



**Verified Carbon  
Standard**

VALIDATION AND VERIFICATION REPORT  
OF UNITÁN AFFORESTATION AND  
REFORESTATION OF GRAZING LANDS  
PROJECT

**AENOR**  
Confía

Document Prepared by AENOR INTERNACIONAL S.A.U.

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<b>Project Title</b>	UNITÁN AFFORESTATION AND REFORESTATION OF GRAZING LANDS PROJECT
<b>Report Title</b>	VALIDATION AND VERIFICATION REPORT OF UNITÁN AFFORESTATION AND REFORESTATION OF GRAZING LANDS PROJECT
<b>Version</b>	3.4
<b>Report ID</b>	2022811_Val_ver_report_Unitán_VCS
<b>Verification Period</b>	16 September 2016 to 15 August 2021
<b>Client</b>	ProSustentia
<b>Pages</b>	105
<b>Date of Issue</b>	29/11/2022

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## Summary:

The project activity “Unitán Afforestation and reforestation of grazing land project” (hereafter, “Unitán project”) is an afforestation project on extensive cattle grazing pastures area and abandoned agricultural lands, using native (*Schinopsis balansae*) and exotic species (various varieties of *Eucalyptus* including *Eucalyptus gxc*) aiming to produce, as a priority product, logs for tannin industry and secondarily, fuelwood. The project is located in a region where commercial forestry plantations are not common, or even non-existent. The afforestation with this species will prevent the use of timber from native forests in the future.

The Unitán project is carried out in 5 properties, on lightly degraded grassland as a consequence of many decades of extensive cattle grazing and set aside agriculture land by previous owners. This degradation is expected to continue in the absence of the project. From September 2016 until the time of PDD elaboration, a total area of 884.9 ha of the project was effectively planted. In addition, there is an area of 1,463.8 ha of planned plantation for the period 2021 to 2025 (mainly in owned and a minor part in leased lands). The area of grasslands to be effectively planted and to be included within the Unitán project boundary is then 2,348.7ha (70.5% of Unitán total area).

The purpose of the validation and verification was the independent evaluation of the project’s compliance with the VCS Standard v4.2 and the assessment of the ex-post monitored anthropogenic GHG emissions removals that have occurred as a result of the project’s activities. The process was performed through a combination of desk review, interviews and communications with relevant personnel and remote inspections.

During the validation and verification 9 CLs and 8 CAR were reported. All these issues were appropriately closed by means of corrections, more clear explanations and other supported documents. 1 FAR was reported for the next verification.

AENOR carried out a final validation and verification report and deems with reasonable level of assurance that the project complies with all of the validation and verification criteria for VCS. The assessment team has no restrictions or uncertainties with respect to the compliance of the project with the validation and verification criteria. Hence, the audit team concludes that the GHG emissions removals, for the lands included in the project, have been quantified in accordance with VCS rules. AENOR can confirm that the estimated annual average GHG emission reductions/removals of 7,468 tCO<sub>2</sub>e for the whole crediting period and the estimated net GHG emissions reductions/removals of 11,335.38 tCO<sub>2</sub>e achieved during the monitoring period are accurate and free of material errors.

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# 1 INTRODUCTION

## 1.1 Objective

The purpose of the validation and verification audit activity was to conduct an independent assessment of the project to determine whether the project complies with the validation and verification criteria as set out in the guidance documents listed in Section 1.2 of this report, including the monitoring procedures and that the GHG emission reductions and removals reported in the monitoring report are materially accurate.

## 1.2 Scope and Criteria

The scope of the validation and verification audit is to validate and verify the emissions reductions of the proposed project activity in Argentina against the Verified Carbon Standard, the identified methodology and associated tools, for the crediting period from 16-september-2016 to 15-september-2055 and the first verification event from 16-September-2016 to 15-August-2021.

The objectives of this audit included a validation of the projects estimated emission removals and the verification of the achieved emissions removals with the Verified Carbon Standard requirements and any additional requirements of VCS AFOLU projects, besides the assessment of the additionality and the non-permanence risk assessment report.

The scope was defined as follows:

- The project and its baseline scenarios.
- The physical infrastructure, activities, technologies and processes of the project.
- The GHG sources, sinks and/or reservoirs those are applicable to the project.
- The types of GHGs that are applicable to the project.
- The project crediting period.
- The project first monitoring period.

In accordance with Section 4.1.8 of the VCS Standard, the criterion for validation and verification was the VCS Version 4.2, including the following documents:

- VCS Standard v4.2
- VCS Program Guide v4.0
- VCS AFOLU Non-Permanence Risk Tool v 4.0

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS documents.

### 1.3 Level of Assurance

The assessment was conducted to provide a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, a positive evaluation statement reasonably assures that the project GHG assertions are materially correct and is a fair representation of the GHG data and information.

All the versions of the validation and verification report were subjected to an independent internal technical review before being submitted to the client to confirm that all validation activities had been completed according to the pertinent AENOR instructions required. The technical review was performed by a technical reviewer(s) qualified in accordance with AENOR’s qualification scheme for VCS validation and verification.

Name	Role in the Team
Juan Carlos Gómez	Lead auditor
Javier Cócera	Auditor
José Luis Fuentes	Technical Reviewer

### 1.4 Summary Description of the Project

The project activity “Unitán Afforestation and reforestation of grazing land project” (hereafter, “Unitán project”) is an afforestation project on extensive cattle grazing pastures area and abandoned agricultural lands, using native (*Schinopsis balansae*) and exotic species (various varieties of *Eucalyptus* including *Eucalyptus gxc*) aiming to produce, as a priority product, logs for tannin industry and secondarily, fuelwood. The project is located in a region where commercial forestry plantations are not common, or even non-existent. The afforestation with this species will prevent the use of timber from native forests in the future

The Unitán project is carried out in 5 properties, on lightly degraded grassland as a consequence of many decades of extensive cattle grazing and set aside agriculture land by previous owners. This degradation is expected to continue in the absence of the project. From September 2016 until the time of PDD elaboration, a total area of 884.9 ha of the project was effectively planted.

The project utilizes two main species: *Schinopsis balansae*, a native species, and *Eucalyptus* (different varieties: mainly *gxc* and *cloeziana*), occupying 37%, 63% of the total planted area, and with rotation periods of 40 years, 6 and 20, respectively. Biomass was estimated based on the forest inventory conducted between June 10<sup>th</sup> and August 15<sup>th</sup> of year 2021, meaning this first monitoring period is from September 16<sup>th</sup>, 2016 to August 15<sup>th</sup>, 2021.

The project sequesters CO<sub>2</sub> through forest plantation in grassland areas, generating net anthropogenic removals by sinks that can be measured, monitored and verified. The long-term average GHG benefit (LTA) is determined by averaging the expected total GHG benefit for the length of the project where a

whole rotation and harvest takes place (50 years: from 16/09/2016 – until 15/09/2065). The total GHG benefit expected at the end of crediting period is 449.643 tCO<sub>2e</sub>. The sum of the expected GHG benefit annually when divided by 50 years (period for estimating LTA) results in 7,468.2 tCO<sub>2e</sub>.

Therefore, it is a project of the afforestation, reforestation and revegetation (ARR) category, VCS sectoral scope 14 (AFOLU).

The project contributes to the sustainable development of Argentina, specifically by:

- Increasing labour demand from the local population: switching to forestry plantation activities will generate a much larger demand of labour when compared to current activities being developed separately, including new labour qualifications.
- Promoting an integrated management scheme with the ecosystem in privately owned land, avoiding natural forest extractions, specifically those dominated by *Schinopsis balansae*, which are harvested for the tanning industry.
- Installing an innovative native species plantation will bring along environmental benefits such as soil protection, water runoff regulation and biodiversity benefits; at the same time, generating new information on native species forest management
- Developing and improving a new mechanism to finance projects in the forestry sector.

## 2 VALIDATION AND VERIFICATION PROCESS

### 2.1 Method and Criteria

The validation and verification were performed through a combination of document review, interviews with relevant personnel and a remote inspection, as discussed in Sections 2.2 through 2.4 of this report. At all times, the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.5, findings were issued to ensure that the project was in full conformance to all requirements.

A project specific sampling plan was developed to guide the validation and verification auditing process to ensure efficiency and effectiveness. The purpose of the sampling plan was to present a risk assessment for determining the nature and extent of the validation and verification procedures necessary to ensure the risk of auditing error was reduced to a reasonable level. The validation and verification sampling plan methodology was derived from all items in our auditing process stated above. Specifically, the sampling plan utilized the VCS guidance documents and ISO 14064-3. Any modifications applied to the validation and verification sampling plan were made based upon the conditions observed for monitoring to detect the processes with highest risk of material discrepancy.

The Unitán Afforestation Project was assessed according to the requirements and guidance set by the following documents:

- VCS Standard v4.2
- VCS Program Guide v4.0
- VCS AFOLU Non-Permanence Risk Tool v 4.0
- AR-ACM 0003: Afforestation and reforestation of lands except wetlands”, Version 02.0
- “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities” , Version 1.0
- “Tool for the demonstration and assessment of additionality”, Version 07.0.0
- “Tool for the demonstration and assessment of additionality in VCS agriculture, forestry and other land use (AFOLU) project activities” version 3.0
- “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”, Version 04.2
- “Estimation of carbon stock and change in carbon stocks in dead wood and litter in A/R CDM project activities”, Version 03.1
- “Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”, Version 01.1.0
- “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”, Version 2.0
- ”Calculation of the number of sample plots for measurements within A/R CDM project activities”; Version 2.1.0

The validation activities in which risks were assessed were the evaluations of the applicability, baseline scenario, additionality, leakage, non-permanence risk analysis, monitoring system, safeguards, etc. In case of the verification, the accuracy of GHG emission reduction and removal calculations was reviewed, according to the monitoring results, as well as the quality of the related evidence.

The carbon stock changes /6/, and the land use classes /7/ in the project area were also 100% verified and crosschecked with validated values. For data provided for the project area, AENOR requested onsite samples of data.

A project specific sampling plan was developed to guide the validation and verification auditing process to ensure efficiency and effectiveness. The purpose of the sampling plan was to guide the auditing process as well as the activities to be validated and verified and the people to be interviewed. The audit plan also has into consideration the dates of each activity and other factors such as the level of assurance, the VVB team, the possible topics to consider.

The audit plan explains under what standards, guidance documents or templates the project will be assessed. Also, the versions of the tools used within the methodology section.

Due to the audit was done remotely because of the COVID restrictions, the audit plan has specific sections to show the key stakeholders that went interviewed and the projects activities verified.

The level of assurance and the materiality are also described in the audit plan. The assurance level is reasonable, and the materiality is five percent (5%) as established for projects by the VCS standard.

AENOR carried out a deep and meticulous review of the spreadsheets /3-6/ to verify the correct application of the methodology (formulae, equations, etc.) and checked that data required calculating the GHG removals were appropriately provided. Based on the assessment carried out, AENOR confirms with a reasonable level of assurance that the claimed emission reductions are free from material errors, omissions, or misstatements.

AENOR confirms that sufficient evidence was presented for the reported net anthropogenic GHG emission reductions and that there is a clear audit trail that contains the evidence and records that validate the stated figure in this verification report since:

- Sufficient evidence available: The project participant has provided the 100% of data used in the calculations to achieve the final amount of GHG emission reductions reported.
- Nature of evidence: The raw data were collected from reliable sources. They are detailed in the project documents and have been provided to the verification team and were checked during the interviews.
- Cross-checked evidence: AENOR cross-checked the collected information through interviews with stakeholders and reproducing calculations.

Hence, AENOR confirms that the stated figures in the Project Description and Monitoring Report are correct and confirms that is able to certify net anthropogenic GHG removals based on verifiable and reliable evidence.

## 2.2 Document Review

The Joint Project Description and Monitoring Report /1/ submitted by the Project Proponent (PP) was reviewed against the approved methodology and against VCS requirements. Additional background documents related to the project design, baseline and additionality were also made available before and during the remote audit process, along with the non-permanence risk report.

Other documents reviewed included data from monitoring, carbon rights contracts, management agreements, maps and aerial images, monitoring and grievance SOPs, biomass and carbon calculation spread sheets, and responses to Corrective Action Requests (CARs) and Clarifications (CLs). All documents were provided digitally to the audit team. To address the corrective actions and clarification requests that arose from the desk review and remote process, the PP revised the initial joint project description and monitoring report document V.2. and developed a final version V.5.

For a listing of all documents received from the client for this verification, please see Appendix 1.

## 2.3 Interviews

The AENOR validation and verification team conducted interviews (remotely) to confirm selected information and to resolve issues identified in the document review. The list of the interviewed people is below detailed.

Stakeholder Group	Name/Role	Topic	Date/ Verification mean
Project proponent (Unitán Vice-president)	Ariel López Mato	Project implementation - Benefits and Risks - Communication	21/03/2022 / Videocall
Forestry activities coordinator	José Ignacio Otarán	Monitoring and forestry activities - Project infrastructure- Natural Risks	22/03/2022 / Videocall
Forest engineer - Inventory coordinator	Ricardo Orquera	Monitoring activities - Trainings - QA/QC	18/03/2022 / Videocall
Forest engineer	Ariel Adrián Caro	Inventory activities, - Data control - QA/QC -Monitoring	18/03/2022 Videocall
Project Developer	Josefina Uijt Den Bogaard	Project Design - GIS - Carbon calculations	29/11/2021 Videocall

## 2.4 Site Inspections

Due to COVID-19 and its mobility restrictions, AENOR as VVB proposed to carry out a remote audit that ensured the achievement of the assurance level required by the VCS program, i.e, a reasonable level.

The remote audit was based on the following auditing techniques:

- Document review and cross checks between the information provided in the PD, and supporting information and evidence provided by the PP Emissions calculations, GIS database, and supporting information and evidence provided.
- Review, based on the selected methodologies, tools and the other applied methodological regulatory documents, of the appropriateness of formulae and accuracy of calculations.
- Telephone, teleconference and/or e-mail interviews for the implementation of project activities and the elaboration of project's documents
- Cross checks between information provided by interviewees to ensure that not relevant information has been omitted.
- The remote audit procedure was agreed with the PP based on available means and safety procedures. Key stakeholders were interviewed as described below.

The following table shows the evidence obtained remotely:

Name - Activity	Entity – Group	Verification mean
María Bando	Worker / Farmer of the zone	Written testimonies
Claudia Gronda		
Natividad María		
Liliana Zacarías		
Juan Lentati		
Enmanuel Carrocino	Local Government / CPN Forest director	Written testimonies
Sergio Soto	Local Government / CORFOR President	
Marcos Giordano	Local Government / Forest Direction	
Picilli Gladis	Local Government / Mayor Pampa Almirón	
Victor Franco	Local Government / Forestry Program Sub-Director	
Luciano Olivares	Forestry development Sub-Director	
Daniel Maradei	Forest Industry Director	Video Testimony
Iván Vera	Community member / Margarita Belén Neighbour	Video testimony
Julio Martínez Tito	Community member / Producer and neighbour of Pampa Almirón	
Rolando Recalde	Community member / Neighbour Villa 213	
Boldorini Dante	Community member / Neighbour Villa 213	
Forest inventories and trainings	UNITÁN / Forest engineer	Video testimonies
Tree nursery		

Monitoring and data processing		
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## 2.5 Resolution of Findings

A total number of 8 CARs and 9 CLs were raised during this validation and verification process.

All findings issued by the AENOR audit team for this validation and verification process have been closed. In accordance with Sections 4.1.13 and 4.1.14 of the VCS Standard, all findings issued during the validation and verification process, and the inputs for their closure, are described in Appendix 2 of this report.

### 2.5.1 Forward Action Requests

1 FAR (Forward Action Request) was submitted. The objective of that, was to perform an on-site verification during the next verification event.

The reported FAR is located on the same annex than the rest of findings.

# 3 VALIDATION FINDINGS

## 3.1 Project Details

### 3.1.1 Project type, technologies and measures implemented, and eligibility of the project

The project is classified under sectoral scope 14 “Agriculture, Forestry and Land Use (AFOLU)”. As described in Section A1.1 of the VCS Standard, the project is eligible under the category of Afforestation, Reforestation, and Revegetation (ARR).

The project has been designed as a single instance, non-grouped project. The initiative is an afforestation project on extensive cattle grazing pastures area and abandoned agricultural lands, using native (*Schinopsis balansae*) and exotic species (various varieties of *Eucalyptus* including *Eucalyptus gxc*) aiming to produce, as a priority product, logs for tannin industry and secondarily, fuelwood. The project is located in a region where commercial forestry plantations are not common, or even non-existent. The afforestation with this species will prevent the use of timber from native forests in the future

### 3.1.2 Project design

The project is design as a single activity (reforestation). This is not a grouped project.

### 3.1.3 Project proponent and other entities involved in the project

The project proponent is Unitán S.A.I.C.A . The other entities involved in the project are ProSustentia, as project developer.

The audit team finds that contact and entity information provided in the PD conforms to the VCS requirements.

### 3.1.4 Ownership

Unitán S.A.I.C.A has 3331.6ha of managed land properties (not including tanning industry area and other related activities) among which 12.6% are leased properties (although within project boundaries, 10% is leased land). Unitán Project is operated and administered by Unitán S.A.I.C.A on private property of its own, except for one of the properties which is leased to: Sociedad Rural (Margarita Belén plots) for a period of 10, and with a certified signed commitment (signed in August 2<sup>nd</sup>, 2021) to extend contract for 10 more years after the end of current leasing contract, with no legal impediment to further extend it. The area planted in these leased property represents 3.7% of the total planted projected area for VCS project.

The project is led by the Forestry Area of the company, supervised by Ariel López Mato, an area which fulfills all the tasks of managing the area and carrying on the implementation of the project´s business plan. The area responds to the company's Directory and acts as its representative to carry on all operational and commercial activities related to the project. Among these activities are the necessary tasks to certify the carbon credits that could be generated with the Unitán project.

The audit team has checked the land leases /1/ /89-90/ and other supporting documentation provided as evidence of the ownership and finds that the PP's project ownership is unconditional, undisputed, and unencumbered, in accordance with VCS requirements.

### 3.1.5 Project start date

The project start date is 16 september 2016, which corresponds with the first implementation of the activities that lead to the generation of GHG emissions removals. It corresponds with the soil preparation in Margarita Belén Plots.

AENOR has checked with the submitted record /19/ that established date is appropriate and consistent. Then, in opinion of AENOR it is considered reasonable and correct based on the VCS requirements for start date established in Section 3.7 of the VCS Standard.

### 3.1.6 Project crediting period

The crediting period of the project is 40 years-long, from 16-september-2016 to 15-september-2055.

According to Section 3.8.3 of the VCS Standard, the crediting period of AFOLU projects will have a minimum of 20 years and a maximum of 100 years. Therefore, the project activity is in line with the length of the crediting period, and it has the option to renew more times.

In this regard, AENOR can confirm that PP have developed credible and robust plan for managing and implementing the project over the crediting period in compliance with Section 3.8.4 of the VCS Standard.

### 3.1.7 Project scale and estimated GHG emission reductions or removals

The project is classified as “project” according to its scale (less than or equal to 300,000 tonnes of CO<sub>2</sub>e per year), since it will remove an average of 7,468.2 tCO<sub>2</sub>e per year during the 40 years of crediting period.

### 3.1.8 Project location

Unitán´s area covers a total of 3,331.6ha located in the North of Argentina distributed in four departments of Chaco and Formosa provinces. The Unitán Project is a fraction of Unitán´s total area, planning to reach a specific effective planted area of 2,348.7ha comprising 5 properties, between owned and leased areas: Doña Virginia, Irineo, Sociedad Rural, Don Antonio, Ex-Glombosvky.

The location of the project area has been presented in GIS and KML files /7-13/. The coordinates of project area have been provided. Therefore, AENOR verified the location of the project activity.

### 3.1.9 Conditions prior to project initiation

Regarding conditions prior to the project initiation, the PD and MR describes in a complete way the climate, hydrology, topography, relevant historic conditions, soils, vegetation and ecosystems for the areas involved in the project. AENOR has verified that project is being implemented in an alluvial area east of Chaco and Formosa provinces, and the land within the project boundary is defined as grassland as a result of the multi-temporal land use change analysis developed using satellite images, through the -review of the GIS /7-12/ and the remote audit. The land proposed for the forestry activity (eligible area) was found under the category of natural grass, managed grass, crops, low stubbles and eroded soil.

### 3.1.10 Project compliance with applicable laws, statutes and other regulatory frameworks

Section 1.14 of the PD and MR provides information related the compliance with the applicable laws, statutes and other regulatory frameworks. The main and relevant Laws are detailed, and its enforcement analyzed in the PD and MR section 1.14. According to the information provided, the Project complies with Law 25080 /46/ with the project location requirements. Project is in an area categorized as of low or medium conservation value and has been granted the “work certificate”. Therefore, the project fulfils with laws mentioned in the PD and MR as it could be verified. Thus, AENOR deems that project complies with applicable laws, statues, and other regulatory frameworks.

### 3.1.11 Participation under other GHG programs

GHG removals generated by the project will not be used for compliance with binding limits to GHG emissions since such limits are not enforced in Argentina, and there is no emissions trading program in place in the country.

The project has not been registered nor is seeking registration under other GHG program, nor has it been rejected by other GHG program.

### 3.1.12 Other forms of credit

The audit team has not found evidence that the project has sought or received other forms of environmental credit.

### 3.1.13 Additional information relevant to the project

#### Leakage management for AFOLU projects:

The project does not displace pre-project agricultural activities. Thus, neither a leakage management plan nor leakage mitigation measures are required.

#### Commercially sensitive information:

No commercially sensitive information has been excluded from the public version of the project description.

#### Sustainable development contributions:

Argentina is among the 150 countries that adopted the 2030 Agenda for Sustainable Development, including the Sustainable Development Goals (SDGs) at the United Nations Sustainable Development Summit on 25 September 2015.

In this regard, Unitán's project contributes to the achievement of the country's goals defined to reach the SDGs by:

- Increasing labour demand from the local population: the common activity developed in the project region is cattle breeding and native forest exploitation. Besides the forestry plantation activities, the project will maintain the cattle rising -in those properties with existing animals- both on the unplanted area and under its plantations from year 3 to the end (many local researchers support cattle breeding inside forests as animals suffer less temperature stress and for storm protection). This will generate a much larger demand of labour when compared to these activities being developed separately.
- Diversifying the regional production will lead to higher economic revenues for the region. This includes generating supplies for the biomass thermal plants in the area.
- Promoting an integrated management scheme with the ecosystem by avoiding native forest exploitation. In this sense, it already obtained the necessary approval from the MAyDS (Environment and Sustainable Development Ministry) as well as provincial authorities (Production and Environment for Formosa properties, and Secretariat for Territorial Development and Environment in Chaco).

- Creating and developing a new mechanism to finance projects in the forestry sector by becoming the first forest plantation to validate under VCS.
- Generating net anthropogenic CO<sub>2</sub> removals by sinks.

The Unitán project has a Forest Management Plan in place, where social, economic and environmental impacts are identified and action to mitigate as well as commitments to public are stated.

