolo	14,6	14,7	-0,1	-0,7	12,5	13	-0,5	-4	2007	6
kapok	x: 805395 y: 976225	15	Cocobolo	15,2	15,4	-0,2	-1,3	11,7	11	0,7	6	2007	6
kapok	x: 805395 y: 976225	16	Cocobolo	20,5	20,2	0,3	1,5	12,7	13	-0,3	-2,4	2007	6
kapok	x: 805395 y: 976225	17	Cocobolo	18,7	16,9	1,8	9,6	12	10	2	16,7	2007	6
kapok	x: 805395 y: 976225	18	Cocobolo	13	13	0	0	10,9	12	-1,1	-10,1	2007	6
kapok	x: 805395 y: 976225	19	Cocobolo	16,3	16,3	0	0	12,9	13	-0,1	-0,8	2007	6
kapok	x: 805395 y: 976225	20	Cocobolo	24,4	24,2	0,2	0,8	15	15	0	0	2007	6
kapok	x: 805395 y: 976225	21	Caoba	11,5	11,4	0,1	0,9	9	9	0	0	2007	6
kapok	x: 805395 y: 976225	22	Cocobolo	12,8	12,8	0	0	14,5	15	-0,5	-3,4	2007	6
kapok	x: 805395 y: 976225	23	Cocobolo	17,2	17	0,2	1,2	14,5	14	0,5	3,4	2007	6
kapok	x: 805395 y: 976225	24	Caoba	11	11	0	0	7	7,5	-0,5	-7,1	2007	6
kapok	x: 805395 y: 976225	25	Cocobolo	23,1	23	0,1	0,4	13,9	13	0,9	6,5	2007	6
kapok	x: 805395 y: 976225	26	Cocobolo	26,9	26,5	0,4	1,5	13,9	13,5	0,4	2,9	2007	6
kapok	x: 805395 y: 976225	27	Cocobolo	15,7	13,6	2,1	13,4	12,9	11,5	1,4	10,9	2007	6
kapok	x: 805395 y: 976225	28	Cocobolo	16,7	16,6	0,1	0,6	13	11	2	15,4	2007	6

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
kapok	x: 805395 y: 976225	29	Cocobolo	16,5	16,4	0,1	0,6	12,3	13	-0,7	-5,7	2007	6
kapok	x: 805395 y: 976225	30	Cocobolo	13,7	13,5	0,2	1,5	10,5	11,5	-1	-9,5	2007	6
Red Lotus	x: 808111 y: 979362	1				0				0		2011	8
Red Lotus	x: 808111 y: 979362	2				0				0		2011	8
Red Lotus	x: 808111 y: 979362	3				0				0		2011	8
Red Lotus	x:808111 y: 979362	4	Zapatero		10	-10			5	-5		2011	8
Red Lotus	x: 808111 y: 979362	5	Guasimo	22,8	22,8	0	0	10	10	0	0	2011	8
Red Lotus	x: 808111 y: 979362	6				0				0		2011	8
Red Lotus	x: 808111 y: 979362	7	Guaba		10,6	-10,6			8	-8		2011	8
Red Lotus	x: 808111 y: 979362	8	Zapatero	17,5	17,5	0	0	10,5	10,5	0	0	2011	8
Red Lotus	x: 808111 y: 979362	9	Naranjillo	15,9	16	-0,1	-0,6	8,3	10	-1,7	-20,5	2011	8
Red Lotus	x: 808111 y: 979362	10	Guarumo	14,5	17,2	-2,7	-18,6	10,1	10,1	0	0	2011	8
Red Lotus	x: 808111 y: 979362	11	Guasimo	12,3	12,2	0,1	0,8	10	10,1	-0,1	-1	2011	8
Red Lotus	x: 808111 y: 979362	12				0				0		2011	8
Red Lotus	x: 808111 y: 979362	13	Jobo	45,7	46,8	-1,1	-2,4	25	25	0	0	2011	8
Red Lotus	x: 808111 y: 979362	14	Jobo	17,4	17,8	-0,4	-2,3	20	20,3	-0,3	-1,5	2011	8
Red Lotus	x: 808111 y: 979362	15				0				0		2011	8
Red Lotus	x: 808111 y: 979362	16	Guarumo	11,7	11,8	-0,1	-0,9	15,2	15,4	-0,2	-1,3	2011	8
Red Lotus	x: 808111 y: 979362	17	Guarumo	12	12,2	-0,2	-1,7	15	15	0	0	2011	8
Red Lotus	x: 808111 y: 979362	18	Guarumo	13,5	13,7	-0,2	-1,5	14,9	15,6	-0,7	-4,7	2011	8

