# XICO2E: MEXICAN REFORESTATION PROJECT

Document Prepared by AENOR INTERNATIONAL S.A.U

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Summary:

AENOR International S.A.U (AENOR) was contracted by FORLIANCE GmbH to conduct the project Validation and Verification. It is a Grouped project developed in the sectoral scope 14. Agriculture, Forestry and Other Land Uses (AFOLU) within the category afforestation, reforestation and/or revegetation (ARR) type. The validation and verification audit process were intended to assess the conformance of the project with the VCS rules and the methodology applied to the project. According to the project document and relevant information, the grouped project aims to restore degraded areas through the plantation of *Gmelina arborea* in the states of Tabasco and Tamaulipas in Mexico.

XiCO2e: Mexican Reforestation Project is a grouped project, the project activity is proposed by FORLIANCE GmbH and ALA BOOL TRUST SA DE CV, they are the Project Proponent and have signed a contract with PROXYLO, a private company, that is dedicated to the industry transformation of *Gmelina arborea* wood products in Mexico. The Grouped Project zone is located in the municipalities of Cardenas, Huimanguillo, and Cunduacan in Tabasco state and in the municipalities of Gonzalez and El Mante in Tamaulipas state. The proposed restoration grouped project intends to generate GHG emission removals by restoring the ecosystems through the target in the long term of 9,000 hectares of *Gmelina arborea*. The project area before implementing the project activity had degraded and abandoned agricultural areas.

The total crediting period for grouped project is 30 years, starting on January 11, 2017 and ending on January 10, 2047. The total and the annual average estimate of GHG emission reductions or removals are 95,701 tCO2e and, 3,190 tCO2e respectively, therefore it is considered a project according to VCS´s scale. Given that, this is a grouped project, the calculation has been presented only for the first project activity instances.

The grouped project has one Project Activity Instance. The first project activity instance of the XiCO2e project includes 1,014.82 hectares planted in the state of Tabasco and 204.18 hectares planted in the state of Tamaulipas southeast and northeast Mexico, respectively, for a total project area of 1,219.01 ha. The total net greenhouse gas emissions and removals for the monitoring period (11th January 2017 and ended on 30th July 2022) are 99,531 tons of CO2e, and once the buffer allocation is applied (15%), the VCUs eligible for issuance are 84,598.

The established period determined by the estimated LTA GHG benefit is 30 years, considering the last harvest/cutting cycle, this LTA rule will apply to the entire PAI area, only if, the harvesting activity exceeds the 20% threshold for a particular PAI. The long-term average GHG benefit is 95,701 t CO2e.

The Project Description and Monitoring Report contains complete information about the project activities, project start date, project crediting period, project scale, project location, project boundary, baseline scenario, additionality and monitoring. The Joint PD&MR was designed to conform to the VCS Standard v.4.4, specifically as an ARR project under the AFOLU project types (Appendix 1 Eligible AFOLU Project Categories - VCS St 4.4). The project applied the approved CDM Afforestation and Reforestation methodology: AR-ACM0003 A/R Large-scale Consolidated Methodology “Afforestation and Reforestation of lands except wetlands” - Version 2.0.

The purpose and scope of validation involve documental review, on-site visit, interviews and consultation of secondary information sources, findings statements, feedback with the project owner and elaboration of the final report. In order to carry out the validation, Verified Carbon Standard

Program Guide v4.3, dated 17 January 2023 were taken into account and following the guidance provided in the VCS Validation and Verification Manual (8 October 2016, v3.2).

During the validation/verification process, the AENOR team identified 23 findings (11 Clarification Requests and 12 Corrective Action Request) that were addressed satisfactorily by the project proponent during the validation and verification process to ensure that the Project Description fulfills the VCS program requirements.

- Finally, the validation and verification process results in a conclusion by AENOR, after collecting sufficient evidence to fully evaluate the validation and verification criteria and determine that the project is implemented in accordance with the requirements of the VCS program, which is noted in the Joint Project Description and Monitoring Report (Version 6.1. November 27, 2023). The removals were calculated correctly, based on the applied methodology.

# CONTENTS

# 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.

As a result of those processes, the VVB prepare a validation and verification conclusion and a written requests of the registration of the project as a VCS project activity.

## 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 against the Verified Carbon Standard, the identified methodology and associated tools for the crediting period from January 11th, 2017, and ends on January 10th, 2047 and the first verification event from 11th January 2017 and ended on 30th July 2022.

The objectives of this audit included validation and verification of the project's 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. As well as the requirements described in the selected methodology (AR-ACM0003 "Afforestation and Reforestation of lands except wetlands" - Version 02.0.).

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 that 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 4.4, including the following documents:

- VCS Standard v4.4
- VCS Program Guide v4.3

- VCS Program Definitions v4.3
- VCS AFOLU Non-Permanence Risk Tool v 4.0
- Long-term Average GHG Benefit

AENOR, carried out the audit based on its procedures for carrying out validation, verification and certification audits of VCS project activities focused on the identification of significant risks for the generation of credits, and validation of mitigation.

## 1.3 Reasonableness of Assumptions and Level of Assurance

Validation/Verification process was based on risk in compliance with ISO 14064-3-2019. The level of confidence is 95% of the validation and verification statement, agreed with the project proponent, as well as the manner and timing of gathering evidence or proof to obtain a reasonable level of confidence, in accordance with the provisions of the applicable requirements. Likewise, materiality is less than 5% for the project.

AENOR ensures the conformance of the project with VCS rules by considering a materiality threshold of less than 5% in terms of errors, omissions, and misrepresentations relative to total reported GHG emission removals.

AENOR can confirm that the project was included in the project portfolio with a validation status prior to the opening meeting with the project proponent, and the opening meeting will represent the start of the validation and verification process. And that the 30-day public comment period ended with no comments received.

Based on audit findings, a positive assessment statement provides reasonable assurance that the project's GHG assertions meet assumptions, minimize limitations, and methods have been presented that support a VVB statement.

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 by AENOR's qualification scheme for VCS validation and verification.

The validation team consists of the personnel described in Table 1.

**Table 1. Validation Team**

| Role/Qualification | Last Name | First Name | Country | Type of involvement | | |
|---|---|---|---|---|---|---|
| | | | | Desk review | Site visit/Interviews | Reporting |
| Lead Auditor Sectoral Expert | Serna | Juan Camilo | Colombia | X | X | X |

| Role/Qualification | Last Name | First Name | Country | Type of involvement | | |
|---|---|---|---|---|---|---|
| | | | | Desk review | Site visit/Interviews | Reporting |
| Technical reviewer | Bermejo | Daniel | Spain | - | - | X |

The audit team is qualified in accordance with AENOR qualification scheme for VCS validation and verification. They have large expertise in forestry project, relevant social and ecological a biodiversity expertise.

## 1.4 Summary Description of the Project

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| *Project Proponent(s):* | FORLIANCE GmbH and ALA BOOL TRUST SA DE CV are the Project Proponent and have signed a contract with PROXYLO, who is the technical partner to establish and manage the *Gmelina arborea* plantations in Mexico. |
| *Title of project activity:* | XICO2e: Mexican Reforestation Project |
| Project area: | The Grouped Project zone is located in the municipalities of Cardenas, Huimanguillo, and Cunduacan in Tabasco state and in the municipalities of Gonzalez and El Mante in Tamaulipas state. The proposed restoration grouped project intends to generate GHG emission removals by restoring the ecosystems through the target of 9,000 hectares of *Gmelina arborea*. The project area before implementing the project activity was degraded agricultural areas.<br><br>The sequestration and storage of carbon consider several carbon pools, such as aboveground biomass, belowground biomass, litter, dead wood, and soil organic carbon.<br><br>The grouped project has one Project Activity Instance (PAI). The first project activity instance of the XiCO2e project: includes 1,014.82 hectares planted in the state of Tabasco and 204.18 hectares planted in the state of Tamaulipas southeast and northeast Mexico, respectively, for a total project area of 1,219.01 ha. The total net greenhouse gas emissions and removals for the monitoring period (2017- |

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| | 2022) are 99,531 tons of CO2e, and once the buffer allocation is applied (15%), the VCUs eligible for issuance are 84,598. |
| *Methodology* | AR-ACM0003 A/R Large-scale Consolidated Methodology "Afforestation and Reforestation of lands except wetlands" - Version 2.0. |
| *Baseline and monitoring* | The project area before implementing the project activity was degraded agricultural areas. The baseline scenario is defined as continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands) |
| *Project activity* | The total crediting period for grouped project is 30 years, starting on January 11, 2017 and ending on January 10, 2047. The total and the annual average estimate of GHG emission reductions or removals are 95,701 tCO2e and, 3,512 tCO2e respectively. |
| *Sectoral scope(s)* | VCS Sectoral Scope 14 – Agriculture, Forestry and Other Land Uses under ARR project activities. |
| *Location of the project activity* | Mexico, Tabasco and Tamaulipas States. |
| *Project crediting period* | 30 years. |
| *Crediting period start date* | January 11, 2017 |
| *Crediting period end date* | January 10, 2047 |
| *Monitoring period* | 11 January 2017 and ended on 30th July 2022 |

# 2 VALIDATION AND VERIFICATION PROCESS

## 2.1 Method and Criteria

Validation/verification process consisted of the following four phases: i) desk review and examination of secondary sources of applicable information (01/03/2023 – 15/03/2023), ii) field assessment (20/03/2023 – 24/03/2023), iii) resolution of findings (10/04/2023 – 06/09/2023) and iv) issuance of the final validation and verification report with conclusions (06/09/2023 – 30/11/2023). The

validation/verification process is conducted in accordance with the criteria established by the VCS standard.

The validation/verification was performed through a combination of document review and interviews with relevant personnel, 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 were 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 on the conditions observed for monitoring to detect the processes with the highest risk of material discrepancy.

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 the 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.

AENOR reproduced and verified 100% of spreadsheets /2/ for the estimations of ERRs for the total crediting period. The project area and the different properties where the reforestation works have been carried on were 100% checked using the GIS database /6/.

AENOR carried out a deep and meticulous review of the spreadsheets /2/ to verify the correct application of the methodology (formulae, equations) and checked that data required for 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 and removals 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 the 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 Joint Project Description and Monitoring Report are correct and ensures that it 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 made available before and during the 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 spreadsheets, 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 on site visit, the PP revised the initial joint project description and monitoring report document V1 and developed a final version V6.1.

The validation/verification team conducted a desk review that included the following

• A review of the Joint Project Description and Monitoring Report /1/, the applied methodology, including applicable tools, modules, monitoring plan and quality assurance and quality control procedures.

• A review of the data and information submitted to validation its integrity.

• A review of the data and information submitted in the monitoring period to verification its integrity

• An evaluation of compliance with the applicable regulations to validate the regularity of the activity.

• An evaluation of documents proving the land tenure and / or carbon rights of the project/3/4/5/.

• An evaluation of the controls envisaged to guarantee the quality of the information and the documentary control of the project.

• Other supporting documents (cartography, spreadsheets, etc.).

• A list of the reviewed documentation during the validation is presented in APPENDIX I.

• As part of the desk review, an office audit was carried out on the main points of the project that require attention (APPENDIX II, present evaluations of findings).

## 2.3 Interviews

The on-site visit to the project area was carried out between 20/03/2023 to 24/03/2023. Interviews were conducted with the project technical team. A stakeholder consultation was carried out to assess the understanding of the program requirements and review the Monitoring Plan and the applied methodology. Consequently, during the interviews with the project proponent, it was possible to validate the particular procedures used to determine the project implementation and carbon estimations.

People interviewed were those directly affected or involved in the project activity and, in some cases, were just indirectly affected. Finally, some activities stated within the Joint PD&MR/1/ were also reviewed during the on-site visit and validate with the information provided. During the on-site visit, the following people were interviewed (see Table 2 below).

**Table 2. Interviews**

| Date | Interviewee | Organization/ Community | Subject |
|---|---|---|---|
| 20-03-2023 to 24-03-2023 | Germánico Galicia García<br>Consuelo Figoroa | Ala-BoOl TRUST SA DE CV | Biomass monitoring in Gmelina arborea planting and establishment models |
| 20-03-2023 to 24-03-2023 | María Jesús Toledo | FORLIANCE GmbH | Operational management structure; crediting period; formulation and operation of the project activity; QA/QC procedures; records and storage data; ER calculation; field measurements and GIS pack. |
| 20-03-2023 to 24-03-2023 | Rafael Eduardo Riaño<br>Miguel B. Sánchez<br>Jordan Cárdenas | Proxylo SAPI de CV | Project participation agreements, governance, technical and operational capacity for project implementation<br>Monitoring of implemented activities |
| 24-03-2023 | Juan José Masó | Proxylo SAPI de CV | Project participation agreements, and land rights and tenure |

| Date | Interviewee | Organization/ Community | Subject |
|---|---|---|---|
| 21/03/2023 – 22/03/2023 | Carlos M. García<br>Alejandro Rivera | COMESFOR | Stakeholders |
| | Víctor J. Zepeta | CANAFOR | |
| | Carla Bustinos | SEDEC | |

Furthermore, several interviews have been carried on with the PP to validate different supporting material such as the GIS, the precedence of the data or the ownership of the farms. All the stakeholder groups identified in the PD have been interviewed by different means as reported in the table above.

## 2.4 Site Visits

As a part of the project validation and verification, an on-site inspection was carried out through visits to project area (Instances 1) locations in the states of Tabasco and Tamaulipas during the days of March 20 to 24, 2023. The objective of the on-site visit focused on the following elements:

- Ensure that the geographic area of the project, as reported in the Project Design document and its consistency with the annexes (GIS)/6/.
- Observe status of the project and forest activities.
- Perform a risk-based review of the project area to cover the project boundary.
- Verifying possible substantial discrepancies between the activities described in the monitoring plan and those carried out on site.
- Validation of biomass aboveground in the proposed planting packages/10/11/12/13/14/15/.
- Perform a risk-based review of the project area to ensure that the project is in conformance the eligibility requirements of the VCS requirements and the applicability conditions of the methodology.
- Confirmation the designed quality control and quality assurance procedures.
- Validation and verification of data and parameters used for ex ante estimates.

The project site location was confirmed with GPS. The sites visited during the validation are provided in Table 3.

**Table 3. Site inspection**

| Site | Latitude | Longitude | Photo | Observations |
|---|---|---|---|---|
| 17-66-34R Carmela R Plot - Tabasco | 18° '34.53"N | 93°27'17.59" W |  | Validation of eligible areas and establishment of trees in Tabasco state. |
| Ezequiel De Dios López - Tabasco | 18°2'52.04"N | 93°36'39.23" W |  | Validation of eligible areas and establishment planting model - 2019 Gmelina arborea |
| Plot 17-27-23 - Tabasco | 18° 9'5.12"N | 93°34'51.01" W |  | verification of plot measurements, measurement protocols, equipment used and QA/QC. |
| Plot 21-20-02 - Tamaulipas | 22°27'28.38" N | 98°38'27.81" W |  | Validation of the areas for the establishment and verification of plot measurements, measurement protocols, equipment used and QA/QC |

## 2.5 Resolution of Findings

Findings established during the validation can be seen as a non-fulfilment of validation criteria or an identified risk to fulfilling the project objectives. The findings could take the form of a Corrective Action Request (CAR), Forward Action Request (FAR) or Clarification Request (CL).

A Corrective Action Request (CAR) shall be raised if one of the following situations occurs:

- Non-compliance with the program requirements or applied methodology is found in the project description and/or has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impact the number of emission reductions;

A Clarification Request (CL) shall be raised if the information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A Forward Action Request (FAR) is issued for actions if the project implementation, monitoring and reporting require attention and/or adjustment for the following verification period.

As a result of this assessment, there 23 findings were found, eleven (11) Clarification Requests (CLs) and twelve (12) Corrective Action Requests (CARS). in the validation and verification process. CAR and CLs were closed based upon adequate responses from the project proponent, which meet the applicable requirements; findings were reassessed before their formal acceptance and closure. All results, including the issues raised, the responses from the project proponent and the conclusions, are contained in APPENDIX I. All required changes are observable in Joint PD&MR /1/ and the relevant annexes.

Consequent to the resolution of findings, the AENOR auditor concluded that the Joint PD&MR /1/ and the spreadsheets /2/ are accurate and complete and provides an understanding of the nature of the project and the project's benefits on climate. In addition, the project proponent demonstrates how emission removals are reached, and monitored.

### 2.5.1 Forward Action Requests

No forward action requests were raised for the benefit of subsequent project audits.

# 3 VALIDATION FINDINGS

## 3.1 Project Details

As demonstrated below in each one of the following sections, AENOR has assessed all the topics relevant to the project details. It has been the crosschecking of the evidence, the literature provided, the interviews and the information of the Joint PD&MR/1/ what allows AENOR to confirm that the project description is accurate, complete and provides and understanding of the nature of the project.

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

The sectoral scope of this project is 14, Agriculture, Forestry, and Other Land Uses (AFOLU). Within this category, the project is of the Afforestation, Reforestation, Revegetation (ARR) type. The structure is a grouped project.

The forest cover was evaluated over the previous 10 years (2007-2017)/6/. The areas that present non-forest coverage were selected as eligible for ARR activities, while the remaining areas were defined as ineligible. For the eligibility mapping analysis, sufficiently reliable information was used, such as the most recent data available from the analysis of the land-use history of the project area by satellite images /6/. Additionally, through the multidimensional survey and field verification, the results of the digital processing were ratified.

The project does not affect native ecosystems, nor does it include activities that degrade hydrological functions. XICO2 Project required the eligibility analysis of the hold project area. The core of the analysis was to identify no forest areas remaining as such from 2007 to 2017. eligibility analysis was developed to determine the eligible area (ha) that can be included as part of the project. The start year of the activities is 2017 and the forest cover was evaluated over the previous 10 years (2007-2017). The areas that present non-forest coverage were selected as eligible for ARR activities, while the remaining areas were defined as ineligible.

Document “Eligibility analysis for PROXYLO project Mexico. GIS process” presents the eligibility analysis, which describes the process from interpreting satellite images to reviewing the quality of the information. Due to the lack of available usable satellite image a compositing approach was used in Google Earth Engine (GEE). This method allows to make use of several non-ideal acquisitions by combining them.

The total area analyzed for the Tabasco block was 1,570.98 ha, the plots are divided into forest plantations, infrastructure, nature reserve areas among other uses. Of the total area, 81.4% corresponds to forest plantations, and 76% of these areas meet the criteria of eligible areas and retroactivity.

The total area analyzed for the Tamaulipas block was 230.33 ha, similar to the Tabasco block, 93.3% of the total area is used as forest plantations, and 88.5% of these areas meet the criteria for eligible areas and retroactivity.

Based on the evidence provided, the meetings with clients to reproduce approaches and assumptions as well as the cross-checks with the applicable methodologies and tools, AENOR deems that project type, technology, measures implemented, assessment of the eligibility of the project is detailed in a transparent manner in the Joint PD&MR/1/ and provide a clear overview of the project. Its content was confirmed by means of document review and interviews to validate the accuracy and completeness of the project description.

The project will achieve greenhouse gas (GHG) emissions reductions through the reforestation with *Gmelina arborea* plantations. The establishment of introduced and native species within commercial forestry plantations is governed by the General Forestry Development Law and its accompanying

regulations enforced by the Mexican Ministry of Environment and Natural Resources (SEMARNAT) and the National Forestry Commission (CONAFOR).

As for non-native species, CONAFOR issues an annual list of species approved for commercial forestry plantations, including Eucalyptus sp. (eucalyptus), Tectona grandis (teak), Gmelina arborea (Gmelina), and Hevea brasiliensis (rubber) under the support concept of Commercial Forest Plantation (PFCA).

According to Vanoye-Eligio et al., (2020)[11], *Gmelina arborea* was introduced for the first time in Mexico in 1971 by the National Institute of Forestry, Agricultural and Livestock Research (INIFAP) in the "El Tormento" Experimental Field in Escárcega, Campeche, where it has dispersed to many regions of the country, especially to tropical areas.

AENOR was able to verify the PROXYLO Forest Management Plan provided as supporting documentation where it is argued that the *Gmelina arborea* plantations have no potential risks. According to the maps and cartography provided by the project, the eligible areas are included in the areas categorized as potentially suitable for Commercial Forest Plantations[2].

On the other hand. In order to guarantee the permanence of the carbon reserves against which the VCU are emitted and guarantee that it is not lost during a final cut, the PP presented the update of the Forest Management Plan presented to SEMARNAT and complemented it to the period to which credit period of the project.

This Forest Management Plan makes it possible to demonstrate that within the management of Gmelina arborea plantations, the management of regrowth and regeneration of the plantation.

In this approach, regeneration of tree biomass is achieved not by planting, but by promoting regrowth, or "regrowth," from the stumps of trees felled from the previous rotation. This method minimizes soil disturbance and other carbon losses that might otherwise occur during harvesting and replanting.

The audit team had access to both management plans, the one presented to SEMARNAT and the one updated to the credit period, where it was determined that they respond to realistic management activities for the management of *Gmelina arborea* plantations and that they have the technical support of a Forestry Engineer, this being the one who signs the document.