AENOR assessed the sustainable contributions to the sustainable development through the review of the project design document but mainly through the review of evidence provided (see appendix 1), remote visit and interviewing to the local stakeholders.

## 3.2 Participation under Other GHG Programs

As the project has not been registered under any other GHG program, this section is not applicable.

## 3.3 Safeguards

### 3.3.1 No Net Harm

The project is not expected to generate negative environmental nor socioeconomical impacts as described in section 2.1 of the joint PDD and MR. An environmental impact assessment was carried and concluded that no negative impacts would take place.

Documents supporting this information /3-5/, /28/ were provided to AENOR and confirms the explanations.

### 3.3.2 Local Stakeholder Consultation

UNITÁN carried out an analysis of the communities around the different plots of each Forest Management Unit (FMU), including an impact analysis on indigenous communities in the area.

To carry out the survey of Interested Parties by UNITÁN, they toured the surrounding areas to the 5 Forest Management Units of the project, summoning the neighbors of the plots and the neighbors of the surrounding towns and villages. Given that the sites are in rural areas with low population density, in two different provinces and faced with the impossibility of meetings in closed spaces due to health issues, it was decided to convene a virtual meeting where the Stakeholders identified around the FMU in both provinces will know the details of the project and have time an opportunity to express their opinions.

Given the quarantine situation in Argentina and the complicated epidemiological situation at the time of the stakeholder meeting, it was decided to hold it virtually on Wednesday, July 14, 2021. Among the attendees were local authorities, the representatives of diferent educational communities (teachers and directors), neighbours of the plots and producers from the different surrounding villages; forestry technicians and engineers from both provinces, representatives of forestry chambers and provincial agencies, as well as neighbors who participate in environmental NGOs. The call and invitations were made on July 6 and 7, they were made via email, google calendar and personally in fewer cases.

During the stakeholders consultation, special emphasis was placed on the importance of using the Claims, Complaints and Concerns Mechanism that was presented. Due to these emphasis, the mechanism was generated by UNITÁN within a broader system of communications and receptions of claims. The specific channel presented for the Afforestation Project has phone numbers, emails, digital and physical mailboxes.

The negative impacts on the community presented by the company UNITÁN to the stakeholders are fully described in section 2.2 of the joint PDD and MR.

By means of documents reviewed and the interviews performed, AENOR considers that the summary of the the consultation process included in the joint PD&MR is complete. The main conclusions of the meetings and opinions collected from meetings are included in the the joint PD&MR.

Hence, in the opinion of the AENOR, who assessed the information provided /16/, the local stakeholder consultation process was properly performed and the PP's response to the inputs was appropriate. The audit team deems that the PP communicated the information about the project design and implementation, risks, costs and benefits, relevant laws and regulations and the process of VCS Program validation in accordance with the requirements established by the VCS Standard.

### 3.3.3 Environmental Impact

Law 25,675 is a fundamental law that determines the conditions and requirements to carry out interventions that may affect natural resources or the environment, this means that an environmental impact assesment is require to carry out a forestation project under specific conditions.

The Environmental and Social Management Plan of the entire project presents the identified environmental impacts and associated mitigation strategies.

The identified environmental impacts were characterized as minimal. This statement can be corroborated according to the analysis of the different elements of the ecosystem.

- a) **Impact on vegetation:** the project is planned to be carried out on areas without native forests at present.
- b) **Impact on the soil:** the ploughing will be the minimum essential to be able to form with the camels that will ensure a greater thickness of soil of the surface layer and the greater aeration of the root system and therefore better defense against water accumulations. In order to reduce emissions and all the impacts of mechanical tasks, a taipero equipment has been acquired that in the same operation performs vertical tillage.
- c) **Impact on water:** there are no lagoons or watercourses in the area of the plantation where there could be the possibility of entrainment of chemicals, as well as of eroded soil particles

- d) **Impact on the air:** the air in the project area can be impacted by burning, blasting of soil and emissions from the engines of agricultural equipment.

The audit team assessed the ESIA /29/ and considers that the environmental impact assessment process was suitably performed.

### 3.3.4 Public Comments

Since the project start date in 2016 Unitán has not received complaints or claims of any kind through the communication channels that the company had at the moment. From November 2<sup>nd</sup> to December 2<sup>nd</sup>, 2021, the project was available for public comment at VCS webpage. No comments were received during that period of time.

AENOR did not receive any notification about comments received.

### 3.3.5 AFOLU-Specific Safeguards

UNITÁN identified the neighbors around the plots and the communities near the FMU (Puerto Tirol, Margarita Belén, Pampa Almiron, Villa 231, and Cabo Noroña). Residents and communities in the surrounding villages were invited to connect to the Stakeholder Consultation Meeting on July 14<sup>th</sup> 2021. It had 40 attendees, these being from all the invited communities of the two provinces. When the stakeholder survey was carried out, the survey map of the National Institute of Indigenous Affairs was incorporated into the analysis to confirm that there is no impact on areas of indigenous lands surveyed in the INAI Census.

Risks and mitigation action taken or planned to take place, were detailed in section 2.2 and section 2.3 of the PDD, based on the Environmental Impact Assessment conducted at Pto. Tirol property. The environmental risks and their measures are the following:

- Impact on vegetation: the project is planned to be carried out on areas without native forests
- Impact on the soil: the ploughing will be the minimum essential to be able to form with the camels that will ensure a greater thickness of soil of the surface layer and the greater aeration of the root system and therefore better defense against water accumulations
- Impact on water: there are not lagoons or watercourses in the area of the plantation.
- Impact on the air: the air in the project area can be impacted by burning, blasting of soil and emissions from the engines of agricultural equipment.

On the other hand, the negative impacts on the community are the following:

- Modification of the landscape: the first year, people can find a visual that is not familiar.
- Risk of the population: they can be given by proximity to transit routes, by circulation of vehicles or machines
- Increased circulation of vehicles: the circulation can increase slightly in areas near the fields during short periods of time.

- Generation of emissions: particles such as dust, noise and vibrations can be increased in the proximity of FMU.

The mitigation strategies for these negative impacts are:

- Training, awareness-raising to stakeholders and employees, suppliers and anyone related to the Project.
- Control of operational risks and equipment, with training and monitoring plan.
- Measures to ensure the well-being and support of the population, through a complaints mechanism
- Control of vehicles and heavy machinery to reduce emissions, dust, noise and vibrations.

Some of the requests that arised from the public comments have been assumed as commitments by UNITÁN were: thinking of afforestation from a basin scale vision; invite schools to visit the afforested plots; willingness to carry out new forests in third-party fields. Faced with these comments and the willingness of the company to include them in the project, communication channels (phone numbers, emails, digital mailboxes and physical mailboxes within the project´s Claims, Complaints and Concerns Mechanism) presented will be always open to more ideas or comments for the project, and the importance that the community use them so the company is able to respond to doubts or claims that arise from the project was mentioned. The communication channels will always be open to be in contact with the needs and doubts of the communities.

Hence, in the opinion of the AENOR team there is a process to ensure ongoing communication with the key stakeholders and the community members involved in the project.

## 3.4 Application of Methodology

### 3.4.1 Title and Reference

The methodology used is the CDM A/R Large-scale Consolidated Methodology AR-ACM003: Afforestation and reforestation of lands except wetlands v02.0.

Besides the methodological document, the following tools are applied:

- “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities”, Version 01.0
- “Tool for the demonstration and assessment of additionality”, Version 07.0.0
- “Tool for the demonstration and assessment of additionality in VCS agriculture, forestry and other land use (AFOLU) project activities” version 3.0
- “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”, Version 04.2
- “Estimation of carbon stock and change in carbon stocks in dead wood and litter in A/R CDM project activities”, Version 03.1

- “Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”, Version 01.1.0
- “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”, Version 2.0
- ”Calculation of the number of sample plots for measurements within A/R CDM project activities”; Version 2.1.0

### 3.4.2 Applicability

The Joint PD&MR states all evidence used to demonstrate each condition of the applicable methodology. In opinion of AENOR, the evidence and explanations confirm the fulfilment of the project with the methodology.

The assessment was carried out for each applicability criterion and included, among others, the review of evidence and sources provided in the project document and the compliance check of the local project setting with the applicability conditions as per AR - ACM0003 requirements:

Applicability conditions	Justification
<p>a) The land subject to the project activity does not fall in wetland category.</p>	<p>A GIS analysis was performed to assure the project is not being developed in wetlands. Plantation only takes place in high non flooded areas and has no fragile lands such as riparian forests or flood plains within the project area. When present in the surrounding areas within the properties, these are protected by the project owner and only grasslands are subject to AR project activities.</p> <p>Margarita Belén property is found on the west limit of Chaco wetlands, but defined as agricultural land use and degraded by years of cattle breeding and approved by the National Commercial Forestry Promotion Law for commercial plantation purposes.</p>
<p>b) Soil disturbance attributable to the project activity does not cover more than 10% of area in each of the following types of land, when these lands are included within the project boundary</p> <p>(i) Land containing organic soils</p> <p>(ii) Land which, in the baseline is subjected to land use and management practices and</p>	<p>The soil types of the project cannot be categorized as (i) organic or (ii) cropland/grassland in which soil disturbance is restricted. According to 2006 IPCC Guidelines (Annex 3A.5, Chapter 3, Volume 4), organic soils must have at least 12 percent organic carbon by weight (i.e., about 20.7% organic matter). Sample analysis for all properties has shown the highest value for organic matter in soil reaching 3.19% at Sociedad Rural plots. Soil classification has also been analyzed at department level from INTA reports. Project area soil organic matter content is below the IPCC guidelines for organic soil threshold; hence it is concluded that the soil types of the project are not organic.</p>

received in appendices 1 and 2 of the methodology

Properties	Soil type	Organic matter %
Ex-Glombosvky	Alfisol	1%
Sociedad Rural	Clay loam	3.19%
Don Antonio	Silt loam	2.43
Irineo	Clay loam	1.13%
Doña Virginia	Silt loam	3.1%

Unitán lands are characterized by grazing lands and set aside agricultural lands (cotton crops). In the case of grasslands, this area had regular usage capacity, without technological improvements or implanted pastures. In the case of the crops prior to the project, the management included full tillage and low inputs. These lands have not received intensive management with added agricultural inputs such as fertilization, reseeding, etc. The soils are of reduced natural fertility and current erosion is moderate, caused by hydric erosion during wet season.

Regarding the rest of the tools or methodologies used, their applicability was demonstrated in the project document and summarized in the following table:

Tool	Applicability condition	Compliance
VCS project standard	In order to demonstrate the project as Afforestation, reforestation and revegetation (ARR) category, the project participants shall provide evidence that the land within the planned project boundary has not been cleared of native ecosystems within the 10-year period prior to the project start date.	In order to confirm the absence of forest and define project boundary, a chronosequence of Landsat surface reflectance images was used. Despite these images having a low resolution (30 m), they are available for a wide range of dates. Thus, analysing images of different dates between the plantation date and 10 years before the absence of forest during that 10-year period for the proposed plots was assessed. In order to illustrate the land use of the properties and selection of plots according the absence of

Tool	Applicability condition	Compliance
		<p>forest 10 years prior to the project start date, different kinds of images for every field in the properties are shown. Google Earth images downloaded from Google Earth Pro for the nearest available dates between the 10 year period, and Landsat images built from the median value per pixel across a stack of valid pixels during January and June.</p> <p><i>Further information can be checked in section 3.2 of the joint PDD and MR</i></p>
<p><i>Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities</i></p>	<ul style="list-style-type: none"> <li>• Forestation of the land within the proposed project boundary performed with or without being registered as the A/R CDM project activity shall not lead to violation of any applicable law even if the law is not enforced.</li> <li>• This tool is not applicable to small – scale afforestation and reforestation project activities.</li> </ul>	<p>These conditions are met by the proposed project activity. The project has received all required approvals from the necessary local authorities to start the implementation and the project is considered a large-scale afforestation. This was confirmed through the review of the evidence provided, including the descriptions in the PD and MR.</p>
<p><i>Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities</i></p>	<p>This tool has no internal applicability conditions</p>	<p>N/A</p>
<p><i>Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities</i></p>	<p>The areas shall not include organic soils (e.g., peat-lands), or wetlands</p> <p>The rate of loss of carbon stocks in mineral soils due to erosion within the project boundary shall not be permanently increased above baseline rates by the CDM A/R project activity.</p>	<p>It has already been stated in this same section that the area does not include organic soils or wetlands. In terms of rate of carbon stock loss, the grazing grassland area of the project is considered to be degraded due to many years of cattle grazing and long term cropland so carbon sequestration is expected to increase with the project after the first years of carbon loss due to land preparation.</p>

Tool	Applicability condition	Compliance
	<p>Fine litter (woody twigs less than 2mm diameter, bark and leaves) shall remain on site.</p>	<p>The Province of Chaco has a total area of 99.633 km<sup>2</sup>, and 24% of this surface have some degree of water and/or wind erosion. The available evidence suggests that the changes in land use to pastures led to a significant degradation in the physical and chemical quality of soils compared to pristine situation in a relatively short time. The results reveal losses of total organic carbon, particulate organic carbon and total nitrogen implying loss of fertility in the surface horizon, as well as values of apparent density and erodible fraction that warn about possible compaction processes.</p> <p>Further information can be consulted in section 3.2 of the joint PDD and MR.</p>
<p><i>Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity</i></p>	<p>Applicable to the present project activity since the displacement of agricultural activities is not expected to cause, directly or indirectly, any drainage of wetlands or peat lands, as requested in the applicability condition of the tool.</p>	<p>At the only two properties with cattle at the time of plantation (Margarita Belén and Irineo) cattle was relocated within Unitán’s property. In the case of Irineo, plots were sectioned and cattle relocated during plantation in order to be reintroduced in the third year. For the two properties with agricultural activities in Formosa (Villa 213 and Cabo Noroña) it included abandoned agricultural lands used for cotton, grassland and other vegetable patches unused for years before Unitán become owner of the property.</p> <p>In conclusion, the project activity complies with all applicability conditions of the selected methodology.</p>
<p><i>Estimation of non-CO<sub>2</sub> GHG emissions resulting from burning of biomass attributable to an</i></p>	<p>This tool is not applicable</p>	<p>N/A due to No fires will take place</p>

Tool	Applicability condition	Compliance
A/R CDM project activity		

AENOR, based on records provided including spreadsheets calculations of the emissions reductions, has verified that applicability conditions of the different tools are complied. In conclusion, the project activity complies with the applicability conditions of the methodology, and any tools or modules selected by the PP.

### 3.4.3 Project Boundary

The project is being developed in Argentina; in the Chaco and Formosa province, in the NortheEast region of Argentina. A map with the project boundaries is shown in *Figure 14 of the Joint PD&MR*. The boundaries correspond to the physical limits of each plantation compartment. As well, AENOR has assessed the GIS and KML files provided /7-13/.

Regarding the Carbon Stock Changes and considering the applicable methodology, the chosen carbon pools and GHG accounted are the following:

Carbon Pools		Gas	Included	Justification
Baseline	Above-ground biomass	CO <sub>2</sub>	No	As described above the project area is composed mainly of degraded pastures and set aside cropland with no tree or shrub biomass on it. In plots with scattered trees present, trees won't be neither harvested, nor suffer mortality due to competition nor be inventoried along with the project trees in monitoring of carbon stocks in accordance with AR TOOL 14 (V4.2). In conclusion, the project area excludes existing tree biomass from the project whilst from baseline. Thus, above-ground biomass is negligible as per the CDM tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities".
	Below-ground biomass	CO <sub>2</sub>	No	Same rationale as with above-ground biomass
	Dead-wood	CO <sub>2</sub>	No	Assumed to be nil for the life of the project.
	Litter	CO <sub>2</sub>	No	Assumed to be nil for the life of the project.
	Soil carbon organic	CO <sub>2</sub>	No	Soil organic carbon stocks are expected to remain at a steady state or decrease in the baseline scenario.

Project	Above-ground biomass	CO <sub>2</sub>	Yes	Required. Largest pool affected by project activity.
	Below-ground biomass	CO <sub>2</sub>	Yes	Shall be included. Expected to increase due to project activity.
	Dead-wood	CO <sub>2</sub>	No	Optional. Although expected to increase due to project activity, since it does not virtually exist in the pre-project situation, will not be accounted for.
	Litter	CO <sub>2</sub>	No	Optional. Although expected to increase due to project activity, since it does not virtually exist in the pre-project situation, will not be accounted for.
	Soil organic carbon	CO <sub>2</sub>	No	Optional. Although it is expected to increase due to project activity it will be conservatively neglected. Even though there may be a transient reduction in soil organic carbon due to site preparation (e.g., tillage), the establishment of forest is expected to cause an increase in net primary productivity and, therefore, in the turnover of plant residues into the soil. This would lead to a long-term increase in the soil organic carbon pool.

According to the VCS requirements, sources of emissions that are expected to increase in the project scenario compared to the baseline must be included if the exclusion would lead to a significant overestimation of the total net anthropogenic GHG emission reductions generated during the fixed baseline period. The following table shows the justification of the emission exclusion.

Sources		Gas	Included	Justification
Baseline	Burning of woody biomass	CO <sub>2</sub>	No	GHG emissions in the baseline can be conservatively ignored.
		CH <sub>4</sub>	No	
		N <sub>2</sub> O	No	
	Burning of woody biomass	CO <sub>2</sub>	No	
Project	Burning of woody biomass	CO <sub>2</sub>	No	Burning will not be part of project implementation. Hence, in conformance with the methodology, no emission sources are included in the project boundary.
		CH <sub>4</sub>	No	

### 3.4.4 Baseline Scenario

The land within the project boundary is defined as grassland as a result of the multi-temporal land use change analysis; developed using satellite images. The land proposed for the forestry activity (eligible area) was found under the category of natural grass, managed grass, crops, low stubbles, and eroded soil.

ProSustentia provided in the joint PDD&MR the comparison between images in 2016, date of the project implementation and 10 years before to demonstrate the eligibility.

The native condition was modified due to native forest exploitation and the introduction of beef cattle due to a relocation of livestock production out of the Pampean areas of Argentina and into the north of the country. Both Formosa and Chaco, located in the northwest, have undergone structural and geographical changes as a result of the transformation of the agricultural sector of Argentina due to agricultural displacement. A chronosequence of Landsat surface reflectance images was used. Despite these images having a low resolution (30 m), they are available for a wide range of dates. Thus, analysing images of different dates between the plantation date and 10 years before the absence of forest during that 10-year period for the proposed plots was assessed

According to the additionality analysis of the joint PD&MR, using the “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities”, version 01, in the absence of the project, the most probable land use scenario is the continuation of the pre-project land use, i.e, extensive livestock breeding production in grasslands and abandoned agricultural land converted to livestock breeding production.

The audit team found assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable. Documentary evidence used in determining the baseline scenario is relevant, and correctly quoted and interpreted in the project description. Relevant national regulations and circumstances have been considered and are listed in the project description. The procedures for identifying the baseline scenario have been correctly followed according to the steps in the combined tool and the identified scenario reasonably represents what would have occurred in the absence of the project. The baseline scenario compliance is demonstrated using the “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities”, version 01. The methodology is fully complied and followed, and the project baseline is demonstrated correctly. Hence, AENOR considers that the identified baseline scenario is correctly justified.

For the assessment of the baseline scenario, the audit team has reviewed the information provided in section 3.4 and 3.5 of the PDD. Specifically, for the evaluation of the baseline scenario selection and the compliance with the historic use of the land, the PP has provided a deep explanation of the previous land uses of the land, being considered as grassland as a result of the multi-temporal land use change analysis. Also, the PP has provided further evidence and information within section 3.2, which have been analyzed through the VVB for the assessment of the conditions prior to the project implementation. Additionally, the PP has provided evidences about the previous ecosystems in the area, and how was the field distribution in 2002, which according to the evidence provided, for the departments where the project takes place, the agriculture exploitations´ land use in 2002 was reported occupied in a 93% by natural grassland and native forest, while only 3% is implanted ecosystem. Complementary to this explanation, the audit team has performed one meeting with the GIS team of the PP to review and assess the procedure of the satellite imagery processing. The audit team did not find evidence to demonstrate that the information provided by the PP as well as the information demonstrated through additional meetings, are wrong.

Thus, AENOR deems that assumptions, justifications and data used in the identification of the baseline scenario are appropriately justified and can be deemed reasonable.

Relevant national and/or sectoral policies and circumstances have also been considered for the demonstration of these scenarios.

### 3.4.5 Additionality

A complete analysis of the additionality was described in the section 3.5 of the Joint PD&MR document. A combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities was used. Consequently, a three-step approach was followed to demonstrate additionality: 1. Identification of alternative land-use scenarios to the proposed VCS AFOLU project activity; 2. barrier analysis; 4. Common practice analysis.

In the first step, the most realistic and credible scenarios are the continuation of the extensive livestock breeding production in grasslands and abandoned agricultural land converted to livestock breeding production, and the proposed project activity without considering VCS: afforestation with exotic and native species. The extension of forest plantations in the region of the project without considering VCS is limited.

For the assessment of this first step, the identification of credible alternative scenarios, the PP has enumerated the following:

- Continuation of the current situation: extensive livestock breeding production and abandoned agricultural land converted to livestock breeding production
- The proposed project activity without considering CDM/VCS: afforestation with exotic and native species
- Afforestation of at least a part of the land within the project boundary of the proposed A/R VCS project

After deep explanation from the PP of the different possible scenarios within the zones of the project, the main conclusions have been obtained:

The continuation of the current situation is the most traditional activity. There are no restrictions to raise cattle in the project areas according to the Law 3727 “Rural Code of Chaco Province” as well as the “livestock Provincial program” provided as evidences. The audit team has reviewed the evidence provided, such as the “provincial production document” of the Chaco Province, which is a deep analysis of the economical activities of the area. Also, the Formosa production document has been provided and reviewed by the audit team, crosschecking the information provided in the PDD with the evidence. Finally, the *annual agricultural census* has been crosschecked with the data information of the table of section 3.4 and 3.5 of the PDD.

Regarding the project activity without the registration under VCS program, the PP has provided the laws that demonstrate the capability of the afforestation within the project area. Those laws are, LAW 26331 and Law 25080. However, although the project is under both laws, the PP has demonstrated the through the Annual agricultural Census, that the surface of implanted forests in the provinces represents only the

0,02% of the total area of the provinces. Then, the forest plantations and more without being registered under VCS are practically inexistent.

Finally, the third scenario, about afforest just a part of the land, is demonstrated as the same level than the previous scenario, considering the difficulties that could assume the PP splitting the territory. There are no regulations that limit the area of the land within the project boundary

The land use scenarios are in compliance with all mandatory applicable legal and regulatory requirements. AENOR has assessed the regulations that correspond to each one of these alternatives and deems that the scenarios comply with the regulations.

Sub-step 2a finds two barriers that would difficult the implementation of the project.