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
Red Lotus	x: 808111 y: 979362	19				0				0		2011	8
Red Lotus	x: 808111 y: 979362	20	Guasimo	10,7	13,3	-2,6	-24,3	13	16	-3	-23,1	2011	8
Red Lotus	x: 808111 y: 979362	21				0				0		2011	8
Red Lotus	x: 808111 y: 979362	22	Guasimo	14,2	14,1	0,1	0,7	10,7	10	0,7	6,5	2011	8
Red Lotus	x: 808111 y: 979362	23				0				0		2011	8
Red Lotus	x: 808111 y: 979362	24				0				0		2011	8
Red Lotus	x: 808111 y: 979362	25				0				0		2011	8
Red Lotus	x: 808111 y: 979362	26	Guasimo	15,1	15,2	-0,1	-0,7	8,9	9	-0,1	-1,1	2011	8
Red Lotus	x: 808111 y: 979362	27	Zapatero	11,1	11,2	-0,1	-0,9	10,1	10	0,1	1	2011	8
Red Lotus	x: 808111 y: 979362	28				0				0		2011	8
Red Lotus	x: 808111 y: 979362	29	Guarumo	29,2	29,4	-0,2	-0,7	18,5	18	0,5	2,7	2011	8
Red Lotus	x: 808111 y: 979362	30	Guarumo	25,1	25,2	-0,1	-0,4	18	18	0	0	2011	8
Red Lotus	x: 808111 y: 979362	31	Guarumo	29,1	29,1	0	0	14,9	15	-0,1	-0,7	2011	8
Red Lotus	x: 808111 y: 979362	32	Guarumo	15	14,5	0,5	3,3	10	10	0	0	2011	8
Red Lotus	x: 808111 y: 979362	33	Guasimo	11,1	11,1	0	0	10,2	10	0,2	2	2011	8
Red Lotus	x: 808111 y: 979362	34	Guasimo	12,3	12,4	-0,1	-0,8	6,7	7,7	-1	-14,9	2011	8
Red Lotus	x: 808111 y: 979362	35	Guasimo	11	11,1	-0,1	-0,9	9,9	10	-0,1	-1	2011	8
Red Lotus	x: 808111 y: 979362	36	Zapatero	17,3	12,3	5	28,9	10,1	10,2	-0,1	-1	2011	8
Red Lotus	x: 808111 y: 979362	37				0				0		2011	8
Red Lotus	x: 808111 y: 979362	38				0				0		2011	8

Finca	Coordenadas Sistema Nacional Panamá	#Arbol	Especie	Auditoria DAP (cm)	DAP Inventario	DAP Audit-Invent	error DAP	Htot (m) Auditoria	Htot Inventario	Htot Audit-Invent	error Htot	Año plantado	Parcela
Red Lotus	x: 808111 y: 979362	39				0				0		2011	8
Red Lotus	x: 808111 y: 979362	40	Cocobolo	11,2	11	0,2	1,8	5,2	5,4	-0,2	-3,8	2011	8
Red Lotus	x: 808111 y: 979362	41				0				0		2011	8
Red Lotus	x: 808111 y: 979362	42				0				0		2011	8
Red Lotus	x: 808111 y: 979362	43	Zapatero	10	10	0	0	7	7	0	0	2011	8
Red Lotus	x: 808111 y: 979362	44	Laurel	12,9	13,6	-0,7	-5,4	10,3	10	0,3	2,9	2011	8
							146,8				90,1		
							0,9128				1,4872		

APPENDIX 3: PUBLIC DOCUMENT VERRA

VERRA

One Thomas Circle, NW
Suite 1050
Washington, DC 20005
www.verra.org

25 February 2021

Andreas Eke
Director
Futuro Forestal
Calle Walter Reed 506 A Clayton
Panama City
Panama

Dear Andreas Eke,

This letter is in reference to your extension request submitted to Verra on 27 January 2021. It is our understanding that you are requesting an extension to the deadline specified within Section 3.7.3 of the *VCS Standard, v4.0* for a proposed AFOLU grouped project in Panama. Section 3.7.3 of the *VCS Standard, v4.0* requires that, "AFOLU projects shall complete validation within five years of the project start date."