### 3.1.2. Project design, including criteria for grouped projects

According to the Joint PD&MR/1/ the XiCO2e: Mexican Reforestation project has been designed and will be implemented as a grouped project. The project activities consist of the establishment of Gmelina arborea forest plantations in a total area of 9,000 hectares as a grouped project. It currently has one instance located in Tabasco and Tamaulipas states. The first project activity instance of the XiCO2e project: includes 1,014.82 hectares planted in the state of Tabasco and 204.18 hectares planted in the state of Tamaulipas southeast and northeast Mexico respectively for a total of 1,219.01 ha/1/6/.

[1] Maximiliano Vanoye-Eligio; Leydi Leticia López-García; José Alfredo García-Vela; José Alberto Alavez-Góngora. 2020. Aprovechamiento del fruto de la melina (gmelina arborea roxb) como colorante natural y antimicrobiano Use of the melina fruit (Gmelina arboreal Roxb) as an antimicrobial and natural colorant. Agronomía Costarricense, vol. 44, núm. 1, pp. 105-112. https://www.redalyc.org/journal/436/43663511007/movil/

[2] https://idefor.cnf.gob.mx/interactive/layers.

According to VCS Standard v4.4 - section 3.6.16, the project shall include one or more sets of eligibility criteria for the inclusion of new instances of project activity. The PP established the eligibility criteria for the new instances of project activity, as part of the grouped project, which considers compliance with the VCS requirements and the eligibility conditions of the methodology.

AENOR reviewed through GIS the project area and compared this project area with the legal land use planning and possible overlaps with environmental protection figures, in addition to the legal rights of the owners. It can be concluded that the areas of the initial instance meet the requirements for eligibility.

Based on the above evidence provided, the meetings with clients to reproduce approaches and assumptions as well as the cross-checks with the applicable methodologies and tools, AENOR deems that project type, technology, measures implemented, assessment of the eligibility of the project is detailed in a transparent manner in the Joint PD&MR/1/ and provide a clear overview of the project. Its content was confirmed by means of document review and interviews to validate the accuracy and completeness of the project description.

AENOR confirms that the first instances at validation comply with the set eligibility criteria and the description is complete and accurate and provide a transparent understanding of the project activities.

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

In accordance to Joint PD&MR/1/, section 1.5, two entities have the overall control and responsibility for the project: ALA BOOL Trust and FORLIANCE, they have signed a partnership contract for the development of the Project. ALA BOOL leads the forestry activities while FORLIANCE guides the certification process and supports the commercialization of carbon credits.

The audit team finds that contact and entity information provided in the Joint PD&MR/1/ conforms to the VCS requirements. The validity of this information was cross-checked by AENOR team though interviews with the parties and desk review of multiple evidence detailed in the present report.

### 3.1.4. Ownership

FORLIANCE and Ala BoOl as the project proponents, have signed a contract with PROXYLO/8/, a private company that is dedicated to the establishment, management, and use of Gmelina arborea plantations in Mexico. In the legal agreement PROXYLO S.A.P.I DE C.V. designates FORLIANCE and ALA BOOL as the entities that own and commercialize the carbon credits associated with the reforestation activities on the properties involved in this project.

Leasing contracts were signed between landowners and PROXYLO, these landowners transferred all the rights over the land to PROXYLO, including the right to control and operate in the project area. AENOR reviewed the contract between Ala BoOl -FORLIANCE and PROXYLO, and it is specified that the right over the carbon is transferred to the Project Proponents (FORLIANCE and Ala BoOl). The 73 landowners assign the property of the rights over the carbon to PROXYLO.

Lands involved in the first instance of the XiCO2e: Mexican Reforestation Project include 73 properties leased by PROXYLO S.A.P.I DE C.V. to private landowners and Ejidos (lands owned by Ejidos communities) in the states of Tabasco and Tamaulipas/9/.

The 73 owners delegate carbon rights to PROXYLO in duly signed agreements between the parties, guaranteeing 100% control of the pooled project area.

Based on the VCS Standard v4.4 Section 3.7.1, the project has demonstrated that the PP has ownership and the legal right to control and operate project or program activities under subsection 4: Project ownership arising by virtue of a statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions and/or removals.

The PP has clear evidence that demonstrates the ownership of all the farms of the first instance of the project (Tabasco and Tamaulipas instance's).

Therefore, AENOR deems that the evidence provided by the PP is reliable and consistent and allows an accurate and complete demonstration of the ownership of the project. Hence, AENOR team deems that the PP's project ownership is unconditional, undisputed, and unencumbered, in accordance with VCS requirements.

### 3.1.5. Project start date

According to VCS standard, the project start date is the date on which activities that lead to the generation of GHG emission reductions or removals are implemented. For this project, the start date is January 11th, 2017, when the plantation campaign started.

The audit team has checked the work registries on this date/3/, the reforestation activities started in the farms with planting of the first seedlings.

AENOR was able to confirm that the start date matched with the registry of activities /3/. Complementary, AENOR asked through different interviews about the start date to the stakeholders of the project, and all of them were aware that the project start date was January 11th, 2017. Therefore, this event corresponds to the first activity: the earliest activity that leads the GHG removal of the project.

### 3.1.6. Project crediting period

For the current grouped project, the crediting period will be of 30 years and 0 months. The period starts from January 11th, 2017, and ends on January 10th, 2047.

According to Section 3.9.3 of the VCS Standard 4.4, 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.

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 3.9.4 of the VCS Standard 4.4.

### 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 tons of CO2e per year) since it will remove an average of 3,512 tCO2e per year during the 30 years of crediting period.

The project will remove a total estimated GHG removals of 95,701 tCO2e.

AENOR has reviewed the information provided such as the carbon calculation documents/2/ and compared with the information provided in the Joint PD&MR/1/ can affirm that the project complies with the scale requirements mentioned above.

### 3.1.8. Project location

The project municipalities shown in Figure 4 of the Joint PD&MR will constitute the Project zone. All the future instances will be placed in the municipalities of Cardenas, Huimanguillo, and Cunduacan in Tabasco and in the municipalities of Gonzalez and El Mante in Tamaulipas. The proposed restoration grouped project intends to generate GHG emission removals by restoring the ecosystems through the target of 9,000 hectares of Gmelina arborea.

The plantations of the first instance of the project are located in the States of Tabasco (municipalities of Cárdenas, Huimanguillo, and Cunduacán) and Tamaulipas (municipalities of Gonzalez and El Mante). The specific coordinates of each of the farms involved in the project have been provided.

The location of the project area has been presented in GIS and KML files /6/. The coordinates of project area have been provided. AENOR have verified the location of the project activity through the KML files and the coordinates. Hence, AENOR confirms that the project location has been provided correctly in the Joint PD&MR/1/.

### 3.1.9. Conditions prior to project initiation

Regarding conditions prior to the project initiation, the Joint PD&MR/1/ describe in a complete way the climate, hydrology, topography, relevant historic conditions, soils, vegetation and ecosystems for the areas involved in the project.

The project area before implementing the project activity consisted of degraded agricultural areas. The croplands present in the project area before the project activity consisted primarily of rice and sugar cane. Conversely, grasslands were predominantly utilized for extensive grazing , either through cultivated pastures or by relying on the natural vegetation cover..

The project area complies with the permitted uses according to CONAFOR and is located in Category II: Production areas (land suitable for forestation)[3].

The determination of the degradation of the area has been based on the existence of literature. In the state of Tabasco the plan Chontalpa began in 1955 with the clearing of 44,000 hectares of jungle, the construction of peasant housing, schools, health centers, dams, drains and the Nezahualcoyotl dam.According to Rzedowski (1978), the original vegetation in the area was medium and tall rainforest, but because the clearing was done with heavy machinery and deep plows, this prevented the

[3] Zonificación Forestal 2011. Categoría II. Zonas de producción — idefor.cnf.gob.mx

regeneration of the rainforest (Salas-Uribe, 2022) and caused soil degradation. In Tamaulipas the degradation of soils is linked to the erosion ad desertification. ("Principales procesos de degradación de suelos en México, 2002. Díaz, Asunción. 2012/01/01).

AENOR was able to corroborate the information generated by INEGI[4] where erosion and desertification are related in Mexico and the National Baseline of Land Degradation and Desertification was published, which is the first study at the national level that integrates the indicators of land degradation. lands and desertification, in accordance with legally accepted national and international standards. The authors were the National Forestry Commission (CONAFOR) and the Chapingo Autonomous University (UACh) in 2013[5]. For the states of Tabasco and Tamaulipas the degradation is lightly degraded (source: "Principales procesos de degradación de suelos en México, 2002, Díaz, Asunción, 2012/01/01).

Additionally, the audit team had access to other publications[6] provided by the PP where it is evident that for the states of Tabasco and Tamaulipas, the different uses of land and overexploitation by agricultural plans such as the Chontalpa Plan generated soil erosion and degradation of some of these.

AENOR was able to review the information provided and confirms that the project is being implemented in the conditions described on the Joint PD&MR/1/. AENOR has reviewed all the evidences provided by the PP as well as crosschecking such evidence, with the information of the Joint PD&MR /1/ and the information gathered from the different interviews performed. Therefore, AENOR deems the information provided is deemed correct.

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

Section 1.14 of the Joint PD&MR/1/ provides information related the compliance with the applicable laws, statues and other regulatory frameworks.

The VVB has reviewed all the laws referenced by the PP and subsequently, the way in which the proponent states the compliance of such Laws. AENOR did not find any evidence, through the desk review of the laws and their compliance as well as during the audit process and different interviews performed, to demonstrate that the project is breaching the laws.

Thus, AENOR deems that project complies with applicable laws, statues, and other regulatory frameworks.

### 3.1.11. Participation under other GHG programs:

[4] INEGI: National Institute of Statistics and Geography (acronym in Spanish).

[5] https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2014/especiales/especiales2014_07_1.pdf

[6] Valverde-Rebollo, G. & Morales, J. C. & Valtierra-Pacheco, E. & Escalona-Maurice, M. (2022). Geographical analysis of rice production and storage in Mexico, 1980 – 2018. Agro Productividad.

López, G., Miranda, R., Hernández, A. & Sánchez, E. (2021). Tecnología de potencial productivo de arroz (Oryza sativa L.) en el estado de Tabasco, México y su aportación a la soberanía alimentaria. Revista Chapingo Serie Agricultura Tropical. 1. 9-23.
10.5154/r.rchsagt.2021.02.02.

Armida-Alcudia, L., Ruiz Rosado, O., Salgado-García, S., Gallardo-López, F., Nava-Tablada, M. & Juárez-López, J. (2011). Socioeconomic and technological factors in sugarcane (Saccharum officinarum L.) agroecosystems production in Chontalpa, Tabasco. Tropical and Subtropical Agroecosystems. 13. 261-269.

*Projects registered (or seeking registration) under other GHG program(s)*

The audit team has not found evidence that the project has been registered nor is seeking registration under other GHG program, nor has it been rejected by other GHG program.

*Rejection by other GHG programs*

The audit team has not found evidence that the project has 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 and supply chain (Scope 3) emissions:

*Emissions trading programs and other binding limits*

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 Mexico, and there is no emissions trading program in place in the country.

The VCUs generated from this project will be used in the context of the Paris Agreement.

*Other forms of environmental credit sought or received and eligible to be sought or received*

The project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals, including renewable energy certificates.

*Issuance of public statement(s) to help prevent Scope 3 emissions double claiming*

AENOR was able to verify that the project proponent does not act as a buyer or seller of products that are in a supply chain and the project activities specified in the project description are not quantified within a product emissions footprint.

*Email notification of the potential risk of Scope 3 emissions double claiming*

Since the project proponent does not act as a buyer or seller of products that are in a supply chain, they are not quantified within a product emissions footprint and therefore notification via email is not required.

### 3.1.13. Additional information relevant to the project, including:

*Leakage management for AFOLU projects*

The project follows the CDM tool “Estimation of the increase in GHG emissions attributable to displacement of pre project agricultural activities in A/R CDM project activity V2.0. V2.0.” to tackle leakage risk assessment and leakage management.

There is no leakage management in the project area. The project does not displace pre-project agricultural activities. Because the areas before the project, as can be seen in the line scenario, were mainly dedicated to agro-industrial crops such as sugar cane and others. Therefore, the displacement of project activity to other areas due to the effects of the project is very unlikely.

In the project, there will not be leakage because the animals existing or displaced will never exceed the carrying capacity of the receiving area (conditions a) and b) of the tool).

*Commercially sensitive information*

Any commercially sensitive information has been excluded from the public version of the project description and briefly describe the items to which such information pertains.

Legal agreements, financial statements and related information data projects proponents is sensitive are available upon request.

According to the information contained in this section, and the cross-checking of the pieces of evidence provided by the Project Proponent, AENOR deems that the project description is accurate, complete, and provides an understanding of the nature of the project.

*Sustainable development contributions*

The XICO2e: Mexican Reforestation Project embraces and proposes as its own 3 of the Sustainable Development Goals (SDGs) adopted by the United Nations (UN) and The National Development Plan of Mexico (NDP) (2019-2024)[7].

The sustainable use of natural resources to ensure the well-being of future generations, the protection of natural resources, adaptation to climate change, and integrated disaster risk management are part of the actions defined in Mexico as a contribution to the national SDGs. Within this framework, actions aimed at afforestation, reforestation, conservation and forest regeneration are aligned with project practices.

A brief explanation of the activities that give rise to the scope of the SDGs is presented in section 1.17 of the Joint PD&MR/1/:

- (SDG 8) Decent work and economic growth: The activities related to the forest plantations provide employment with decent work opportunities to the local communities which addresses poverty reduction.

SDG Indicator: 1.2.1 Proportion of population below the national poverty line.

Project generates sustainable livelihoods for the 73 land owners, who, thanks to the lease agreements signed with PROXYLO will benefit from an additional income improving their well-being.

The project activities implemented during the monitoring period are related to the implementation and maintenance of forest plantation: site preparation, plantation establishment, pruning, thinning, weeding, harvesting, fertilization, operation of machinery, etc. To perform these activities, labour is required, thus the project provides employment with decent work opportunities to the local communities which addresses poverty reduction.

- (SDG 13) Climate Action: The project activity contributes directly to addressing climate change. Through the reforested areas, the trees capture $CO_2$ from the atmosphere and increases the resilience of the previously degraded areas. The presence of trees also contributes to responsible soil management that reduces further erosion.

SDG Indicator: Total number of jobs created (men & women)

[7] Plan Nacional de Desarrollo 2019-2024

60 full-time jobs per year related to forest plantations, maintenance, harvesting and manufacturing activities.

- (SDG 15) Life on land: The plantations manage a good undergrowth forest that protects both the soil and the fauna that passes through it.

SDG Indicator: Tonnes of greenhouse gas emissions avoided or removed.

1,014.82 ha planted in the state of Tabasco and 204.18 ha planted in the state of Tamaulipas, the project has sequestered 98,441 (tCO2e) of the atmosphere during the monitoring period.

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 and on-site visit. AENOR deems that the way in which the PP will assess the future contributions during each monitoring period is reliable and effective.

## 3.2 Participation under Other GHG Programs

The project is not registered or seeking registration under other GHG Programs. The project has not been rejected by any other GHG programs.

## 3.3 Safeguards

### 3.3.1 No Net Harm

According to Joint PD&MR - section 2.1/1/, the project does not require any form of Environmental Impact Assessment (EIA), the Regulatory Document of the General Law of Sustainable Forest Development "Ley General del Desarrollo Forestal Sustentable" establishes that for every forest plantation with a surface equal or less than 800 hectares it is not necessary to develop an environmental impact assessment.

The project activity is placed in rural areas where soils and landscapes have been anthropized or are degraded. The project does not identify any relevant negative environmental and socioeconomic impacts for its implementation and development, however, potential negative environmental impacts that would be triggered by project activity were identified by PROXYLO and mitigation measures were established for each of them.

The PP identified potential impacts on soil, water, and worker health and safety associated with the main activities of *Gmelina arborea* plantation establishment and management. The proposed mitigation measures provide evidence of control and prevention of these impacts, avoiding impacts on resources and people. On the other hand, the project proponent has provided evidence that the project activities will not affect local stakeholders and is in compliance with national regulations where compliance with labour laws is encouraged to improve the conditions of workers, as confirmed by the audit team during interviews and site visits.

Therefore, AENOR deems that the project implementer has taken reasonable steps to mitigate these potential negative impacts.

### 3.3.2 Local Stakeholder Consultation

All the information related to Local Stakeholder Consultation is described in Section 2.2 of the Joint PD&MR/1/.

PROXYLO, as a project proponent, has signed agreements with each of the owners who are part of the project. There is no knowledge of any legal or customary tenure access rights to the identified territories and resources. The detailed information was consulted by the audit team in the supporting documentation presented by the project.

The project issues have been presented to the properties, leaders of the communities close to the operations and authorities of the municipalities where the farms are located in order to incorporate their observations and suggestions. The consultation process began with the construction of a map of actors with influence on the carbon project and was followed by the selection of easily accessible communication mechanisms.

The stakeholder consultation process took place in June and September 2022, with local consultation meetings with communities and institutions to present the objectives and scope of the XICO2e: Mexican Reforestation Project. For other stakeholders, summaries of the project design will be shared by email or personal visit/7/, The interested parties will be notified in writing of the date, time, place, purpose of the meeting and topics to be discussed; if this is not possible in writing, they will be notified by e-mail or telephone.

The XiCO2e Project, presented the communications to the interested parties during the oral meetings. The most relevant information about the project included the design, implementation and monitoring results, as well as the risks, costs and benefits that it may bring to local actors. They also included all relevant laws and regulations on workers' rights in the host country, the validation and verification process of the VCS Program and the on-site visit by the validation/verification body.

During the site visit, the audit team had access to the information supported by the agreements signed with the owners and the support of the rights granted by them in the signing of these agreements. Additionally, communications were verified with local authorities where the project was also socialized and it was evident that there were no complaints from the owners to these authorities (COMESFOR, CANAFOR and SEDEC).

The visits carried out for the interviews in the on-site visit by AENOR (20/03/2023 to 24/03/2023) were previously arranged with the authorities and institutions as scheduled and it was possible to verify that the audit was socialized. Additionally, interviews were possible with technical personnel of the project. All stakeholders interviewed were directly asked if there is any problem with access to land rights or conflicts with the project, however, all of them confirmed that there was not. These questions were also asked of the authorities interviewed and no particular case was revealed.

The audit team has assessed the potential risk to local stakeholders and their resources and considers that the process was carried out adequately. None of the stakeholders interviewed had any complaints about the project. Stakeholders assure in the interviews conducted by the audit team that they have been informed of the risks, costs and benefits of the project.

Hence, in the opinion of the AENOR team the local stakeholder consultation process was suitability 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.

During the site visit, AENOR was able to corroborate that authorities and interested parties were informed about the audit process on the days of the VVB visit and the summary document with information about the project and the visit of the audit team.

### 3.3.3 Environmental Impact

As described in Section 2.3 of the Joint PD&MR/1/, the projects activities do not require Environmental Impact Assessment (EIA). However, potential negative environmental impacts that would be triggered by project activity were identified by PROXYLO and mitigation measures were established for each of them.

According to the PP, the forest plantations are registered with SEMARNAT/9/, which certifies that the plantations are in legal compliance with Mexico's General Law for Sustainable Forestry Development.

Therefore, AENOR deems that no EIA is required as no negative environmental impact is expected from the implementation of the project activities. AENOR on the site visit and accorded with the documentary review was able to conclude that the implementation and development of the project does not cause any severe potential environmental impact, the proponent provides support to highlight the benefits related to reforestation and on the implementation of the project compared to previous conditions.

### 3.3.4 Public Comments

The project was open for public comments from 01/08/2022 to 31/08/2022. No comments were received during this period[8].

However, it is taken into account that the channels for receiving comments can be used at any time by stakeholders or institutions.

### 3.3.5 AFOLU-Specific Safeguards

Section 2.5 of the Joint PD&MR/1/ broadly describes the AFOLU-Specific Safeguards.

- The local stakeholder identification process and the description of results.

The audit team reviewed the process of identifying local actors likely to be affected by the project and the process of identifying local actors was developed through its social inventory, which it observed directly on site and conducted interviews. The local population is made up of any person, group of people or interested entity that may be subject to the impact of its activities. The Project proponent provided the map of actors, municipal entities with influence in the project areas. The proponent provided full details on the local stakeholder identification process and a description of the results, in particular the interviews it conducted.

- Risks to local stakeholders due to project implementation and how the project will mitigate such risks.

[8] https://registry.verra.org/app/projectDetail/VCS/3342

The PP mentions that the project brings positive impacts to the community and provided different evidence to assess the communication with stakeholders and measures to assess the risk of project implementation/7/. Based on the above-mentioned evidence, AENOR considers that the PP has taken adequate measures to ensure that negative impacts on local stakeholders are minimized and has developed and implemented actions to mitigate such impacts where necessary.

- Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including plans to ensure the project will not impact local stakeholders' property rights without the free, prior and informed consent.

According to Joint PD&MR/1/, the project is implemented on private lands and Ejidos and do not impact local stakeholder's property rights, the proponent has a procedure for solving conflicts on land use claims and rights, which is based on prioritizing an amicable resolution between the parties. The legal ownership of the land is held by the owners of the properties who grant PROXYLO the right of use to establish forest plantations and be the owner of the forest products and environmental services (carbon) derived from these plantations. The contracts were reviewed by the audit team and it was established that they have the relevant and applicable legal support with Mexican regulations/9/.