1. Investment barriers: the country risk of Argentina makes any long-term investment a risky decision, and the main reason are the growth GDP fluctuations that are carried on annually. Farming and livestock activities have lower risks, proven experience and a steady cashflow. Also, minimal investment is usually required, and the ecological conditions of the region permit the supply of grass required for production. About commercial reforestation, in Argentina are supported by incentives and tax benefits given by the Government under the Act. 25080, and the payment is done within a year's period. However, the payment delays 3 or 4 years. Furthermore, the payments are not updated to the inflation taxes. the *Schinopsis* sp. Investment period is not favorable either, with periods of 20-40 years longer than the average length of wood pulp projects. On the other hand, *Eucalyptus* production is aimed for biomass and the cycle are shorter. These previous conditions discourage farmers from getting into the forestry business. Nevertheless, for the case of Unitán VCS Project, as it is developed as an independent initiative from the company's industry, it would only have access to financial resources in case the Group presents some type of properties as collaterals. Information provided above, provides a strong argument to justify that forestry investment, for this scale and type, faces a concrete barrier related to financial restrictions.

For the assessment of the first barrier, the audit team has reviewed the information provided in the PDD as well as the evidence that support that information. Among others, the validation and verification team has reviewed the document of the current and difficult situation of the forestry sector in Argentina, which shows the lack of adequate budgeting. Also AENOR has reviewed the IPCC values that correspond to Argentina. Finally another document from AFoA shows that Argentina currently has an area of 1.3 million ha with forest plantations. The sector is finalising the Strategic Forestry and Forestry-Industrial Plan 2030, in which it aims to achieve an estate of 2 million ha of forest plantations and the industrialization of the resulting timber. This requires investments of around 7 billion dollars, would allow the creation of 187,000 jobs and reverse the historic deficit in foreign trade, with the sector generating more than 2 billion dollars a year in foreign currency. These achievements will be possible if the right incentives are in place. According to the species used, Quebracho has a investment horizon longer than the average of species, so, the possible instability could affect the investment project in many ways.

About the cashflow, considering the three different species plantation the NVP value equals -791 USD/ha (with values of -1835USD/ha for Quebracho plantation, which represents 36% of planted area). These means the project represents an economic loss for the company and without the corresponding investment it is not economically viable.

2. Local traditions barriers: in Argentina, forestry started commercial development in the 90s, so it is basically a new investment activity. Also, forest plantations with the characteristics of the Afforestation project, with *Eucalyptus* and *Schinopsis* are not very common in the region. The national agriculture census shows that the forestry sector and afforestation is not highly developed in Chaco and Formosa, with a total surface of 375 ha and 178 ha respectively of *Eucalyptus* and *Schinopsis* surface. The long rotation of *Schinopsis* generates uncertainties concerning technical and commercial issues such as wood productivity and quality, as well as vegetation risks.

Then the lack of experience, technological knowledge, and service & products providers for the development of these types of afforestation projects in these two provinces, prevents its development at large commercial scales as is the case of UNITÁN Project.

The adoption of longer rotation in Quebracho plantations generates uncertainties concerning technical and commercial issues such as wood productivity and quality, wind damages, potential pest and disease outbreaks, and longer periods for investment returns among others. For the case of *Eucalyptus*, all current plantations in these provinces present a traditional design, different to the one proposed by Unitán Project, i.e high density and short rotation cycles. This situation translates in the lack of suppliers, trained labor force and knowledge to achieve a successful plantation. Even though the company has been testing these species for various years, the established trials never reached the commercial scale and maturity needed to provide the required technical certainty.

The audit team has reviewed the evidence provided and crosschecked with the PDD. Among others, AENOR has assessed the *Implementation Diagnosis Status*, which is a study of the forest, created *Vida Silvestre* and WWF, where all the ecosystem services have been assessed and considered.

The agricultural national census, described in the step above, have also been considered as part of the local tradition barriers.

Also, AENOR has asked to the different interviewees about the current situation of the plantation, the benefits, and the local traditions. Hence, AENOR deems the information provided is right.

The proposed AFOLU VCS project without being registered as a VCS project activity faces several barriers preventing its development. Meanwhile, the continuation of the current land-use - extensive livestock breeding production – does not face any barrier.

Sub-step 2b: elimination of land use scenarios that are prevented by the identified barriers.

The proposed project activity without being registered as an A/R VCS project activity faces barriers of different kinds that prevents its development as described above. Therefore, it is eliminated from the

alternative scenarios list. Therefore, the land use scenario that is not prevented by any barrier is the continuation of the current land-use: extensive livestock breeding production.

Sub-step 2c: determination of baseline scenario.

As demonstrated above, forestation without being registered as an A/R VCS project activity is not included in the list of land use scenarios that are not prevented by any barrier and the list contains only one land use scenario. Therefore, it is concluded that scenario 1: continuation of the current situation: extensive livestock breeding production is the baseline scenario.

Step 4: common practice analysis

Considering the paragraphs 32 and 33 of the “Combined tool to identify the baseline and demonstrate additionality in A/R CDM project activities”. The PP identified as common practice in the area, the extensive livestock production based on natural pastures. The proposed VCS AFOLU project activity is distributed in the provinces of Chaco and Formosa, being located in the North Cluster of the country. As mentioned before, this cluster is basically focused on the use of native forest timber. And while there is extensive experience in native forest management in the area, there are no records of large-scale Eucalyptus and Schinopsis afforestation projects. Afforestation and reforestation initiatives in the area are limited, representing less than 0.02% of the total surface of the provinces of Chaco and Formosa. Also, the *Eucalyptus* wood obtained from the proposed VCS AFOLU Project is expected to be used as biomass in renewable energy plants. The first biomass plants were planned under the RENOVAR 1 program in 2017 where two plants of 13 MW and 2 MW were built in the provinces of Corrientes and Misiones. In 2017 most of *Eucalyptus* production was destined for pulp, particleboard, and sawmill industries.

The additionality assessment was carried out to demonstrate that proposed project activity is not common practice. There are essential distinctions between the identified specific geographical area (Provinces of Chaco and Formosa) where the proposed AFOLU VCS project is located and the Mesopotamia region where forestry plantations are concentrated. In conclusion, similar activities cannot be observed in the project region, then the project activity is not the baseline scenario, and hence it is additional.

The audit team considers the steps used to demonstrate additionality followed correctly and precisely the methodological tool.

Hence, after the assessment of the explanations and justifications in the Joint PD&MR document and the review of the submitted evidence, also detailed in the project document, AENOR deems credible and reliable the supported documents provided. The information described in the project document is consistent with them. Thus, it can conclude that there are several characteristics that make each activity different from activities developed in the surrounding area. Thus, the project activity is not the baseline scenario, it is not the common practice and hence, it is additional. The incomes from VCUs will help to overcome the faced barriers by the project and will alleviate the expected long time period for revenues.

The AENOR team deems that the evidence provided are reliable and credible as are from recognized sources. Thus, the justifications about the project activities and their nature, allows AENOR to deem that the identification of the barriers is appropriately justified and credible.

Documentary evidence used in determining the baseline scenario is relevant, and correctly quoted and interpreted in the PDD.

Relevant national policies have been considered along the baseline and additionality analysis.

The procedures for identifying the baseline scenario have been correctly followed according to the steps in the tool and the identified scenario reasonably represents what would have occurred in the absence of the project.

The validation and verification team, based on checking of studies provided and correctly detailed in the joint PDD and MR, the assessment of the explanations and justifications and the review of the records, AENOR deems credible and reliable the assumptions and approaches followed.

Therefore, it is the AENOR’s opinion that the additionality of the project is sufficiently demonstrated based on barrier analysis, that the project is not a likely baseline scenario and those emission reductions/removals are, therefore, additional.

### 3.4.6 Quantification of GHG Emission Reductions and Removals

The methodology “AR-ACM0003 A/R Large scale Consolidated Methodology: Afforestation and reforestation of lands except for wetlands (Version 2.0)” was used.

The validation team performed an intensive quantification review of all input data, parameters, formulas, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS documentation, methodology modules, and the Joint PD&MR.

Furthermore, the validation team reproduced calculations for selected samples to ensure accuracy of the results. Conversion factors, formulas, and calculations were provided by the PP in spreadsheet format to ensure all formulas were accessible for review. The validation team recalculated subsets of the analysis to confirm correctness. Where applicable, references for analysis methods or default values were checked against relevant scientific literature for best practice.

#### Baseline emissions

The baseline net GHG removals by sinks are calculated as follows:

$$\Delta C_{BSL,t} = \Delta C_{TREE\_BSL,t} + \Delta C_{SHRUB\_BSL,t} + \Delta C_{DW\_BSL,t} + \Delta C_{LI\_BSL,t}$$

Where:

$\Delta C_{BSL,t}$  : = Baseline net GHG removals by sinks in year  $t$ ; tCO<sub>2</sub>-e

$\Delta C_{TREE\_BSL,t}$

$\Delta C_{T,BSL,t}$	=	Change in carbon stock in baseline tree biomass within the project boundary, in year $t$ , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; tCO <sub>2</sub> -e
$\Delta C_{SHRUB,BSL,t}$	=	Change in carbon stock in baseline shrub biomass within the project boundary, in year $t$ , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; tCO <sub>2</sub> -e
$\Delta C_{DW,BSL,t}$	=	Change in carbon stock in baseline dead wood biomass within the project boundary, in year $t$ , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO <sub>2</sub> -e
$\Delta C_{LI,BSL,t}$	=	Change in carbon stock in baseline litter biomass within the project boundary, in year $t$ , as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO <sub>2</sub> -e

As it was demonstrated above, the baseline scenario is the continuation of historic use of land, which consists of extensive cattle grazing and set aside cropland. This means that the project area without the project activity would have remained as pasture land. The only existing trees within the Unitán project area are scattered individuals. Those scattered trees present in the project area will be neither harvested, nor cleared, nor removed; will not suffer mortality because of competition from trees planted in the project, or damage because of implementation of the project activity, and will not be inventoried along with the project trees in monitoring of carbon stocks but their continued existence, consistent with the baseline scenario, is monitored, all of the above throughout the crediting period of the project activity. It is clear that carbon stock and change in carbon stock may be estimated as zero

Therefore, changes in carbon stock of above-ground and below-ground biomass of non-tree vegetation is assumed to be nil in the baseline scenario. In summary and based on IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry (2003), given that the activity of the identified baseline scenario has been the same for the last decades, it is assumed that the net GHG removals by sinks in the baseline are nil.

As it was explained within the appropriate sections of the PDD/MR, the baseline scenario is the continuation of historic use of land, which consists of extensive cattle grazing and set aside cropland. This means that the project area without the project activity would have remained as pastureland. The only existing trees within the Unitán project area are scattered individuals. Those scattered trees present in the project area will be neither harvested, nor cleared, nor removed; will not suffer mortality because of competition from trees planted in the project, or damage because of implementation of the project activity, and will not be inventoried along with the project trees in monitoring of carbon stocks but their continued existence, consistent with the baseline scenario, is monitored, all the above throughout the crediting period of the project activity. It is clear that carbon stock and change in carbon stock may be estimated as zero

Therefore, changes in carbon stock of above-ground and below-ground biomass of non-tree vegetation are assumed to be nil in the baseline scenario.

Likewise, it is expected that the dead wood and litter carbon pools will not increase in the baseline. Finally, the change in carbon stock in SOC may be conservatively assumed to be nil since it is unlikely to increase in the baseline extensive.

Furthermore, continuation of an activity that has been applied without changes for more than 20 years has been selected as the baseline scenario, it is assumed, in agreement with IPCC Good Practice Guidance for Land Use, Land Use Change and Forestry (2003) that the net GHG removals by sinks in the baseline equals zero.

According to the scattered trees, the tree crown cover of the land is still far below 20% of the threshold value of forests in Argentina and would remain so under continuation of current management.

AENOR has assessed the baseline scenario through the evidence provided on the PDD/MR as complement to the baseline scenario and additionality analysis. Also, the explanations within the PD/MR are deep and accurate. Complementary during the interviews, AENOR asked about the conditions prior to project implementation and confirms that the information provided in the PDD/MR is right and matches with the stated through the interviews.

The audit team has asked to the responsible of the forest inventory about the way in which they inventoried the trees present in the project area before project implementation. The confirmed that the trees were not inventoried although they are still within the project area. Complementary, AENOR reviewed the spreadsheets of carbon calculation and forest inventories and checked that the only trees present in the excel are those corresponding to the new plantations.

### Actual net GHG removals by sinks

According to methodology AR-ACM 0003 v.2.0, section 5.5. GHG emissions resulting from removal of herbaceous vegetation, combustion of fossil fuel, fertilizer application, use of wood, decomposition of litter and fine roots of N-fixing trees, construction of access roads within the project boundary, and transportation attributable to the project activity shall be considered insignificant and therefore accounted as zero.

The actual net GHG removals by sinks shall be calculated as follows:

$$\Delta C_{ACTUAL,t} = \Delta C_{P,t} - GHG_{E,t}$$

Where:

- $\Delta C_{ACTUAL,t}$  = Actual net GHG removals by sinks, in year  $t$ ; tCO<sub>2</sub>-e
- $\Delta C_{P,t}$  = Change in the carbon stocks in project, occurring in the selected carbon pools, in year  $t$ ; tCO<sub>2</sub>-e
- $GHG_{E,t}$  = Increase in non-CO<sub>2</sub> GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity, in year  $t$ , as estimated in the tool "Estimation of non-CO<sub>2</sub> GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity"; tCO<sub>2</sub>-e

The use of fire for site preparation and/or to clear the land of harvest residue prior to replanting is specifically excluded from the project management. Hence, as explained in section 3.2 project emissions are estimated as zero.

$$GHG_{E,t} = 0$$

Change in the carbon stocks in project, occurring in the selected carbon pools in year t shall be calculated as follows:

$$\Delta C_{P,t} = \Delta C_{TREE\_PROJ,t} + \Delta C_{SHRUB\_PROJ,t} + \Delta C_{DW\_PROJ,t} + \Delta C_{LI\_PROJ,t} + \Delta SOC_{ALT}$$

Where:

- $\Delta C_{P,t}$  = Change in the carbon stocks in project, occurring in the selected carbon pools, in year t; tCO<sub>2</sub>-e
- $\Delta C_{TREE\_PROJ,t}$  = Change in carbon stock in tree biomass in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; tCO<sub>2</sub>-e
- $\Delta C_{SHRUB\_PROJ,t}$  = Change in carbon stock in shrub biomass in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; tCO<sub>2</sub>-e
- $\Delta C_{DW\_PROJ,t}$  = Change in carbon stock in dead wood biomass in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO<sub>2</sub>-e
- $\Delta C_{LI\_PROJ,t}$  = Change in carbon stock in litter biomass in project in year t, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO<sub>2</sub>-e
- $\Delta SOC_{ALT}$  = Change in carbon stock in SOC in project, in year t, in areas of land meeting the applicability conditions of the tool “Tools for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”, as estimated in the same tool; tCO<sub>2</sub>-e

In this case, as mentioned, dead wood, litter and SOC won't be measured as carbon stock.

#### Above and below ground biomass carbon pools

- Change in carbon stock in trees in a year

According to the “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activity” tool, v. 4.2, section 7, change in carbon stock in trees in a year (annual change) between two successive verifications is estimated on the assumption of linear change. Change in carbon stock in trees in a year is estimated as follows:

$$\Delta C_{TREE,t} = \frac{C_{TREE,t_2} - C_{TREE,t_1}}{T} \times 1 \text{ year}$$

Where:

$\Delta C_{TREE,t}$	=	Change in carbon stock in trees within the project boundary in year $t$ ; tCO <sub>2</sub> -e
$C_{TREE,t_2}$	=	Carbon stock in trees within the project boundary at time $t_2$ ; tCO <sub>2</sub> -e
$C_{TREE,t_1}$	=	Carbon stock in trees within the project boundary at time $t_1$ ; tCO <sub>2</sub> -e
$T$	=	Time elapsed between two successive estimations ( $T=t_2 - t_1$ ); yr

According to the tool, carbon stock in trees at a point of time can be estimated by using one or a combination of four methods.

- Ex-ante estimation (projection) of carbon stock in trees

Method (b) “Estimation by modelling of tree growth and stand development” has been applied as follows:

$$C_{TREE} = 44/12 * B_{TREE} * CF_{TREE}$$

Where:

$C_{TREE}$	=	Carbon stock in tree biomass within the project boundary at a given point of time; t CO <sub>2</sub> -e
$B_{TREE}$	=	Biomass of trees within the project boundaries at a given point in time; t d.m
$CF_{TREE}$	=	Carbon fraction of tree biomass; t C (t d.m) <sup>-1</sup>

With:

$B_{TREE}$	=	$V_{TREE} * DJ * BEF_{J,2} * (1 + RJ)$
$V_{TREE}$	=	Stem volume of tree species; m <sup>3</sup>

Vtree is obtained from growth projections: for the case of *Eucalyptus* using the recognized tool SIS Eucalipto based on the parameters for each specie (density, site index, etc) including tillage and pruning practices.

For Schinopsis, the growth projection is based on the study from Barkl. et Meyer, 1993 and the biomass corrected based on better breeding, wetter region, and considering it is a managed plantation and not native forest with the competition this implies.

- DJ = Basic wood density of tree species j; t d.m. /m<sup>3</sup>
- BEF<sub>J,2</sub> = Biomass expansion factor for conversion of stem biomass to above-ground tree biomass, for tree species j; dimensionless
- RJ = Root-shoot ratio for tree species j; dimensionless

- Ex-post estimation of carbon stock in trees

Ex-post estimations will be based on method (a) of the applicable tool (“Estimation by measurement of sample plots”) and more specifically in option (a) of this method: “Stratified random sampling”.

According to this method, mean carbon stock in trees within the tree biomass estimation strata and the associated uncertainty will be estimated as follows:

$$C_{TREE} = \frac{44}{12} \times CF_{TREE} \times B_{TREE}$$

$$B_{TREE} = A \times b_{TREE}$$

$$b_{TREE} = \sum_{i=1}^M w_i \times b_{TREE,i}$$

$$u_C = \frac{t_{VAL} \times \sqrt{\sum_{i=1}^M w_i^2 \times \frac{s_i^2}{n_i}}}{b_{TREE}}$$

Where:

- C<sub>TREE</sub> = Carbon stock in trees in the tree biomass estimation strata; tCO<sub>2</sub>-e
- CF<sub>TREE</sub> = Carbon fraction of tree biomass; t C (t.d.m)<sup>-1</sup>

A default value of 0.47 is used unless transparent and verifiable information can be provided to justify a different value.

$B_{TREE}$	=	Tree biomass in the tree biomass estimation strata; t.d.m
$A$	=	Sum of areas of the tree biomass estimation strata; ha
$b_{TREE}$	=	Mean tree biomass per hectare in the tree biomass estimation strata; t.d.m ha <sup>-1</sup>
$w_i$	=	Ration of the area of stratum $i$ to the sum of areas of tree biomass estimation strata (i.e. $w_i=A_i/A$ ); dimensionless
$b_{TREEi}$	=	Mean tree biomass per hectare in stratum $i$ ; t.d.m. ha <sup>-1</sup>
$U_c$	=	Uncertainty in $C_{TREE}$
$T_{val}$	=	Two-sided Student's t-value for a confidence level of 90 per cent and degrees of freedom equal to $n-M$ , where $n$ is total number of sample plots within the tree biomass estimation strata and $M$ is the total number of tree biomass estimation strata
$s_i^2$	=	Variance of tree biomass per hectare across all sample plots in stratum $i$ ; (t.d.m. ha <sup>-1</sup> ) <sup>2</sup>
$n_i$	=	Number of sample plots in stratum $i$

Mean tree biomass per hectare in a stratum ( $b_{TREE}$ ) and the associated variance ( $s_i^2$ ) will be estimated as follows:

$$b_{TREE,i} = \frac{\sum_{p=1}^{n_i} b_{TREE,p,i}}{n_i}$$

$$s_i^2 = \frac{n_i \times \sum_{p=1}^{n_i} b_{TREE,p,i}^2 - (\sum_{p=1}^{n_i} b_{TREE,p,i})^2}{n_i \times (n_i - 1)}$$

Where:

$b_{TREE,p,i}$	=	Tree biomass per hectare in plot $p$ of stratum $i$ ; t.d.m. ha <sup>-1</sup>
$n_i$	=	Number of sample plots in stratum $i$

Finally, according to Appendix 1 (Methods of plot biomass measurement) of the tool, the plot biomass value will be determined as follows:

$$b_{TREE,p,i} = \frac{B_{TREE,p,i}}{A_{PLOT,i}}$$

$$B_{TREE,p,i} = \sum_j B_{TREE,j,p,i}$$

$$B_{TREE,j,p,i} = \sum_l B_{TREE,l,j,p,i}$$

Where:

$b_{TREE,p,i}$  = Tree biomass per hectare in sample plot  $p$  of stratum  $i$ ; t.d.m.  $ha^{-1}$

$B_{TREE,p,i}$  = Tree biomass in sample plot  $p$  of stratum  $i$ ; t.d.m.

$A_{PLOT,i}$  = Size of sample plot in stratum  $i$ ; ha

$B_{TREE,j,p,i}$  = Biomass of trees of species  $j$  in sample plot  $p$  of stratum  $i$ ; t.d.m.

$B_{TREE,l,j,p,i}$  = Biomass of tree  $l$  of species  $j$  in sample plot  $p$  of stratum  $i$ ; t.d.m.

With,

$$B_{TREE,l,j,p,i} = f_j(x_{1,l}, x_{2,l}, x_{3,l}, \dots) \times (1 + R_j)$$

$$B_{TREE,l,j,p,i} = V_{TREE,j}(x_{1,l}, x_{2,l}, x_{3,l}, \dots) \times D_j \times BEF_{2,j} \times (1 + R_j)$$

Where:

$f_j(x_{1,l}, x_{2,l}, x_{3,l}, \dots)$  = Above-ground biomass of the tree returned by the allometric equation for species  $j$  relating to measurements of three  $l$  to the above-ground biomass of the tree; t.d.m.

$R_j$  = Root-shoot ratio for tree species  $j$ ; dimensionless

The value of  $R_i$  is estimated as:

$$R_j = \frac{e^{(-1.085 + 0.9256 \times \ln b)}}{b}$$

Where  $b$  is the above-ground tree biomass per hectare (in t.d.m. ha<sup>-1</sup>), unless transparent and verifiable information can be provided to justify a different value.

Note. If trees have grown as coppice regeneration after a harvest, then the value of  $R_j$  should be multiplied by a factor equal to  $V_{\text{harvest}}/V_{\text{TREE}}$  or 1, whichever is greater, where  $V_{\text{harvest}}$  is the volume per hectare of trees harvested and  $V_{\text{TREE}}$  is the volume per hectare of trees standing in the plot at the time of measurement.

$V_{\text{tree},j}(X_{1,i}, X_{2,i}, X_{3,i}, \dots)$  = Stem volume of tree  $l$  of species  $j$  in sample plot  $p$  of stratum  $i$  estimated from the tree dimension(s) as entry data into a volume table or volume equation; m<sup>3</sup>

Note. Where the volume table or volume equation predicts under-bark volume (i.e. wood volume, rather than gross stem volume), suitable correction will be applied to estimate the over-bark volume.