The proposed project would be comprised of nine project activity instances, which are further divided into 17 parcels. Of these, six instances, which are divided into eleven parcels, have start dates beyond the five-year deadline, while the remaining three instances, which are divided into the remaining six parcels, have start dates, including *proposed* start dates, within the past five years.

Based on the information provided to Verra, it is understood that about half of the total area reforested was reforested more than five years ago while the other half was reforested within the past five years. Given this, Futuro Forestal has requested an exemption from Section 3.7.3 of the *VCS Standard, v4.0* for an extension of the five-year validation deadline for the proposed project.

Considering the particular circumstances leading to this request, and the background information presented, Verra will grant an extension to the deadline specified within Section 3.7.3 of the *VCS Standard, v4.0*, with some conditions. Verra confirms that both parcels with activities started within five years of validation and parcels with activities with earlier start dates will be considered eligible for registration and credit issuance. Please note that for a parcel with a start date earlier than five years prior to validation, credits may be claimed only for emission reductions/removals that occurred, at most, five years prior to validation. Verra reached this decision after assessing materials that Futuro Forestal presented to Verra in support of the project's additionality.

Please note, such decisions are made by Verra on a case-by-case basis and do not form the basis of, or set a precedent for, future exemption request approvals or denials.

When requesting registration, the project proponent must present a copy of this letter to the Verra Registry. This letter will be uploaded to the Verra Registry as a public document.

Sincerely,

Andrew Beauchamp,
Interim Program Manager

APPENDIX 4: AUDIT PLAN AND RISK ANALYSIS FOR AUDIT REMOTE

Título de la iniciativa del proyecto de mitigación de GEI	GENERATION FOREST GROUP PROJECT.			
Nombre completo y cargo del responsable del proyecto	Sussane Guamba Science Project and Carbon Coordinator			
Correo electrónico	sg@futuroforestal.com	**Celular**		+504 62854012
Dirección, incluyendo el País.	Clayton, Calle Parker Drive, Casa 923ª Panama ciudad de Panamá			
Datos y cargo de la persona de contacto	Sussane Guamba Science Project and Carbon Coordinator FUTURO FORESTAL S.A.			
Tipo de auditoria	**Validación**		**Verificación**	X
	Totalmente remota	X	**Parcialmente remota**	

Con un cordial saludo, me dirijo a usted para remitir la propuesta del plan de la auditoria que se realizará al proyecto de mitigación de GEI presentado por su organización. Así mismo, para la reunión de apertura y reunión de cierre de la auditoria le agradezco invitar a las personas relevantes de las áreas que serán auditadas.

Para el balance diario de información del equipo auditor le agradezco disponer de agenda y un espacio físico o remoto para realizar la reunión, así como también el acceso a la documentación básica de la iniciativa de mitigación de GEI.

En cuanto a las condiciones de seguridad y salud ocupacional aplicables a su organización, por favor informarlas antes de realizar la visita en sitio para que el equipo auditor pueda solicitar a ICONTEC los elementos de protección personal que sean necesarios.

La información que se conozca por la ejecución de esta auditoria será tratada confidencialmente, por parte del equipo auditor e Icontec. El idioma de la auditoria y su informe será en inglés respetando los estándares del VCS.

Las condiciones de este servicio se encuentran indicadas en el R-PS-012 REGLAMENTO PARA SERVICIOS DE VALIDACIÓN Y VERIFICACIÓN.