- Processes to ensure ongoing communication and consultation, including a grievance redress procedure to resolve any conflicts that may arise between the project proponent and local stakeholders.

To ensure communication with local stakeholders, PROXYLO has defined the Policies of the Mechanism of Petitions, Complaints and Claims/7/ and this document defines the ways to receive and register complaints and/or suggestions through PROXYLO 's physical and electronic mailboxes.

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

The PP follows the specifications of the VCS v4.4 standard in points 3.18.12 to 3.18.20 conservatively claiming to have no impacts on local stakeholders.

To ensure that the project proponent avoids any negative impact and that recognizes, respect and support the local stakeholders property rights, the principle of Free Prior and Informed Consent (FPIC) has been applied since the project formulation and will be applied throughout the project lifetime.

Evidence of this is the strategy of the PP to approach the landowners. In the case of private landowners, a responsible from PROXYLO went to the field searching for suitable lands for the establishment of commercial forestry plantations. Later on, when suitable lands were found, the landowners were contacted and informed about the reforestation project' objectives and the company PROXYLO. Finally, if after the explanation the landowner agrees to participate in the project, the process of leasing agreement starts (see support documentation for detailed information). As an outcome a lease contract was signed.

PROXYLO has all the legal rights to operate on these lands, the landowners are informed and updated periodically (at least once per year) about the project progress. This communication is mainly verbal, however written notification are handed with each contract renewal/9/.

Based on this aforementioned evidence, AENOR considers that the PP has taken appropriate measures to ensure that negative impacts on local actors are reduced to a minimum and has developed and implemented actions to mitigate such impacts when necessary.

## 3.4 Application of Methodology

### 3.4.1 Title and Reference

The project applied the methodology: The CDM approved methodology AR-ACM003. Afforestation and reforestation of lands except wetlands. Version 2.0. Tools referenced, and adequately applied by the project, are the following:

- AR-AM Tool 2: Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities Version 1;
- AR-Tool 14: Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities Version 4.2;
- AR-AM Tool 12: Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities Version 3.1;
- AR-AM Tool 3: Calculation of the number of sample plots for measurements within A/R CDM project activities. Version 02.1.0
- AR-AM Tool 16: Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities;
- AR-AM Tool 8: Estimation of non-CO2 greenhouse gas (GHG) emissions resulting from burning of biomass attributable to an A/R CDM project activity Version 4.0;
- AR-AM Tool 15: Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity Version 2.0.
- VCS AFOLU Non-Permanence Risk Tool: VCS Version 4.0
- AFOLU Guidance: Example for Calculating the Long-Term Average Carbon Stock for ARR Projects with Harvesting. (08/04/2011).

The auditor confirmed that the specific versions of all tools referenced and applied by the project, be valid at the time of validation.

### 3.4.2 Applicability

The Project Proponent addresses each of these applicability conditions, correctly and including the consistency between the requirements and the project activity. The applicability criteria of the methodologies have been assessed as presented in Table 4.

Table 4.Conditions of applicability of the methodology

| *Methodology for Afforestation and reforestation of lands except wetlands (v.2.0)* | |
|---|---|
| Applicability criteria | Project compliance |
| a. The land subject to the project activity is not categorized as 'wetland' | The area does not fit into the "wetland" category. Project lands are classified based on the pre-project land use, as grasslands, or patches of croplands. This is demonstrated through the land eligibility analysis in which wetlands and water bodies were excluded from project boundary.<br><br>AENOR reviewed the land eligibility analysis and the supporting information provided/6/ to justify the applicability of the project and concluded that the project proponent addresses these applicability criteria. |
| 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 the land is included within the project boundary:<br><br>• Land containing organic soils;<br><br>• Land which, in the baseline, is subject to land-use and management practices and receive inputs listed in appendices 1 and 2 of the AR-ACM003 methodology. | The project activities are not taking place in organic soils. The baseline before the project start date was the continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands. In the absence of the project activity, the baseline is expected to remain as agricultural activities that include crop cultivation and grazing activities in croplands and grasslands/10/11/12/15/ and FAO (2023)/14/ does not indicate the existence of an organic horizon characteristic of organic soils..<br><br>In the project area rice and sugar cane cultivation is dominant. In the state of Tamaulipas rice is cultivated with reduced tillage and no inputs in the municipalities of González and El Mante where the project is located. Currently, production is being reduced due to low return and competition from the growing of crop for export to United States of America /16/17/. In the municipality of Cárdenas, in the state of Tabasco, sugar cane production is dominant and characterized by a land intensive management including tillage, drainage and the use of fertilizers /17/18/19/. According to the study of Lopez et al. (2021)/20/, this area has an additional medium to high productive potential for rice cultivation<br><br>In section 3.2 of the Joint PD&MR/1/ presents the calculation of the percentage of soil disturbance for the establishment of 1 ha in the planting models of the project. This value will be less than 10%.<br><br>The assessment evidences the absence of land containing organic soils. In addition, the explanation in the baseline analysis demonstrates the baseline before the project start date was continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands). In the absence of the project activity, the baseline is expected to remain as agricultural activities that include crop cultivation and grazing activities in croplands and grasslands. (without receiving inputs such as those listed in appendices 1 and 2 to the AR-ACM003 methodology).<br><br>Consequently, it is expected that organic soil carbon will increase less in the absence of the project activity, relative to the baseline. In this sense, the auditor concludes the compliance with this condition. |
| *AR-AM Tool 2: Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities"* | |
| Applicability criteria | Project compliance |

| | |
|---|---|
| 1. 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. | In the case of croplands, they are mainly short-term or set aside croplands without tillage and with low inputs. In the case of grasslands, they are degraded lands with low inputs.<br>In this project case litter is not removed and soil disturbances are limited to those due to site preparation (pit digging).<br><br>AENOR confirmed that as it is demonstrated in the sections 1.14 of the Joint PD&MR/1/ the project activities are in line with the local, regional and national regulations. |
| 2. This tool is not applicable to small - scale afforestation and reforestation project activities. | This project is a project based on CDM rules (see section 1.10). |

*AR-AM Tool 08: Estimation of non-CO2 greenhouse gas (GHG) emissions resulting from burning of biomass attributable to an A/R CDM project activity. Version 04.0.0*

| Applicability criteria | Project compliance |
|---|---|
| The tool is applicable to all occurrence of fire within the project boundary. | Burning of biomass is not part of the project's management practices, but the occurrence of fires, accidental or otherwise, will be monitored, and is even a monitoring item in the project. In the case of fire and if the accumulated area affected by such fires in a given year is ≥5% of the project area, the AR-AM Tool 08 will be used to quantify the required discounts. |
| Non-CO2 GHG emissions resulting from any occurrence of fire within the project boundary shall be accounted for each incidence of fire which affects an area greater than the minimum threshold area reported by the host Party for the purpose of defining forest, provided that the accumulated area affected by such fires in a given year is ≥5% of the project area. | |

*AR-AM Tool 15 Estimation of the increase in GHG emissions attributable to displacement of preproject agricultural activities in A/R CDM project activity*

| Applicability criteria | Project compliance |
|---|---|
| This tool is not applicable if the displacement of agricultural activities is expected to cause, directly or indirectly, any drainage of wetlands or peat lands. | The expected leakage from the removal of baseline activities in the project area is estimated to be "zero" under the conditions presented in section 10 of the AR-AM Tool 15. |

*AR-AMTool 16 for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" applicability conditions*

| Applicability criteria | Project compliance |
|---|---|
| 1. Litter remains on site and is not removed in the A/R CDM project activity.; | Litter will not be removed in the project activities. Litter is part of the strategy for weed control in the project area and will not be removed, this is established in each of the protocols for each forestry system of the project. |
| 2. Soil disturbance attributable to the A/R CDM project activity, if any, is: In accordance with appropriate soil conservation practices. | In areas containing organic soils or conforming to the conditions presented in Appendices 1 and 2, the soil disturbance caused by the project implementation cannot be higher than 10% of the carbon project area.<br><br>In section 3.2 of the Joint PD&MR/1/ presents the calculation of the percentage of soil disturbance for the establishment of 1 |

| | |
|---|---|
| | ha in the planting models of the project. This value will be less than 10%. |

Section 3.2 in the Joint PD&MR/1/, presents the applicability conditions as derived from the methodological tools used by the project. AENOR reviewed the baseline scenario, the land eligibility, the leakage assessment, the prior conditions of the project and the supporting information provided to justify the applicability of the project and concluded that the project proponent addresses each of these applicability conditions correctly and including the consistency between the requirements and the project activity, in the project description.

By all-inclusive review and cross-checking, AENOR corroborated that the selected methodologies and the methodological tools involved, applies to the project activity and was correctly justified and applied with respect to the following: project boundary, baseline identification, formulae to determine emission reductions, additionality and monitoring methodology.

### 3.4.3 Project Boundary

To calculate the removals of this project, counted carbon stocks are: Above-ground forest biomass, Below-ground forest biomass, Dead wood and Litter, and Soil organic carbon (SOC).

According to the AR-ACM0003 v2.0 methodology, the carbon pools selected for accounting of carbon stock changes shall be at minimum above-ground biomass and below-ground biomass, the other pools are optional.

**Table 5. AR-ACM0003 v2.0 methodology. Carbon pools selected for accounting of carbon stock changes**.

| Source | | Gas | Included? | Justification/Explanation |
|---|---|---|---|---|
| Baseline | Above and below groud biomass; Organic soil carbon | $CO_2$ | Yes | This is the carbon stock in the baseline. It refers to the biomass of pre-existing vegetation in the project areas. |
| | | $CH_4$ | No | This is not a requirement of the methodology |
| | | $N_2O$ | No | This is not a requirement of the methodology |
| Project | Above ground biomass | $CO_2$ | Yes | This is the main carbon stock subjected to the project activity. |
| | Below ground biomass | $CO_2$ | Yes | Carbon stocks in this pool are expected to increase due to the implementation of the project activity. |
| | Soil organic carbon | $CO_2$ | Yes | Carbon stock in this pool may increase due to implementation of the project activity. |

| Source | | Gas | Included? | Justification/Explanation |
|---|---|---|---|---|
| | Litter and dead wood | $CO_2$ | Yes | As baseline is grassland, it is expected that carbon stock in these pools will not increase due to the implementation of the baseline activity. |
| | Burning of woody biomass | $CO_2$ | No | No burning of woody biomass for the purpose of site preparation, or as part of forest management, is allowed under the project. If occur, will be accounted as a change in carbon stock in the ex-post measurement |

Source: XICO2e: Mexican Reforestation Project´s PD.

The relevant GHG sources, sinks and reservoirs for the project and baseline scenarios are presenting in the Joint PD&MR/1/. GHG pools for the project include above-ground biomass, below-ground biomass, litter and dead wood, and soil organic carbon. Emission of non-CO2 GHGs resulting from the loss of aboveground tree biomass due to fire (in the event that occur) is considered and calculated using the above ground biomass in trees of relevant strata.

The project area and the site inspections were completed to confirm the project boundaries and evaluate the consistency of the presented information. The project boundary was inspected on field by taking GPS points and comparing the results with the maps and Geographical Information System (GIS files) provided by the proponent. In addition, some sites of the project were also visited. All maps were carefully reviewed in order to confirm the spatial limits.

The project boundary was visited, regarding the baseline conditions. AENOR defined a sample size for the sites visited. Those sites were selected randomly, in the list of sites and identified in field by using a GPS with and accuracy of <10m. (See section 2.5 on this report).

By appraised information and the on-site visit, AENOR could conclude that the project boundary and selected sources, sinks and reservoirs are adequately justified for the project. Moreover, the auditor reviewed that the carbon pools were included or excluded by assessing the calculation sheets provided by the proponent and concluded that all pools were properly selected and included/excluded. In consequence, the project boundary and selected sources, sinks and reservoirs are adequately justified for the project.

### 3.4.4 Baseline Scenario

The baseline scenario and demonstration of additionality, follows the “Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities” V01.

The approved baseline methodology AR-AM0003 (version 02) has been correctly applied to identify a complete list of realistic and credible alternative scenarios, and the identified baseline scenario most reasonably represents what would occur in the absence of the proposed project activity.

- Step 0. Preliminary screening based on the starting date of the ARR project activity.

The Grouped Project started on January, 11th 2017, when the company started to implement the reforestation activities /3/.

The audit team has verified the contract and the work schedule which specifies the date on which the reforestation activities begin.

The PP presented evidence that the incentive of the planned sale of credits was seriously considered in the decision to continue with the project activity is available as supporting documentation and is accredited by the document called "estados auditados 2016"/27/.

## STEP 1. Identification of alternative scenarios

- Sub-step 1a Identification of alternative land use scenarios to the proposed project activity

The baseline scenarios represent the continuation of the economic activities which have taken place historically, exist at present, and are unlikely to change in the absence of the project activity.

According that realistic and credible alternative land-use scenarios that would have occurred on the land within the proposed project boundary in the absence of the AFOLU project activity under the VCS program were identified. The scenarios are feasible for the project area taking into account relevant national and/or sectoral policies and circumstances, such as historical land uses, practices and economic trends.

Scenario 1: Continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands).

As pointed out throughout the document, the baseline scenario at the project boundaries is characterized by agriculture activities in the project land uses: croplands and grasslands. As defined in the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity” (Version 02). Agricultural activities refer to crop cultivation activities and grazing activities. In the croplands rice and sugar cane cultivation are dominant. Grasslands are suitable for extensive livestock use, either through the establishment of cultivated grasslands or only taking advantage of the natural vegetation cover.

The croplands present in the project area before the project activity consisted primarily of rice and sugar cane. Conversely, grasslands were predominantly utilized for extensive grazing, either through cultivated pastures or by relying on the natural vegetation cover.

As can be observed in the documents provided by PROXILO de S.A.P.I[9]. the entire project is characterized as an agricultural area, with 35% being grasslands and 65% being croplands, As explained in section 5.1 of the PD, the crown cover of trees at the time of plantation arrived to 3.70% and shrub crown cover arrived to 24.32%. in the project area[10].

The main crops for the project area in the states of Tamaulipas and Tabasco predominate the cultivation

[9] Previous land uses_report. The information on previous activities was obtained from the "Conjunto de datos vectoriales de uso del suelo y vegetación escala 1:250 000, SERIE VI (CONJUNTO NACIONAL)" INEGI and supported by field data elaborated by Proxylo.
[10] The assessment utilized high-resolution imagery from the Google Earth platform, analyzing spatial images dated March 2017 and February 2019 based on the year of plantation establishment.

of rice and sugar cane, respectively. However, currently, production is reducing due to low yields and competition from the crop for export to the United States of America/16/17/.

The State proposed to stimulate productive chains in the primary sector, promote sustainable production schemes, strengthen rural infrastructure, implement support programs for rural producers, and generate support schemes for young producers, with a gender perspective, in order to attract productive force to the countryside. The audit team was able to verify that for the state of Tabasco, according to the Herrera et al 2014/21/ and Armida-Alcudia et al (2011)/19/ studies presented by the PP and with the on-site visit, sugar cane is a very representative crop of the region where large sugar mills are evident in the production.

Similarly, for the state of Tamaulipas, rice and citrus crops could be evidenced in the on-site visit, which is also supported by the Valverde-Rebollo (2022)/17/ study presented in the Joint PD&MR.

Agricultural activities refer to crop cultivation activities and grazing activities. Data from Proxylo and Project Proponent have been used to identify realistic and credible land-use scenarios. Reports, cartography evidence and maps[11] have been provided as part of the supporting documentation[12].

The evidence generated from this cartographic information and documentation presented by PP allowed to build a historical scenario of the project areas from 2007 to 2017. Where it is seen that the occupation of the land use is represented in areas of pastures and crops. Where a marked tendency of the increase of crop areas towards 2017 is seen (Figure 12 of the PD).

Figures 15 and 16 of the PP illustrate that the surrounding area consists primarily of croplands and grasslands, with recent trends showing an increase in grassland conversion to croplands, creating a baseline scenario that includes both.

In fact, the data indicate a trend of increasing cropland areas and a decreasing proportion of grasslands. These evidences, demonstrates that the LUS1 project area is agricultural, encompassing both croplands and grasslands.

Particularly in the state of Tabasco, reports presented by the PP[13] describe the relevance that the agricultural areas of this state have for Mexico. Tabasco is an important contributor to the international market, especially through the production and export of crops such as plantain, sugar cane, cocoa, pineapple, and citrus. Given its favorable soil and climate conditions, Tabasco holds significant potential for further agricultural development.

Despite the region's agricultural potential, agricultural and livestock activities in Tabasco contribute only 4.54% to the national agricultural income, suggesting these activities remain primarily subsistence-based rather than strong economic drivers (INEGI, 2007).

The grazing system in Tabasco is a low-intensity system that has remained largely unchanged since the 1940s. As of 2015, there were approximately 1.727 million head of cattle grazing on 1.617 million hectares, with an estimated 43,000 producers. This results in low animal density per hectare and a carrying capacity of just 9 heads per producer. Consequently, rural families often struggle to rely solely on livestock

[11] Planet Team (2017). Planet Application Program Interface: NICFI satellite data program. San Francisco, CA.
[12] Forliance and Proxylo 2022. The Land Use Report Análisis de coberturas y uso del suelo 2016 – 2022, Proyecto Proxylo.
[13] Ramos-Reyes, F., & Palomeque de la Cruz, M. (2023). Impacto de los programas de reforestación en el uso del suelo en Tabasco. *Revista de Estudios Ambientales, 12*(3), 45-57.

income and typically seek additional sources of income to meet their needs[14/15].

Regarding the state of Tamaulipas, according to Martínez-Flores, R., & García-Aguirre, L. A. (2003), it is defined as a purely agricultural state, with a diversity of crops, among which is rice, however, the production has been affected by economic, social and environmental aspects such as price declines, droughts, floods and aflatoxin contamination.

As defined in the tool "Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity" (Version 02) [16]., Agricultural activities refer to crop cultivation activities and grazing activities. Reports, cartography evidence and maps have been provided as part of the supporting documentation.

- ✓ In this evidence, the entire project is classified as an agricultural area, with 35% being grasslands and 65% being croplands._Data from Proxylo have been used to identify realistic and credible land-use scenarios. percentage of land use Each property was divided according to land use, and the process was repeated for all properties. The attribute table was manually populated using QGIS.
- ✓ Additionally, a Land Use Report, provided as supporting documentation, includes a classification provided by INEGI (2007, 2009, 2014 and 2017)[17] at the national level. INEGI generated these maps through a supervised classification of Landsat images from 2004, 2007, 2011 and 2014. In these reports the project area is classified as croplands and grasslands, showing variations over the past decade. The data indicate a trend of increasing cropland areas and a decreasing proportion of grasslands. This evidences that the LUS1 project area is classified as agricultural area over the past 10 years, encompassing both croplands and grasslands.
- ✓ Relevant legislation: As explained in the Project Design Document (PD), the federal public administration promoted policies aimed at agricultural development by changing land use to agricultural and livestock systems and implementing subsidy and land endowment programs without applying land use planning (Manjarrez-Muñoz et al., 2007).
- ✓ Verification team confirmation: Through field site visit, review of project geographic spatial files, and document checks, the verification team confirmed baseline and additionality determinations. Historical imagery indicated that project area tracts were previously used for agricultural purposes, including crop cultivation and grazing, with adjacent areas also used for extensive grazing.
- ✓ Local authority confirmation: For each property, Proxylo submitted descriptions of previous land use to local authorities. The Promotora de Desarrollo Forestal and other relevant authorities verify the type of vegetation and land use prior to project activities in accordance with Articles 134, 136, and 137 of the "Reglamento de la Ley de Desarrollo Forestal Sustentable

According to the evidence presented and the on-site visit routes, AENOR can conclude that, one of the credible alternative land use scenarios to the proposed project activity is Continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands).

[14] Ramos Reyes, R., & Palomeque de la Cruz, M. Á. (2023). Cambio de uso del suelo y escenarios prospectivos en el Estado de Tabasco (México). Anales de Geografía de la Universidad Complutense, 43(1), 1-15. https://doi.org/10.5209/aguc.85944
[15] Villanueva-López, G., P. Martínez-Zurimendi y H. Van der Wal. 2015. Árboles y arbustos en áreas ganaderas de Tabasco: un recurso prometedor. Ecofronteras 19(54): 14 -17 (2015).

[16] https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-15-v2.0.pdf

[17] Publication year

Scenario 2: Forest plantations not certified under the VCS.

According to SERMANT and CONAFOR[18], it is estimated that in Mexico there are approximately 7 million hectares of land suitable for the development of commercial forest plantations.

Therefore, the National Forestry Program 2013-2018 (PRONAFOR)[19] aimed to increase sustainable wood production and forest productivity through the establishment of commercial forest plantations. However, PROXYLO cannot apply for these subsidies because it is outside the typologies of applicants, since these subsidies apply to smaller-scale reforestation models.

However, there are mechanisms within Mexico to encourage commercial reforestation, there are difficulties for its large-scale development due mainly to high investment costs and agricultural models with better economic returns. This could be confirmed in the interviews carried out during the field visit with institutions such as: CANAFOR and COMESFOR, which confirmed the forest reality in the project areas.
Forest plantations certified under VCS and carried out by Proxylo seem to be an alternative for forest plantations not certified in the project area.