$D_j$  = Density (over-bark) of tree species  $j$ ; t.d.m m<sup>-3</sup>

Values are taken from Table 3.A.1.9 of IPCC GPC-LULUCF 2003 unless transparent and verifiable information can be provided to justify different values.

Note. Where density (specific gravity) of the bark of a tree species is different from the density of the wood, suitable correction should be applied to estimate a conservative value of the overall (over-bark) density of tree stem.

$BEF_{2,j}$  = Biomass expansion factor for conversion of tree stem biomass to above-ground tree biomass, for tree species  $j$ ; dimensionless

For ex-post estimation the conservative default value of 1.15 is used, unless transparent and verifiable information can be provided to justify a different value.

In line with AR-TOOL14 Appendix 1 “Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities”, only recognised by public entities or peer reviewed VTREE and Fi equations will be used, meaning national or regional forest inventories or research institutions recommendations.

For *Eucalyptus*, the equation used is the one recommended for Northeast region by the National Institution of Agricultural Technology (INTA) from Glade J (1984):

$$V_{\text{TREE}} (\text{m}^3) = \exp(-3.11072 + 1.83316 \cdot \text{LN}(\text{DBH}) + 1.07762 \cdot \text{LN}(\text{H}))$$

For the case of *Schinopsis balansae*, given there is no data available, and in line with the Second National Native Forest Inventory (INBN2), a general equation will be used:

$$V_{TREE} = -0.09996 + 0.00057954 * DBH^2 \text{ (V being stem volume over bark)}$$

While the *Schinopsis* plantations are young and small, and individuals do not reach the minimum BDH values (1,3mt), a modified version of the allometric equation by Atanasio et al. 2013 will be used, based on Iglesias & Barchuk, 2010 findings, where neck diameter or diameter at base height is considered more appropriate for young and/or small individuals:

$$\text{Above-ground biomass (t.d.m)} = 0.05619 * ND^{2.7152}.$$

Where ND is neck diameter.

- **Change in carbon stock in shrub biomass in the project**

Regarding change in carbon stock in shrub biomass in the project, since the baseline scenario is the continuation of extensive cattle breeding in pasture land, this landscape does not present shrubs on it.

Therefore it is not a source of GHG emissions.

$$AC_{SHRUB\_PROJ,t} = 0$$

Litter and Dead Wood Carbon Pools

Not estimated

Soil organic carbon Pool

Not estimated

**Leakage**

The Project activity does not expect any displacement of agricultural activities present in the Project's boundary before the beginning of it, thus leakage emissions are considered insignificant and hence accounted as zero.

According to the methodology AR-ACM 0003 v.2.0, section 5.6, leakage emissions shall be estimated as follows:

$$LK_t = LK_{AGRIC,t}$$

Where:

LKt = GHG emissions due to leakage, in year t; tCO<sub>2</sub>-e

$LK_{AGRIC, t}$  = Leakage due to the displacement of agricultural activities in year  $t$ , as estimated in the toll “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”;  $tCO_2-e$

According to the “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity” tool v.2.0, leakage emission attributable to the displacement of agricultural activities due to implementation of an A/R CDM project activity is estimated as the decrease in carbon stocks in the affected carbon pools of the land receiving the displaced activity.

Leakage emission attributable to the displacement of grazing activities under the following conditions is considered insignificant and hence accounted as zero:

- a. Animals are displaced to existing grazing land and the total number of animals in the receiving grazing land (displaced and existing) does not exceed the carrying capacity of the grazing land;
- b. Animals are displaced to existing non-grazing grassland and the total number of animals displaced does not exceed the carrying capacity of the receiving grassland;
- c. Animals are displaced to cropland that has been abandoned within the last five years;
- d. Animals are displaced to forested lands, and no clearance of trees, or decrease in crown cover of trees and shrubs, occurs due to the displaced animals;
- e. Animals are displaced to zero-grazing system.

For the case of Unitán Project, condition “a” applies. For the only property with remaining animals present at time of plantation, cattle can keep grazing the land until the moment of plantation. Then, the cattle will be transferred to grazing lands within the same property or others owned by Unitán, but not within the project’s boundary. This scheme is possible given the effective area to be covered with new forests and the rate of plantation. Regarding plantation rate, activities will be carried out in 9 years meaning that by the third year of plantations, the cattle could go back to the areas planted in the first year. If this area is not enough to hold 100% of the cattle then part of it could stay in other grazing lands within the property. Since the type of production carried out in this region is extensive, the carrying capacity of the grazing land was not reached before the project start date. Therefore, the cattle could be moved to the unplanted areas or to neighbour farms without exceeding the carrying capacity.

In the case of the two properties with set aside croplands, these took place prior to Unitán buying the properties. Given the baseline analysis, where cattle breeding is the most preferable activity in the region, together with the fact that the cotton plantation activities had already been abandoned prior to Unitán acquiring the land it is concluded that the displacement of agricultural activities are considered insignificant and hence accounted as zero.

$LK_t = 0$

The information provided on the PDD and mentioned above, has been crosschecked with the appropriate methodology, and the information has been contrasted with the different interviews and testimonies obtained from the audit.

All of the interviewees confirmed that information provided within the PDD/MR is right.

Therefore, AENOR deems that the information provided is reliable and accurate and does not have evidence to demonstrate the information is not correct.

### Estimated GHG Emission Reductions and Removals

According to the methodology AR-ACM 0003 v.2.0, section 5.7, net anthropogenic GHG removals by sinks shall be calculated as follows:

$$\Delta C_{AR-CDM,t} = \Delta C_{ACTUAL,t} - \Delta C_{BSL,t} - LK_t$$

Where:

- $\Delta C_{AR-CDM,t}$  = Net anthropogenic GHG removals by sinks, in year  $t$ ; tCO<sub>2</sub>-e
- $\Delta C_{ACTUAL,t}$  = Actual net GHG removals by sinks, in year  $t$ ; tCO<sub>2</sub>-e
- $\Delta C_{BSL,t}$  = Baseline net GHG removals by sinks, in year  $t$ ; tCO<sub>2</sub>-e
- $LK_t$  = GHG emissions due to leakage, in year  $t$ ; tCO<sub>2</sub>-e

The following table summarizes the GHG removals estimated for the project crediting period:

Year	Estimated baseline emissions or removals (tCO <sub>2</sub> e)	Estimated project emissions or removals (tCO <sub>2</sub> e)	Estimated leakage emissions (tCO <sub>2</sub> e)	Estimated net GHG emission reductions or removals (tCO <sub>2</sub> e)
2016	0	468	0	468
2017	0	2.321	0	2.321
2018	0	6.214	0	6.214
2019	0	15.671	0	15.671
2020	0	27.985	0	27.985
2021	0	42.726	0	42.726
2022	0	39.546	0	39.546
2023	0	49.288	0	49.288
2024	0	-2.801	0	-2.801

2025	0	19.631	0	19.631
2026	0	21.930	0	21.930
2027	0	24.618	0	24.618
2028	0	26.664	0	26.664
2029	0	23.929	0	23.929
2030	0	-34.556	0	-34.556
2031	0	-24.271	0	-24.271
2032	0	22.887	0	22.887
2033	0	25.508	0	25.508
2034	0	27.467	0	27.467
2035	0	8.208	0	8.208
2036	0	-33.618	0	-33.618
2037	0	-24.979	0	-24.979
2038	0	23.850	0	23.850
2039	0	25.415	0	25.415
2040	0	27.333	0	27.333
2041	0	24.781	0	24.781
2042	0	-32.973	0	-32.973
2043	0	-22.518	0	-22.518
2044	0	26.381	0	26.381
2045	0	29.704	0	29.704
2046	0	32.113	0	32.113
2047	0	29.564	0	29.564
2048	0	-28.776	0	-28.776
2049	0	-17.799	0	-17.799
2050	0	29.529	0	29.529
2051	0	32.183	0	32.183
2052	0	34.288	0	34.288
2053	0	31.558	0	31.558

2054	0	-43.530	0	-43.530
2055	0	-16.295	0	-16.295
<b>Total</b>	<b>0</b>	<b>449.643</b>	<b>0</b>	<b>449.643</b>

Year	Baseline scenario: to date GHG emission reductions and removals at year t	Project scenario: to date GHG emission reductions and removals at year t	Annual change in GHG benefit	Expected total GHG benefit to date
t	BE	PE	PEt - PEt-1	PEt - BEt
2016	0	468	468	468
2017	0	2.789	2.321	2.789
2018	0	9.003	6.214	9.003
2019	0	24.674	15.671	24.674
2020	0	52.659	27.985	52.659
2021	0	95.385	42.726	95.385
2022	0	134.931	39.546	134.931
2023	0	184.219	49.288	184.219
2024	0	181.418	-2.801	181.418
2025	0	201.049	19.631	201.049
2026	0	222.979	21.930	222.979
2027	0	247.597	24.618	247.597
2028	0	274.261	26.664	274.261
2029	0	298.190	23.929	298.190
2030	0	263.633	-34.556	263.633
2031	0	239.362	-24.271	239.362
2032	0	262.249	22.887	262.249
2033	0	287.757	25.508	287.757
2034	0	315.225	27.467	315.225
2035	0	323.433	8.208	323.433
2036	0	289.815	-33.618	289.815
2037	0	264.836	-24.979	264.836

2038	0	288.686	23.850	288.686
2039	0	314.100	25.415	314.100
2040	0	341.433	27.333	341.433
2041	0	366.215	24.781	366.215
2042	0	333.242	-32.973	333.242
2043	0	310.724	-22.518	310.724
2044	0	337.105	26.381	337.105
2045	0	366.809	29.704	366.809
2046	0	398.921	32.113	398.921
2047	0	428.486	29.564	428.486
2048	0	399.710	-28.776	399.710
2049	0	381.910	-17.799	381.910
2050	0	411.440	29.529	411.440
2051	0	443.622	32.183	443.622
2052	0	477.910	34.288	477.910
2053	0	509.468	31.558	509.468
2054	0	465.938	-43.530	465.938
2055	0	449.643	-16.295	449.643
2056	0	435.869	-13.774	435.869
2057	0	448.961	13.091	448.961
2058	0	439.673	-9.287	439.673
2059	0	425.461	-14.212	425.461
2060	0	409.038	-16.423	409.038
2061	0	382.168	-26.871	382.168
2062	0	365.423	-16.745	365.423
2063	0	351.685	-13.738	351.685
2064	0	273.777	-77.908	273.777
2065	0	202.997	-70.780	202.997
<b>TOTAL</b>				<b>14,936.346</b>
<b>LTA</b>				<b>298,727</b>
<b>Average annual ERs</b>				<b>7,468.2</b>

2) The long-term average GHG benefit (LTA) is determined by averaging the expected total GHG benefit for the length of the project. As explained in Section 4.5.5 of VCS Program guidance

document AFOLU Requirements v. 3.6, the Long Term Average GHG benefit shall be calculated by establishing the period over which the long-term average GHG benefit shall be calculated, including at minimum one full harvest/cutting cycle. Then, the project has to:

- Determine the expected total GHG benefit of the project for each year of the established time period. For each year, the total GHG benefit is the to-date GHG emission reductions or removals from the project scenario minus baseline scenario.
- Sum the total GHG benefit of each year over the established time period.
- Calculate the average GHG benefit of the project over the established time period.
- Use the following equation:

$$LA = \frac{\sum_{t=0}^n PE_t - BE_t}{n}$$

Where:

- LA = the long-term average GHG benefit
- PE<sub>t</sub> = the total to-date GHG emission reductions and removals generated in the project scenario (tCO<sub>2</sub>e). Project scenario emission reductions and removals shall also consider project emissions of CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub> and leakage.
- BE<sub>t</sub> = the total to-date GHG emission reductions and removals projected for the baseline scenario (tCO<sub>2</sub>e)
- t = Year
- n = Total number of years in the established time period

In this sense, taking into consideration that plantations will take place till year 2025 and Schinopsis harvest year is 40 years, then the period over which the long-term average GHG benefit shall be calculated (n) is 50 years.

For this project the total GHG benefit expected at the end of crediting period is 449.643 tCO<sub>2</sub>e. The sum of the expected GHG benefit annually when divided by 50 years (period for estimating LTA) results in 298,727 tCO<sub>2</sub>e. The average annual ERs is 7,468.2tCO<sub>2</sub>e.

AENOR deems that values are correct and consistent with the sources.

The values and estimates presented in the Joint PD&MR are considered reasonable based on the documentation reviewed, further references and the result of the interviews during the remote visit.

The Joint PD&MR describes in an appropriate way with evidence and justifications how the project activity fulfils with the applicability conditions of the tool.

Based on the information reviewed, it can also be confirmed that the sources used are correctly quoted and interpreted in the Joint PD&MR and supporting documents. All assumptions and data indicated in the PD and all relevant sources were checked and confirmed.

The uncertainty has been calculated by the PP through the excel named Unitan\_VCS\_Forest\_Inventory. Equation 15 has been followed according to the methodology. The audit team has been following the calculation steps, reproducing the value of the formulas with its traceability, and comparing it with the equations of the methodology until reaching the value 0.135 of uncertainty.

Once this value has been obtained, it has been demonstrated through annex 2 that it is not necessary to apply any discount. The calculation of the uncertainty within the document mentioned above can be found in the "equations-total" tab.

To conclude, the calculation value has been compared with the one reported in the PDD/MR and verified to match. The audit team considers that the uncertainty calculation has been performed correctly according to the methodology and the project values.

The excel file containing the calculations provided by the proponent is a very detailed and high-quality file. In the excel file, it is possible to reproduce all the formulas and calculations that contain them. It is easy to see the traceability of each cell, as it is linked to the previous or related cell.

The way in which the audit team has followed the traceability of the calculations has been starting from the end, by the total number of ERs.

Once this value was located, the audit team compared this data with the data set out in the PDD/MR and compared it with the methodology used for the carbon calculation. Subsequently, the calculations have been reviewed in reverse, i.e., backwards, always following the line of traceability and ensuring that the methodology was complied with at all times and that the value reported in the PDD/MR was the same.

Once the initial values or inventory values or statistical models were reached, depending on whether the calculations were ex-ante or ex-post, the audit team performed the same operation again but in reversal, towards the end of the operations.

During the process of analysing the spreadsheets, the audit team noted comments, which were either reported as findings or were resolved by the project proponent through meetings held with the proponent and the carbon calculation team. In these calls, the audit team also saw more clearly the way in which the models were used and how the strata of the different forest species were represented, as well as clarifying doubts or suggesting that the proponent reproduce some line of calculations to see again their traceability and accuracy.

Therefore, the audit team deems that the calculations of the carbon measurements have been done correctly and they are right and accurate.

In essence, the methodology was correctly applied following the requirements. All values in the Joint PD&MR are considered reasonable in the context of the proposed VCS project activity. Data sources are quoted correctly. Hence, the calculation of baseline emissions, project emissions and the estimated net GHG emission reductions are considered correct.

### 3.4.7 Methodology Deviations

No methodology deviations were applied.

### 3.4.8 Monitoring Plan

The monitoring plan presented in the PD complies with the requirement of the methodology. The assessment team checked all parameters presented in the monitoring plan against the requirements of the methodology. For the monitoring of carbon stock changes, the requirements and parameter list as per methodology and associated tools were followed.

The list of parameters available at validation and the values used was also checked by AENOR and it is deemed complete and consistent with calculations and assumptions considered. The following table summarizes the data/parameters available at validation:

Data/Parameter available at validation	Symbol	Value	Assessment procedure and result
Density (over-bark) of tree species j	$D_j$	0.396 – 0.566 (varies with age) for Eucalyptus; 1.2 for Schinopsis	INTA Winck, R. et al, 2020; INTI-CITEMA wood density report for <i>Schinopsis balansae</i> . Eucalyptus: 1) basic density values are taken from results of an investigation work (regional data) 2) values are plotted and tendency line is added, the tendency line with the highest $r^2$ 3) power function is used to estimate the density values for the whole period Value is consistent with data provided
Biomass expansion factor for conversion of stem biomass to above-ground biomass for tree species j	BEF	1,5 for <i>Eucalyptus</i> ; 2 for <i>Schinopsis</i>	Conservative value of 1.15 from AR-tool 14 for <i>Eucalyptus</i> and default values from Table 3A.1.10 of IPCC GPG-LULUCF 2003 for <i>Schinopsis</i> Value is consistent with data provided
Root-shoot ratio for tree species j	$R_j$	0.20 to 0.45 for <i>Eucalyptus</i> ;	Table 3A.1.8 of IPCC GPG-LULUCF 2003. Value is consistent with data provided

Data/Parameter available at validation	Symbol	Value	Assessment procedure and result
		0.25 for <i>Schinopsis</i>	
Carbon Fraction	CF	0.47	2006 IPCC Guidelines for National Greenhouse Gas Inventories. Table 4.3. Value is consistent with data provided
Stem volume of trees of species or group of species j in plot p in stratum I	$V_{TREE,j,p,i}$	Varies with species and date of plantation. See project calculator	Regional growth model (SIS eucalipto, EMBRAPA); local growth model for <i>Schinopsis balansae</i> (Gimenez, A.M. & Ríos, N., 1999) Value is consistent with data provided

The list of monitored data and parameters is the following:

- Area of stratum I ( $A_i$ )
- Total area of sample plots in stratum I ( $A_{PLOTi}$ )
- Diameter at breast height of tree (DBH)
- Diameter at neck height of tree - 10cm from ground – (ND)
- Root-shoot ration for tree species j ( $R_j$ )
- Height of tree (H)
- Relative weight of stratum ( $W_i$ )
- Variance of tree biomass per hectare across all sample plots in each stratum ( $S_i^2$ )
- Time period between two successive estimations (T)

The procedures described in section 5 of the Joint PD&MR were reviewed by the AENOR team and cross-checked against the applicable methodology and associated tools. The data collection was explained and reproduced by the workers/monitoring team in a demonstration video elaborated by the project proponent for audit purposes. Additionally, the audit team interviewed the local management and technicians team involved in the project to deeply understand the monitoring of the project. The audit team found the monitoring of the project complies with methodological requirements, and good practice as defined.

For all these parameters, the audit team has reviewed the source provided by the PP and double check that the parameter stated within the PDD/MR has correlation with the value of the source. The origin of

the sources has also been assessed, considering if they were accurate or not. Also, the proximity of the source place and the project values have been considered to gain accuracy and security.

For the rest of parameters from the IPCC, the audit team also has reviewed the table where the parameter is located and assessed if the parameters correspond with the characteristics of the project, such as place or specie.

The audit team has performed a deep review of the sources and if any comment was necessary, it has been asked to the PP to obtain further information. Also, some findings were raised to clarify or provide further information or sources according to the parameters used in the MR.

The VVB has deeply assessed the transposition of the data between the sources, the spreadsheets, and the PDD/MR. The way in which the VVB has done it was locating each value reported within the PDD/MR and searching the value within the spreadsheets.

The search was done after the review of the calculation according to the methodology used.

Also, the GIS parameters were checked and compared the transposition between the GIS program or dbf. file and the PDD/MR.

Therefore, the audit team deems that the parameters have been transposed between the different evidence provided from the PP until the final document.

In the opinion of the AENOR team, all necessary parameters required by the selected methodology are contained in the monitoring plan. They are clearly described, and the means of monitoring detailed in the plan comply with the requirements of the methodology. Tables in section 5 of the Joint PD&MR detail the different data variable to monitor along with the data unit, recording frequency, purpose of data, QA/QC, etc. In addition, the organizational structure of the company performing the monitoring of the project was clearly stated in the Joint PD&MR. The data control and quality assurance were also defined in the project document. Thus, AENOR deems the monitoring plan complies with the applicable methodology.

The volume and biomass models used for each tree species estimation have been checked by the audit team. Models and data used for the estimation were considered appropriate and in compliance with the applicable methodology.

In opinion of the AENOR assumptions considered for sampling design are reasonable and credible and consistent with calculation. Thus, AENOR deems the sampling plan correct.

After the review of evidence provided by the PP, the interview, and communications with PP, AENOR confirms that monitoring arrangements described in the monitoring plan are feasible within the project design and that the means considered for the implementation, including data management, quality, and assurance control procedures, are sufficient to ensure that the GHG net anthropogenic removals achieved resulting from the proposed VCS project activity can be reported ex post and verified. Therefore, in opinion of the AENOR team, the PP will be able to implement the monitoring plan.

### 3.5 Non-Permanence Risk Analysis

Risk factor	Risk Rating	Findings and mitigation activities	CARs/CLs
<b>Internal Risks</b>			
Project Management: It is assessed using table 1 of the VCS AFOLU Risk Tool.	-2 (total may be less than zero)	a) N/A. Risk rating=0 is justified. b) N/A Risk rating=0 is justified. c) In accordance with the evidence provided, Management team includes individuals with significant experience in all skills necessary to successfully undertake all project activities. Risk rating=0 is justified. d) Unitán's regional headquarters are based near the project areas. Puerto Tirol's headquarter in Chaco, is located between less than 30 minutes and 1 and 30 minutes away by car from Unitán Project plots in that province. In the case of the one located in Formosa City, Formosa, it takes 2hs by car to reach the project's properties. Risk rating=0 is justified. e) Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting. Risk rating=-2 is justified. f) Unitán has conducted an environmental impact assessment in line with national and local legislation (requested for projects of more than 100ha), which together with the Forest Management Plan. Risk rating=0 is justified.	No corrective actions or clarifications were requested.
Financial viability: It is assessed using table 2 of the VCS AFOLU Risk Tool.	3 (total may not be less than zero)	a-d) The project's cash flow breakeven, not including carbon credits, it's greater than 10 years (22 years). Net profit is only reached during harvest years from forestry wood revenues. Risk rating=3 is justified. e-h) Unitán is the only investor in the project and has secured more than 80% of the funding needed before reaching breakeven for the project. This is done through the revenues of the industries related to the company (tannin industry). Moreover, Unitán is currently the owner of more than 70% of the lands expected to cover the whole project area, and has already planted 37.7% of the total projected area during the period 2016-2020. Risk rating=0 is justified. i) N/A Risk rating=0 is justified.	No corrective actions or clarifications were requested.
Opportunity Cost: It is assessed using table 3 of the VCS AFOLU Risk Tool.	0 (total may be less than zero)	a-f) As stated in the PD extensive cattle breeding is the main alternative land use activity within project boundaries, given the limitation to	No corrective actions or clarifications were requested.