Criterio de la auditoria	- VCS version 4.1 – CCB version 3.1. - Metodología AR- ACM0003 Afforestation and Reforestation of lands except wetlands. Version 2.0. Herramientas aplicadas: La verificación del proyecto de mitigación de GEI se realizará mediante auditoría con apoyo de medios tecnológicos totalmente remota.
Objetivos de la auditoria	**Para verificación:** Verificar el cumplimiento en la implementación de las actividades del proyecto de mitigación, incluyendo las asociadas a la metodología seleccionada para el proyecto, considerando lo siguiente:

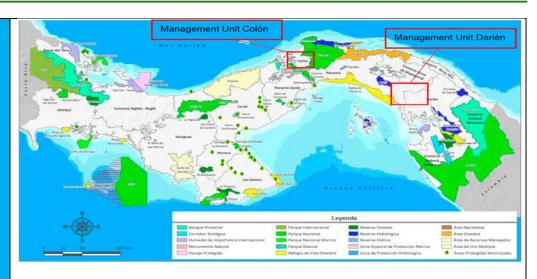|	
	• La conformidad con los criterios de verificación aplicables, incluyendo los principios y requisitos de las normas o programas de GEI pertinentes dentro del alcance de la verificación. • La información y documentación de la planificación del proyecto de GEI, incluyendo procedimientos y criterios para el proyecto, la línea base, el control y el aseguramiento de la calidad, la gestión del riesgo y los documentos de esta verificación. • Las emisiones, remociones, reducciones de emisiones e incrementos de remociones que se informan en la línea base y el proyecto de GEI. • Cualquier cambio significativo en las emisiones, remociones, reducciones de emisiones y aumentos de remociones de GEI desde el último periodo de informe, o desde la validación del proyecto, • El cumplimiento de los principios y los controles reales del proyecto y del sistema de monitoreo, verificación y reporte necesarios para cumplir con sus procedimientos documentados y la legislación vigente de acuerdo con los criterios de auditoría.
Alcance de la auditoria	El Proyecto del Grupo de Generación Forestal trabaja actualmente en dos Unidades de Manejo Forestal (Darién y Colón), en el centro y este de Panamá. Actualmente, el área del proyecto (en gestión) es de 1887ha. De las cuales 1139 hectáreas son elegibles para las actividades del proyecto. Actualmente se ha reforestado una superficie de 673 hectáreas. La unidad del Darién el área se distribuye en la mayor parte en la provincia de Darién, Distrito de Chepigana, y otra parte se encuentra en la provincia de Panamá, Distrito de Chepo. Comprende una superficie actual del proyecto de 952 hectáreas, de las cuales 710 son elegibles para el proyecto. La segunda unidad de manejo forestal es Colón, ubicada en la provincia de Colón, Distrito de Colón, en la carretera a Sierra Llorona, con un área de proyecto de 935 hectáreas donde 429 hectáreas son elegibles para el proyecto La Unidad de Gestión 1 comprende 5 instancias de actividades de proyecto, que son: • Instancia 1: Bosque de cerebros • Instancia 2: Jardín Edén: Comprende los sitios forestales Garden Eden, Garden Eden, Los Llanos. • Instancia 3: Kapok • Instancia 4: Red Lotus • Instancia 5: Waldmenschen, Darién: comprende el paraje forestal La Ponderosa, La Reina y Clarita. Los sitios forestales de Colón corresponden a 4 instancias: • Instancia 6: Waldmenschen, Colón. comprende los sitios forestales La Conexión, Gatún 1, Gatún 2 • Instancia 7: Santa Rita • Instancia 8: Lauhan • Instancia 9: Bartholly

- Fuentes y sumideros: Biomasa aérea, biomasa subterránea, carbono orgánico del suelo
- Tipos de GEI, CO_2
- Periodos de tiempo definidos para ejecutar la actividad del proyecto: Duración de 100 años a partir del 16 de agosto de 2016.