Outcome sub-step 1a: List of credible alternative land use scenarios that would have occurred on the land within the project boundary of the A/R project activity.

The alternative baseline scenario outcomes for the project, that are credible to occur in the project boundary are:

- Scenario 1: Continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands.
- Scenario 2: Forest plantations not certified under the VCS

Therefore, the baseline scenario of the project activity corresponds to productive activities, whose evidence and justifications are expected to continue in the area in the absence of the project activity, representing the baseline scenario.

AENOR can attest that all the assumptions and data used by the project participants to justify their choice of baseline scenario are listed in the Joint PD&MR/1/ and supporting documents. All documentation relevant for establishing the baseline scenario are also correctly quoted and interpreted in the Joint PD&MR/1/. Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable. Relevant national and/or sectoral policies and circumstances are also considered and listed in the Joint PD&MR/1/.

### 3.4.5 Additionality

The additionality of the project was presented in the Joint PD&MR /1/ using the "Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities" (version 02), using the barrier analysis.

[18] The Forest Plantations in Mexico. Electronic Magazine of Forestry Scientific Disclosure. Ministry of Environment and Natural Resources (SEMARNAT), National Forestry Commission (CONAFOR) and Fund CONACYT. Retrieved from http://www.conafor.gob.mx/innovacion_forestal/?p=2350.

[19] https://www.gob.mx/conafor/videos/plantaciones-forestales-comerciales

The approach used in the Joint PD&MR /1/ was assessed based on a document review as well as through discussions onsite with the project team, the main project proponents and landowners, as well as with the consultants involved in Joint PD&MR /1/. Interviews on this topic were also carried out with PP during the onsite visit. The data, rationale, assumptions, justifications and documentation provided were checked using local knowledge and sectoral expertise. A more detailed analysis of the additionality is summarized in the sections below. In essence, the project is considered additional as it restores land that would otherwise have remained as agricultural, livestock and fallow land, activities that will eventually convert the remaining forest to degraded pasture or other non-forest vegetation.

- Sub-step 1b. Consistency of credible alternative land use scenarios with enforced mandatory applicable laws and regulations

All the alternative land use scenarios previously identified comply with all applicable laws, regulations, and enforcement practices. No regulatory initiative bans these land use scenarios. Both land use scenarios are legally permissible land uses for the project areas.

The compilation of the country's laws and regulations are correctly identified and are in line with the forestry activity, in conclusion, they are credible scenarios framed within a national normative, as presented in the Joint PD&MR /1/.

The alternatives presented include all plausible scenarios taking into account local and sectoral circumstances and the application of national laws and regulations. Therefore, the list of alternatives is considered complete.

The two scenarios comply with the existing legislation and regulations in the country and the region and are enforced by those. Therefore, the list is:

- Scenario 1: Continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands).
- Scenario 2: Forest plantations not certified under the VCS

The project continues with these two scenarios to step 2.

- Step 2. Barrier analysis

Sub-step 2a. Identification of barriers that would prevent the implementation of at least one alternative land use scenarios.

This step consists in identify barriers that would prevent the implementation of at least one alternative land use scenarios, and it is divided in three parts, the first one is the Identification of barriers that would prevent the implementation of at least one alternative land use scenarios, in this case the proponent identified the following barriers: local land use tradition; investment barriers, marked risk, technological barriers, institutional barrier: adaptation to the legislation, local traditions barriers, and barriers due to local ecological conditions. The PP also analyzed each barrier against each scenario based on secondary information, and provided transparent and documented evidence, and offer conservative interpretations of this documented evidence, as to how it demonstrates the existence and significance of all the identified barriers.

Continuation of the pre-project land use. Status Quo is land remaining with agricultural activities

(Croplands and Grasslands). There is a deficit in qualified and properly trained labor for agricultural activities in the project area. Slash and burn are the most common form of agriculture. Under this system, the soil's fertility and productivity are reduced, making assistance necessary for its recovery.

There are some specific crops, as Armida-Alcudia et al., 2011 described socioeconomic and technological factors that affect the implementation of sugarcane crops in Chontalpa, Tabasco. Regarding rice cultivation, in general terms, agricultural production faces different barriers: technological, as it has been mentioned, the deterioration of genetic and natural resources and the effect of global climate change[20].

Several factors limit the development of cattle raising in the project states. Among the first are the traditionalism of production schemes, low livestock potential, scarce adoption of technology, lack of knowledge of production and profitability of the registration system.

According to the above mentioned the defined scenario land remaining with the current agricultural activities (Croplands and Grasslands) do not seem to present barriers.

Forest plantations not certified under the VCS It also highlights the difficulty for landowners to implement reforestation/restoration activities without income from carbon credits due to the high costs of reforestation activities and the lack of income. Without access to the market, the opportunity costs compared to agricultural activities make reforestation unfeasible. This statement is supported by the PP based on an analysis of agriculture and livestock in Mexico, which is considered by the audit team as an important factor of competitiveness in the forestry sector.

Outcome of Step 2a: List of barriers that may prevent one or more land use scenarios identified in the Step 1b.

Among the most common barriers are:

- Similar activities have only been implemented with grants or other non-commercial finance terms. In this context, similar activities are defined as activities of a similar scale that take place in a comparable environment concerning regulatory framework and are undertaken in the relevant geographical area (investment barrier)
- Lack of access to necessary materials, for example, planting materials (technological barrier)
- Lack of infrastructure for implementation of the technology (technological barrier)
- Traditional knowledge or lack thereof, laws and customs, market conditions and practices (local tradition barriers)
- Degraded soil (e.g. water/wind erosion, salination, etc.) (local ecological conditions barrier)
- Barriers due to social conditions, inter alia: Lack of skilled and/or properly trained labor force and lack of organization of local communities.

- Sub-Step 2b. Elimination of land use scenarios that are prevented by the identified barriers.

In conclusion, the identified barriers contribute to the base scenarios being the most probable.

[20] Herrera, Héctor Emmanuel & Trejo-Téllez, Libia Iris & Gómez-Merino, Fernando. (2017). The Mexican sugarcane production system: History, current status and new trends.

The next part is the elimination of land use scenarios that are impeded by the identified barriers, and according to the analysis carried out by the proponent. For the project areas, the remaining scenarios represent the continuation of current activities. Soil degradation will continue, since agricultural and livestock practices continue to be the most attractive activities in the states of Tabasco and Tamaulipas. This is the most likely scenario in the absence of the project, which allows us to identify which barriers the identified barriers would only apply to the project scenario, which is why this would be the least likely.

The barriers identified would prevent the implementation of scenarios 2, which are limited by economic, technical, climatic and institutional barriers. This means that the limited scenarios are:

- Reforestation without registration under VCS standard

Outcome of Sub-step 2b: List of land use scenarios that are not prevented by any barrier.

As a result, the scenarios that are not prevented by any barrier are:

- Scenario 1 Continuation of the pre-project land use. Status Quo is land remaining with agricultural activities (Croplands and Grasslands).

The barriers identified would prevent the implementation of scenarios 2, which is limited by economic, technical, climatic and institutional barriers.

In the absence of the project activity, the baseline is expected to remain as agricultural activities that include crop cultivation and grazing activities in croplands and grasslands.

- Sub-Step 2c. Determination of the baseline scenario (if allowed by the barrier analysis)

The most likely scenario in the absence of the project will be the continuation of agricultural activities that include crop cultivation and grazing activities in croplands and grasslands.

This scenario is the simplest and cheapest way to take advantage of the land, not only for the population in nearby communities but also for migrants from other regions of the country.

As the forestation scenario without VCS is not a feasible scenario by step 2b, and the list has 1 scenario, following up the decision tree of the CDM tool the baseline scenario is the land use scenario that allows for the highest baseline GHG removals by sinks. The analysis continues with Step 4: Common practice test.

- Step 3. Investment analysis

AENOR agrees that the investment analysis is not required because Step 2 was conclusive in determining the additionality of the Grouped Project. Since only one activity remained as a pre-project after the barrier analysis.

- Step 4. Common practice analysis

The audit team reviewed the approach presented in the Joint PD&MR/1/ and is able to confirm that relevant parameters such as location, ecological conditions, economic situation, and development were taken into account in order to define the region, with a specific emphasis on the lack of access to carbon markets.

In Mexico, the National Forestry Commission (CONAFOR), was created by presidential decree on April 4, 2001, is a Decentralized Public Organization whose objective is to develop, promote and promote productive, conservation and restoration activities in forest matters, as well as participate in the formulation of plans, programs and in the application of the sustainable forestry development policy.

According to this entity in Mexico, there are around 7 million hectares of temperate and tropical climates, suitable for developing commercial forest plantations, of which 80% are located in tropical and subtropical regions of the country.

However, as can be seen with official data, the areas planted from 2000 to 2021 correspond to 368,371 hectares distributed throughout the territory, which corresponds to less than 1% occupation of suitable forest lands. According to this, it is possible to conclude that this country still has a shortage of forest plantations[21].

In accordance whit PP, commercial reforestation in Mexico is a sector with high economic potential that is not yet fully exploited in the country. In addition to the income obtained from the export of wood produced in plantations in the country, the generation of formal jobs stands out as one of the great economic benefits of the sector. When introducing new technologies, skilled staff is required, so the local population must be trained. This represents an important difference in traditionally livestock areas whose activities do not require specialization; and therefore, they do not provide great development opportunities for workers.

As such, no long-term activities are observed to be similar to the proposed by the project, with the objective of reforestation. It can therefore establish that activities proposed by the ARR project for carbon sequestration proves to be additional. The income from VCUs will help to overcome the faced barriers by the project and will alleviate the expected long time period for revenues.

AENOR has analyzed the additionality description of the project, together with the methodology and the evidence provided by the PP. Thus, AENOR deems that the additionality of the project is appropriately justified and in accordance with the requirements of the applied methodology and the requirements set in section 3.14 of the VCS Standard 4.4. 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 that those emission reductions/removals are, therefore, additional.

### 3.4.6 Quantification of GHG Emission Reductions and Removals

The data and parameters used, are detailed in the following file: Ex ante GHG_assessment_V3_08.23 (All data and parameters were available at validation)/2/. The quantification of GHG emission reductions and removals were determined using data, parameters and equations contained in the methodology applied by project proponent. All data parameters and calculations were assessed by AENOR, with the person in charge of processing the data in order to identify possible human errors. In conclusion, the spreadsheet formulae, conversions and aggregations are accurate and provide reliable results.

- Quantification of baseline emissions

[21] Del Sistema Nacional de Información Forestal: https://snif.cnf.gob.mx/ en el apartado de Plantaciones Forestales Comerciales, el autor es la Comisión Nacional Forestal 2022

The project proponent estimates the baseline net GHG removals by sinks using the equation 1 in section 5.4 of the methodology AR ACM0003 (Version 02.0).

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

Where:

| | |
|---|---|
| $\Delta C_{BSL,t}$ | = Baseline net GHG removals by sinks in year *t*; t $CO_2$-e |
| $\Delta C_{TREE\_BSL,t}$ | = 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"; t $CO_2$-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"; t $CO_2$-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"; t $CO_2$-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"; t $CO_2$-e |

The most likely baseline scenario is the land-use prior to the implementation of the project activity (degraded agricultural lands). Based on the information collected from local famers participating in the project, one baseline land use scenario has been identified: degraded croplands and grasslands.

Many of the planting sites were bare ground with very few and scattered native trees and shrubs not complaining the definition of forest in Mexico, i.e., minimum area 1 ha, minimum canopy covers 30% and minimum tree height 4m.

Changes in the carbon stocks in the living biomass – ($C_{TREE\_BSL,t}$ + $C_{SHRUB\_BSL,t}$)

All trees and shrubs in the project area were removed at the beginning of the cropping period. Thus, baseline emissions from trees and shrubs are estimated following AR-TOOL14 "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" (Version 4.2).

The PP took into account estimating the carbon stocks of pre-existing trees, using equations 20 and 21 of the AR-Tool14 and to estimate the carbon stock of the shrubs, it used equation 26 of AR-TOOL 14.

To determine the canopy coverage used in the AR-Tool14 measurements, the PP, based on visual evaluations in the field and with remote sensors, estimated that the canopy coverage of the trees at the time of planting was 3.70 % and the canopy cover of the shrubs were 24.32%.

As a conservative approach, the bforest (Default above-ground biomass content in forest in the region/country where the A/R CDM project activity is located; t d.m. ha-1) used in both scenarios is obtained for the forest in Mexico (Table 3A.1.4 of IPCC GPG-LULUCF 2006), which is over the estimated bforest that could exist from remaining trees in croplands or grasslands.

The other parameters used corresponded to the default values of the AR-Tool14 and the IPCC GPG-LULUCF 2003.

| Pre-existing trees ($C_{TREE\_BSL,t}$) | | | |
|---|---|---|---|
| Factor | Value | Unit | Source |
| $CF_{TREE}$ | 0,47 | t C/t d.m. | AR-TOOL14 |
| $R_{TREE}$ | 0,25 | Dimensionless | AR-TOOL14 |
| $b_{FOREST}$ | 54 | t C/ha. | Table 3A.1.4 of IPCC GPG-LULUCF 2003 |
| Shrub carbon stock ($C_{SHRUB\_BSL,t}$) | | | |
| Factor | Value | Unit | Source |
| *CFS* | 0,47 | t C/t d.m. | AR-TOOL14 |
| *RS* | 0,4 | Dimensionless | AR-TOOL14 |
| *BDRSF* | 0,1 | Dimensionless | AR-TOOL14 |
| $b_{FOREST}$ | 54 | t C/ha | Table 3A.1.4 of IPCC GPG-LULUCF 2003 |

Carbon stocks in baseline dead wood biomass ($\Delta C_{DW\_BSL,t}$, $\Delta C_{LI\_BSL,t}$)

The conservative default factors in equations 9 and 15 of AR-TOOL 12 is used to estimate carbon stocks in dead wood and litter biomass in the baseline:

$$C_{DW\_BSL,t} = C_{TREE\_BSL,t} \times DF_{DW}$$

Where:

$C_{DW\_BSL,t}$ = Carbon stock in dead wood at a given point of time in year *t*; t $CO_2$-e

$C_{TREE\_BSL,t}$ = Carbon stock in trees biomass in stratum *i* at a point of time in

year *t*, as calculated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t $CO_2$-e

$DF_{DW}$ = Conservative default factor expressing carbon stock in dead wood as a percentage of carbon stock in tree biomass; per cent.

$$C_{LI\_BSL,t} = C_{TREE\_BSL,t} \times DF_{LI}$$

Where:

$C_{LI\_BSL,t}$ = Carbon stock in litter at a given point of time in year *t*; t $CO_2$-e

$C_{TREE\_BSL,t}$ = Carbon stock in trees biomass in stratum *i* at a point of time in year *t*, as calculated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t $CO_2$-e

$DF_{LI}$ = Conservative default factor expressing carbon stock in litter as a percentage of carbon stock in tree biomass; per cent.

Table 6. Conservative default values used to estimate carbon stocks in the baseline in dead wood and litter biomass.

| Temperature / Moisture Regime | Parameter | Value | Unit | Source |
|---|---|---|---|---|
| Tropical moist | $DF_{Dw}$ | 6 | % | AR-TOOL 12. Table 5 |
| | $DF_{LI}$ | 1 | % | AR-TOOL 12. Table 6 |
| Tropical dry | $DF_{Dw}$ | 2 | % | AR-TOOL 12. Table 5 |
| | $DF_{LI}$ | 4 | % | AR-TOOL 12. Table 6 |

It is expected that the baseline dead wood and litter carbon pools will not show a permanent net increase. It is therefore conservative to assume that the sum of the changes in the carbon stocks of dead wood and litter carbon pools is zero in the baseline scenario.

Project emissions

The project emissions were determined by AR-ACM0003 - Afforestation and Reforestation of Lands Except Wetlands, version 2 – A/R Large-scale Consolidated Methodology, it was reviewed step by step and was compare with methodology requirements. For actual net GHG removals by sinks, in accordance with AR-ACM0003, the equation number 2 of methodology was applied.

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

Where,

$C_{ACTUAL,t}$= Actual net GHG removals by sinks, in year t; t $CO_2$-e.

$C_{P,t}$= Carbon stocks in project, occurring in the selected carbon pools, in year t; t $CO_2$-e.

$GHG_{E,t}$= Increase in non-$CO_2$ 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-$CO_2$ GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity"; t $CO_2$-e.

- Stratification

In conformance with section 5.3 of AR-ACM0003 methodology, stratification was defined, including specie, area and planting date; The Project proponent provided an Excel with this information/2/.

| State | Strata. Planting year | Species | Area (ha) |
|---|---|---|---|
| Tabasco | 1. 2017 | *Gmelina* | 314.42 |
| Tabasco | 2. 2018 | *Gmelina* | 264.42 |
| Tabasco | 3. 2019 | *Gmelina* | 196.83 |
| Tabasco | 4. 2020 | *Gmelina* | 41.36 |
| Tabasco | 5. 2021 Tabasco | *Gmelina* | 197.79 |
| Tamaulipas | 6. 2021.Tamaulipas | *Gmelina* | 204.18 |
| Total | | | 1,219.01 |

- *Change in carbon stock in Project (CP,t)*

*Estimation of changes in tree biomass ($C_{TREE\_PROJ,t}$)*

To estimate the carbon stock in tree biomass at a given point in time, the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities AR-TOOL14 Version 4.2" was used. According to section 8.2 of this tool, this method is used for ex-ante estimation of the carbon stock in tree biomass.

The ex-ante estimation of carbon stock changes is based on an average growth assumption (MAI). The ex-ante growth model, available as supporting documentation, was developed based on the following specific conditions.

$AGB_{MAI,i}$ is calculated as follow:

$$AGB_{MAI,i} = V_{MAI,i} \times D_j \times BEF_{2,j}$$

where:

| | | |
|---|---|---|
| $AGB_{MAI,i}$ | = | Mean annual increment in aboveground tree biomass in stratum *i*; t d.m. $ha^{-1}$ |
| $D_j$ | = | Density (over-bark) of tree species *j*; t d.m. $m^{-3}$<br>A value of 0.370 from *Balcorta y Vargas 2004* is used/22/. |
| $V_{MAI,i}$ | = | Mean Annual Increase in volume of tree species *j*; $m^3$ $ha^{-1}$<br>A value of 25.7 from Martinez Zurimendi, 2015 is used[22]/22/. |
| $BEF_{2,j}$ | = | Biomass expansion factor for conversion of tree stem biomass to above-ground tree biomass, for tree species *j*; dimensionless.<br>A value of 1.21 from Fonseca-González et al. 2021. [23]/22/. |

The most recent monitoring data were used to determine ex ante growth for the species to improve the accuracy of the forecasts. For this, the PP used the growth curves presented in Martínez-Zurimendi et al., (2015)/22/, who propose volume growth equations that estimate the volume of the stand of *Gmelina arborea* plantations in Mexico depending on the age of the plantation and the site index (i.e. the quality of the site).

This analysis allowed us to estimate the full rotation MAI of each stratum to calculate the weighted average MAI at the project level. The MAI at the project level of 25.7 m3/ha/year can be considered an increase above the average for Gmelina arborea plantations with 7-year rotations. According to the growth curves presented in Martínez-Zurimendi et al., (2015), *Gmelina arborea* plantations in Tabasco (i.e., the project region) can reach an IMA of up to 43-57 m3/ha/year in very good places. (site indices 29.5-34.5) and 32-43 m3/ha/year on medium to good sites. Consequently, the MAI applied at the project level is firmly within the range of plausible growth rates that can be achieved for Gmelina arborea plantations in the project region.

AENOR had access to the document called: " Technical documentation, MAI calibration for ex-ante_vs7"/38/, which presents the analysis of the growth curves constructed with the information from Martínez-Zurimendi et al., (2015), with the detailed review of this information and use of monitoring data, the team can conclude that the data presented and the analysis is realistic and appropriate for the project plantations.

[22] Martínez-Zurimendi, P., Juárez-García, A., Domínguez-Domínguez, M., López-López, L. M., de-la-Cruz-Arias, V., & Álvarez-Martínez, J. (2015). ÍNDICE DE SITIO Y PRODUCCIÓN MADERABLE EN PLANTACIONES FORESTALES DE Gmelina arborea EN TABASCO, MÉXICO. *Rev. Fitotec. Mex.*, *38*(4), 415–425.

[23] Modelos de biomasa y carbono para árboles de Gmelina arborea en plantaciones clonales (https://www.revistas.una.ac.cr/index.php/ambientales/article/view/14822/20714).

Other parameters

Root-to-shoot Varies according to aboveground biomass stock applied in the value: 0.26. This value was reported by Fonseca-González et al. (2020) for Gmelina arborea plantations in Mexico/22/.

For the carbon fraction parameter, a default value of 0.47 t C (t.d.m.)$^{-1}$ is used.

Subsequently, the data obtained was multiplied by the universal constant 44/12 and the carbon (ton CO2e) content of a tree was estimated throughout the project.

Change in carbon stock in shrub biomass – $\Delta C_{SHRUB\_PROJ,t}$

For the purpose of ex-ante estimation of carbon stock and change in carbon stock in the project scenario, change in carbon stock of shrubs is conservatively estimated as zero as stated in Paragraph 13 of AR-TOOL 14.