Risk factor	Risk Rating	Findings and mitigation activities	CARs/CLs
		<p>agriculture activity due to the soil quality<sup>5</sup> and a regional strong perennial forage participation on agricultural land, explained by cattle breeding activities..</p> <p>Risk rating=0 is justified.</p> <p>g) PP is a non-profit organization.</p> <p>h) As mentioned, Unitán project plantations are approved within Law 25080, meaning there is legal binding commitment to continue the management practices, including fire mitigation, replacement of seedlings in the case of any loss event, and any other action needed to secure that the area approved is maintained during the whole rotation period following the detail stated in the files.</p> <p>Risk rating=0 is justified.</p> <p>i) Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years</p> <p>Risk rating=0 is justified.</p>	
<p>Project Longevity: It is assessed using table 4 of the VCS AFOLU Risk Tool.</p>	<p>4 (total may not be less than zero)</p>	<p>a) The Unitán Project is proposed, designed, operated, administered and financed by Unitán, a tannin company working in the industry for more than 100 years and renowned internationally. At the same time it is the land owner (or has the property rights in the cases of leased land as demonstrated by the available notarial certificates), and is the entity that finances the project activities.Risk rating=4 is justified.</p> <p>b) There is a legal agreement in place to continue the management practice given the project´s participation in Law 25080 forestry promotion for the whole rotation period of the project´s plantations in place (more than 40 years).Risk rating=0 is justified.</p>	<p>No corrective actions or clarifications were requested.</p>
<p><b>Total internal risk=5 (total may not be less than zero)</b></p>			
<p><b>External Risks</b></p>			
<p>Land Tenure and resources access/impact: It shall be assessed using table 6 of the Risk Tool.</p>	<p>0 (total may not be less than zero)</p>	<p>a) Unitan´s Project is operated and administered by its own directory, being the land owner (and leaseholder for 7.9% of the project´s current planted area) and the entity that finances the project activities. Unitán has the property rights on the project land, demonstrated by the available notarial certificates and no disputes over the tenure or use of the land are present. Although there are indigenous group´s settlements in the area, these are not located within the project area.b) Ownership and resource access/use rights are held by different entities.</p> <p>Risk rating=0 is justified.</p>	<p>No Corrective Actions or Clarifications were requested.</p>

Risk factor	Risk Rating	Findings and mitigation activities	CARs/CLs
		b)N/A c) There are no disputes over land tenure or ownership of the project area in more than 5 % of the project area nor disputes over access/use rights (or overlapping rights). Risk rating=0 is justified. d) N/A e) N/A. f) The project has obtained the necessary approval from the Agroindustry Ministry, area in charge of the forestry promotion legislation in the country (Law 25080), which means there is a legal agreement in place to maintain the reported forested area in order to guarantee the economic promotion throughout the rotation periods. Risk rating = 0 is justified g)N/A	
Community engagement: It shall be assessed using table 7 of the Risk Tool.	0 (total may be less than zero)	a) Previous to the project implementation the project areas were used for extensive cattle grazing and abandoned agricultural lands with no presence of local population on them, only permanent surveillance workers. Therefore this risk is not relevant to the project Risk rating=0 is justified. b) N/A c) Mitigation: The project has no livelihoods deriving from the project area as it takes place in privately owned lands. No mitigation action is considered Risk rating= 0 is justified.	No Corrective Actions or Clarifications were requested
Political Risks: It shall be assessed using table 8 of the Risk Tool.	0 (total may not be less than zero)	a-e) According to the World Bank Institute Worldwide Governance Indicators, Governance score estimation is -0.03 (based on average for six aggregate indicators 2016-2020). Calculation worksheet available for the validation entity. AENOR verified the value and reliability of source. Risk rating=1 is justified. f) Argentina is Partner Country at UN-REDD Programme. Argentina has an established Designated National Authority under the CDM and has one registered CDM Afforestation/Reforestation project Risk rating=-2 is justified.	No Corrective Actions or Clarifications were requested.
<b>Total external risks=0 (Total may not be less than zero)</b>			
<b>Natural risks</b>			
Fire Risk: It shall be assessed using table 10 of the Risk Tool.	LS*M= 1	Insignificant. Less than every 10 years likelihood. Thus LS= 2 is reasonable. Mitigation (M) measures: Unitan’s project has a procedure regarding fire management in place, described in the Forest Management and Mitigation Plan. All	No Corrective Actions or Clarifications were requested

Risk factor	Risk Rating	Findings and mitigation activities	CARs/CLs
		forested properties have their own firefighting equipment and, as mentioned, leased properties have 24hs surveillance. Then, M=0.5 is reasonable.	
Pest and disease outbreaks: It shall be assessed using table 10 of the Risk tool.	LS*M=10	Conservatively considered insignificant. Less than every 10 years likelihood. Thus LS= 2 is reasonable. Mitigation (M) measures: A continuous monitoring of several variables as the actual health of plantations is applied, in order to detect in advance any disease spread or plagues attack. Even though, due to climate change, changes in the distribution of pests and disease outbreaks have been observed, events are controlled by agro-chemicals and phytosanitary products as well as the use of resistant species in plantations. Then, M=0.5 is reasonable.	No Corrective Actions or Clarifications were requested
Extreme weather: It shall be assessed using table 10 of the Risk tool.	LS*M=2	Insignificant. Less than every 10 years likelihood. Thus LS= 2 is reasonable. Mitigation (M) measures: N/A Then, M=1 is reasonable.	No Corrective Actions or Clarifications were requested
Geological risks: It shall be assessed using table 10 of the Risk Tool.	LS*M=0	No carbon stock losses expected to be cause by geological risks. Thus LS= 0 is reasonable. Mitigation (M) measures: none. Then, M=1 is reasonable.	No Corrective Actions or Clarifications were requested
Other Natural Risks	N/A	N/A	
<b>Total natural risks=4</b>			
<b>OVERALL RISK RATING=4+0+5=10</b>			

The non-permanence risk deduction to be applied for the project is 10%.

AENOR has checked that information provided in the Non-Permanence Risk Report /88/ is consistent with the support documents provided. AENOR deems that information provided is reliable and appropriate. Thus, the overall risk rating is credible and realistic.

## 4 VERIFICATION FINDINGS

### 4.1 Project Implementation Status

According to what is reported in the PDD, the AENOR audit team has not been able to find any material discrepancies with regard to what is currently being implemented.

Through different evidence, such as videos and spreadsheets, the audit team has verified the current status of the project. As a complement, through different written testimonies and videoconferences, the AENOR team has affirmed with certainty that the implementation of the project is being carried out correctly as described in the PDD&MR.

The monitoring methods described in the PDD&MR have no material discrepancy with what has been implemented in the current verification period. AENOR has verified this through different means as well as graphic evidence.

The Project has not participated nor has it been rejected under any other GHG programs. Furthermore, this is the validation and first verification.

As described above, the GHG Benefit is one of the reasons for starting the project due, among other things, to the optimal shift of the species to be used.

AENOR has checked that information provided and confirm that it is consistent with the support documents provided. AENOR deems that information provided is reliable and appropriate

### 4.2 Accuracy of GHG Emission Reduction and Removal Calculations

All calculations of greenhouse gas removals were checked by the audit team. No errors were discovered that materially affect the stated greenhouse gas emission removals of the project during the monitoring period. The methods used to estimate greenhouse gas benefits of the project were consistent with the methodology and the validated part of the project.

#### Baseline emissions

In the Project, the baseline Net GHG removals by sinks is zero as it is explained in this validation and verification report. AENOR has checked and confirmed that this amount of baseline removals are zero and are in conformance and have followed the methodology of the project.

#### Project emissions

Unitán project activity does not have GHG emissions.

Net anthropogenic GHG removals by sinks is estimated as the actual net GHG removals by sinks minus the baseline net GHG removals, minus leakage. The following general formula described in the

methodology is used to calculate the net anthropogenic GHG removals by sinks of an A/R project activity, in t CO<sub>2</sub>-e:

$$C_{AR-CDM} = \Delta C_{ACTUAL} - \Delta C_{BSL} - LK$$

Where:

$C_{AR-CDM}$	=	Net anthropogenic GHG removals by sinks; tCO <sub>2</sub> -e
$\Delta C_{ACTUAL}$	=	Actual net GHG removals by sinks; tCO <sub>2</sub> -e
$\Delta C_{BSL}$	=	Baseline net GHG removals by sinks; tCO <sub>2</sub> -e
LK	=	Total GHG emissions due to leakage; tCO <sub>2</sub> -e

The actual net greenhouse gas removals by sinks were estimated using the following equation described in the methodology:

$$\Delta C_{ACTUAL} = \Delta C_P - GHG_E$$

Where:

$\Delta C_{ACTUAL}$	=	Actual net greenhouse gas removals by sinks; tCO <sub>2</sub> -e
$\Delta C_P$	=	Sum of the changes in above-ground and below-ground tree biomass, dead wood, litter and soil organic carbon stocks in the project scenario; tCO <sub>2</sub> -e
$GHG_E$	=	Increase in GHG emissions as a result of the implementation of the proposed A/R CDM project activity within the project boundary; tCO <sub>2</sub> -e

In this case, dead wood, litter and SOC stocks are not considered.

The following formula described in the methodology is used in order to estimate GHG emissions:

$$GHG_E = \sum_{t=1}^{t^*} GHG_{E,t}$$

Where:

$GHG_E$	=	Increase in GHG emissions as a result of the implementation of the proposed A/R CDM project activity within the project boundary; tCO <sub>2</sub> -e
$GHG_{E,t}$	=	Increase in non-CO <sub>2</sub> emissions due to biomass burning of existing vegetation as part of site preparation in year t; tCO <sub>2</sub> -e

t = 1,2,3,..... t\* years elapsed since the start of the A/R CDM project activity

The tool for “Estimation of non-CO<sub>2</sub> GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity” has been considered. The use of fire for site preparation and/or to clear the land of harvest residue prior to replanting is specifically excluded from the project management and therefore project emissions are estimated as zero.

#### Carbon stock changes

ΔCP is the sum of the changes in above-ground and below-ground tree biomass, dead wood, litter and soil organic carbon stocks in the project scenario. Calculations are described below.

$$\Delta C_p = \Delta C_{TREE} + \Delta C_{DW} + \Delta C_{LI} + \Delta C_{SOC}$$

Where:

ΔCp = Change in carbon stock in all selected carbon pools in the project scenario, tCO<sub>2</sub>-e

ΔCTREE = Change in carbon stock in tree biomass in project, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities”; tCO<sub>2</sub>-e

ΔCDW = Change in carbon stock in dead wood biomass in project, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO<sub>2</sub>-e

ΔCLI = Change in carbon stock in litter biomass in project, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO<sub>2</sub>-e

ΔCSOC = Change in carbon stock in SOC in project, in areas of land meeting the applicability conditions of the tool “Estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities”, as estimated in the same tool; tCO<sub>2</sub>-e

Neither ex-ante estimations, nor this monitoring period estimations accounted for dead wood, litter and soil organic carbon pools in the project. Following is presented the equation used for the estimation of ΔCP:

$$\Delta C_p = \Delta C_{TREE}$$

Where:

ΔCp = Change in carbon stock in all selected carbon pools in the project scenario; tCO<sub>2</sub>-e

$\Delta C_{TREE}$  = Change in carbon stock in tree biomass in project, as estimated in the tool “Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities”; tCO<sub>2</sub>-e

**Biomass carbon pools**

Above and below ground biomass have been estimated according to the tool “Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activity Version 4.2”. Carbon estimations in trees are based on field measurements of monitored parameters, described in section 5.3.

The aboveground biomass corresponds to tree biomass, no shrubs are considered for estimation. The method used for estimating change in carbon stock in trees is the “stock change method”. Change in carbon stock in trees in two successive points in time is calculated as the difference between the two estimated stocks. As this is the first monitoring report the carbon values in every pool is the final result, the starting point of the crediting period is zero carbon.

As in ex-ante estimations, the following equations were used in order to estimate above and below ground biomass ex-post measurements:

According to this method, mean carbon stock in trees within the tree biomass estimation strata and the associated uncertainty will be estimated as follows:

$$C_{TREE} = \frac{44}{12} \times CF_{TREE} \times B_{TREE}$$

$$B_{TREE} = A \times b_{TREE}$$

$$b_{TREE} = \sum_{i=1}^M w_i \times b_{TREE,i}$$

$$u_C = \frac{t_{VAL} \times \sqrt{\sum_{i=1}^M w_i^2 \times \frac{s_i^2}{n_i}}}{b_{TREE}}$$

Where:

$C_{TREE}$  = Carbon stock in trees in the tree biomass estimation strata; tCO<sub>2</sub>-e

$CF_{TREE}$  = Carbon fraction of tree biomass; t C (t.d.m)<sup>-1</sup>

A default value of 0.47 is used unless transparent and verifiable information can be provided to justify a different value.

$B_{TREE}$	=	Tree biomass in the tree biomass estimation strata; t.d.m
$A$	=	Sum of areas of the tree biomass estimation strata; ha
$b_{TREE}$	=	Mean tree biomass per hectare in the tree biomass estimation strata; t.d.m ha <sup>-1</sup>
$w_i$	=	Ration of the area of stratum $i$ to the sum of areas of tree biomass estimation strata (i.e. $w_i=A_i/A$ ); dimensionless
$b_{TREEi}$	=	Mean tree biomass per hectare in stratum $i$ ; t.d.m. ha <sup>-1</sup>
$U_c$	=	Uncertainty in $C_{TREE}$
$T_{val}$	=	Two-sided Student's t-value for a confidence level of 90 per cent and degrees of freedom equal to $n-M$ , where $n$ is total number of sample plots within the tree biomass estimation strata and $M$ is the total number of tree biomass estimation strata
$s_i^2$	=	Variance of tree biomass per hectare across all sample plots in stratum $i$ ; (t.d.m. ha <sup>-1</sup> ) <sup>2</sup>
$n_i$	=	Number of sample plots in stratum $i$

Tree biomass ( $B_{TREE}$ ) is estimated using:

$$B_{TREE,l,j,p,i} = f_j(x_{1,l}, x_{2,l}, x_{3,l}, \dots) \times (1 + R_j)$$

$$B_{TREE,j,p,i,t} = V_{TREE,j,p,i,t} * D_j * BEF_{2,j} * (1 + R_j)$$

Where:

$B_{TREE,j,p,i,t}$	=	Biomass of tree of species $j$ in sample plot $p$ of stratum $i$ , at mid-2021
$f_j$	=	Above-ground biomass of the tree returned by the allometric equation for species $j$ relating the measurements of tree $l$ to the above-ground biomass of the tree; t d.m.
$R_j$	=	Root shoot ratio for tree species $j$ ; dimensionless

The value of  $R_j$  is estimated as:

$$R_j = \frac{e^{(-1.085+0.9256 \times \ln b)}}{b}$$

where  $b$  is the above-ground tree biomass per hectare (in t.d.m.ha<sup>-1</sup>), unless transparent and verifiable information can be provided to justify a different value.

Note, if trees have grown as coppice regeneration after a harvest, then the value of  $R_j$  should be multiplied by a factor equal to  $V_{\text{harvest}}/V_{\text{tree}}$  or 1, whichever is greater, where  $V_{\text{harvest}}$  is the volume per hectare of trees harvested and  $V_{\text{tree}}$  is the volume per hectare of trees standing in the plot at the time of measurement

$V_{\text{TREE},j,p,it}$  = Stem volume of tree species using field measurements of tree parameters (DBH, neck diameter, height), default values (tree shape factor) and complemented with worksheets data processing (interpolation of non-measured heights); m<sup>3</sup>.

In this case, the applied equation for stem volume estimation ( $V_{\text{tree}}$ ) is an equation which considers DBH and H of the inventoried plantation.

For *Eucalyptus*, the equation used is the one recommended for Northeast region by the National Institution of Agricultural Technology (INTA) from Glade J (1984):

$$V_{\text{TREE}} \text{ (m}^3\text{)} = \exp(-3.11072 + 1.83316 \cdot \text{LN}(\text{DBH}) + 1.07762 \cdot \text{LN}(H))$$

Given for these verification period the plantations are young and some individuals less than 1.3mt tall, the biomass was estimated based on neck diameter, 10 cm above ground, replacing DBH values in equation.

While the *Schinopsis* plantations are young and do not reach the minimum BDH values, a modified version of the allometric equation by Atanasio et al. 2013 will be used:

$$\text{Above-ground biomass (t.d.m)} = 0.05619 \cdot \text{ND}^{2.7152}.$$

Where ND is neck diameter

According to the methodology, for ex-post estimation, the volume equation used must be demonstrated to be appropriate for the purpose of estimation of tree biomass by applying the tool “Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities”. The appropriateness of the equations is demonstrated through the satisfaction of the following conditions, in the sense that the formula is very generic and applicable in any case:

- The equation has been used for volume estimation for the same specie for more than 10 year is commercial forestry industry, demonstrated by the fact that the equation for used for Eucalyptus is the one promoted by the national agroindustry Ministry and INTA for, at least, the last 15 years for commercial plantation inventories (as stated in reference 63).
- The equation has been used in National Forest Inventories, demonstrated in the references, where the *Schinopsis* volumetric equation is used in the Second Native National Forest Inventory

In the case of young *Schinopsis* plantations, the equation used is provided by the National Institution for Agricultural Technology (INTA), based on a sample of 15 trees at Almirante Brown Department, Chaco for *Schinopsis quebracho colorado* Schlencht given the lack of data for *Schinopsis balansae*, but can be considered extrapolated to young *Schinopsis*.

$D_j$  = Basic wood density of tree species j. This parameter was established as “available at validation”, thus it was not measured or monitored. The value was obtained and corresponds to Winck et al 2020 estimated value for *Eucalyptus* and a default value from INTI for *Schinopsis*

$BEF_{2,j}$  = Biomass expansion factor for conversion of stem biomass to above-ground tree biomass, for tree species j (Pinus sp.); dimensionless. The BEF2 is to be used in connection to growing stock biomass data and not with increment data, as described in chapter 3.2 of the GPG for LULUCF (2003). The value was also available at validation and not monitored, it ranged from 3.4 (for young forest) to 1.15 (mature forests) and the exact values applied for different plantation dates are reported in the final worksheet for carbon stock calculation

For the case of *Schinopsis balansae*, given there is no data available, and in line with the Second National Native Forest Inventory (INBN2), when the minimum height of the plantation allows it, a general equation is used:

$$V_{TREE} = -0.09996 + 0.00057954 * DBH^2 \text{ (V being stem volume over bark)}$$

### Stratification

The stratification eliminates sources of variation that can mask the results of the inventory, once the variability inside the strata shall be lower than that of the whole population. Hence, it will be possible to obtain more precise statistics due to the population stratification. The stratification also facilitates the data collection and the processing of it per stratum, being also suitable for the planning and execution of the work on the field.

Stratification was done considering age class (plantation date 2016, 2017, 2018, ..., 2025); and species planted (*Schinopsis balansae*, *Eucalyptus gxc* & *Eucalyptus* various). Total project area will be divided into 22 strata as *Eucalyptus* various plantations are only projected for 2016 and 2018.

Current stratification could suffer subdivisions or merges in the case unexpected disturbances occur or insignificant intra-stratum variability is detected in the annual variation in carbon pools (e.g: forest fires).

### Sampling

#### *Design*

The design includes the setting of the different variables to be used in the sampling, that is, the distribution of plots, setting their quantities and sizes, as well as the information analysis techniques. In this case, the design used was "Systematic Random", through the implementation of a rectangular grid and location of the plots in each stratum. The plots have been distributed over the area of interest to be inventoried in homogeneous units (lots), determining the dasometric parameters corresponding to the lots they represent.

The stratum is characterized by homogeneity in species, age, density, in order that the variability is absorbed within the batch and thus improve inventory precision.

#### *Sample size*

The sample size involves the number of plots to be distributed with a certain statistical criterion in every stratum. The representative number of plots of the total project area and of every stratum shall be previously decided in order to accomplish the predefined level of accuracy and precision.

The size of the sample plot is a trade-off between accuracy, precision, and time (cost) of measurement. The size is also related to the number of trees, their diameter and the carbon stock variance among plots. The plot should be large enough to contain an adequate number of trees per plot to be measured. IPCC Good Practice Guidance for LULUCF, Chapter 4.3 recommends using a single plot varying between 100 m<sup>2</sup> to 600 m<sup>2</sup>, increasing the size from densely planted stands of 1000 trees per hectare to sparsely planted stands of multi-purpose trees.

Thus, taking into consideration the project-specific conditions and the IPCC guidance, square plots of 300 m<sup>2</sup> have been selected for monitoring of stratum with Eucalyptus (densities between 1205 and 2500 plants/ha) and a size of 400 m<sup>2</sup> for stratum with Schinopsis due to lower densities (833 plants/ha) according to plant densities.

#### Plots number

Permanent sampling plots are used to measure and monitor changes in carbon stocks from the most relevant carbon pools over the time. These are considered to be more efficient for estimating changes in carbon stocks by filtering out any variance due to plot effect. The plots will be located with GPS and although physically marked, they will be as invisible as possible to avoid any possible special treatments (e.g. during site and soil preparation, weeding, fertilization, harvesting, etc.) that could affect growth. They will also be prevented from being deforested over the crediting period.

The number of sample plots was first estimated according to the "Calculation of the number of sample plots for measurements within A/R CDM project activities" tool. The outcome for the estimation of number of sample plots with the tool was 43 for the whole project area, with value zero for some of the stratum. This number was increased in order to achieve a 10% significance. Calculations are archived as part of project documentation. The new number estimated for the whole project area is of a total of 149 sample plots described in the table below, for each stratum:

Species	Year of plantation	Stratum	Area (ha)	Plots
<i>Eucalyptus hybrid</i>	2016	1	35.84	4
<i>Eucalyptus hybrid</i>	2017	2	44.74	3
<i>Eucalyptus hybrid</i>	2018	3	212.62	11
<i>Eucalyptus hybrid</i>	2019	4	166.50	9
<i>Eucalyptus hybrid</i>	2020	5	194.00	10
<i>Eucalyptus hybrid</i>	2021	6	203.80	12
<i>Eucalyptus hybrid</i>	2022	7	150	10
<i>Eucalyptus hybrid</i>	2023	8	150	10
<i>Eucalyptus hybrid</i>	2024	9	150	10
<i>Eucalyptus hybrid</i>	2025	10	150	10
<i>Eucalyptus various</i>	2016	11	24.95	2
<i>Eucalyptus various</i>	2018	12	3.20	1
<i>Schinopsis</i>	2016	13	81.20	5
<i>Schinopsis</i>	2017	14	20.09	2
<i>Schinopsis</i>	2018	15	15.97	1
<i>Schinopsis</i>	2019	16	64.96	4
<i>Schinopsis</i>	2020	17	20.79	1
<i>Schinopsis</i>	2021	18	60	4
<i>Schinopsis</i>	2022	19	150	10
<i>Schinopsis</i>	2023	20	150	10
<i>Schinopsis</i>	2024	21	150	10
<i>Schinopsis</i>	2025	22	150	10
		<b>Total</b>	<b>2.349</b>	<b>149</b>

### Mapping

The location of the plots will follow the guidance given by the corresponding methodological tool, as well as IPCC Good Practice Guidance for LULUCF (2002), Chapter 4.3.

For the location of the sampling units, the assistance of the ArcGIS 10.4 Software will be used. Therefore, the digital format is compatible for uploading to GPS navigating equipment. For field measurements, instruments which guarantee precision are used. The DBH will be measured with a haglof calliper and the heights with the sunnto clinometer. For the location of the plots, a Garmin Etrex Legend GPS navigator and Avenza Maps verification application will be used, with the cartographies and plots to be measured previously loaded, so the forest inventory crews can reach the plots accurately.