Nivel de Aseguramiento	Acordado con el cliente: 95%	**Materialidad - Importancia Relativa**	Acordado con el cliente: 5%

Plan de Muestreo / Plan de recopilación de evidencia	En cuanto a la información y documentación de la planificación del proyecto de mitigación de GEI, incluyendo procedimientos y criterios para el proyecto, la línea base, el control y el aseguramiento de la calidad, la gestión del riesgo y los documentos de esta verificación, se relacionan en la siguiente tabla:

Parámetros	**Muestreo (%)**	**Nivel de Aseguramiento (100%)**
Metodologías y herramientas utilizadas para el cálculo de las remociones	100	100
Fórmulas para el cálculo de las remociones	100	100

En cuanto al número de parcelas a verificar y su localización regional se relacionan en la siguiente tabla:

N	**Parcela**	**Estrato**	**Tamaño Estrato**	**Finca**	**Coord. X**	**Coord. Y**
1	4	Teca 2013	Mayor	Brain Forest	800997,0649	976826,829
2	12	Teca 2012	Menor	Brain Forest	802194,617	975361,828
3	7	Teca 2011	Mayor	Brain Forest	800303,025	977067,37
4	14	Teca 2018	Mayor	Brain Forest	800903,573	976089,257
5	13	Nativas	Mayor	Brain Forest	801206,7186	977707,265
6	15	Nativas2008	Menor	Brain Forest	801249,4193	976653,607

7	6	Teca 2014	Menor	Brain Forest	800325,6689	977558,59
8	3	Teca 2015	Mayor	Brain Forest	800705,3594	976345,775
9	2	Teca 2017	Mayor	Garden Eden	801331,7987	977817,178
10	5	Teca 2016	Mayor	Garden Eden	801357,2068	977401,59
11	6	Nativas 2007	Mayor	Kapok	805400,1601	976224,64
12	11	Nativas Mixtas 2011	Mayor	Kapok	805392,0813	975752,037
13	2	Nativas 2007	Mayor	Kapok	805544,6742	976790,532
14	5	Nativas 2007	Menor	Kapok	805509,5014	976569,928
15	2	Nativas Mixtas Rastrojos 2011	Mayor	Red Lotus	808111,8997	979362,679

Para realizar la auditoria remota se seleccionó la verificación en campo de la unidad Darien, para ver la mayoría de los arreglos forestales y estratos y porque en la unidad Darién a diferencia de la unidad Colón cuenta con mayor número de hectáreas implementadas, más arreglos y más estratos, y el acceso es menos complejo que Colón que está en el sistema montañoso y en época de lluvias se dificulta el paso. Se escogieron 15 parcelas de las 264 parcelas para dar respuesta al 5% de verificación de campo.

Las evidencias de la auditoría se basarán en entrevistas, revisión documental, observación de actividades y condiciones, medición y resultados de la remedición de parcelas.

Nombre del auditor líder	Claudia Polindara Romero	**Correo electrónico**	cpolindara@icontec.net
Auditor	Claudia Polindara Romero	**Experto técnico**	Claudia Polindara Romero
Reunión de apertura	10/09/2021	**Hora**	14:00
Reunión de cierre	28/09/2021	**Hora**	09:00
Fecha en la que se diligenció el plan de auditoria	06/09/2021		

PLAN DE ACTIVIDADES EN SITIO

FECHA	HORA	REQUISITO POR AUDITAR	AUDITOR	NOMBRE y CARGO DEL AUDITADO
10-09-2021	08:00 - 09:00 am	MT. VCS y CCB Estándar Monitoring Report: 2, 3, 4	CJPR	Susanne Guamba - Gerente de ciencia y carbono
10-09-2021	09:00 - 10:00 am	MT. VCS y CCB Estándar Monitoring Report: 2; 3; 4	CJPR	Jennifer Hernandez - Responsable de proyecto en Darién
10-09-2021	10:00 - 11:00 am	MT. VCS y CCB Estándar Monitoring Report: 2.3; 4	CJPR	Octavio Cunampio - Equipo de monitoreo, comunidad Emberá

10-09-2021	10:00 am-12:00 m	MT. VCS y CCB Estándar Monitoring Report: 3.1; 5;6	CJPR	Juan González - Gerente de Operaciones
10-09-2021	14:00 – 16:00 pm	MT. VCS y CCB Estándar Monitoring Report: 2.3, 3, 6	CJPR	Equipo de monitoreo, comunidad Emberá: Militza Cunampio, Elio Barrigón, Albert Aji
10-09-2021	16:00 – 17:00 pm	MT. VCS y CCB Estándar	CJPR	Ángel Flores. Auditoría externa de plantaciones, EcoWoods
27-09-2021	08:00 am - 17:00 pm	MT. VCS y CCB Estándar	CJPR	Susanne Guamba - Gerente de ciencia y carbono