Estimation of changes in dead wood and litter ($C_{DW\ PROJ,,t}$ - $C_{LI\_\ PROJ,t}$)

Conservative method based on the default factor for estimating dead wood carbon pools.

The project proponent shall not make measurements based on sampling to estimate dead wood C pools for all strata to which this default method is applied; the dead wood carbon pool was estimated as indicated in Equation 2 of the tool:

$$C_{DWi,t} = C_{Tree,i,t}\, xDF_{DW}$$

where:

| | | |
|---|---|---|
| $C_{DW,i,t}$ | = | Carbon stock in dead wood in stratum i at a given point of time in year *t*; t $CO_2$-e. |
| $C_{TREE,i,t}$ | = | Carbon stock in trees biomass in stratum *i* at a point of time in year *t*; t $CO_2$-e. |
| $DF_{DW}$ | = | Conservative default factor expressing carbon stock in dead wood as a percentage of carbon stock in tree biomass; per cent. |

The value of the conservative default factor expressing the carbon stored in dead wood as a percentage of the carbon stored in tree biomass ($D_W$) was selected according to the guidance provided in the relevant table in section III of the tools.

For ex ante and ex post estimations in the first project activity instance, the conservative value for tropical biome, elevation below 2000 m and precipitation over 1600 mm has been selected from the table 5 of section 8 of the tool, resulting a value of 6%.

For ex ante and ex post estimations in the second project activity instance, the conservative value for tropical biome, elevation below 2000 m and precipitation less than 1000 mm has been selected from the table 5 of section 8 of the tool, resulting a value of 2%.

*Estimation of carbon stock in litter*

Conservative method based on the default factor for estimating carbon stored in litter ($C_{LI}$).

If PPs do not perform sampling-based measurements for C stock estimation, they will use the default method described in the tool. For all strata to which this default method is applied, the carbon stored in the litter shall be estimated as indicated in Equation 5 of the tool A/R Tool 12.

$$C_{LIi,t} = C_{Tree,i,t}\, xDF_{LI}$$

where:

| | | |
|---|---|---|
| $C_{LI,i,t}$ | = | Carbon stock in litter in stratum i at a given point of time in year *t*; t $CO_2$-e. |
| $C_{TREE,i,t}$ | = | Carbon stock in trees biomass in stratum *i* at a point of time in year *t*; t $CO_2$-e. |
| $DF_{LI}$ | = | Conservative default factor expressing carbon stock in litter as a percentage of carbon stock in tree biomass; per cent. |

The value of the conservative default factor expressing the carbon stored in the litter as a percentage of the carbon stored in the tree biomass (DF) has been selected according to the guidance provided in the tool.

For ex ante and ex post estimations in the first project activity instance, the conservative value for tropical biome, elevation below 2000 m and precipitation over 1600 mm has been selected from the table 6 of section 8 of the tool, resulting a value of 1%.

For ex ante and ex post estimations in the second project activity instance, the conservative value for tropical biome, elevation below 2000 m and precipitation less than 1000 mm has been selected from the table 6 of section 8 of the tool, resulting a value of 4%.

Soil organic carbon stock in project ($SOC_{AL}$)

Soil organic carbon (SOC) ex-ante estimation stocks were done in accordance to the "Tool for the estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activity". As suggested by the tool, it is assumed that the implementation of the project activity increases the SOC content of the lands from the pre-project level to the level that is equal to the steady-state SOC content under native vegetation. The increase in SOC content in the project scenario takes place at a constant rate over a period of 20 years from the year of planting. The project meets the applicability conditions of this tool:

$$SOC_{INITIAL,i} = SOC_{REF,i} \times f_{LU,i} \times f_{MG,i} \times f_{IN,i}$$

| | | |
|---|---|---|
| $SOC_{INITIAL,i}$ | = | SOC stock at the beginning of the A/R CDM project activity in stratum i of the areas of land; t C ha-1 |
| $SOC_{REF,i}$ | = | Reference SOC stock corresponding to the reference condition in native lands (i.e. non-degraded, unimproved lands under native vegetation ñ normally forest) by climate region and soil type applicable to stratum i of the areas of land; t C ha-1 |
| $fLU,i$ | = | Relative stock change factor for baseline land-use in stratum i of the areas of land; dimensionless |
| $fMG,i$ | = | Relative stock change factor for baseline management regime in stratum i of the areas of land; dimensionless |
| $fIN,i$ | = | Relative stock change factor for baseline input regime (e.g. crop residue returns, manure) in stratum i of the areas of land; dimensionless |
| $I$ | = | 1, 2, 3, … strata of areas of land; dimensionless |

And the project activity meets the following conditions: litter remains on site and is not removed, soil disturbance is in accordance with appropriate conservation practices, very limited to site preparation and will not be repeated within 20 years.

For ex ante estimations $SOC_{REF,i}$ and stock change factors ($f_{LU,i}$, $f_{MG,i}$ and $f_{IN,i}$) have been derived from tables 3, 4, 5 and 6 of the tool.

- $SOC_{REF}$: A value of 65 from table 3 for tropical moist climate region and soils with high activity clay (HAC) is used. For Tamaulipas area 38 value is used to the same table for tropical dry climate region and soils with high activity clay (HAC).
- $f_{LU}$:

  Tropical moist climate region in Tabasco

  - Cropland: 0.82. Value from table 4, long term cultivation or set aside.
  - Grassland: 1. Value from table 6, unique value.

  Tropical dry climate region in Tamaulipas

  - Cropland: 0.93. Value from table 4, long term cultivation or set aside.
  - Grassland: 1. Value from table 6, unique value.

- $f_{MG}$:

  Tropical moist climate region in Tabasco

- Cropland: 1.15. Value from table 6, reduced tillage.
- Grassland: 1.0. Value from table 6, severely degraded lands

Tropical dry climate region in Tamaulipas

- Cropland: 1.09. Value from table 6, reduced tillage.
- Grassland: 1.0. Value from table 6, severely degraded lands

- $f_{IN}$:

Tropical moist climate region in Tabasco

- Cropland: 0.92. Value from table 5, low nutrient input.
- Grassland: 1. Value from table 6, low nutrient input.

Tropical dry climate region in Tamaulipas

- Cropland: 0.95. Value from table 5, low nutrient input.
- Grassland: 1. Value from table 6, low nutrient input.

- Increase in non-CO2 GHG emissions within the project boundary as a result of the implementation of the A/R CDM project activity ($GHG_E$)

The "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity " methodology tool was used to review the increase in non-CO2 GHG emissions within the project boundary as a result of the implementation of the project activity.

On site visit, audit team can confirm that the project will not consider activities of site preparation or burning of harvest residue (defined from this point forward as forest fire).

As a result, the increase in non-CO2 GHG emissions within the project boundary because of the implementation of the A/R CDM project activity will be counted as zero ($GHG_E = 0$).

Therefore, actual net GHG removals by sink ($C_{actual}$) is equal to carbon stocks in project, occurring in the selected carbon pools ($C_p$).

- Leakage

Leakage due to the displacement of agricultural activities in year t, , must be assessed using the the tool “Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity”.

According to the methodology, the leakage that could occur as a result of the project shall be estimated as follows:

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

$LK_{AGRIC,t}$= Leakage due to the displacement of agricultural activities in year t, as estimated in the tool "Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity"; t $CO_2$-e.

The baseline scenario represents the continuation of pre-project land use, with land remaining in agricultural use, including both cropland and grassland. As described in section 3.4 of the PD, the entire project is characterized as an agricultural area, with 35% being grasslands and 65% being croplands. According to the mentioned tool, displacement of an agricultural activity by itself does not result in leakage emission. Leakage emission occurs when the displacement leads to an increase in GHG emissions relative to the GHG emissions attributable to the activity as it exists within the project boundary.

For the analysis of the leakage, the PP took into account the baseline scenario and several factors for the displacement of agricultural activities. Firstly, the characterization of the owners and the use of the land prior to the establishment of the plantations. And the barriers to using the land in agricultural activities (cropland and grassland).- Profile of the landowner

The majority of the land portions were awarded by the government in the 1950s due to the Chontalpa Plan, and from there, the land has been transmitted from generation to generation through families. The profile of PROXYLO's land renters is as follows: ejidatario; heir to the property; emigrated to the state capital, Mexico City, and even the United States.

Since many of the acquired landowners are adults, they have found it necessary to lease their land in order to get away from field work and to have a marginal income, since they can then move to some cities. As a result, much of the land in this category is unused or leased, not by the original ejidatarios, but by their heirs who have emigrated and no longer live on the ejido.

By renting their properties, current ejidatarios no longer seek new land to continue cultivating, as their livelihood is already different and renting is a supplement to their income. However, interest in renting land for crop cultivation is declining as the owners age and their sons migrate to the cities. According to Palma-López et al (2007), these landowners are named as semi-capitalised producers these are known as social sector producers and do not have a defined market for the sale of their crops[24].

The audit team was able to verify the ownership of the land by the ejidatarios and its use in the leasehold modality/9/. In addition, in interviews with COMESFOR[25], CONAFOR[26] and SEDEC[27], it was confirmed that this type of use is common in the area and that the use of the land, the Chontalpa Plan promoted by the Mexican government, has had an impact on the agricultural activity in the area, but increasingly the rental of land is less attractive, which is why there are areas that are not permanently under agricultural use.

- Land use practices at the moment of the leasing

[24] Palma-López, D. J., & Triano-Sarabia, A. (Comps.). (2007). Suelos de Tabasco: Su uso y manejo sustentable. Villahermosa, Tabasco, México: Colegio de Postgraduados-Campus Tabasco; Instituto para el Desarrollo de Sistemas de Producción del Trópico Húmedo de Tabasco; Fundación Produce Tabasco
[25] CONAFOR: National Forestry Commission of Mexico
[26] COMESFOR: Tabasco State Forestry Commission
[27] SEDEC : Secretariat for Economic Development and Competitiveness of Tabasco

Evidence presented by the PP in the document called: "Sampling of pre-existing vegetation" prepared by Proxylo, shows that some of the properties leased for the project have been abandoned prior to the leasing of land to Proxylo.

In this document, Proxylo presents evidence that there are some properties that were abandoned where in recent years they have not been exploited for agriculture or grazing activities, which have fast-growing vegetation, and for this reason they must carry out a sampling to request permission for clearing from the Secretariat of Environment and Natural Resources (SEMARNAT) and the National Forestry Commission (CONAFOR). The data of shrub and tree cover is also an evidence of the existence of vegetation that has growth due to the nonuse of lands.

The identification of abandoned agricultural lands in the surroundings in the site visits and their leasing to the project allows us to conclude that the availability of land for agricultural use is greater than the area under agricultural use (cropland and grassland). (López *et al.* 2021).

- Pre-project land use as Croplands

In the project zone rice and sugar cane cultivation is dominant. Currently, production is being reduced due to low return and competition from the growing of crop for export to United States of America (López, et al. 2021 &.Valverde-Rebollo, 2022[28])

Due to the declining rice production in González and El Mante and the great amount of land available for rice cultivation, however not used, in Cárdenas, the creation of forest plantations is not seen as a threat to the local cultivation of crops[29].

VVB confirms that in recent times due to the price decrease and overproduction of sugar in Mexico, as well as the import of high sugar production and the import of high fructose at very low prices; the cultivated area between 2014 and 2018 has decreased[30].

Although it is true that the municipality of Tabasco has been an important area for sugarcane production during the 20th and early 21st centuries, this activity is currently in decline due to a lack of investment and technology, as well as a reduction in soil fertility. This scenario generates the lack of competition in the region in the sector, which leads former producers to abandon the activity[31].

The availability of agricultural land in the state of Tabasco is high due to decades of policies promoting land clearing for agriculture and grazing activities. Programs such as PRONADE and the National Agricultural Program encouraged deforestation, significantly expanding agricultural areas and causing widespread land degradation. As a result, large tracts of land are available for agriculture, which reduces pressure on the remaining forests. (Palma-López *et al*. 2007).

On the other hand, the main challenges facing sugarcane in the state of Tabasco include climatic factors,

[28] Valverde-Rebollo, G. & Morales, J. C. & Valtierra-Pacheco, E. & Escalona-Maurice, M. (2022). Geographical analysis of rice production and storage in Mexico, 1980 – 2018. Agro Productividad. Agricultura Tropical. 1. 9-23. 10.5154/r.rchsagt.2021.02.02.

[29] Herrera, Héctor Emmanuel & Trejo-Téllez, Libia Iris & Gómez-Merino, Fernando. (2017). The Mexican sugarcane production system: History, current status and new trends.

[30] https://www.siiba.conadesuca.gob.mx/siiaca/docext/11vo_Informe_Estadistico.pdf

[31] novedadesdetabasco.com.mx

labor shortages, high production costs and low technical level in the field[32].

AENOR was able to confirm that according to López et al. (2021)[33] the municipality of Cárdenas in Tabasco has a medium to high productive potential for rice cultivation. However, the project area is outside the areas identified with medium or high productive potential for rice.

Other sources consulted by the audit team allow us to conclude that for the states of Tabaco and Tamaulipas in Mexico, different factors have influenced the loss of productivity in rise and sugarcane crops, which is supported by:

- The "National Sugarcane Agroindustry Program 2021-2024[34]" indicates that, if certain trends continue, the sugarcane agroindustry could face a crisis of overproduction and low prices, which would lead to low profitability in this agroindustrial activity, directly affecting sugarcane producers and more than 2 million people who depend on this activity.

- In the specific context of Tabasco, challenges such as adverse weather factors, labor shortages, high production costs and low technical skills in the field have been reported, affecting the productivity and profitability of sugarcane in the region[35].

- Rice production in Mexico showed a positive trend between 1993 and 1998, after which production fell and did not return to the levels of the early 1990s. In 2020, rice production in Mexico reached its highest point since 2006, and an increase of 20% compared to 2019. The Northeast Regional Research Center (CIRNE) in Tamaulipas has been conducting research in agricultural areas, including the genetic improvement of rice crops, with the aim of developing more resilient and productive varieties. (SIAP, 2022; Bastida, 2022[36])

However, cartographic studies show that about 65% of the project area is classified as cropland, many of which were abandoned at the time the project was established, as was confirmed by the audit team in document: "Sampling of pre-existing vegetation" by Proxylo.

And considering that the areas with crop potential available in the surroundings of the project are greater than those cultivated, as shown in studies of decreased productivity and land occupation consulted by the PP and the audit team, it is possible to conclude that the project activities will not generate leakages due to the displacement of crops in the project area.

- Pre-project land use as Grasslands

As per section 6.10 of the “Estimation of the increase in GHG emissions attributable to the displacement of pre-project agricultural activities in A/R CDM project activity” tool, leakage emission attributable to the displacement of grazing activities is considered insignificant and hence accounted as zero for a given list

[32]Moreno Unda, Arcelia A. Efectos ambientales del Programa Nacional de Desmontes, 1972-1982. 2011. Disponible en http://ninive.uaslp.mx/jspui/handle/i/3541 y comunidadpmpca.uaslp.mx/documento.aspx?idT=123

[33] López, G., Miranda, R., Hernández, A. & Sánchez, E. (2021). Tecnología de potencial productivo de arroz (Oryza sativa L.) en el estado de Tabasco, México y su aportación a la soberanía alimentaria. Revista Chapingo Serie Agricultura Tropical. 1. 9-23. 10.5154/r.rchsagt.2021.02.02

[34] https://www.gob.mx/conadesuca/articulos/programa-nacional-de-la-agroindustria-de-la-cana-de-azucar-2021-2024-pronac-ver-mas?state=published&utm

[35] https://www.eleconomista.com.mx/opinion/impulso-sector-canero-tabasco-20241001-728260.html?utm

[36] https://www.redalyc.org/journal/6379/637976022002/637976022002.pdf

of specified conditions (from option (a) and (b)).

(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.

If the previous landowners continue farming, the activities will likely shift to already-degraded areas, according to the conditions of the area where the project activities are implemented, the PP presents an analysis based on agricultural historical agricultural policies, agricultural pasture practices and the estimated carrying capacity for the project area, an area where there are pastures[37].

In addition, it describes how the rural population of Mexico has had a high migration to urban areas, affecting agricultural activities, which is presumed to result in greater availability of land that increases the carrying capacity for livestock.[38].

Additionally, through a GIS analysis (Figures 19 and 20 of the PD), the PP presents an interpretation of land cover and use, which shows that a very low percentage corresponds to grazing activities (35% as described above), which shows that this activity is not very representative and can be supported by neighboring areas without affecting the animal carrying capacity in the area.

Considering this, leakage emission attributable to the displacement of grazing activities in the Project Area is considered insignificant and hence measured as zero.

AENOR can confirm that these emissions are not considered in the project activity. This assumption is supported by the photo of previous land uses and the information provided by Proxylo. Authority interviews and visual interpretation also allowed the audit team to arrive at this conclusion during the March 2023 on-site visit.

In conclusion, leakage due to displacement of project activities, whether on cropland or grassland, is zero according to the nonexistence of any of the three types of leakage: 1) Market leakage, 2) Leakage due to displacement of activities and 3) Ecological leakage.

Thus, the PP followed approach of Section 6.11 (equations 1, 2 and 3) to estimate leakage (parameters meaning can be found within AR-Tool15 or the PD):

[37] Moreno Unda, A. A. (2011). Efectos ambientales del Programa Nacional de Desmontes, 1972-1982. Retrieved from http://ninive.uaslp.mx/jspui/handle/i/3541 and comunidadpmpca.uaslp.mx/documento.aspx?idT=123

[38] Instituto Nacional de Estadística y Geografía (INEGI). (n.d.). *Población rural y urbana en México*. Retrieved November 14, 2024, from http://cuentame.inegi.org.mx/poblacion/rur_urb.aspx?tema=P

$$LK_{AGRIC,t} = \frac{44}{12} \times \left(\Delta C_{BIOMASS,t} + \Delta SOC_{LUC,t}\right)$$ Equation (1)

$$\Delta C_{BIOMASS,t} = [1.1 \times b_{TREE} \times (1 + R_{TREE}) + b_{SHRUB} \times (1 + R_S)] \times CF \times A_{DISP,t}$$ Equation (2)

$$\Delta SOC_{LUC,t} = SOC_{REF} \times (f_{LUP} \times f_{MGP} \times f_{INP} - f_{LUD} \times f_{MGD} \times f_{IND}) \times A_{DISP,t}$$ Equation (3)

Thus, the area of land from which agricultural activity is being displaced (ADISP,t) is deemed as zero, leaving a change in SOC stock due to land-use change in the land receiving the displaced activity (ΔSOCLUC,t) of zero, a decrease in carbon stock in the carbon pools of the land receiving the activity displaced (ΔCBIOMASS,t) of zero and a leakage emission resulting from displacement of agricultural activities (LKt = LKAGRIC,T) are zero too.

ADISP,t = 0.

ΔSOCLUC,t = 0.

ΔCBIOMASS,t = 0.

Thus, according to AR-Tool15, leakage is to be considered as zero.

LKt = LKAGRIC,T = 0 t CO2e ha-1.

The evidence collected by the audit team to confirm that the project activities do not generate leakage displacement due to agricultural activities (cropland and grassland) took into account:

1. Inspection of leaks through site visits, review of project geospatial files and review of documents.
2. In interviews with institutions (COMESFOR, CONAFOR, SEDEC) and project staff.
3. Review of official information: Historical images from the National Institute of Statistics and Geography (INEGI, 2007): Agricultural and Forestry Census.
4. Review of the photographic record presented by Project Proponent.
5. Review of literature and sources provided by the project.
6. Review of sources found by the VVB to corroborate the information.

And based on the analysis of the evidence against the project conditions and the standard, it can be concluded that the leakages due to the project activities are considered insignificant and can be quantified as zero, firstly, because the activities consider the incorporation of forest plantations in historically crop areas in the process of productive decline where the cultivable areas are greater than the cultivated areas, and also, in the area there is grassing activities dedication, which would not impact the carrying capacity of the area. Due to this, it is unlikely that these activities will displace other areas and generate leaks due to the project activity.

The auditor concludes that the leakage analysis was considered appropriately and is justified and conforms to the VCS requirements.

- Quantification of GHG Emission Reductions and Removals

Based on the information and the estimations tools and files/1/2/. All data, conversion factors, formulas, and calculations were provided by the project proponent in spread sheet format to guarantee all calculations were accessible for review, and detailed in Joint PD&MR /1/. The auditor considers that all assumptions, sources and data are indicated in the Joint PD&MR /1/ and all relevant information about the project, was confirmed and checked completely. In consequence, it can conclude that the methodology was applied following all the requirements, equations and methodological procedures. Also, AENOR could confirm that the sources used are quoted correctly and interpreted adequately in Joint PD&MR /1/ and spreadsheets/2/.

AENOR was able to determine that the equations, sources, assumptions, parameters and statistical procedures, meet the methodological and standard requirements. Additionally, AENOR assessed the total calculations for evaluate accuracy of the results for baseline emissions, project emissions, leakage and emission removals.

In regard to procedures in the correspondent requirement of VCS Standard, AENOR confirms the following statements:

a) All relevant assumptions and data are listed in the project description, including their references and sources.

b) All data and parameter values used in the project description are considered reasonable in the context of the project.

c) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the project description.