### Measurements

Each pool will be measured following the methodology procedures and IPCC Good Practice Guidance for LULUCF (2003).

Each source of GHG emissions/removals will be estimated ex post according to the equations described in section 3 and based on the following methods and monitored parameters:

- **C<sub>TREE</sub>** (carbon stocks in above and below ground biomass of trees)

It will be estimated based on stratified random sampling method as described in section 3. For this purpose, V<sub>TREE</sub> (stem volume of tree) will be calculated applying a manual of procedures developed for local conditions, based on diameter at breast height (DBH) and height (H) measurement in each plot.

- **DBH measuring**

By convention, the diameter is measured at 1.30 m from the ground level, so this measure remains standardized independently of the operator and its height. At this height the instrument is also easily to manage. The DBH is a direct measure from which it is possible to calculate the transverse area, the basal area, the individual and total volume, the growth and the form quotient of the tree, and other variables of interest. In the estimating processes that involve the use of regression functions, the DBH is always the first independent variable because of its easy assessment and for presenting normally a high correlation with the volume, weight and other dependent variables.

- **ND measuring**

In the case of young plantations of *Schinopsis*, a genus with slow growth periods, neck diameter was measured instead of DBH if the maximum height of some individuals within the plot were less than 1.3mts. Based on Iglesias & Barchuk, 2010; Loguercio & Defossé 2001; Pérez-Cordero & Kanninen 2002 findings, neck diameter or diameter at base height (DBH) is considered more appropriate for young and/or small individuals. All heights values are measured. ND corresponds to the diameter at 10cm from ground level. For those with bifurcations in the base, the quadratic diameter is calculated.

- **H measuring**

The height of a tree or portion of it is the linear distance along its principal axis, departing from the ground up to the top or up to another referential point, always in conformity with the type of height that is needed to measure. The height serves essentially for the calculation of volume and for the calculation of increases in height and in volume. Total Height refers to the distance between the ground and the apex along the principal axis.

- **C<sub>DW</sub>** (carbon stocks in deadwood): this stock will not be calculated.

- **C<sub>LI</sub>** (cabon stock in litter): is stock will not be calculated

Prior to the start of the inventory, all equipment used during the field work shall be checked and calibrated.

All plots are geo-referenced, using first tree in row 1 in direction to row 2. This first tree is marked with a small metallic sign in order to facilitate future monitoring, in the case Formosa plots, and with red aerosol, in the case of Chaco. All other three trees in plot corners are marked, visible only for monitoring purposes.

The plot is delimited using a 30 and 20mts measuring tapes. All trees with more than 50% within plot limit are considered, and at least 10 trees must be included within a plot, if not, third parties should communicate with the employee in charge of monitoring in order to define new plot size. The project will manage the sampling uncertainties evaluating and trying to reduce the type of errors.

Net GHG emission reductions and removals

The following table summarizes the results.

Year	Baseline emissions or removals (tCO <sub>2</sub> e)	Project emissions or removals (tCO <sub>2</sub> e)	Leakage emissions (tCO <sub>2</sub> e)	Net GHG emission reductions or removals (tCO <sub>2</sub> e)	Buffer pool allocation	VCUs eligible for Issuance
2016-2021	0	11,335.38	0	11,335.38	1,133.53	10,201.84
Total	0	11,335.38	0	11,335.38	1,133.53	10,201.84

LTA value ex-post updated, based on calculated biomass values for the first 5 years of the project lifetime, equals **123.325tCO<sub>2</sub>e**, meaning all net GHG emission removals (minus buffer pool allocation) are eligible for VCUs issuance. Calculations are as follows:

The long-term average GHG benefit (LTA) is determined by averaging the expected total GHG benefit for the length of the project. As explained in Section 3.2.21 VCS Standard V4.2, the Long Term Average GHG benefit shall be calculated by establishing the period over which the long-term average GHG benefit shall be calculated, including at minimum one full harvest/cutting cycle. Then, the project has to:

- Determine the expected total GHG benefit of the project for each year of the established time period. For each year, the total GHG benefit is the to-date GHG emission reductions or removals from the project scenario minus baseline scenario.
- Sum the total GHG benefit of each year over the established time period.
- Calculate the average GHG benefit of the project over the established time period.
- Use the following equation:

$$LA = \frac{\sum_{t=0}^n PE_t - BE_t}{n}$$

Where:

LA = the long-term average GHG benefit

PE<sub>t</sub> = the total to-date GHG emission reductions and removals generated in the project scenario (tCO<sub>2e</sub>). Project scenario emission reductions and removals shall also consider project emissions of CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub> and leakage.

BE<sub>t</sub> = the total to-date GHG emission reductions and removals projected for the baseline scenario (tCO<sub>2e</sub>)

t = Year

n = Total number of years in the established time period

In this sense, taking into consideration that plantations will take place till year 2025 and Schinopsis harvest year is 40 years, then the period over which the long-term average GHG benefit shall be calculated (n) is 50 years.

For this project the total GHG benefit expected at the end of crediting period, corrected to the biomass values measured during the first five years (2016-2021), is 175.699 tCO<sub>2e</sub>. The sum of the expected GHG benefit annually when divided by 50 years (period for estimating LTA) results in 123,325tCO<sub>2e</sub> as seen in the following table. This amount is subject to buffer withholding.

Year	Baseline scenario: to-date GHG emission reductions and removals at year t BE	Project scenario: to-date GHG emission reductions and removals at year t PE	Annual change in GHG benefit PE <sub>t</sub> - PE <sub>t-1</sub>	Expected total GHG benefit to-date PE <sub>t</sub> - BE <sub>t</sub>	Total credits available each year
2016	0	85	85	85	85
2017	0	1.158	1.072	1.158	1.072
2018	0	3.451	2.293	3.451	2.293
2019	0	10.025	6.574	10.025	6.574
2020	0	23.336	13.311	23.336	13.311

2021	0	42.353	19.017	<b>42.353</b>	<b>19.017</b>
2022	0	60.592	18.239	<b>60.592</b>	<b>18.239</b>
2023	0	82.560	21.968	<b>82.560</b>	<b>21.968</b>
2024	0	81.052	-1.508	<b>81.052</b>	<b>0</b>
2025	0	89.462	8.410	<b>89.462</b>	<b>8.410</b>
2026	0	98.859	9.398	<b>98.859</b>	<b>9.398</b>
2027	0	109.285	10.425	<b>109.285</b>	<b>10.425</b>
2028	0	120.990	11.705	<b>120.990</b>	<b>12.531</b>
2029	0	131.228	10.239	<b>131.228</b>	<b>0</b>
2030	0	114.286	-16.942	<b>114.286</b>	<b>0</b>
2031	0	102.546	-11.740	<b>102.546</b>	<b>0</b>
2032	0	112.284	9.738	<b>112.284</b>	<b>0</b>
2033	0	123.189	10.905	<b>123.189</b>	<b>0</b>
2034	0	134.974	11.785	<b>134.974</b>	<b>0</b>
2035	0	139.210	4.235	<b>139.210</b>	<b>0</b>
2036	0	123.028	-16.182	<b>123.028</b>	<b>0</b>
2037	0	110.712	-12.316	<b>110.712</b>	<b>0</b>
2038	0	120.502	9.790	<b>120.502</b>	<b>0</b>
2039	0	132.228	11.726	<b>132.228</b>	<b>0</b>
2040	0	143.711	11.483	<b>143.711</b>	<b>0</b>
2041	0	154.378	10.667	<b>154.378</b>	<b>0</b>
2042	0	138.467	-15.911	<b>138.467</b>	<b>0</b>
2043	0	127.327	-11.140	<b>127.327</b>	<b>0</b>
2044	0	138.300	10.973	<b>138.300</b>	<b>0</b>
2045	0	150.681	12.381	<b>150.681</b>	<b>0</b>
2046	0	164.102	13.421	<b>164.102</b>	<b>0</b>
2047	0	176.315	12.213	<b>176.315</b>	<b>0</b>
2048	0	161.888	-14.427	<b>161.888</b>	<b>0</b>
2049	0	152.415	-9.473	<b>152.415</b>	<b>0</b>
2050	0	164.479	12.064	<b>164.479</b>	<b>0</b>
2051	0	177.721	13.242	<b>177.721</b>	<b>0</b>
2052	0	191.894	14.173	<b>191.894</b>	<b>0</b>

2053	0	204.797	12.903	<b>204.797</b>	0	
2054	0	184.704	-20.093	<b>184.704</b>	0	
<b>2055</b>	<b>0</b>	<b>175.699</b>	<b>-9.005</b>	<b>175.699</b>	<b>0</b>	<b>Crediting Period (40 years)</b>
2056	0	171.324	-4.375	<b>171.324</b>	0	
2057	0	176.548	5.224	<b>176.548</b>	0	
2058	0	172.304	-4.244	<b>172.304</b>	0	
2059	0	165.968	-6.336	<b>165.968</b>	0	
2060	0	158.955	-7.012	<b>158.955</b>	0	
2061	0	148.071	-10.885	<b>148.071</b>	0	
2062	0	146.429	-1.641	<b>146.429</b>	0	
2063	0	145.801	-628	<b>145.801</b>	0	
2064	0	116.364	-29.438	<b>116.364</b>	<b>-29.438</b>	
<b>2065</b>	<b>0</b>	<b>90.202</b>	<b>-26.162</b>	<b>90.202</b>	<b>-26.162</b>	<b>6.166.238</b>
						<b>123.325</b>

AENOR reproduced the calculations to achieve the same results and deems they are depicted clearly and correctly in the provided sheets. The AENOR verification team was able to trace calculations directly from the data sources of inventory's field measurements. Formulae used are in compliance with monitoring plan, Joint PD&MR section and methodology used. The default values used to determine the parameters are appropriate. Thus, the net amount of VCUs to be issued is accurate and realistic.

In order to calculate the above terms, the monitoring report details the data and parameters used during the verification process. For each of them, AENOR checked its accuracy, consistency, and reliability by reproducing the spreadsheets calculations, verifying the correctness of formulae and methods used and crosschecking the data values with sources (Appendix 1).

AENOR carried out a deep review of the monitoring report section and the calculations. Within these calculations, AENOR has reviewed the calculation of the LTA for the ex-post calculations and deems that the PP has done the calculations of the long-term average properly, according the VCS standard and with a good usage of the methodology.

AENOR verified the consistency and accuracy of each parameter detailed in the lists below by crosschecking the information in the MR section with the information in the PD section, as well as checking values and reproducing the calculations in the spreadsheet calculation package and did not find inconsistencies between them after the closing of CARs and CLs requested (appendix 2). Therefore, AENOR deems that values reported for the parameters are accuracy and consistent.

Moreover, AENOR also verified a complete GIS package /7-13/ provided to cross check the information with data values used in calculations and monitoring report. Other default values used are from sources well accredited and validated at validation stage.

AENOR did not find inconsistencies between the Joint PD&MR and spreadsheet calculation.

The following table summarizes the data and parameters monitored during the monitoring period and used by the PP to calculate the GHG emission removals, which has been assessed by AENOR:

Data/Parameter monitored	Value applied	Assessment procedure and result									
DBH - diameter at breast height	Various values	It is measured by project proponent II in temporal sample plots using Masser Excalliper, Values represented in the forest inventory - verification I spreadsheet									
Ai - Area of stratum i	Different values according to the stratum	Stratum numbers were assigned considering projected stratums as well- <i>Eucalyptus gxc</i> 2021, <i>Eucalyptus gxc</i> 2022, etc - for this reason the ones shown in the table above do not follow a linear numbering. The total number is expected in 23 stratums									
Aploti - Total area of sample plots in stratum i	For <i>Schinopsis</i> sample plots are squares of 400m <sup>2</sup> For <i>Eucalyptus</i> sample plots are squares of 300m <sup>2</sup>	Data provided from PP field monitoring									
ND - neck diameter	Different values	Values represented in the forest inventory - verification I spreadsheet. In the case of young plantations of <i>Schinopsis</i> , a genus with slow growth periods, neck diameter was measured instead of DBH as the maximum height in individuals within the plot was less than 1.3mts									
H - height	Different values	Values represented in the forest inventory - verification I spreadsheet. In general, total height of 6-10 trees per plot area measured and the rest calculated based on a regression equation; in other cases (p.e. in the case of <i>Schinopsis</i> in Formosa plots (15,16,17, 18) all heights are measured.									
Wi - relative weight of stratum		<table border="1"> <thead> <tr> <th></th> <th>Stratum</th> <th>Area (ha)</th> <th>Wi</th> </tr> </thead> <tbody> <tr> <td>Eucalyptus híbrido</td> <td>2016</td> <td>1</td> <td>35,84</td> <td>0,04</td> </tr> </tbody> </table>		Stratum	Area (ha)	Wi	Eucalyptus híbrido	2016	1	35,84	0,04
	Stratum	Area (ha)	Wi								
Eucalyptus híbrido	2016	1	35,84	0,04							

Data/Parameter monitored	Value applied	Assessment procedure and result				
		2017	2	44,74	0,05	
		2018	3	212,62	0,24	
		2019	4	166,50	0,19	
		2020	5	194,00	0,22	
	Eucalyptus varios	2016	11	24,95	0,03	
		2018	12	3,20	0,00	
	Schinopsis	2016	13	81,2	0,09	
		2017	14	20,09	0,02	
		2018	15	15,97	0,02	
		2019	16	64,96	0,07	
		2020	17	20,79	0,02	
	SI <sup>2</sup>	(t d.m. ha-1 ) ^2	Values represented in the forest inventory – verification I spreadsheet.			
					Stratum	SI <sup>2</sup>
Eucalyptus híbrido			2016	1	296,37	
			2017	2	71,88	
			2018	3	21,28	
			2019	4	7,10	
			2020	5	0,04	
Eucalyptus varios			2016	11	122,21	
			2018	12	-	
Schinopsis			2016	13	0,00	
			2017	14	5,10	
			2018	15	-	
			2019	16	0,69	
	2020	17	-			
Rj - Root-shoot ratio for tree species j	Root-shoot ratio for tree species j	Values represented in the forest inventory – verification I spreadsheet.				
T - Year	Time period elapsed between two successive estimations of carbon stock	In this first verification the calculation corresponds to carbon stock for the whole period				

In order to verify the accuracy and consistency of parameters monitored and used to calculate the removals achieved for the monitoring period, the AENOR verification team reproduced the calculations checking the correctness of the formulae applied and assumptions used, when applicable and that values used matched with data sources.

AENOR checked that the list of parameters to be monitored was complete and consistent with information in the monitoring plan of the Joint PD&MR document.

After a deep and thorough review and reproduction of calculations and the corresponding tracks to the other spreadsheets, AENOR deems the parameters monitored are correct, reliable, and consistent. Information in the monitoring report and it complies with the Joint PD&MR, the calculations provided and the applicable methodology. Then, the results showed in the monitoring report are reliable, consistency and accuracy.

AENOR checked that the list of parameters to be monitored was complete and consistent with information in the monitoring plan of the Joint PD&MR.

### 4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

The implementation of the monitoring plan includes a QA/QC system to minimize errors in measurement and data analysis, and to provide documentation and consistency in data archiving.

Quality Assurance measures are implemented, in order to verify that data quality objectives are met, and in general, to support the effectiveness of the QC system.

QA/QC plan includes procedures such as (1) hiring experienced third party contractors (2) assuring reliable field measurements, (2) documenting data entry and analysis techniques and (3) data maintenance and archiving.

Unitán will hire third party contractors for the forest inventories, with renowned experiences but its own personnel will be in charge of monitoring their work.

According to the plots establishment, two systems are used for plot identification: GPS and Cellular with the Avenza Maps application, for the location of the preliminary sampling points and the geo-referencing of the final points.

Unitán will control the information reported by the contractor by checking the field sheets against the information reported in the calculation files. If differences are found, they will be corrected, and the final values will be those considered for the calculation of captured carbon.

AENOR has verified that monitoring crews implemented the monitoring plan as it is established in the joint PD&MR. AENOR also could evidence during remote audits that key workers or responsible are fully involved in monitoring events (training, measuring, archiving, reporting, quality control, etc.). QA/QC procedures are considered strict at identifying, reviewing, and handling inconsistencies found.

Roles and responsibilities are clearly identified in the project document as well as QA/QC procedures and crosschecked with the remote meetings. Thus, the use of these procedures monitored to ensure that net anthropogenic GHG removals by sinks are measured and monitored precisely, and are credible, verifiable,

and transparent. Training was held for all relevant personnel on all data collection and analysis procedures.

Roles and responsibilities along with data management and archival system are also detailed in the monitoring report and other supported documents.

Interviews with the PP, ProSustentia and the management team in the project area and inspection of data and results demonstrated that the PP possess all the competencies required for reporting of GHG emissions reductions on accurate way.

Data presented to the audit team were clear and coherent and processing steps could be traced to the corresponding sections of the methodology and monitoring plan with transparency.

The evidence provided by the PP to determine the GHG emission reductions and removals were the spreadsheet of carbon calculation and forest inventory /4-6/. The process to assess the calculations were performed at the same time than the assessment of the GHG reduction removals, and the way that the VVB followed, was the reproduction of the cells according to the methodology´s formulae. The audit team deems that the PP has followed well the methodology, thus, the reliability of the calculations and the spreadsheet evidence is correct. The values and the sources are transparent and allows the audit team to verify the accuracy of the data.

The reliability of the data was checked through different means. When it was a written source where some values were obtained, the VVB assessed the origin of the source as well as the place and the species and their relationship with the own place and species of Unitán Project. For the spreadsheet document, the review of all the calculation as well as the information obtained through different interviews with the responsible of carbon calculation and their deep experience, complemented with the deep review of the calculation from AENOR, is deemed reasonable for the reliability of the data.

The flow from data generation and aggregation, to recording, calculation and final transportation into the monitoring report has been assessed by the VVB, firstly, analyzing the reliability of the source, secondly, reproducing all the data and equations of the carbon calculation spreadsheet and its comparison to the PDD/MR. Finally, the last values, once they have been well traced, have been searched again to avoid errors during the transportation of the data until the final document.

Therefore, AENOR deems that the quality of the evidence and the accuracy of the data and parameters from their calculation until the final transportation has been done correctly.

## 5 VALIDATION AND VERIFICATION CONCLUSION

AENOR has performed the validation and the verification of the Unitán Afforestation and Reforestation of Grazing Lands Project and has verified that the project complies with the Verified Carbon Standard version 4.2 without qualifications or limitations. The project is located in Argentina and covers 2,348.7 ha of which 884.9 ha were planted during from September 2016 to December 2020.

The validation and verification process was performed on the basis of all issues and criteria of VCS. The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation and verification.

The verification assessment covered the monitoring period from 16-September-2016 to 15-August-2021 and verified that calculated emission removals were achieved during the monitoring period with a reasonable level of assurance.

AENOR is able to issue a positive verification opinion for the 11,355.38 tCO<sub>2e</sub> as reported in the Joint project description and monitoring report for the reporting period 16-September-2016 to 15-August-2021. The overall non-permanence risk rating was 10%. Therefore, the total number of credits to be deposited in the buffer account is 1,133.53 VCUs and the total VCUs to be issued are 10,201.84 VCUs.

Overall non-permanence risk rating: 10%      VCUs buffer to be deposited: 1,133.53 t CO<sub>2e</sub>.

**Total VCUs to be issued: 10,201.84 t CO<sub>2e</sub>.**

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

Year	Baseline emissions or removals (tCO <sub>2</sub> e)	Project emissions or removals (tCO <sub>2</sub> e)	Leakage emissions (tCO <sub>2</sub> e)	Net GHG emission reductions or removals (tCO <sub>2</sub> e)	Buffer pool allocation	VCUs eligible for Issuance
2016	0	755.69	0	755.69	75.57	680.12
2017	0	2,267.08	0	2,267.08	226.71	2,040.37
2018	0	2,267.08	0	2,267.08	226.71	2,040.37
2019	0	2,267.08	0	2,267.08	226.71	2,040.37
2020	0	2,267.08	0	2,267.08	226.71	2,040.37
2021	0	1,511.38	0	1,511.38	151.14	1,360.25
Total	0	11,335.38	0	11,335.38	1,133.54	10,201.84

Date: 29 November 2022

Juan Carlos Gómez

Team Leader



# APPENDIX I: LIST OF EVIDENCE PROVIDED

No	General documents
1	Unitán_VCS-Joint-Project-Description-Monitoring-Report-Template-v4.0 _Verra review_clean.docx
2	Unitán_VCS-Joint-Project-Description-Monitoring-Report-Template-v4.0 _findings 2_clean.docx
	Carbon Calculation - Spreadsheet
3	Euca_cubing template spreadsheet.xls
4	Inventario Forestal - Chaco_Findings.xlsx
5	Unitán VCS Forest Inventory_Findings N° 2.xlsx
6	Unitán VCS Project Calculator_clean_Findings N° 2.xlsx
	GIS - Geodatabase
7	Establecimientos totals.shp
8	Don Antonio.shp
9	Ex-Glombowsky.shp
10	Sociedad Rural.shp
11	Cabo Noroña.shp
12	Irineo.shp
13	Unitán Project_V2.kml
	PDD - References
14	1. Contract extension Soc. Rural_signed commitment
15	6. Inventory reports
16	26. Public consultation invitations
17	26. Soils
18	30. Soils
19	2. Bill from Martina, Osvaldo Rubén to Unitán_start date.pdf
20	3. Forest Management Plan.pdf
21	4. Forest Management Plan.pdf
22	5. Forest Management Plan.pdf
23	7. INTA_Zonificación Chaco.pdf

24	8. INTA_Cobertura del suelo.pdf
25	14. ODS_2019_chaco.pdf
26	15_ Plan de Monitoreo - Unitan.docx.pdf
27	15_ Plan de Monitoreo - Unitan.pdf
28	20. Summary_Plan-Forestal-Y-De-Manejo-2021.pdf
29	22. EIA_Pto. Tirol.pdf
30	24. EIA_Pto. Tirol.pdf
31	25. National Decree 455_21_COVID.pdf
32	28. Soil degradation.pdf
33	28. Soil degradation_p.4 and 5_from Casas 2017 - copia.pdf
34	30. INTA_Manual_Soil quality.pdf
35	31. INTA_Grassland degradation Chaco.pdf
36	32. Soil degradation.pdf
37	32. Soil degradation_p.4 and 5_from Casas 2017 - copia.pdf
38	32. SSPMICRO_informes_productivos_provinciales_chaco.pdf
39	33. SSPMICRO_informes_productivos_provinciales_formosa.pdf
40	34. CNA2018_resultados_definitivos.pdf
41	34. CNA2018_resultados_definitivos.xls
42	34. INTA_Manual_Soil quality.pdf
43	35. Gaitan et al_Grassland degradation Chaco.pdf
44	35.Código Rural de la Provincia del Chaco.pdf
45	36. SSPMICRO_informes_productivos_provinciales_chaco.pdf
46	37. Ley 25080_ inversiones para bosques cultivados.pdf
47	37. SSPMICRO_informes_productivos_provinciales_formosa.pdf
48	39.Código Rural de la Provincia del Chaco.pdf
49	40. AFoA_Forestry promotion payments.pdf
50	41. Barkl. et Meyer _Crecimiento_de_Schinopsis_quebracho-colorado_Schle.pdf
51	41. Ley 25080_ inversiones para bosques cultivados.pdf
52	42. SSPMICRO_informes_productivos_provinciales_chaco.pdf
53	43. SSPMICRO_informes_productivos_provinciales_formosa.pdf