Observaciones:

- Durante las entrevistas el equipo auditor revisará por muestreo, la documentación referenciada dentro de la descripción del proyecto y/o en el reporte de monitoreo.
- Este plan de actividades es flexible y puede ser modificado de común acuerdo con el titular del proyecto.
- Todo el personal del titular del proyecto relacionado con la iniciativa de mitigación de GEI debe estar disponible si es solicitado por el equipo de auditoria con el propósito de evaluar cualquier requisito
- Durante cualquier fase de este proceso de evaluación (revisión documental, previa a la visita en sitio, visita en sitio, redacción del informe de auditoría o revisión técnica) se pueden declarar hallazgos, los cuales deben ser resueltos antes de enviar la documentación relevante (descripción del proyecto, reporte de monitoreo, hojas de cálculo, informes de auditoría, entre otros) al programa de GEI.
- El cronograma de las actividades de Validación/ verificación se encuentran descritas en el documento F-GV-086 NOTIFICACION DE SERVICIOS VALIDACION Y VERIFICACION

Para el desarrollo de la auditoria remota, tener en cuenta:

El proponente de proyecto indicó que la información entregada al equipo auditor se presenta bajo las siguientes características:

Ítem	Formato	Trazabilidad	Medio de envío
Videos	Formatos originales de grabación video: mp4, mkv, avi, dvd, wmv, mov, entre otros. Preferiblemente comprimidos. Fecha, hora y tracks asociados en formato .gpx, kml o shape.	Generar un documento especificando las características del video, la cámara usada, la codificación de cada video y su medio de archivo y envío.	Mediante almacenamiento en la nube.
Fotografías	Formato: jpg, jpeg, gif, png, bmp, etc. Fecha, hora<z y tracks asociados en formato .gpx, kml o shape.	Generar un documento especificando las características del video, la cámara usada, la codificación de cada video y su	Mediante almacenamiento en la nube.

		medio de archivo y envío.	
Tracks	Formato original del GPS (.gpx) tal como queda guardado (fecha, hora).	Documento descriptivo asociado a cada Track, medio de archivo y envío	Mediante almacenamiento en la nube.
Waypoint	Formato original del GPS (.gpx) tal como queda guardado (fecha, hora).	Documento descriptivo asociado a cada Waypoint, medio de archivo y envío.	Mediante almacenamiento en la nube.

El auditor líder durante la realización del plan de auditoría y junto con el cliente, evaluó los riesgos de realizar la auditoria remota, y los riesgos de control, inherentes y de detección identificados durante la revisión documental y planificación del servicio:

No	Riesgo	Nivel de riesgo	Tratamiento de los riesgos en el plan de Validación/Verificación
1	Acceso limitado al área	M	Existe accesos a todas las fincas, en época de lluvia se utilizan autos 4*4 con doble tracción. Existe mayor dificultad en el acceso a Colón, por lo cual se desarrollará la remediación de parcelas en la Unidad del Darién, en donde existe una mayor representatividad de todos los estratos.
2	Interferencia o baja calidad en la comunicación	M	Se tienen videos realizados en la auditoría de validación. Se cuenta con la nube para subir la información.
3	Acceso del proponente del proyecto al área debido a restricciones de movilidad (COVID-19 u otra condición)	M	Se realizan entrevistas por distintos medios como: llamadas telefónicas, whatsapp, plataformas (Teams, Zoom).
4	Verificación de acciones para el manejo de la biodiversidad en la zona	M	El proyecto cuenta con certificación FSC y da cumplimiento de estas acciones. Se presentará un documento con los procedimientos y un video descriptivo de los mismos.
5	Pérdida de evidencia en la implementación de controles	B	La empresa cuenta con esquemas de monitoreo para la verificación de la implementación, cuenta también con formatos de evaluación de los individuos.
6	Identificación de errores en los cálculos de la metodología	M	La empresa cuenta con supervisión de las áreas, se realizan varios procesos de reverificación, y se realizan remediciones aleatorias o en parcelas que se identifiquen posibles errores.