As suggested by the selected methodology, the following equation was used to calculate the net GHG removals by sinks for each stand model during the whole project:

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

Where,

$\Delta C_{AR\text{-}CDM,t}$= Net anthropogenic GHG removals by sinks, in year t; t $CO_2$-e.

$\Delta C_{ACTUAL,t}$= Actual net GHG removals by sinks, in year t; t $CO_2$-e.

$\Delta C_{BSL,t}$= Baseline net GHG removals by sinks, in year t; t $CO_2$-e.

$\Delta LK_t$= GHG emissions due to leakage, in year t; t $CO_2$-e.

As a result of the project's actions, the total calculates the net GHG removals by sinks is 105,358tCO2e. The total crediting period for the grouped project is 30 years.

| Year | Estimated baseline emissions or removals ($tCO_2e$) | Estimated project emissions or removals ($tCO_2e$) | Estimated leakage emissions ($tCO_2e$) | Estimated net GHG emission reductions or removals ($tCO_2e$) |
|---|---|---|---|---|
| Year 0 | 0 | 0 | 0.00 | 0.00 |
| 11-01-2017 to 10-01-2018 | 2,170 | 4,940 | 0.00 | 2,770 |
| 11-01-2018 to 10-01-2019 | 2,305 | 13,107 | 0.00 | 10,802 |
| 11-01-2019 to 10-01-2020 | 2,525 | 19,689 | 0.00 | 17,164 |
| 11-01-2020 to 10-01-2021 | 0 | 22,980 | 0.00 | 22,980 |
| 11-01-2021 to 10-01-2022 | 1,322 | 29,442 | 0.00 | 28,120 |
| 11-01-2022 to 10-01-2023 | 1,674 | 34,812 | 0.00 | 33,138 |
| 11-01-2023 to 10-01-2024 | 0 | -19,797 | 0.00 | -19,797 |
| 11-01-2024 to 10-01-2025 | 0 | -15,313 | 0.00 | -15,313 |
| 11-01-2025 to 10-01-2026 | 0 | -2,906 | 0.00 | -2,906 |
| 11-01-2026 to 10-01-2027 | 0 | 24,999 | 0.00 | 24,999 |
| 11-01-2027 to 10-01-2028 | 0 | -35,555 | 0.00 | -35,555 |
| 11-01-2028 to 10-01-2029 | 0 | 29,442 | 0.00 | 29,442 |
| 11-01-2029 to 10-01-2030 | 0 | 34,812 | 0.00 | 34,812 |
| 11-01-2030 to 10-01-2031 | 0 | -19,797 | 0.00 | -19,797 |
| 11-01-2031 to 10-01-2032 | 0 | -15,313 | 0.00 | -15,313 |
| 11-01-2032 to 10-01-2033 | 0 | -2,906 | 0.00 | -2,906 |

| Year | Estimated baseline emissions or removals ($tCO_2e$) | Estimated project emissions or removals ($tCO_2e$) | Estimated leakage emissions ($tCO_2e$) | Estimated net GHG emission reductions or removals ($tCO_2e$) |
|---|---|---|---|---|
| 11-01-2033 to 10-01-2034 | 0 | 24,999 | 0.00 | 24,999 |
| 11-01-2034 to 10-01-2035 | 0 | -35,555 | 0.00 | -35,555 |
| 11-01-2035 to 10-01-2036 | 0 | 29,442 | 0.00 | 29,442 |
| 11-01-2036 to 10-01-2037 | 0 | 34,812 | 0.00 | 34,812 |
| 11-01-2037 to 10-01-2038 | 0 | -20,536 | 0.00 | -20,536 |
| 11-01-2038 to 10-01-2039 | 0 | -16,486 | 0.00 | -16,486 |
| 11-01-2039 to 10-01-2040 | 0 | -4,499 | 0.00 | -4,499 |
| 11-01-2040 to 10-01-2041 | 0 | 23,298 | 0.00 | 23,298 |
| 11-01-2041 to 10-01-2042 | 0 | -37,795 | 0.00 | -37,795 |
| 11-01-2042 to 10-01-2043 | 0 | 27,202 | 0.00 | 27,202 |
| 11-01-2043 to 10-01-2044 | 0 | 32,572 | 0.00 | 32,572 |
| 11-01-2044 to 10-01-2045 | 0 | -22,037 | 0.00 | -22,037 |
| 11-01-2045 to 10-01-2046 | 0 | -17,554 | 0.00 | -17,554 |
| 11-01-2046 to 10-01-2047 | 0 | -5,146 | 0.00 | -5,146 |
| **Total** | 9997 | 115,355 | 0.00 | 105,358[39] |

[39] This value is the cumulative of the net estimated annual change during the crediting period. Do not confuse with the LTA value that is described in the appendix, which corresponds to 95,701 tCO2e.

### 3.4.7 Methodology Deviations

The project and project monitoring plan meet all the requirements of the applied methodology and does not deviate from the baseline scenario, additionality determination, or inclusion of project GHG sources, sinks and reservoirs.

### 3.4.8 Monitoring Plan

AENOR validate that a Monitoring Plan was included in the Joint PD&MR/1/. The monitoring plan is intended to facilitate monitoring, recording, reporting, and verification activities necessary for assessment of the project performance and determination of the achieved emissions reductions in compliance with the applied methodology.

The auditor has checked all the parameters presented in the monitoring plan against the requirements of the methodology. In this sense, the Monitoring Plan contains all necessary parameters, with adequate descriptions as to: Source of data, measurements procedures, monitoring frequency and QA/QC procedures to be applied.

The list of parameters available at validation and the values used were also checked by AENOR and it is deemed complete and consistent with calculations and assumptions considered.

*Table 7. List of parameters available at validation*

| Parameter | Value | Source |
|---|---|---|
| Area of baseline stratum i, delineated on the basis of tree crown cover at the start of the A/R CDM project activity ($A_{BSL,i}$) | Value depends on each stratum | GIS or/and GPS |
| Root-shoot ratio for trees in the baseline ($R_{TREE\_BSL}$) | 0.25 | Default value of AR-TOOL14 is used unless transparent and verifiable information can be provided to justify a different value. |
| Crown cover of trees in baseline stratum i, at the start of the A/R CDM project activity, expressed as a fraction ($CC_{TREE\_BSL,i}$) | 3.70% | GIS or/and GPS |
| Carbon fraction of shrub biomass; t C (t d.m.)-1 (CF) | 0.47 | Default value of AR-TOOL14 is used unless transparent and verifiable information can be provided to justify a different value. |
| Root to shoot ratio for mixed tropical broadleaf species (Rj) | 0.26 | Fonseca-González, W., Murillo-Cruz, R., Ávila-Arias, C., Rojas-Vargas, M., & Spínola Parallada, R. M. (2021). Modelos de biomasa y carbono para árboles de Gmelina arborea en |

| Parameter | Value | Source |
|---|---|---|
| | | plantaciones clonales. Revista de Ciencias Ambientales, 55(1), 143–159. https://doi.org/10.15359/rca.55-1.7 |
| 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 ($V_{TREE,j}(x_{1,l}, x_{2,l}, x_{3,l}, \dots)$) | Result of the application of the equation | Application of the equation to monitoring tree data |
| Basic wood density (Dj) | 0.370 | Hernández, J. V., & Martínez, H. B. (2004)/22/ |
| Biomass expansion factor for conversion of tree stem biomass to above-ground tree biomass ($BEF_{2,j}$) | 1.21 | Fonseca-González, W., Murillo-Cruz, R., Ávila-Arias, C., Rojas-Vargas, M., & Spínola Parallada, R. M. (2021). Modelos de biomasa y carbono para árboles de Gmelina arborea en plantaciones clonales. Revista de Ciencias Ambientales, 55(1), 143–159. https://doi.org/10.15359/rca.55-1.7 |
| Carbon fraction of shrub biomass; t C (t d.m.)-1 (CF) | 0.47 | Default value of AR-TOOL14 is used unless transparent and verifiable information can be provided to justify a different value. |
| Area of shrub biomass estimation stratum i ($A_{SHRUB,i}$) | Value depends on each stratum | GIS or/and GPS |
| Shrub biomass per hectare in shrub biomass estimation stratum i ($b_{SHRUB,i}$) | Result of the application of the equation | Application of the equation to monitoring shrub data |
| Root-shoot ratio for shrubs (Rs) | 0.4 | AR-TOOL14, version 4.2: "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM activities" |
| Ratio of shrub biomass per hectare in land having a shrub crown cover ($BDR_{SF}$) | 0.1 | AR-TOOL14, version 4.2 - A default value is used unless transparent and verifiable information can be provided to justify a different value. |
| Default above-ground biomass content in forest in the region/country where the A/R CDM project is located ($b_{FOREST}$) | 54 | Default values from Table 3A.1.4 of IPCC GPG-LULUCF 2003 |
| Conservative default factor expressing carbon stock in dead wood as a | The most conservative value for tropical biome, elevation below 2000 m | Section 8 of the AR-TOOL 12 "Estimation of carbon stocks and change in carbon stocks in dead wood |

| Parameter | Value | Source |
|---|---|---|
| percentage of carbon stock in tree biomass ($DF_{DW}$) | and precipitation over 1600mm has been selected from the table (value: 6). The most conservative value for tropical biome, elevation below 2000 m and precipitation less than 1000 mm has been selected from the table (value: 2). | and litter in A/R CDM project activities" |
| Conservative default factor expressing carbon stock in litter as a percentage of carbon stock in tree biomass ($DF_{LI}$) | The most conservative value for tropical biome, elevation below 2000 m and precipitation over 1600mm has been selected from the table (value: 1). The most conservative value for tropical biome, elevation below 2000 m and precipitation less than 1000 mm has been selected from the table (value: 4). | Section 8 of the AR-TOOL 12 "Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities" |
| Combustion factor for stratum I (COMFi) | Age range Default value<br>3-5 years 0.46<br>6-10 years 0.67<br>11-17 years 0.50<br>18 years or more 0.32 | Methodological tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" Version 04.0 |
| Emission factor for CH4 in stratum I ($EFCH_{4,i}$) | 6.8 | Methodological tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" Version 04.0 |
| Global warming potential for CH4 ($GWP_{CH4}$) | 28 | Methodological tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" Version 04.0 |
| Emission factor for $N_2O$ in stratum I ($EFN_2O_{,i}$) | 0.2 | Methodological tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" Version 04.0 |
| Global warming potential for ($GWP_{N2O}$) | 265 | Methodological tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" Version 04.0 |
| Reference SOC stock corresponding to the | Default reference SOC stocks value for tropical | AR-TOOL 16 "Tool for estimation of change in soil organic carbon stocks |

| Parameter | Value | Source |
|---|---|---|
| reference condition in native lands ($SOC_{REF}$) | moist biome and soils with low activity clay (HAC) minerals (value: 65).<br>Default reference SOC stocks value for tropical dry biome and soils with low activity clay (HAC) minerals (value: 38). | due to the implementation of A/R CDM project activities" |
| Land use factor ($f_{LU,i}$) | Cropland: 0.82 for long term cultivation and tropical moist biome<br>Cropland: 0.93 for long term cultivation and tropical dry biome<br>Grassland: 1<br>Non-degraded grassland: 1 | AR-TOOL 16 "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" |
| Management factor ($f_{MG,i}$) | Cropland: 1.15 for tropical moist biome<br>Cropland: 1.09 for tropical dry biome<br>Grassland: 0.7 | AR-TOOL 16 "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" |
| Input factor ($f_{LU,i}$) | Cropland: 0.92 for tropical moist biome<br>Cropland: 0.95 for tropical dry biome<br>Grassland: 1 | AR-TOOL 16 "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities" |

AENOR fully reviewed the source of the different parameters and assessed the transparency of each one according to the project, the specie used and the area of the project.

*Table 8. List of parameters to be monitored*

| Parameter | Value | Source |
|---|---|---|
| The area of stratum i of the areas of land (Ai) | Areas in project area has been tracked in the field using the GPS | GIS or/and GPS |
| Area of shrub biomass estimation stratum i ($ASHRUB_{,i}$) | Areas in project area will be tracked in the field using the GPS. All the project area is considered potential area of shrub biomass. | GIS or/and GPS |

| Parameter | Value | Source |
|---|---|---|
| Ratio of the area of stratum i to the sum of areas of tree biomass estimation strata. (wi) | Calculated for each monitoring event, at least every five years | See ex-post wi in section 6.3. of this PD |
| Number of sample plots in stratum i ($n_i$) | Calculated | ni is calculated for each monitoring event |
| Estimated standard deviation of biomass stock in stratum I ($s_i$) | Calculated | Sampling or default value |
| Size of sample plot in stratum i ($APLOT,_i$) | Area: 0.0314 ha, circular plot r = 10 m | After calculating the number of sample plots required to achieve the desired precision level (90/10) a stratified random selection is carried out. |
| Variables measured per tree for the calculation of above-ground biomass an allometric equation for species (X) | $B_{TREE}$ = exp(0,641384 + 2,75382*Log10(DBH)^2) | Fonseca-González et al., 2021/23/ |
| Area burnt in stratum i ($A_{BURN,i,t}$) | Field measurement, remote sensing measurement or any other spatial information available | GPS (if applied) |
| Area of land from which agricultural activity is being displaced in year t ($ADISP,t$) | Field measurement. | Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In the absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, may be applied |
| Crown cover of shrubs in shrub biomass estimation stratum i at the time of estimation, expressed as a fraction.($CC_{SHURB,i}$) | Field measurement | Standard operating procedures (SOPs) prescribed under national forest inventory are applied. In the absence of these, SOPs from published handbooks, or from the IPCC GPG LULUCF 2003, may be applied |

- Monitoring Plan

The list of monitored data and parameters is the following:

- Project boundaries
- Area covered by stratum i
- Total aboveground tree biomass for stratum i within the project boundaries.

The procedures described in section 5 of the Joint PD&MR/1/ 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.

In AENOR's opinion 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/1/. The data control and quality assurance were also defined in the project document. Thus, AENOR deems the monitoring plan complies 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.

- *Management system and quality assurance*

As spoken of in the section of this report dealing with the monitoring plan, AENOR can attest that all indicators of importance for the controlling and reporting of project performance have in fact been incorporated into the project's monitoring plan. The frequency, responsibility and authority for the registration, monitoring, measurement and reporting of project activities has clearly been developed with a "best practices" management system in mind, which has also set in place effective training measures for new employees or for those instances where there may be sudden staff turnover and the quick training of new employees is quickly needed, as well as with the stipulations spelled out within the methodology being put to use.

Furthermore, as AENOR was able to confirm the project's monitoring plan includes:

- Description of the monitoring equipment and procedures to be followed;

The reported parameters, including their source, monitoring frequency and review criteria for measurements and equipment management, as indicated in the PD, were verified as correct. The necessary management system procedures, including responsibility and authority for monitoring activities, were verified to be consistent with the PD. The knowledge of personnel associated with the project monitoring activities was found to be satisfactory by the audit team.

- *QA/QC measures applied;*

The audit team took into account that the QA/QC criteria were described in the PD parameters. In order to ensure traceability in the collection of information and the procedures to incorporate these measurements in the calculations.

- Sampling provisions;

The sampling designs and techniques proposed by the PP respond to the statistical rigor applicable to forest inventories, in which a representativeness of 95% must be guaranteed. The proposed statistical formulas and measurement protocols for the dasometric variables are appropriate to lead to a quantification with acceptable uncertainty values for the methodology and the standard.

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

Validation/Verification team has assessed the final version of Non-permanence Risk Report /4/ for the validation and verification process according to the AFOLU Non-Permanence Risk Tool, v4.0.

Below, it is explained the assessment of the non-permanence risk rating determined by the project participant.

*Internal Risk*

| Project Management | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| a) | Species planted (where applicable) associated with more than 25% of the stocks on which GHG credits have previously been issued are not native or proven to be adapted to the same or similar agro-ecological zone(s) in which the project is located. | 0 | *Gmelina arborea* species is native mainly to India, Bangladesh, Sri Lanka and has been successfully introduced in reforestation activities in tropical countries. In Mexico, the first Gmelina arborea plantations were recorded in 1971, as part of a project launched by the National Forest Research Institute (INIF).<br><br>By 2000 Melina plantations were grown in the state of Tabasco and by 2004 in Tamaulipas. Since then, the specie has |

| Project Management | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| | | | been established in different Mexican states for multiple purposes/24/25/.<br><br>The audit team validated the sources provided by the project and during the on-site visit it was confirmed that the *Gmelina arborea* species has been planted for several years in different areas of Mexico and does not present limitations for the project area. |
| b) | Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50% of stocks on which GHG credits have previously been issued. | 0 | All parcels participating in the project (Tabasco and Tamaulipas) must have a legal document/9/ that guarantees the farmer's ownership according to Mexican law.<br><br>AENOR during the on-site visit, it was possible to verify the ownership of the plots and their control by the owners. |
| c) | Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (ie, any area of required experience is not covered by at least one individual with at least 5 year experience in the area). | 0 | Tabasco: PROXYLO S.A.P.I DE C.V is the project implementor of the project activities on the field.<br><br>Tamaulipas: PROXYLO S.A.P.I DE C.V is the project implementor of the project activities on the field<br><br>PROXYLO S.A.P.I DE C.V has over 18 years of experience in the development of forestry projects and dedicated to the establishment, management, and use of Gmelina arborea plantations in Mexico.<br><br>FORLIANCE has over 10 years developing nature-base projects worldwide with an emphasis in Latin-American.<br><br>Ala Bool is an organization that support agroforestry and forestry development in Mexico.<br><br>The audit team was able to validate that the project management team includes people with significant experience in all the skills necessary to successfully carry out all project activities. |
| d) | Management team does not maintain a presence in the country or is located more than a day of travel from the project site, | 0 | The audit team was able to validate that the Management Team maintains a presence in the country and is less than a |

| Project Management | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| | considering all parcels or polygons in the project area. | | day's journey from the project site, since it has offices and personnel in various municipalities in the project area. |
| e) | Mitigation: Management team includes individuals with significant experience Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs. | -2 | The audit team was able to validate that the project management team includes people (FORLIANCE GmbH) with significant experience in all the skills necessary to successfully carry out all project activities. |
| f) | Mitigation: Adaptive management plan in place | -2 | Project activities are evaluated on a regular basis according to the project's monitoring plans and SOP/26/ with respect to these various activities. Adaptive Management Plan is in place.<br><br>AENOR was able to review the Adaptive Plan and evidence that it provides a consolidated overview of all planned activities during the accreditation period to ensure that the carbon against which the VCUs are emitted is not lost during a final cut without subsequent replanting or regeneration.<br><br>The management activities are regulated for every stratum in cycles of 7 years of plantation and regrowth. This unified forest management plan is valid for all reforestation areas in the project for the crediting period 2017-2047. |
| Total Project Management (PM) [as applicable, (a + b + c + d + e + f)]<br><br>Total may be less than zero. | | -4 | Total may be less than zero. |

In AENOR´s opinion, total project management risk rating (-4) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool: VCS V4.0.

| Financial Viability | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| a) | Project cash flow breakeven point is greater than 10 years from the current risk assessment | 0 | No applicable. Project cash flow breakeven point is 4 and up to less than 7 years from the current risk assessment. |
| b) | Project cash flow breakeven point is between 7 and up to less than 10 years from the current risk assessment | 0 | No applicable. Project cash flow breakeven point is 4 and up to less than 7 years from the current risk assessment. |
| c) | Project cash flow breakeven point between 4 and up to less than 7 years from the current risk assessment | 1 | The project cash flow breakeven point was found to be 4 and up to less than 7 years from the current risk assessment, by financial analysis/5/Which has been assessed by the VVB. |
| d) | Project cash flow breakeven point is less than 4 years from the current risk assessment | 0 | No applicable. Project cash flow breakeven point is 4 and up to less than 7 years from the current risk assessment. |
| e) | Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven | 0 | Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven. |
| f) | Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven | 0 | Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven. |
| g) | Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven | 0 | Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven. |
| h) | Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven | 0 | Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven. The PP has provided the financial analysis /5/ which has been assessed and reviewed by the VVB. |
| i) | Mitigation: Project has available as callable financial resources at least 50% of total cash out before project reaches breakeven | -2 | The project is financially viable as the project benefits exceed the project costs. The PP has provided the financial analysis which has been assessed by the VVB.<br><br>Financial viability spreadsheet shows that the project had available callable financial resources of at least 50% of the total cash disbursed before the project breaks even. |
| Total Financial Viability (FV) [as applicable, ((a, b, c or d) + (e, f, g or h) + i)] | | 0 | Total may not be less than zero. |

In accordance with provided evidence, the project has secured the funding needed to cover the total cash out required before the project reaches breakeven. It was verified against cash flow /27/ and supporting evidences of incomes and outcomes. Then, in AENOR´s opinion, total financial viability risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool: VCS v4.0.

| Opportunity Cost | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| a) | NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated. | 0 | Not applicable since NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities. |
| b) | NPV from the most profitable alternative land use activity is expected to be between 50% and up to100% more than from project activities. | 0 | Not applicable since NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities. |
| c) | NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities. | 0 | Not applicable since NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities. |
| d) | NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated. | 0 | NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated/5/. |
| e) | NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity. | 0 | Not applicable since NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities. |
| f) | NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity. | 0 | Not applicable since NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities |

| Opportunity Cost | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| g) | Mitigation: Project proponent is a non-profit organization. | 0 | Not applicable: PP is a non-profit organization/8/. |
| h) | Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of the project crediting period | 0 | The binding agreement signed between the parties involved in the project indicates that during the accreditation period of the project, commitments and obligations will be fulfilled to carry out management practices that protect the accredited carbon stocks.<br><br>AENOR can confirm that the agreements signed/8/ with the owners establish commitments for the proper management of the planting models, considering that it is a long-term project. |
| i) | Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years. | 0 | Not applicable |
| Total Opportunity Cost (OC) [as applicable, (a, b, c, d, e or f) + (g + h or i)]. | | 0 | Total may be less than 0 |

Project Participants assume full responsibility for managing, financing and implementing the project activities for the duration of the project. Therefore, in AENOR's opinion, the total opportunity cost risk rating (0) is duly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

| Project Longevity | | | DOE Assessment |
|---|---|---|---|
| a) | Without legal agreement or requirement to continue the management practice | 0 | Not applicable |
| b) | With legal agreement or requirement to continue the management practice | 18 | Without legal agreement or requirement to continue the management practice.<br><br>According to the tool the calculation is then = 24 - (project longevity/5), resulting in 18 in this case.<br><br>The project has a legal agreement or requirement to continue the management practice, and the project longevity is 30 years/8/9/. |

| Project Longevity | | DOE Assessment |
|---|---|---|
| Total Project Longevity (PL)<br><br>May not be less than zero | 18 | |

In AENOR´s opinion, Total Project Longevity (18) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

Therefore, total internal risk is calculated as the sum of (PM + FV + OC + PL), totalling 14.