54	44. AFoA_Forestry promotion payments.pdf
55	45. FVSA_FARN_Diagnostico-estado-de-implementacion.pdf
56	45. Gimenez_ Ríos (1999)_Crecimiento_de_Schinopsis_quebracho-colorado_Schle.pdf
57	46. FVSA_FARN_Diagnostico-estado-de-implementacion.pdf
58	46. SSPMICRO_informes_productivos_provinciales_chaco.pdf
59	47. CNA2018_resultados_definitivos.pdf
60	47. SSPMICRO_informes_productivos_provinciales_formosa.pdf
61	48. Industria foresto industrial maderera N°66.pdf
62	49. CNA2018_resultados_definitivos.pdf
63	49. FVSA_FARN_Diagnostico-estado-de-implementacion.pdf
64	50. CNA2018_resultados_definitivos.pdf
65	50. FVSA_FARN_Diagnostico-estado-de-implementacion.pdf
66	51. CNA2018_resultados_definitivos.pdf
67	52. CNA2018_resultados_definitivos.pdf
68	52. Industria foresto industrial maderera N°66.pdf
69	53. CNA2018_resultados_definitivos.pdf
70	53. INTA_MINagroindustria_Curso cubitaje.pdf
71	53. Normas de inventario forestal_INTA_Euca Chaco.pdf
72	54. CNA2018_resultados_definitivos.pdf
73	54. INBN2_Informe de la Región forestal Parque Chaqueño-.pdf
74	56. Atanasio et al 2013_volumetric equation.pdf
75	58. INTA_MINagroindustria_Curso cubitaje.pdf
76	58. Normas de inventario forestal_INTA_Euca Chaco.pdf
77	58. Plan de Monitoreo_Unitan.pdf
78	59. INBN2_Informe de la Región forestal Parque Chaqueño-.pdf
79	60. INTA_MINagroindustria_Curso cubitaje.pdf
80	60. Normas de inventario forestal_INTA_Euca Chaco.pdf
81	61. Atanasio et al 2013_volumetric equation.pdf
82	61. INBN2_Informe de la Región forestal Parque Chaqueño.pdf
83	62. Iglesias _ Burchek (2010).pdf

84	62. Loguesio et al 2001.pdf
85	63. Atanasio et al 2013_volumetric equation.pdf
86	64. INTI_CITEMA_Atencia, M.E (2003)_Schinopsis density.pdf
87	64. Wincketal2020_VariaciondelaDensidadbsicadeEgrandis.pdf
	Non Permanence Risk Report
88	Unitan_VCS-Non-Permanence-Risk-Report-Template-v4.0_clean.pdf
89	9. Notorial certificates
90	11. Contract extension Soc. Rural_signed commitment
91	24. Fire management equipment and training
92	Cálculos
93	1. Barberiset al(2012)Biolspsaustrales_Schinopsisbalansae.pdf
94	2. INTA_Preliminary report on hybrid Eucalyptus evaluation.pdf
95	3. Ley 25080_ inversiones para bosques cultivados.pdf
96	4. EIA_Pto. Tirol.pdf
97	4. Forest Management Plan.pdf
98	5. SecAgro_plan_de_gestion_de_riesgos_de_la_provincia_de_chaco.pdf
99	5. SecAgro_plan_de_gestion_de_riesgos_de_la_provincia_de_formosa.pdf
100	6. INTA_Updated values_Cattle_East chaco_Economic analysis_Boletín N° 29 MARZO 2019.pdf
101	6. INTA_VAN analysis cattle breeding.pdf
102	8. Pacto-Gestion-Forestal-Sostenible.pdf
103	16. MAyDS_ forest fires_2016.pdf
104	17. Forest Management Plan.pdf
105	19. SecAgro_plan_de_gestion_de_riesgos_de_la_provincia_de_chaco.pdf
106	19. SecAgro_plan_de_gestion_de_riesgos_de_la_provincia_de_formosa.pdf
107	Governance index.xlsx
	Interviews - remote audit

108	5 Lic MARIA BANDEO.jpg
109	6 Dir CLAUDIA GRONDA.jpg
110	7 Prof NATIVIDAD MARIA.jpg
111	8 Dir LILIANA ZACARIAS.jpg
112	9 Dir JUAN C LENTATI.jpg
113	VID 1_Altura_20220311_164410.mp4
114	VID 2_DBH_20220311_165013.mp4
115	VID 3_20220311_165528.mp4
116	VID 4_geocalización_20220311_170600.mp4
117	VID 5_Parcelsa_20220311_171741.mp4
118	1_Presentación Ariel CARO_20220310_154420.mp4
119	2_Presentacion Ariel CARO_20220310_154837.mp4
120	3_Instrumental Ariel CARO_20220310_155753.mp4
121	1. Presentación de vivero.mp4
122	2. Explicación vivero.mp4
123	3. 1r paso remojo de semillas.mp4
124	4. 2do paso_enmienda.mp4
125	5. 3er paso_cargado de bandeja.mp4
126	6. 4to paso_traslado.mp4
127	7. 5to paso_siembra.mp4
128	8. 6to_germinación.mp4
129	9. 7mo_crecimiento.mp4
130	10. cuidados de Euca.mp4
131	1 CARROCINO EMANUEL_Dir De Bosques.pdf
132	1.VID-20220307-WA0004.mp4
133	2 SERGIO SOTO_CORFOR.pdf
134	2.VID-20220307-WA0003.mp4
135	3 MARCOS GIORDANO_Direccion De Bosques.pdf
136	4 Picilli_Gladys_Pampa Almirón Mayor.jpg

137	5 Victor Franco replacement for higher hierarchy_Alejandro Garcia_Subsec Prod. Sostenable.pdf
138	LUCIANO OLIVARES_Sub Des FtaI_Chaco (EXTRA).pdf
139	VID-IVAN VERA.mp4
140	VECINO PAMPA ALMIRÓN\VID-JULIO MARTINEZ TITO.mp4
141	VID BOLDORINI DANTE 1-20220311-WA0070.mp4
142	VID BOLDORINI DANTE 2-20220311-WA0080.mp4
143	VID-ROLANDO RECALDE.mp4
New documentation	
144	Unitán VCS LTA ex-post

# APPENDIX: II FINDINGS

## CORRECTIVE ACTION REQUEST (CARs)

CAR ID:	01	Date: 20/12/2021
<b>Description of CAR</b>		
<p>The following inconsistencies were found according to section 1 “Project details”:</p> <ol style="list-style-type: none"> <li>1. In section 1.11 it is stated that 90% of the property is owned and 10% corresponds to leased area, meanwhile in section 1.7 (Ownership) it is stated that the surface that corresponds to leased is about 12%.</li> <li>2. In section 1.11 it is stated that 1.426 ha are going to be planted from 2021 to 2025 but previously it is stated that the surface to be planted within this period will be 1.464 ha.</li> <li>3. In table 1, the sum of 939,4 ha (already planted) with 1.426 ha (reported in table 1) does not correspond with the 2.403 ha expected.</li> <li>4. In section 1.11 it is stated that the values of <i>Schinopsis</i> are 866 plants/ha, but in the forest management plan and the spreadsheet, the plantation density for <i>Schinopsis</i> is 833plants/ha. Also, according to the leaving density for final harvest (468tree/ha), with the strength of the thinning (25% and 25%), the initial density should be 832 trees/ha.</li> <li>5. According to the management plan and other sections, the final harvest will be carried on between year 6 and 8, however, in section 1.11 it is stated that for <i>Eucalyptus</i> it will be carried on in the year 6.</li> </ol>		
<b>Country participant response</b>		Date: 27/12/2021
<ol style="list-style-type: none"> <li>1. 90% of the land currently planted and part of the project is owned and 10% leased, while regarding the whole Unitan management areas, 12,6% is leased land. More detailed is included in PDD.</li> <li>2. The correct value to be planted between 2021-2025 is 1,463.8. Value corrected in document.</li> <li>3. Value corrected based on geographic areas corrections: 891,78ha planted and 1,463.8 planned will add 2355.78ha for project.</li> <li>4. <i>Schinopsis</i> plant densities was corrected from 866 to 833 plants/ha, and final harvest density stated as: “around 468trees/ha”</li> <li>5. Harvest year for <i>Eucalyptus gxc</i> may vary between 6 to 8 years depending on growth, demand, and other conditions, but in order to be conservative, it was corrected to 6 years in PDD.</li> </ol>		
<b>Documentation provided by the Country Participant</b>		

<b>VVB Assessment</b>		<b>Date: 03/02/2022</b>
<ol style="list-style-type: none"> <li>1. The clarification provided and the modification of the PDD is deemed correct.</li> <li>2. The sections have been modified and deemed corrected.</li> <li>3. The sum of the planted surfaces until 2020 (table 1) has differences between the stated in the text (891,98ha) and the value stated in the response of finding 3 above. Furthermore, the total value of table 1 does not reflect clearly if is the total value from 2016 or 2020.</li> <li>4. The section has been modified and it is deemed corrected</li> <li>5. The information provided is deemed correct.</li> </ol>		
<b>Country participant response</b>	<b>1) Date: 15/02/2022</b>	
<ol style="list-style-type: none"> <li>1. -</li> <li>2. -</li> <li>3. Values corrected in both table and text to final value of 884.9 and description of table corrected to plan area 2016-2025</li> <li>4. -</li> <li>5. -</li> </ol>		
<b>VVB Assessment</b>	<b>Date: 16/03/2022</b>	
<p>3. the value has been modified and it is deemed corrected.</p> <p>Therefore, CAR 01 is closed.</p>		

<b>CAR ID:</b>	<b>02</b>	<b>Date: 20/12/2021</b>
<b>Description of CAR</b>		
<p>The following errors were found according to the cartography:</p> <ol style="list-style-type: none"> <li>1. The quality of figure 4 is very low and the coordinates system is not represented</li> <li>2. The quality of figure 6 is very low. Elements such as GRID, scale and a clearer legend are necessary.</li> </ol>		
<b>Country participant response</b>	<b>Date: 27/12/2021</b>	
<ol style="list-style-type: none"> <li>1. Figure 4 was change to a map with higher quality</li> <li>2. Figure 6 was replaced including elements and Unitán plots were corrected as were uncorrectly located.</li> </ol>		

<b>Documentation provided by the Country Participant</b>	
<b>VVB Assessment</b>	<b>Date: 03/02/2022</b>
<ol style="list-style-type: none"> <li>1. The quality of the image and the map have been increased. However, the coordinates system is not specified, just the numbers on the GRID. Now, two versions of figure 4 are represented.</li> <li>2. The figure have been modified and it is deemed correct.</li> </ol>	
<b>2) Country participant response</b>	<b>3) Date: 15/02/2022</b>
<ol style="list-style-type: none"> <li>1. The original map was deleted and coordinates system specified</li> <li>2. -</li> </ol>	
<b>VVB Assessment</b>	<b>Date: 16/03/2022</b>
CAR 02 is closed	

<b>CAR ID:</b>	<b>03</b>	<b>Date: 20/12/21</b>
<b>Description of CAR</b>		
There are inconsistencies between the table 3: "Detailed information on properties and current plantations within project boundary" and the sources provided through the GIS documentation. Some of the plots surface do not correspond with the evidence provided.		
<b>Country participant response</b>		<b>Date: 27/12/2021</b>
Inconsistences were corrected in table and KML document (Unitan project_V2)		
<b>Documentation provided by the Country Participant</b>		
New KML document		
<b>VVB Assessment</b>		<b>Date: 03/02/2022</b>
Please, provide the GIS documentation in Shp. Format and organized according to the province and departments.		

<b>Country participant response</b>	<b>Date: 15/02/2022</b>
New Shp format document shared in Google Drive folder with attribute tables according to request	
<b>VVB Assessment</b>	<b>Date: 16/03/2022</b>
The shp. information does match with the reported in the PDD. CAR 03 is closed	

<b>CAR ID:</b>	<b>04</b>	<b>Date: 20/12/2021</b>
<b>Description of CAR</b>		
<p>The next errors have been found according to the template following:</p> <ol style="list-style-type: none"> <li>1. According to the template, in section 2.2 (Local Stakeholder Consultation), the following information for AFOLU projects is missing: <ul style="list-style-type: none"> <li>• The project design and implementation, including the results of monitoring.</li> <li>• Risks (ok), costs and benefits.</li> <li>• The process of VCS val/ver and the VVB site’s visit, or in this case, remote audit.</li> </ul> </li> <li>2. According to the template, in section 2.5 (AFOLU specific - safeguards), details of the risk to local stakeholder resources due to project implementation and how the project will mitigate such risks are missing.</li> <li>3. According to the template, in section 5.2: “Complete the table below for all data and parameters to be monitored during the project crediting period (copy the table as necessary for each data/parameter” Parameters in section 5.2 should match with section 6.1. Any parameter used for ex ante estimations which will not be monitored or not used for ex post estimations should be in section 5.1.</li> </ol>		
<b>Country participant response</b>	<b>Date: 27/12/2021</b>	
<ol style="list-style-type: none"> <li>1. The requested information was specifically mentioned in the document in section 2.2</li> <li>2. Section 2.2 includes all the risk and mitigation analysis and was referenced in section 2.5</li> <li>3. Same parameters now shown in section 5.2 and 6.1. Vtree changed to 5.1 section</li> </ol>		
<b>Documentation provided by the Country Participant</b>		

<b>VVB Assessment</b>	<b>Date: 03/02/2022</b>
<ol style="list-style-type: none"> <li>1. The section has been modified and it is deemed corrected.</li> <li>2. The section has been updated and it is deemed corrected.</li> <li>3. The section has been updated and modified. However, the values for Schinopsis for years 2016 and 2017 are different between sections 5.2 and 6.1</li> </ol>	
<b>Country participant response</b>	<b>Date: 15/02/2022</b>
<ol style="list-style-type: none"> <li>1. -</li> <li>2. -</li> <li>3. Not able to identify difference</li> </ol>	
<b>VVB Assessment</b>	<b>Date: 16/03/2022</b>
<p>3. the incidence is deemed clear and correct.</p> <p>Therefore, CAR 04 is closed</p>	

<b>CAR ID:</b>	<b>05</b>	<b>Date: 20/12/21</b>
<b>Description of CAR</b>		
<p>The following errors were found according to the header 3: <i>application of the methodology</i>:</p> <ol style="list-style-type: none"> <li>1. As per VCS v4.1 section 3.13.1: Additionality shall be demonstrated and assessed in accordance with the requirements set out in the methodology applied to the project. Methodology AR-ACM0003 requires the use of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities"</li> <li>2. Some pictures which represent the land cover difference between the plantation date and 10 years before, were not taken actually 10 year previous to the plantation date</li> <li>3. Within section 3.4 "Baseline scenario", option b) has been selected, however This option is specific for the use of approved CDM standardized baselines. No standardized baseline has been approved for ARR in Argentina. Option a) should be used: Applying the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities".</li> <li>4. There are inconsistencies with the methodology used in the "additionality". In some cases, it is stated that methodology VT 0001 is the one used, while in other part of the document it is stated that the methodology used to calculate the additionality is the CDM methodology.</li> </ol>		
<b>Country participant response</b>		<b>Date: 27/12/2021</b>

<ol style="list-style-type: none"> <li>1. Tool used for additionality analysis has been changed to “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities” Version 1</li> <li>2. The map for Cabo Noroña property was changed to one for year 2006, the previous map date had been selected due to plantation date and not project start date.</li> <li>3. Section 3.4 was updated and option a) selected to analyse baseline scenario</li> <li>4. The methodology was corrected along the additionality analysis to the “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities” Version 1</li> </ol>	
<b>Documentation provided by the Country Participant</b>	
<b>VVB Assessment</b>	
<b>Date: 03/02/2022</b>	
<ol style="list-style-type: none"> <li>1. The information has been modified and it is deemed corrected.</li> <li>2. The date of the image has been modified and it is deemed corrected.</li> <li>3. The section has been modified and it is deemed correct.</li> <li>4. The information has been modified and it is deemed corrected.</li> </ol> <p>Therefore CAR 05 <u>is closed</u></p>	

<b>CAR ID:</b>	<b>06</b>	<b>Date: 20/12/2021</b>
<b>Description of CAR</b>		
<p>The table of <i>estimated baseline emissions</i> within section 4.4 has some sections wrong:</p> <ol style="list-style-type: none"> <li>1. The total value (210.340t CO<sub>2</sub>e) corresponds to the period 2016 to 2066 not to the period 2016-2056 as per reported in the table. Please, difference between the total ER and the limit of ER that can be reached through the LTA.</li> </ol>		
<b>Country participant response</b>		<b>Date: 30/12/2021</b>
<ol style="list-style-type: none"> <li>1. Difference mentioned in section 4.4 and LTA calculations reported in specific table</li> </ol>		
<b>Documentation provided by the Country Participant</b>		
<b>VVB Assessment</b>		
<b>Date: 03/02/2022</b>		

The information has been modified and it is deemed correct.

Therefore, **CAR 06** is closed

<b>CAR ID:</b>	07	<b>Date:</b> 20/12/2021
<b>Description of CAR</b>		
<p>The following errors have been found according to the section 6: "achieved GHG emission reductions and removals":</p> <ol style="list-style-type: none"> <li>Parameters in section 6.1 should be the same than the parameters in section 5.2.</li> <li>Parameters <math>W_i</math> and <math>S_i^2</math> do not appear in section 5.2</li> <li>In the parameter <math>R_i</math>, the formula <math>R_j = \frac{e^{(-1.085+0.9256 \times \ln b)}}{b}</math>, is not being used for <i>Schinopsis</i>.</li> <li>In section 6.5, "Net GHG Emission Reductions and Removals", the LTA GHG benefit shall be calculated at each verification event (2016-2021) not only for the year 2021.</li> </ol>		
<b>Country participant response</b>		<b>Date:</b> 27/12/2021
<ol style="list-style-type: none"> <li>Corrected in PDD</li> <li>Corrected in PDD</li> <li>Corrected in calculation spreadsheets</li> <li>The value is calculated for the whole verification event, as only one forest inventory took place in year 2021 there is not enough information to calculate removals per vintage. "2016-2021" is now displayed in the <i>year</i> cell</li> </ol>		
<b>Documentation provided by the Country Participant</b>		
<b>VVB Assessment</b>		<b>Date:</b> 03/02/2022
<ol style="list-style-type: none"> <li>The values for <i>Schinopsis</i> <u>are not</u> the same in both sections</li> <li>The section has been updated.</li> <li>The value is still with a different value than the formulae <math>R_j</math> from section 6.1</li> <li>The table should be broken down with as many rows as years shown in the period, showing each VCU available for each year. According to the template: "Specify breakdown of GHG emission reductions and removals by vintages where the intent is to issue each vintage separately in the VCS registry system."</li> </ol>		

<b>Country participant response</b>	<b>Date: 15/02/2022</b>
<ol style="list-style-type: none"> <li>1. Parameters checked and equal in both sections of PDD</li> <li>2. -</li> <li>3. Sorry for the inconveniences. Values corrected in calculation spreadsheet</li> <li>4. Given lack of desegregated data, it is not the project proponent objective to issue vintage separately in the VCS registry system so only one vintage for the whole period is specified in table.</li> </ol>	
<b>VVB Assessment</b>	<b>Date: 16/03/2022</b>
<ol style="list-style-type: none"> <li>1. Parameters modified and deemed corrected.</li> <li>3. The values have been modified and deemed corrected.</li> <li>4. Ok, it is deemed correct.</li> </ol> <p>Therefore, CAR 07 is closed</p>	

<b>CAR ID:</b>	<b>08</b>	<b>Date: 20/12/2021</b>
<b>Description of CAR</b>		
<p>The following inconsistencies were found regarding the spreadsheet calculations:</p> <ol style="list-style-type: none"> <li>1. According to the section 6.5 of the Joint PDD and MR document, the cell A56 within tab "Stratum 13" is incorrect.</li> <li>2. According to the section 6.1, the root-shot ratio is estimated using the equation provided in AR-TOOL 14. However, for <i>Schinopsis</i>, the default value 0.25 is used.</li> <li>3. In tab "Stratum 15 to 18", the specific allometric equation for trees that do not reach breast height is being used to estimate aboveground biomass. However, many of the trees are higher than 1.20 m</li> </ol>		
<b>Country participant response</b>	<b>Date: 27/12/2021</b>	
<ol style="list-style-type: none"> <li>1. Could not understand inconsistencies. Tab "Stratum 13" was deleted due to mistakes in plots considered</li> <li>2. The value was corrected in calculation spreadsheet</li> <li>3. Based on Iglesias &amp; Barchuk, 2010 findings, neck diameter or diameter at base height is considered more appropriate for young and/or small individuals. Following statistics rules, same equation was used for the whole plot: if individuals less than 1.3mt were found, neck diameter was measured and then same allometric equation used as it allows both DBH and neck diameter as parameter.</li> </ol>		

Documentation provided by the Country Participant	
Updated spreadsheet calculation	
VVB Assessment	Date: 03/02/2022
<ol style="list-style-type: none"> <li>1. Ok, it is clear.</li> <li>2. The value 0.25 is still being used while in section 6.1 is stated the usage of the formula.</li> <li>3. Ok, it is clear.</li> </ol>	
Country participant response	Date: 15/02/2022
<ol style="list-style-type: none"> <li>1. -</li> <li>2. Values corrected in new version of spreadsheet, sorry for inconveniences</li> <li>3. -</li> </ol>	
VVB Assessment	Date: 16/03/2022
CAR 08 is closed	

**CLARIFICATIONS (CLS)**

CL ID	01	Date: 20/12/2021
<b>Description of CL</b>		
<p>Please, clarify the following statements according to section 1, Project details:</p> <ol style="list-style-type: none"> <li>1. Within section 1.1., please state the monitoring period, indicating day, month and year of start and end.</li> <li>2. The difference between the length of the project, the crediting period, and the length for calculating the LTA. It is stated that the length of the project is 50 years, but the length of the project is the crediting period. it should be made clear that this period is to estimate the LTA only.</li> <li>3. Clarify the dates of the evidence of the ownership agreements of section 1.7</li> <li>4. In section 1.11, please provide also the already planted areas per species and year</li> <li>5. In section 1.11, please clarify the rotation periods for Eucalyptus</li> <li>6. Within section 1.11, in table 2 " Main technical characteristics of the VCS project", provide the source of the values and explain when the IMA is used.</li> <li>7. In section 1.11 it is stated that that once the plantation is reached the third year of age, cattle will be reintroduced. Explain whether will not be dangerous for the plantation the introduction of cattle in the 3rd year because of the size of the trees.</li> <li>8. The forest management plan states several planting densities for eucalyptus in its table 3. None of which match with 1.205 pl/ha stated for varieties of Eucalyptus. Additionally, the spreadsheet of ex-ante calculation considers 1.207 pl/ha. Clarify the planting densities.</li> </ol>		
<b>Country participant response</b>		Date: 27/12/2021
<ol style="list-style-type: none"> <li>1. Forest inventory date reference included in PDD section 1.1</li> <li>2. More detail included in section 1</li> <li>3. The date of the signed agreement was included in section 1.7</li> <li>4. The planted area plan has been included in table 1</li> <li>5. Rotation periods for <i>Eucalyptus gxc</i> were corrected to 6 years</li> <li>6. IMA is not used and so deleted from table of main technical characteristics in order to avoid confusion.</li> <li>7. It has been added in the text that it applies to Eucalyptus plantations, with higher growth rates</li> <li>8. The forest management plan states different planting densities for <i>Eucalyptus</i> in its properties, the ones used in the planted plots for the project are mainly 2500, 1250 with some cases of 1050 and 833. An average was considered for the ex-ante calculation based on area covered.</li> </ol>		

Documentation provided by the Country Participant	
VVB assessment	Date: 03/02/2022
<ol style="list-style-type: none"> <li>1. Ok, it is clear</li> <li>2. Ok, it is clear</li> <li>3. Ok, it is clear</li> <li>4. The table has been updated</li> <li>5. The information has been modified</li> <li>6. Ok, it is clear</li> <li>7. Ok, it is clear</li> <li>8. Ok, it is clear</li> </ol> <p>Therefore, CL 01 is closed</p>	

CL ID	02	Date: 20/12/2021
Description of CL		
<p>During the whole document it is referred to "Documentation available to VVB during validation" when something is referenced in the text. Please, provide the name of the file referenced and try to sort the files of the Drive server to make easier the search of the evidence.</p>		
Country participant response		Date: 27/12/2021
<p>Sorry for the inconveniences. Reference to Drive documents coincide with reference number in footnote. In some cases (annual budget, workplace safety standards, among other documents) they are available through request.</p> <p>Further detail was included in the document</p>		
Documentation provided by the Country Participant		
<p>New reference folder in Google Drive folder in order to include new references.</p>		

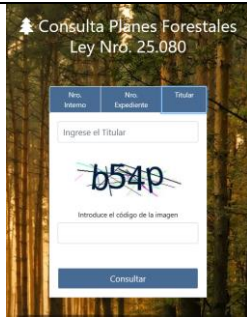
<b>VVB assessment</b>	<b>Date: 03/02/2022</b>
<p>The information has been updated and organized properly.</p> <p>Therefore CL 02 is closed</p>	

<b>CL ID</b>	03	<b>Date:</b> 20/12/2021
<b>Description of CL</b>		
Please, provide the following evidence:		
<ol style="list-style-type: none"> <li>1. The water tanks and the training courses for all personnel of fire prevention stated in section 2.1</li> <li>2. All the public consultation invitations of section 2.2</li> <li>3. The statement of section 2.4: " Due to the sanitary recommendations in the context of the COVID-19 pandemic, the local stakeholders consultation was held on 14th July 2021 on a virtual meeting modality" and reference it within the section.</li> </ol>		
<b>Country participant response</b>		<b>Date:</b> 28/12/2021
<ol style="list-style-type: none"> <li>1. According to the forest promotion law, based on forested area, the requirements for fire management equipment varies. A detailed table was included and more evidence referenced.</li> <li>2. All the invitations are referenced in PDD and will be available in drive folder (awaiting documents from project developer)</li> <li>3. A reference to Decree 455/21 was included stating the sanitary emergency extension in the country.</li> </ol>		
<b>Documentation provided by the Country Participant</b>		
New reference documents in shared Google Drive folder		
<b>VVB assessment</b>		<b>Date:</b> 03/02/2022
<ol style="list-style-type: none"> <li>1. The evidence provided is considered correct</li> <li>2. The evidence is not provided yet</li> <li>3. Ok, it is clear</li> </ol>		
<b>Country participant response</b>		<b>Date:</b> 15/02/2022
<ol style="list-style-type: none"> <li>1. -</li> <li>2. All invitations have now been uploaded to shared drive folder &gt;Findings n°1 &gt;ReferencesPDD findings N°1 &gt;26.Public consultation invitations</li> <li>3. -</li> </ol>		
<b>VVB Assessment</b>		<b>Date:</b> 16/03/2022

The evidence has been provided.

Therefore, CL 03 is closed

<b>CL ID</b>	<b>04</b>	<b>Date: 20/12/2021</b>
<b>Description of CL</b>		
<p>Please, provide clarifications of the following issues according of section 2, Safeguards:</p> <ol style="list-style-type: none"> <li>1. The link 25 "State habilitations available at <a href="https://www.foa.org.ar/directorio.php?type=2">https://www.foa.org.ar/directorio.php?type=2</a>"</li> <li>2. Provide further explanations about "communication channels" of section 2.5</li> <li>3. In section 2.1 it is mentioned that <i>up to 2020 there are 939,3 ha..., but previously it is said that there are 939,4 ha.</i></li> </ol>		
<b>Country participant response</b>		<b>Date: DD/MM/YYYY</b>
<ol style="list-style-type: none"> <li>1. This link does not correspond to the reference stated. This has been corrected in the document to <a href="https://inforestal.agroindustria.gob.ar/">https://inforestal.agroindustria.gob.ar/</a></li> <li>2. These refers to phone numbers, emails, digital mailboxes and physical mailboxes within the project´s Claims, Complaints and Concerns Mechanism. This information was incorporated in the PDD</li> <li>3. Value corrected based on last corrections</li> </ol>		
<b>Documentation provided by the Country Participant</b>		
<b>VVB assessment</b>		<b>Date: 03/02/2022</b>
<ol style="list-style-type: none"> <li>1. The link provided does not work. The webpage should be broken, because although entering the code of the image, the webpage does not move forward, requesting a new code.</li> </ol>		



6)

- 2. The information has been updated and it is deemed clear
- 3. The information has been updated and it is deemed correct.

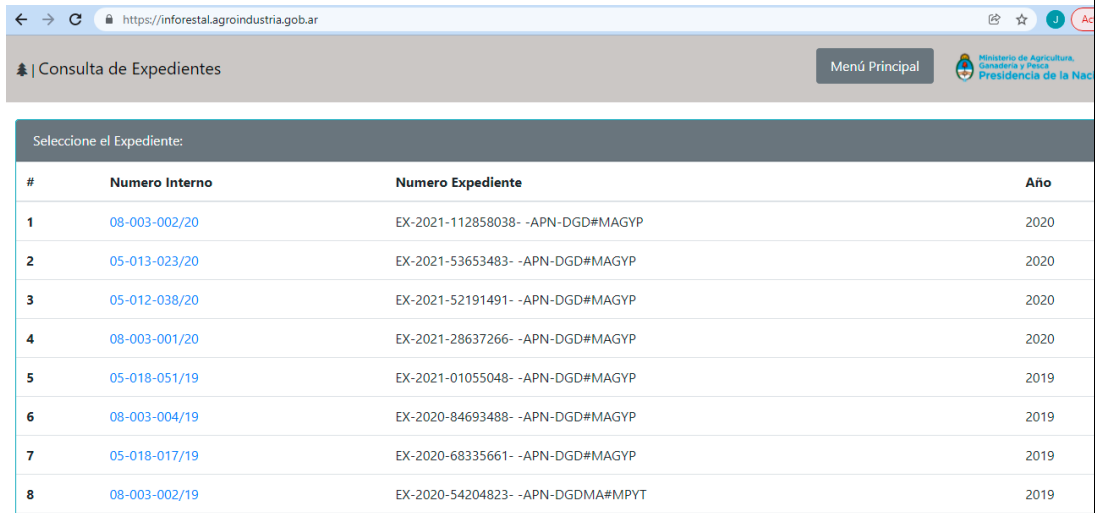
**Country participant response**

**Date: 15/02/2022**

- 1. You are correct, it is not working currently for document research, but using "Unitan S.A.I.C.A" under "Titular" the webpage works and allows to check all the documents available:

7)

8)



9)

**VVB assessment**

**Date: 16/03/2022**

CL 04 is closed

<b>CL ID</b>	<b>05</b>	<b>Date: 20/12/2021</b>
<b>Description of CL</b>		
<p>Please, explain the following statement of section 3.3: " The only emission source that must be included in the project boundary is methane and nitrous oxide emissions resulting from burning of woody biomass (excluding herbaceous biomass). No burning will be involved as part of project implementation. Hence, in conformance with the methodology, no emission sources are included in the project boundary"</p>		
<b>Country participant response</b>		<b>Date: 28/12/2021</b>
<p>Methodology AR-ACM0003 states "GHG emissions resulting from removal of herbaceous vegetation, combustion of fossil fuel, fertilizer application, use of wood, decomposition of litter and fine roots of N-fixing trees, construction of access roads within the project boundary, and transportation attributable to the project activity shall be considered insignificant and therefore accounted as zero."</p> <p>In this line, the only emission source that must be included in the project boundary is methane and nitrous oxide emissions resulting from burning of woody biomass (excluding herbaceous biomass). As no burning will be involved as part of project implementation, no emission sources are included in the project boundary.</p>		
<b>Documentation provided by the Country Participant</b>		
Empty space for documentation		
<b>VVB assessment</b>		<b>Date: 03/02/2022</b>
<p>Ok, it is clear. Therefore, CL 05 is closed</p>		

CL ID	06	Date: 20/12/2021
<b>Description of CL</b>		
<p>The following clarifications are mandatory according to section 4, Estimated GHG emission reductions and removals:</p> <ol style="list-style-type: none"> <li>1. Within section 4.2, provide description of the models used for determining the stem volume in the ex-ante calculations.</li> <li>2. According to the statement of section 4.2: "<i>For Eucalyptus, the equation used is the one recommended for Northeast region by the National Institution of Agricultural Technology (INTA) from Glade J (1984)</i>", and as per AR-TOOL14 Appendix 1 paragraph 7: For ex-post estimation, the allometric equation used must be demonstrated to be appropriate for the purpose of estimation of tree biomass by applying the tool "Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities", and the volume table or volume equation used must be demonstrated to be appropriate for the purpose of estimation of tree biomass by applying the tool "Demonstrating appropriateness of volume equations for estimation of aboveground tree biomass in A/R CDM project activities".</li> <li>3. Clarify the following statement of section 4.2 and specify the minimum DBH values: "<i>While the Schinopsis plantations are young and do not reach the minimum BDH values, a modified version of the allometric equation by Atanasio et al. 2013 will be used</i>"</li> <li>4. Deeper explanations about the final conclusion of GHG benefit and LTA at the end of section 4.4 are requested.</li> </ol>		
<b>Country participant response</b>		Date: 28/12/2021
<ol style="list-style-type: none"> <li>1. More information and references included in section 4.2</li> <li>2. More information included in section 4.2: As demonstrated in reference number 54, the equation used for Eucalyptus is the one promoted by the national agroindustry Ministry and INTA for, at least, the last 15 years for commercial plantation inventories.</li> <li>3. In the case of young plantations of Schinopsis, a genus with slow growth periods, neck diameter was measured instead of DBH as the maximum height in some individuals within the plot was less than 1.3mts. based on Iglesias &amp; Barchuk, 2010; Loguercio &amp; Defossé 2001; Pérez-Cordero &amp; Kanninen 2002 findings, where neck diameter or diameter at base height (DBH) is considered more appropriate for young and/or small individuals.</li> <li>4. More detail on period considered for LTA calculations (n) included in section 4.4, as well as specific calculation table for LTA.</li> </ol>		
<b>Documentation provided by the Country Participant</b>		

VVB assessment	Date: 03/02/2022
<ol style="list-style-type: none"><li>1. The section has been updated and it is deemed correct</li><li>2. The information provided is considered correct</li><li>3. The information provided is deemed correct</li><li>4. The section has been updated and it is deemed correct</li></ol> <p>Therefore CL 06 is closed</p>	

CL ID	07	Date: 20/12/2021
<b>Description of CL</b>		
<p>Please, provide answer to the following issues which have been found within the section 5 "Monitoring":</p> <ol style="list-style-type: none"> <li>1. Please, provide the source of density: INTA and INTI-CITEMA reports.</li> <li>2. According to the BEF, provide the evidence and demonstrate that values applied are conservative. Also within data/parameter BEF, in the comments section it is stated that for ex post estimation the conservative default value of 1.15 will be used unless transparent and verifiable information can be provided. In the ex-post spreadsheet the value used does not correspond with 1.15</li> <li>3. In the section 5.2, data and parameters monitored, please complete the tables when required and provide an estimated value for the data/parameter. For the monitoring equipment, identify equipment used to monitor the data/parameter including type accuracy class and serial number of equipment as appropriate.</li> <li>4. Please, clarify how is measured the value of DBH in the corresponding table of section 5.2.</li> <li>5. Within section 5.2, Vtree parameter should be reported within section 5.1 due to is just used for ex-ante calculations. Also provide the source of this parameter and justify the correction factor of 30%</li> <li>6. Clarify when are used the measurements of ND and why they are not reported in the spreadsheet document.</li> <li>7. Please, clarify how the height of the trees is measured. Also, provide within the spreadsheet document the whole height population value which have been measured instead of the mean of heights.</li> <li>8. As required by the template, please provide further information of section 5.3 Monitoring Plan according to the following parameters: <ol style="list-style-type: none"> <li>8.1. The methods used for generating/measuring, recording, storing, aggregating, collating and reporting data and parameters. Where relevant, include the procedures for calibrating monitoring equipment.</li> <li>8.2. The policies used for oversight and accountability of monitoring activities.</li> <li>8.3. The procedures used for internal auditing and QA/QC.</li> <li>8.4. The procedures used for handling any internal auditing performed and any non-conformances identified.</li> </ol> </li> <li>9. Provide more details about the monitoring activities due to the monitoring plan developed does not provide specific detail on the procedures to follow for measurement in the sample plots.</li> </ol>		
<b>Country participant response</b>		Date: 28/12/2021
<ol style="list-style-type: none"> <li>1. Reference provided in PDD. Reference 64 in Google Drive folder</li> <li>2. Value was corrected for <i>Eucalyptus</i> and commented in PDD.</li> <li>3. Information included in table of section 5.2</li> </ol>		

<ol style="list-style-type: none"> <li>4. Clarification included in PDD section 5.2</li> <li>5. Vtree was moved to 5.1 and clarifications included</li> <li>6. More information on ND measurements included. They are reported in the spreadsheets but only in the case of Schinopsis individuals, reported under "DCue(cm)"</li> <li>7. More information on heights measurements included in PDD. In Chaco plots, only 6-10 trees within the plot are measured, the rest estimated using a regression equation. All measurements will be included in shared Google Drive folder under "6. Inventory reports" ( Awaiting measurements from project developer)</li> <li>8. Awaiting further information from project developer</li> <li>9. Awaiting further information from project developer</li> </ol>	
<p><b>Documentation provided by the Country Participant</b></p>	
<p>New references in shared Google Drive folder</p>	
<p><b>VVB assessment</b></p>	<p><b>Date:</b> 03/02/2022</p>
<ol style="list-style-type: none"> <li>1. The evidence provided are deemed correct</li> <li>2. Please, provide the evidence for the Eucalyptus source. Also explain why 2 is a conservative value for Schinopsis</li> <li>3. The section has been updated and it is deemed corrected</li> <li>4. The section has been modified and deemed correct</li> <li>5. The evidence provided is deemed correct</li> <li>6. Ok, it is clear</li> <li>7. Please, provide the heights of 6-10 trees measured per plot.</li> <li>8. Still waiting for the response</li> <li>9. Still waiting for the response</li> </ol>	
<p><b>Country participant response</b></p>	<p><b>Date:</b> 10/03/2022</p>
<ol style="list-style-type: none"> <li>1. -</li> <li>2. Eucalyptus value for ex-ante estimations changed to conservative value 1.15 according to AR- tool 14. Value for Schinopsis is explained in BEF value table in section 5.1. The value for ex-ante calculations is considered conservative as according to IPCC 2003 guidelines BEF2 values for broadleaf tropic climates is 2-9 (3,4 average) but a lower value was considered, using temperate broadleaf values instead of tropical, taking into consideration the project is subtropical climate and that Schinopsis diameter is less than 10cm during the first 20 years. So, we are reducing and maintaining BEF to 2 (temperate broadleaf average and minimum range for tropical broadleaf) throughout the rotation. In ex-post estimations, allometric equations are used and BEF value is not considered as calculation results include total aerial biomass.</li> <li>3. -</li> <li>4. -</li> <li>5. -</li> </ol>	

<p>6. -</p> <p>7. All height measured for Chaco province forest inventory shared in Google drive folder under Findings N°2&gt;Chaco Forest inventory data</p> <p>8. More information regarding monitoring plan parameters control and data storing included</p> <p>9. Monitoring stage comprised gathering information, performing calculations and making estimations of GHG removals. In this monitoring event, it is ensured that commonly established principles of forest inventory and management were put into practice and detailed both in the Monitoring Plan and Forest inventory reports.</p> <p>10) In the case of the Monitoring Plan it is a document prepared by Unitán with the purpose of specifying the procedures and standardization for the measurement of each variable. This document is in Spanish and a summary of it was redacted to prepare the Terms of Reference for third parties to be hired.</p> <p>11) More information on the monitoring activities included in the monitoring plan and to be shared during interviews with third parties in charge of activity.</p>	
<b>VVB assessment</b>	<b>Date: 16/03/2022</b>
<p>2. The explanations is deemed correct.</p> <p>7. The information provided is deemed correct.</p> <p>8. The section has been updated and deemed correct.</p> <p>9. Ok, it is clear.</p> <p>Therefore, CL 07 is closed</p>	

<b>CL ID</b>	<b>08</b>	<b>Date: 20/12/2021</b>
<b>Description of CL</b>		
<p>Further information is required within section 6: Achieved GHG emission reductions and removals.</p> <ol style="list-style-type: none"> <li>1. Within section 6.3, equations 12, 13 and 14 from tool 14 are missing</li> <li>2. In section 6.3 it is stated the following: <i>In the case of young Schinopsis plantations, the equation used is provided by the National Institution for Agricultural Technology (INTA), based on a sample of 15 trees at Almirante Brown Department, Chaco for Schinopsis quebracho colorado Schlencht given the lack of data for Schinopsis balansae, but can be considered extrapolated to young Schinopsis.</i> 12) Provide also justification for the other two equations.</li> <li>3. Provide the uncertainty estimation and results within section 6.5 GHG Emission Reduction and Removals.</li> </ol>		
<b>Country participant response</b>		<b>Date: 6/1/2022</b>
<ol style="list-style-type: none"> <li>1. Equations included in section 6.3</li> <li>2. Justification included in section 6.3</li> <li>3. Ctree uncertainty estimation included in 6.5 based on AR tool 14 equation 15 and appendix 2.</li> </ol>		
<b>Documentation provided by the Country Participant</b>		
Updated Calculation spreadsheet.		
<b>VVB assessment</b>		<b>Date: 03/02/2022</b>
<ol style="list-style-type: none"> <li>1. The equations have been added</li> <li>2. The information provided is considered clear</li> <li>3. The section has been updated</li> </ol> <p>Therefore CL 08 is closed</p>		

<b>CL ID</b>	<b>09</b>	<b>Date: 20/12/2021</b>
<b>Description of CL</b>		
<p>The following issues have been found according to the spreadsheet documentation:</p> <ol style="list-style-type: none"> <li>1. Provide the calculation of stem volumes in stratum 1 to stratum 12</li> <li>2. Provide clarification on the procedure used for monitoring of <i>Schinopsis</i> plots and the determination of variables used for biomass estimation.</li> <li>3. In the ex-ante document, the buffer pool is reported as 16% but in section 6.5 of the joint PDD and MR it is reported as 10%</li> <li>4. Provide the source of the growth values of mean heights within tab "Euca 1207 growth"</li> </ol>		
<b>Country participant response</b>		<b>Date: 29/12/2021</b>
<ol style="list-style-type: none"> <li>1. The calculations are based on volumetric equation referenced in section 6.3 Glade J (1984)1: <math>VTREE (m3) = \exp(-3.11072 + 1.83316 \cdot LN(DBH) + 1.07762 \cdot LN(H))</math></li> <li>2. Awaiting further information from project developer</li> <li>3. Value corrected to 10% in ex-ante spreadsheet</li> <li>4. Mean height values are default values from the SIS EUCALIPTO simulation tool. Where the user loads information on initial densities, pruning and tillage ages and % of trees, as well as site index and survival rate.</li> </ol>		
<b>Documentation provided by the Country Participant</b>		
13)		
<b>VVB assessment</b>		<b>Date: 03/02/2022</b>
<ol style="list-style-type: none"> <li>1. Please, show the calculations with the formula to enable the following of the calculations.</li> <li>2. Still waiting for the response</li> <li>3. The section has been modified and it is deemed corrected</li> <li>4. the section has been clarified</li> </ol>		
<b>Country participant response</b>		<b>Date: 12/03/2022</b>
<ol style="list-style-type: none"> <li>1. Calculations included in spreadsheet and calculator spreadsheet used for Chaco plots included in shared Drive folder (Findings N°2&gt;Chaco Forest inventory&gt;Euca_Cubing template spreadsheet).</li> </ol>		

2. All plots are georeferenced, using first tree in row 1 in direction to row 2. This first tree is marked with a small metallic sign in order to facilitate future monitoring. All other three trees in plot corners are marked with aerosol, visible only for monitoring purposes.

14) In *Schinopsis*, a genus with slow growth periods, neck diameter was measured instead of DBH if the maximum height of some individuals within the plot were less than 1.3mts. Based on Iglesias & Barchuk, 2010; Loguercio & Defossé 2001; Pérez-Cordero & Kanninen 2002 findings, neck diameter or diameter at base height (DBH) is considered more appropriate for young and/or small individuals. All heights values are measured.

15) In order to calculate plot biomass, the equation by Atanasio et al. (2013) is used  
 $DW = 0,05619 * ND^{2,7152}$ .

Where:

DW = dry weight (kg)

ND= neck diameter (cm)

16) Given the results of the calculation are reported in kgdm, only R parameters is used in order to estimate total biomass to be considered.

3. -

4. -

**VVB assessment**

**Date:** 16/03/2022

1. The information provided is deemed clear and correct

2. Ok, it is clear

Therefore CL 09 is closed

**FORWARD ACTION REQUEST (FARS)**

<b>FAR ID</b>	<b>01</b>	<b>Date: 16/03/2022</b>
<b>Description of FAR</b>		
Due to the pandemic restrictions, the current validation/verification process has been performed remotely. However, for the next verification process, an on-site audit will be mandatory.		
<b>Country participant response</b>		<b>Date: dd/mm/yyyy</b>
<b>Documentation provided by the Country Participant</b>		
<b>VVB assessment</b>		<b>Date: dd/mm/yyyy</b>