*External Risk*

| Land Tenure and Resource Access/Impacts | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| a) | Ownership and resource access/use rights are held by same entity(s). | 0 | Ownership and resource access/use rights are held by same entity, in this case PROXYLO S.A.P.I DE C.V., who granted Ala Bool and FORLIANCE with the use right of the carbon credits/8/.<br><br>The ownership and resource access/use rights are held by same entities, as evidenced by the land-use and land ownership documents evidenced at audit under the categories "Property rights certificates"./8/9/ Evidence provided was evaluated by the VVB. |
| b) | Ownership and resource access/use rights are held by different entity(s) (eg, land is government owned and the project proponent holds a lease or concession). | 0 | The ownership and resource access/use rights are held by same entities, as evidenced by the land-use and land ownership documents evidenced at audit under the categories, Property rights certificates/9/ Evidence provided was evaluated by the VVB. |
| c) | In more than 5% of the project area, there exist disputes over land tenure or ownership. | 0 | In more than 5% of the project area there are, there exist disputes over land tenure or ownership.<br><br>The ownership and resource access/use rights are held by same entities, as evidenced by the land-use and land ownership documents evidenced at audit under the categories, Property rights |

| Land Tenure and Resource Access/Impacts | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| | | | certificates/9/ Evidence provided was evaluated by the VVB. |
| d) | There exist disputes over access/use rights (or overlapping rights). | 0 | AENOR can verify by documentary review /9/ and on-site visit that there are no conflicts over access/use rights (or overlapping rights). |
| e) | WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively mitigating such impacts. | 0 | Not applicable. It is an ARR project. |
| f) | Mitigation: Project area is protected by legally binding commitment (eg, a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period. | -2 | The project will have management practices that protect the credited carbon stocks over the duration of the project crediting period. PROXYLO S.A.P.I DE C.V., therefore, ensures the permanence of the carbon stock in the project area for at least that time period. |
| g) | Mitigation: Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims. | 0 | In the documentary review and on-site visit, the VVB evaluated land tenure and compliance with the criteria in the land eligibility assessment. The properties that are part of the project have documentary evidence that supports the rights of use of the properties. |
| Total Land Tenure (LT) [as applicable, ((a or b) + c + d + e + f + g)]. | | 0 | Total may not be less than zero |

The ownership and resources access are given by the contracts /9/. The rights of use are from private entities supported by land tenure certificates/9/. No disputes or conflicts were identified during the on-site visit. Then, in AENOR´s opinion, total land tenure (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

| Community Engagement | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| a) | Less than 50 percent of households living within the project area who are reliant on the project area, have been consulted. | 0 | Tabasco: 100% of the households has been consulted. PROXYLO S.A.P.I DE C.V. has engaged the landowners and ejidatarios (communal land) directly and |

| Community Engagement | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| | | | as a result an agreement is signed to develop forestry project activities.<br><br>Tamaulipas: 100% of the households has been consulted. PROXYLO S.A.P.I DE C.V. has engaged the landowners and ejidatarios (communal land) directly and as a result an agreement is signed to develop forestry project activities.<br><br>All communities and actors directly involved and affected by the project, have been consulted and records of the consultation can be found in the supporting documents/7/. |
| b) | Less than 20 percent of households living within 20 km of the project boundary outside the project area, and who are reliant on the project area, have been consulted. | 0 | The PP conducted a stakeholder identification, characterization and consultation with the stakeholder in the radius of 20km of the project area.<br><br>The VVB has assessed the information stated in sections 2.1, 2.2, 2.3 and 2.5 of the PD/1/ and crosschecked through on-site audit. |
| c) | Mitigation: The project generates net positive impacts on the social and economic well- being of the local communities who derive livelihoods from the project area. | -5 | The VVB has assessed the information stated in sections 2.1, 2.2, 2.3 and 2.5 of the PD/1/ and crosschecked through on-site audit. |
| Total Community Engagement (CE) [where applicable, (a + b + c)] | | -5 | Total may be less than zero. |

During the on-site visit, validation team confirms that local stakeholders participated in the different workshops carried out by project proponent; also, it was confirmed that consultations were carried out outside the project area. Then, in AENOR´s opinion, total community engagement (-5) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

| Political Risk | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| a) | Governance score of less than -0.79 | 0 | Not applicable. |
| b) | Governance score of -0.79 to less than -0.32 | 4 | Furthermore, the score was averaged over the most recent five years of available data (2017 – 2021).<br><br>Therefore, the governance score is -0.43. |

| Political Risk | | | DOE Assessment |
|---|---|---|---|
| Risk Factor | Risk Factor and/or Mitigation Description | Risk Rating | |
| | | | This value was verified by the audit team. /5/ |
| c) | Governance score of -0.32 to less than 0.19. | 0 | Not applicable |
| d) | Governance score of 0.19 to less than 0.82. | 0 | Not applicable. |
| e) | Governance score of 0.82 or higher. | 0 | Not applicable. |
| f) | Mitigation: Country is implementing REDD+ Readiness or other activities, as set out in this Section 2.3.3. | -2 | México is receiving funding from the World Bank Forest Carbon Partnership Facility and submitted their Readiness Package in 2016.<br><br>The country also has an established Designated National Authority under the CDM (Ministry of Environment and Natural Resources of Mexico (SEMARNAT))[18]. |
| Total Political (PC) [as applicable ((a, b, c, d or e) + f)]. | | 2 | Total may not be less than zero |

Validation team confirms the governance score against the world bank platform: http://info.worldbank.org/governance/wgi/Home/Reports; the average indicator was calculated for the last 5 years.

Then, in AENOR´s opinion, total political risk (2) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.0.

Therefore, the total external risk is calculated as the sum of (LT + CE + PC), totaling 0.

*Natural Risk*

| Score for each natural risk applicable to the project (Determined by (LS × M) | | DOE Assessment |
|---|---|---|
| Fire (F) | 0.5 | Likelihood<br><br>2 – Insignificant (less than 5% loss of carbon stocks) or transient (full recovery of lost carbon stocks expected within 10 years of any event).<br><br>The project area is considered to have a low risk of fires. Since the beginning of the plantations, PROXYLO has decided to |

[18] https://cdm.unfccc.int/DNA/view.html?CID=140

| Score for each natural risk applicable to the project (Determined by (LS × M) | | DOE Assessment |
|---|---|---|
| | | eliminate the use of fire from their site preparation activities. However, fires are still use as part of the site preparation for neighboring sugar cane plantations which require a series of measures to prevent, and eventually, control fires. Proxylo has a fire prevention plan/5/.<br><br>Mitigation<br><br>Prevention measure: 0,50 and Proven history: 0.5 - Some prevention measures applicable to the risk factor are implemented and project proponent has proven history of effectively containing natural risk.<br><br>The risk has been assessed through questions during the onsite visit and desk review/5/ and GIS analyzed/6/. |
| Pest and Disease Outbreaks (PD) | 0 | Likelihood<br><br>0 – No loss.<br><br>According to Cibrián (2013) there is no risk for Melina to loss the carbon stocks. The main problem for the specie is related to water and soil conditions (abiotic characteristics).<br><br>Tabasco: occasionally the melina is attacked by ants (Atta formica), nonetheless, it is combated directly by Proxylo after identified. The ants do not present a direct risk to the carbon stock/29/.<br><br>Tamaulipas: occasionally the melina is attacked by ants (Atta formica), nonetheless, it is combated directly by Proxylo after identified. The ants do not present a direct risk to the carbon stock/30/.<br><br>Mitigation – 0.5 Less than every 10 years<br><br>Preventive measures include the selection of Melina clones, site preparation, planting and thinning practices; measures that favor the sustainable control of natural enemies.<br><br>The VVB has reviewed the information provided in NPRR/4/ and asked different |

| Score for each natural risk applicable to the project (Determined by (LS × M) | | DOE Assessment |
|---|---|---|
| | | stakeholders during the onsite visit for the knowledge of pests and diseases risks. |
| Extreme Weather (W) | 0.5 | Likelihood<br>1 - Every 25 to less than 50 years<br>Tabasco: the man risk in Tabasco is flood in the coastal area and coastal erosion. The project area is not located in the coastal area of the state. The risk of frost for the plantation is insignificant/31/.<br>Tamaulipas: the main risk in Tamaulipas are flood and cyclones affecting mainly the coastal areas. and in the northern area of the state. Nonetheless, project area is not located in the coastal region of Tamaulipas/32/.<br>Mitigation – 0.5 Less than every 10 years<br>No harms or loss have occurred inside the planted area as a result of extreme weather. Further, prevention measures are taken by Proxylo in terms of selecting the planting site (areas) and selecting the specie,<br>The VVB has reviewed the information provided and asked different stakeholders during the onsite visit for the knowledge of Extreme Weather risks. |
| Geological Risk (G) | 0 | Likelihood<br>0 - Once every 100 years or more<br>According to the Seismic Risk Program, earthquakes have occurred in the country of Mexico with a magnitude of 2.5 and higher, but none have occurred in the project area. In addition, the PP presents a map showing geological risk by region in Mexico, where Tabasco and Tamaulipas are classified as low-risk regions.<br>Mitigation – 0.5. No harms or loss have occurred inside the planted area as a result of a geological risk.<br>The VVB reviewed the information provided in relation to the geological risk applicable to Mexico and the project area and was |

| Score for each natural risk applicable to the project (Determined by (LS × M) | | DOE Assessment |
|---|---|---|
| | | able to confirm that the risk is low for the area. |
| Other natural risk (ON) | 0.00 | Not applicable. |
| Total Natural Risk (as applicable, F + PD + W + G + ON) | 1 | |

During the on-site visit, validation team confirmed that the information provided in the sections above is reliable, in AENOR´s opinion, total natural risk (1) is properly justified and in accordance with AFOLU Non-Permanence Risk Tool, v4.0 and was assessed in the table above.

Therefore; overall non-permanence risk rating and buffer determination are calculated as follow:

| Risk Category | Rating |
|---|---|
| Internal Risk | 14 |
| External Risk | 0 |
| Natural Risk | 1 |
| Overall Risk Rating (a + b + c) | 15 |

The non-permanence risk deduction to be applied for the project is 15%.

AENOR has checked that the information provided in the Non-Permanence Risk Report /4/5/ is consistent with the support documents provided. AENOR deems that the information provided is reliable and appropriate. Thus, the overall risk rating is credible and realistic.

# 4 VERIFICATION FINDINGS

## 4.1 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 spreadsheet formulae /2/, conversions and aggregations, and the consistent use of the data and parameters have been carefully reviewed by AENOR's audit team.

Baseline emissions

The baseline emissions and removals are quantified for the 2017-2022 monitoring period (11th January 2017 and ended on 30th July 2022.), as it has been demonstrated to the audit team through the forest inventory evidence/33/. Calculations can be retrieved in the 'Ex post GHG_assessment_V3_11.23' spreadsheet/2/, spreadsheet that has been reviewed, crosschecked and reproduced several times by

AENOR's audit team members to guarantee a high certainty degree of the calculations prepared by the PP. The values for these calculations were taken from the 'Ex post GHG_assessment_12_23_vs6/2/ and referred to the monitoring period (2017-2022).

AENOR's audit team deems as acceptable the accuracy of the GHG emission reductions and removals, and considers that all the values of the parameters utilised to produce the calculations offered in the spreadsheets and in the Joint PD&MR are consistent, credible and aligned with VCS requirements.

According to tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities Version 04", the carbon stock in trees in the baseline for the pre-existing trees and shrubs for the planting years 2017-2021, was calculated. The data collected comes from remote sensor monitoring of pre-existing trees.

Project emissions

The calculations are presented in the 'Ex post GHG_assessment_12_23_vs6'' spreadsheet /2/. The project emissions of the first verification period of the first instance of project activity were calculated taking into account the procedure and the reservoirs considered within the methodology applicable for ex post quantification.

The stratification of the project areas ($A_i$) took into account geographical location conditions (states of Tabasco and Tamaulipas), species and year of planting.

To determine the change in carbon reserves in the project - ($\Delta CP,t$) the PP took into account the carbon reserves in the Gmelina arborea trees. For this, it carried out a review of the different equations reported for the species in Mexico and the region.

For the analysis and selection of the equations, CDM A/R Methodological Tool "Demonstrating appropriateness of allometric equations for estimation of aboveground tree biomass in A/R CDM project activities" was taken into account.

The selected equation was the one reported by Fonseca-González et al., (2021)/23/ for Costa Rica, which adjusts to the bioclimatic conditions and is appropriate for the diametric range of the project.

| Specie | Source | Sample size | R2 | Range DBH (cm) | Equation |
|---|---|---|---|---|---|
| *Gmelina arborea* | (*Fonseca-González et al., 2021*)/23/ | 125 | 0,93 | 3,9-39,8 | $B_{TREE}$ = exp(0,641384 + 2,75382*Log10(DBH)^2)<br>DBH = Diameter at breast height; cm<br>BTREE: biomass of the whole tree |

Calculation of total biomass per tree ($B_{TREE}$) per tree (fj(x1,l,x2,l,x3,l,...)) based on the measured tree variables used the allometric equation selected above.

Strata 5 and 6 corresponding to the 2021 planting year do not have adequate dimensions to be able to account for biomass according to the allometric equation. Conservatively, they have been accounted as BTREE =0. It is expected that in subsequent verifications they can be accounted as BTREE >0.

Change in carbon stock in shrub biomass - $\Delta C_{SHRUB\_PROJ,t}$ was estimated as zero, conservatively for the project scenario.

Change in carbon stock in dead wood - $\Delta C_{DW\_PROJ,t}$ and Change in carbon stock in litter – $\Delta C_{LI\_PROJ,t}$, were estimated according to the applicable defect parameters according to AR-Tool 12 and presented as validated parameters.

Change in carbon stock in the soil organic carbon (SOC) pool - $\Delta CSOC_{\_PROJ,t}$, was estimated according to the applicable defect parameters according to AR-Tool 16 and presented as validated parameters.

No emissions from fires ($GHG_{E,t}$ ) have been considered in the calculation as no burning is used to clear the land for planting. This was confirmed during the site visit no burning occurs as part of the site preparation within the project boundary a no burning occurs as part of the forest management.

Leakage

The only leakage emission source considered in the selected methodology is leakage due to the displacement of agricultural activities, and must be calculated using the tool AR-TOOL15.

In the project area of the project activity instances, as described in section 4.3., displacement of pre-project agricultural activities is not expected. Therefore, leakage was zero (LK,t =0).

Net GHG Emission Reductions and Removals

The quantification of GHG emission reductions and removals were determined using data and parameters, the models and equations contained in the methodology (AR-ACM0003) applied by project proponent.

PP calculated uncertainty for the monitoring period an uncertainty of 3,1% (Ex post GHG_assessment_12_23_vs6/2/), which do not apply for deductions.

According to the VCS AFOLU Non-Permanence Risk Tool (v4.0), the non-permanence risk rating for the AFOLU project was calculated as 15% (the calculation tool and the report are available to the verification agent for the monitoring period).

For the monitoring period, the total number of buffer credits were thus calculated as 14,930 $tCO_2e$.

Applying the previous deductions, the total VCUs eligible for issuance for the monitoring period 2017-2022 are 84,598.00 $tCO_2e$.

The estimated ex-ante GHG emission reductions and removals and the achieved emission reductions and removals for this monitoring period are 99,531 tCO2e, the difference between the ex-ante and ex-post estimates is 1,525 (tCO2e), this value is considered low in a conservative scenario. The ex-ante estimation uses different equation and formulas than the ex-post estimation as it has been described in section 4 and 5 of the PD. The difference is under a logical margin.

AENOR carried out a deep review of the monitoring report section and the calculations. 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 II). Therefore, AENOR deems that values reported for the parameters are accuracy and consistent.

Moreover, AENOR also verified a complete GIS package /6/ 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.

| Parameter | Value | Source |
|---|---|---|
| The area of stratum i of the areas of land (Ai) - Area of shrub biomass estimation stratum i ($A_{SHRUB,i}$) | Stratum / $A_{SHRUB,i}$: 1: 314.42; 2: 264.42; 3: 196.83; 4: 41.36; 5: 197.79; 6: 204.18 | AENOR, through GIS and field analysis, was able to verify that the estimated strata and areas correspond to the monitoring period. |
| Ratio of the area of stratum i to the sum of areas of tree biomass estimation strata. (wi) | Stratum / *wi*: 1: 0.26; 2: 0.22; 3: 0.16; 4: 0.03; 5: 0.16; 6: 0.17 | AENOR was able to corroborate that the values presented are adequate. |
| Number of sample plots in stratum i ($n_i$) | Stratum / ni: 1: 343; 2: 341; 3: 267; 4: 41; 5: 0; 6: 0 | The audit team carried out sampling in the established plots and was able to verify its presence and measurement in accordance with the monitoring variables. Strata 5 and 6 (2021) due to their juvenile status were not included. |
| Estimated standard deviation of biomass stock in stratum I ($s_i$) | Stratum / $s_i$: 1: 46; 2: 42; 3: 32; 4: 9; 5: 0.00 | Sampling statistics were calculated appropriately |

<table>
<tr><th>Parameter</th><th>Value</th><th>Source</th></tr>
<tr><td></td><td><table><tr><td>6</td><td>0.00</td></tr></table></td><td></td></tr>
<tr><td>Size of sample plot in stratum i (APLOT,i)</td><td>Area: 0.0314 ha, circular plot r = 10 m</td><td>After calculating the number of sample plots required to achieve the desired precision level (90/10) a stratified random selection is carried out.</td></tr>
<tr><td>Variables measured per tree for the calculation of above-ground biomass an allometric equation for species (X)</td><td>$B_{TREE}$ = exp(0,641384 + 2,75382*Log10(DBH)^2)</td><td>Fonseca-González et al., 2021/23/</td></tr>
<tr><td>Area burnt in stratum i ($A_{BURN,i,t}$)</td><td>$A_{BURN,i,t}$=0</td><td>The audit team confirmed that no fires were reported during the monitoring period</td></tr>
<tr><td>Area of land from which agricultural activity is being displaced in year t (ADISP,t)</td><td>LK=0.</td><td>leakage in project activity instances was zero</td></tr>
<tr><td>Time period elapsed between two successive estimations of carbon stock in a carbon pool (T)</td><td>T=5,5 years</td><td>Between 11st January 2017 and 30th July 2022</td></tr>
<tr><td>Crown cover of shrubs in shrub biomass estimation stratum i at the time of estimation, expressed as a fraction. ($CC_{SHURB,i}$)</td><td><table><tr><th>STRATA</th><th>YEAR</th><th>$CC_{SHRUB\_BSL}$</th></tr><tr><td>1</td><td>2017</td><td>23.68</td></tr><tr><td>2</td><td>2018</td><td>33.76</td></tr><tr><td>3</td><td>2019</td><td>39.84</td></tr><tr><td>4</td><td>2020</td><td>0</td></tr><tr><td>5</td><td>2021</td><td>0</td></tr><tr><td>6</td><td>2021</td><td>0</td></tr></table></td><td>AENOR was able to corroborate that the values presented are adequate.</td></tr>
<tr><td>Crown cover of shrubs in shrub biomass estimation stratum i at the time of estimation, expressed as a fraction. ($CC_{TREE,BSL,i}$)</td><td><table><tr><th>STRATA</th><th>YEAR</th><th>$CC_{TREE,BSL,i}$</th></tr><tr><td>1</td><td>2017</td><td>3.07</td></tr><tr><td>2</td><td>2018</td><td>3.48</td></tr><tr><td>3</td><td>2019</td><td>6.15</td></tr><tr><td>4</td><td>2020</td><td>0.00</td></tr><tr><td>5</td><td>2021</td><td>11.82</td></tr><tr><td>6</td><td>2021</td><td>0.36</td></tr></table></td><td>AENOR was able to corroborate that the values presented are adequate.</td></tr>
</table>

| Parameter | Value | Source |
|---|---|---|
| Height of trees in sample plots (Ht) | Plots data XiCO2e Mexican Reforestation Project.xls/33/ | The height has been measured with iPad 11 by using the software ArboReal, in meters to two decimal places (eg 2.37 m). The measurement is taken from the base to the apex of the main stem.<br>During the site visit, AENOR reviewed the measurement protocols, calibration and use of the measurement equipment/34/35/ and was able to conclude that these are free of material errors. |
| Diameter of trees planted at 1.30m height (DBH) | Plots data XiCO2e Mexican Reforestation Project.xls/33/ | Diameters of trees were measured in centimetres with one decimal (eg 1.3 cm). They were measured with iPad 11 by using the software ArboReal always in the direction perpendicular to the line connecting the centre of the plot with the tree.<br>During the site visit, AENOR reviewed the measurement protocols, calibration and use of the measurement equipment/34/35/ and was able to conclude that these are free of material errors., |

Long Term Average

Section 3.2.25 of the VCS Standard v4.4 states that "The long-term average GHG benefit shall be calculated at each verification event". Thus, in this verification event, the long-term average GHG benefit was recalculated based on the forest management plan and monitoring data.

The long-term average GHG benefit is 95,701 t CO2-e.

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. Moreover, AENOR's audit team had several joint calls with the PP to evaluate possible manual transposition errors between data sets that might have occurred, as per getting explanations on the process executed by the PP to assemble all the spreadsheets and analyzing

possible inconsistencies. Nevertheless, the audit team concluded that the methodology process applied by the PP is consistent with the best procedures to avoid manual transpositions errors.

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/1/ 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/1/.

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

The auditor checked relevant assumptions by reviewing regional and international documents in order to confirm the applicability of the parameters and estimations. The documents were completely reviewed, and the auditor concludes that the source and accuracy of the parameters was good enough to be included as part of the project calculations. In this sense, the assessment allowed to confirm the sufficiency of quantity, and appropriateness of quality, of the evidence.

Procedure undertaken to estimate the net GHG removals is clear and the explanation of the procedure carried out for estimation has been provided in the MR. Auditor consider that PP has correctly identified and applied the methodology and relevant tools to calculate the net GHG removals from the project. In addition, concluded that the assumptions and sources of data were conservative and well selected after reviewing the supporting documents provided by the proponent.

During the verification assessment, the evidence provided by the PPs was sufficient in both quantity and quality to support the determination of GHG removals reported by the project. The threshold for materiality to the total GHG removals reported was met for this project; materiality is a concept that the errors, omissions and misrepresentations could affect the GHG removals assertion and influence the intended users. As defined by VCS, the materiality will be 5%.

The monitoring plan includes the monitoring of project implementation, the monitoring of actual carbon stock changes from project activities and estimation of ex-post changes derived from management or disturbances to the forest plantations. The description of the monitoring plan in the project documents will include the following for each of these monitoring tasks:

- Technical description of the monitoring task;
- A list of data and parameters to be collected;
- Overview of data collection procedures;

- Quality control and quality assurance procedure;
- Data archiving; and
- Organization and responsibilities of the parties involved in all the above.

Data related to the variables/parameters listed in the Section 5.2 of the Joint PD&MR will be collected during the monitoring.

All data collected as part of monitoring will be archived electronically. Data archiving will take both electronic and paper forms. The archives will include:

- Copies of all original field measurement data and data analysis spreadsheets;
- Estimates of the carbon stock changes in all pools and non-CO2 GHG and corresponding calculation spreadsheets;
- GIS products; and
- Copies of the measuring and monitoring reports.

AENOR has verified that monitoring crews implemented the monitoring plan as it is established in the joint PD&MR. AENOR also could evidence during on site 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 meetings. Thus, the use of these monitoring procedures 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.

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. In AENOR's opinion, evidence used to determine the GHG reductions and removals is gathered in sufficient quantity and of appropriate quality.

# 5 VALIDATION AND VERIFICATION OPINION

AENOR has performed the validation and the verification of the XICO2e: Mexican Reforestation Project and has verified that the project complies with the Verified Carbon Standard version 4.4 without qualifications or limitations. The grouped project has one Project Activity Instance. The first project activity instance of the XiCO2e project: includes 1,014.82 hectares and 204.18 hectares planted in the state of Tamaulipas southeast and northeast Mexico, respectively.

The validation and verification process has been 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 validation of the ex-ante and the verification of the ex-post emissions of XICO2e: Mexican Reforestation Project has been conducted by AENOR in accordance with ISO 14064-3;2019.

The verification assessment covered the monitoring period from 11th January 2017 and ended on 30th July 2022 and verified that calculated emission removals were achieved during the monitoring period with a reasonable level of assurance.

In detail the conclusions for validation can be summarized as follows:

- The project is in line with all criteria of the VCS Standard v4.4.

- The project additionality is sufficiently justified in the Joint PD&MR.

- The Monitoring Plan is transparent and adequate.

- AENOR is able to issue a positive validation opinion for the 95,701 tCO2e as reported in the Joint project description and monitoring report for the total crediting period (30 years, starting on January 11, 2017 and ending on January 10th, 2047).

- The data and information supporting the GHG statement were hypothetical, projected and/or historical in nature, depending on the parameters and the case, but they have been always obtained from official and recognized sources

In detail the conclusions for verification can be summarized as follows:

- The project is in line with all criteria of the VCS Standard v4.4.

- The project monitoring period is justified in the Joint PD&MR.

- The Monitoring Report is transparent and adequate.

- AENOR is able to issue a positive verification opinion for the 99,531 tCO2e as reported in the Joint project description and monitoring report for the reporting period 11th January 2017 and ended on 30th July 2022. The overall non-permanence risk rating was 15%. Therefore, the total number of credits to be deposited in the buffer account is 84,598 VCUs and the total VCUs to be issued are 14,930 VCUs. The long-term average GHG benefit is 95,701 t CO2-e.

| Year | Baseline emission s or removals (tCO2e) | Project emissions or removals (tCO2e) | Leakage emissions (tCO2e) | Net GHG emission reductions or removals (tCO2e) | Buffer pool allocation | VCUs eligible for issuance |
|---|---|---|---|---|---|---|
| 11-01-2017 to 31-12-2017 | 2,172 | 10,272 | 0 | 8,101 | 1,215 | 6,885 |
| 01/01/2018-31/01/2018 | 2,308 | 17,994 | 0 | 15,686 | 2,353 | 13,332 |
| 01/01/2019-31/01/2019 | 2,528 | 22,272 | 0 | 19,744 | 2,962 | 16,782 |
| 01/01/2020-31/01/2020 | 0 | 22,759 | 0 | 22,759 | 3,414 | 19,344 |
| 01/01/2021-31/01/20 | 3,001 | 22,938 | 0 | 19,938 | 2,991 | 16,947 |
| 01-01-2022 to 30-07-2022 | 0 | 13,304 | 0 | 13,304 | 1,996 | 11,308 |
| Total | 10,009 | 109,539 | 0 | 99,531 | 14,930 | 84,598 |

The state the estimated ex-ante GHG emission reductions and removals and the achieved emission reductions and removals for this monitoring period the following table report the percentage difference and the justification of the difference. The quantities of GHG emission reductions and removals are the total quantities before any deductions for buffer credits.

| Year | Ex-ante emissions reductions | Achieved emissions reductions | Percent difference | Percent difference | Justification for the |
|---|---|---|---|---|---|
| Year 1 (*11-01-2017-- 31-12-2017*) | 2,770 | 8,101 | -66% | | Ex ante estimations are based on full rotation mean annual increments from ex-post results. For strata where no data were available, conservative increments were assumed. Accordingly, the ex-ante increments are below the increments observed for strata where ex-post results |

| Year | Ex-ante emissions reductions | Achieved emissions reductions | Percent difference | Percent difference | Justification for the |
|---|---|---|---|---|---|
| | | | | | are available. For younger trees, as in this case ( < 1 year of age), the MAI can vary substantially. Stratum 1 (the only stratum already established in year 1) showed ex-post increments substantially higher than project increments assumed in the ex-ante. |
| Year 2 (*1-01-2018-- 31-12-2018*) | 10,802 | 15,686 | -31% | | As mentioned above, explanation.<br>Stratum 1 and 2 (the only strata already established in year 2) showed ex-post increments substantially higher than increments assumed in the ex-ante. |
| Year 3 (*1-01-2019-- 31-12-2019*) | 17,164 | 19,744 | -13% | | As mentioned above, explanation.<br>Strata 1-3 (the only strata already established in year 3) showed ex-post increments substantially higher than increments assumed in the ex-ante. |
| Year 4 (*1-01-2020-- 31-12-2020*) | 22,980 | 22,759 | 1% | | As mentioned above, conservative increments were applied in ex-ante. |
| Year 5 (*1-01-2021-- 30-07-2021*) | 28,120 | 19,938 | 41% | | This stratum did not reach the minimum measurable diameter in the monitoring event. The GHG removals for this stratum are interpolated from the average $\Delta CTREE,PROJ,t$ (t $CO_2$-e). Besides this, the ex-ante estimation could not be updated with the ex-post estimation, so it comes from the literature, as explained in section 5, and the ex-ante estimations are above the ex-post. |
| Year 6 (*1-01-2022-- 30-07-2022*) | 19,220 | 13,304 | 44% | | Idem stratum 5 |
| Total | 101,056 | 99,531 | 2% | | The difference 1,525 ($tCO_2e$) is under a conservative ratio. The ex-ante |

| Year | Ex-ante emissions reductions /removals | Achieved emissions reductions /removals | Percent difference | Justification for the difference |
|---|---|---|---|---|
| | | | | estimation is based on full rotation increments, For strata without monitoring data, conservative increments were assumed. This leads to underestimation of strata where ex-post results are available and overestimation of strata where ex-post results are not yet available. At the overall project level, the estimation error is very small (less than 2%).<br><br>The difference is under a logical margin |

It is AENOR's opinion that the GHG reductions stated in the Joint PD&MR are fairly stated. Hence, AENOR is able to certify the GHG reductions stated above.

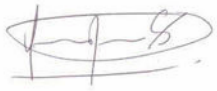
Approved by

José Luis Fuentes

Date: 6 February 2025

Lead Auditor

Juan Camilo Serna



# APPENDIX I: LIST OF EVIDENCE PROVIDED

| N° | Documents reviewed or referenced | File Name |
|---|---|---|
| 1 | Joint Project Description and Monitoring Report – version8.2 | 20241122_Proxylo_VCS-Joint-PD-MR_vs12.pdf |
| 2 | Emission reductions calculation spreadsheet | Ex ante GHG_LTA_assessment_04_24_vs8.xls Ex post GHG_assessment_04_24_vs8.xls |
| 3 | Project start date | fact 182 agrov huimang herbicida 11ene17<br>AAA1A187-FACT FLETE PLANTA 12ene17<br>Documento firmado inicio de las actividades de proyecto_Proxylo.pdf |
| 4 | VCS-Non-Permanence-Risk-Report Version 1.0 | 20240424_Non-Permanence-Risk-Report-XiCO2_vs7_clean<br>VCS-Risk-Report-Calculation-Tool-v4_Proxylo.xls |
| 5 | VCS-Non-Permanence-Risk-Report - Annex | Plan de prevencion contra incendios_PROXYLO.pdf<br>Artículos de Ley y reglamento sobre plantaciones.docx<br>Ley General de Desarrollo Forestal Sustentable Mexico.pdf<br>PROXYLO - Cashflow Input Info.xls<br>Proxylo_ NPRR - Financial Viability_corrected.xls<br>Proxylo_From_Worldwide_Governance_Indicators_Political risk calculation.xls |
| 6 | GIS pack | Tabasco:<br>Elig_Areas_Tabasco_Agr_new.shp<br>LULC_Tabasco_2007.tif<br>Tabasco_2017_LULC.tif<br><br>Tamaulipas:<br>EligAreas_Tamau_Agr.shp<br>LULC_Tamaulipas_2007.tif<br>Tamaulipas_2017_LULC.tif<br><br>Accuracy_estimation:<br>Confussion_matrix.xls<br>Tabasco_Samp_2007.shp<br>Tabasco_Samp_2017.shp<br>Tabasco_test_pol.shp<br>Tamaulipas_Samp_2007.shp<br>Tamaulipas_Samp_2017.shp<br>Tamaulipas_Test.shp |

<table>
<tr><th>N°</th><th>Documents reviewed or referenced</th><th>File Name</th></tr>
<tr><td>7</td><td>Local Stakeholder consultation</td><td>Confirmation received authorities:<br>- Resumen proyecto Xico2_entregado a autoridades.pdf<br>- Acuses XICO2e Tamaulipas_recepcion resumen.pdf<br>- Acuses auditoria Proyecto XICO2E_recibimiento de auditor.pdf<br>- ACUSES AUDITORIA PROYECTO XICO2e MEXICAN (1).pdf<br>- Acuse subsecretaria de cambio climatico TAB.pdf<br><br>Confirmation received owners:<br>- Resumen proyecto firmado - propietaria Carmela de la Cruz Garcia.pdf<br>- Proc. renta1_vs1.pdf<br>- Proc. Renta2_vs.pdf<br><br>Complaints and claims attention procedure<br>- Proc. y Atn_Vs1.pdf</td></tr>
<tr><td colspan="3">Agreements, policy and legal documents</td></tr>
<tr><td>8</td><td>Agreement linking the owners to the project and carbon rights (project contract)</td><td>Contract_FL-AB_Proxylo_signedall_20220726.pdf<br>FL_AB_COOPERATION AGREEMENT_052021_final.pdf</td></tr>
<tr><td>9</td><td>Agreements with owners and land tenure documentation</td><td>Tabasco:
<table>
<tr><th>ID</th><th>PROPIETARIO</th><th>No Contrato</th><th>Fecha</th></tr>
<tr><td>1</td><td>Elio Ramos Bolaina</td><td>7480</td><td>3/08/2016</td></tr>
<tr><td>2</td><td>Blas Moya Ponz</td><td>7191</td><td>23/02/2016</td></tr>
<tr><td>3</td><td>Gilberto Rodríguez de la Cruz</td><td>7193</td><td>23/02/2016</td></tr>
<tr><td>4</td><td>Judith Rodríguez Naranjo</td><td>7190</td><td>23/02/2016</td></tr>
<tr><td>5</td><td>YolandaAzucena Lendechy Zarate</td><td>7228</td><td>18/03/2016</td></tr>
<tr><td>6</td><td>Martin Lendechy Zarate</td><td>7228</td><td>22/03/2022</td></tr>
<tr><td>7</td><td>María Esther Lendechy Zarate</td><td>7272</td><td>23/04/2016</td></tr>
<tr><td>8</td><td>Erminia Rodríguez Naranjo</td><td>7430</td><td>15/07/2016</td></tr>
<tr><td>9</td><td>Janet García López</td><td>7395</td><td>21/06/2016</td></tr>
<tr><td>10</td><td>Carlosman Alvarado Calderon</td><td>7398</td><td>21/06/2016</td></tr>
<tr><td>11</td><td>José Juan García Díaz</td><td>7481</td><td>3/08/2016</td></tr>
<tr><td>12</td><td>Carmela de la Cruz García</td><td>7192</td><td>23/02/2016</td></tr>
<tr><td>13</td><td>Herlinda Mendez Burelo</td><td>8037</td><td>15/06/2017</td></tr>
<tr><td>14</td><td>Rafaelito angles Magaña/Rafael</td><td>8039</td><td>22/06/2017</td></tr>
<tr><td>15</td><td>Miguel Angel Naser Saca Tejada</td><td>8282</td><td>12/01/2018</td></tr>
<tr><td>16</td><td>Víctor Suarez López</td><td>8283</td><td>12/01/2018</td></tr>
<tr><td>17</td><td>Aristeo Alcudia Aguirre</td><td>8281</td><td>12/01/2018</td></tr>
<tr><td>18</td><td>Martha Alicia Romero Sevilla</td><td>8299</td><td>31/01/2018</td></tr>
<tr><td>19</td><td>Ezequiel Ventura Baños Baños</td><td>8301</td><td>2/02/2018</td></tr>
<tr><td>20</td><td>Cinthya Baños Mezquita</td><td>8374</td><td>23/03/2018</td></tr>
<tr><td>21</td><td>Floricel Frias Cordova</td><td>Privado</td><td>24/09/2019</td></tr>
</table></td></tr>
</table>

| N° | Documents reviewed or referenced | File Name |
|---|---|---|

| | | | | |
|---|---|---|---|---|
| 22 | Consuelo de Dios López | 8726 | 8/11/2018 | |
| 23 | Rosa de Dios Lopez | 8737 | 15/11/2018 | |
| 24 | Marina Barjau Peralta | 9212 | 13/11/2019 | |
| 25 | Consuelo de Dios López | 8375 | 27/03/2018 | |
| 26 | Usiel Cordova Gammas | 8531 | 18/07/2018 | |
| 27 | Oralia Rodríguez Naranjo | 8601 | 10/09/2018 | |
| 28 | Rosaura Piñera Fernández | 9083 | 27/08/2019 | |
| 29 | Luís Barjau Peralta | 9026 | 12/07/2019 | |
| 30 | Luís Sastre González | 8430 | 7/05/2018 | |
| 31 | Magdalena Ramírez Leyva | 8428 | 7/05/2018 | |
| 32 | Regino Alvarado Calderón | 8431 | 7/05/2018 | |
| 33 | Alejandro Hernández Méndez | 8795 | 4/01/2019 | |
| 34 | José Rocenzues Rodríguez | 8469 | 1/06/2018 | |
| 35 | Roboan Córdova Ocaña | 8883 | 27/03/2019 | |
| 36 | Florentino de los Santos Vargas | 8884 | 27/03/2019 | |
| 37 | Manuela Córdova Pérez | 8885 | 27/03/2019 | |
| 38 | Francisco Barahona Ramírez | 9134 | 30/09/2019 | |
| 39 | Ezequiel de Dios López | 8731 | 9/11/2018 | |
| 40 | Rosa Jiménez López | 8794 | 4/01/2019 | |
| 41 | Armando Izquierdo Torres | 9883 | 28/10/2020 | |
| 42 | Octavio Aparicio Escobar | 8727 | 8/11/2018 | |
| 43 | Oscar Aguilar Casango | 8886 | 27/03/2019 | |
| 44 | Alfonso Custodio Castillo | 8918 | 16/04/2019 | |
| 45 | Conrado de Dios Xicotencatl | 9024 | 10/07/2019 | |
| 46 | Francisco Madrigal Alcocer | 9217 | 13/11/2019 | |
| 47 | Sergio Ortíz Domínguez | 9854 | 9/10/2020 | |
| 48 | Silvio Montejo de la Cruz | 10285 | 5/05/2021 | |
| 49 | Juana del Rocio Najera | 10284 | 5/05/2021 | |
| 50 | Ricardo Rodríguez de la Cruz | Privado | 5/07/2021 | |
| 51 | Guillermo Rosique Palavicini | 10345 | 15/06/2021 | |

Tamaulipas:

| ID | PROPIETARIO | No Contrato | Firma | |
|---|---|---|---|---|
| 1 | Joel Hernández Estrada | 8414 | 16/03/2021 | |
| 2 | Octaviano Guardiola Tello I | 8415 | 16/03/2021 | |
| 3 | Alejo Palacios Ramírez | 8419 | 18/03/2021 | |
| 4 | Isaac Aguirre Maldonado | 8463 | 6/05/2021 | |
| 5 | Carlos Hernández Ávila | 8465 | 6/05/2021 | |
| 6 | German Estrada Martínez I | 8437 | 15/04/2021 | |
| 7 | Jesús Raúl Figueroa Rebullosa | 8579 | 26/08/2021 | |

| N° | Documents reviewed or referenced | File Name |
|---|---|---|
| | | 8 Parcela escolar 8576 20/08/2021<br>9 Parcela escolar 8676 12/11/2021<br>10 Florencio Gutiérrez Pinzón 8371 8/01/2021<br>11 Lucio Peña Martínez 8515 23/06/2021<br>12 Beatriz Martínez García 8517 25/06/2021<br>13 Elena Ramírez Vazquez 8518 25/06/2021<br>14 Cesar Martinez Sanchez 8532 8/07/2021<br>15 Vicente Jiménez Grijalva 8578 26/08/2021<br>16 Martín Ruíz Ortíz 8593 9/09/2021<br>17 Leonardo López Sánchez 8598 15/09/2021<br>18 Remigia Ramírez Estrada 8464 6/05/2021<br>19 Socorro Marquez Hdez. 8417 18/03/2021<br>20 Liborio Corona Marquez 8418 18/03/2021<br>21 Daniel Paulin Aguirre 8467 10/05/2021<br>22 Unidad Agricola Industrial M. 8514 22/06/2021 |
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| 19 | Armida-Alcudia et al., 2011 | Armida-Alcudia, L., Ruiz Rosado, O., Salgado-García, S., Gallardo-López, F., Nava-Tablada, M. & Juárez-López, J. (2011). Socioeconomic and technological factors in sugarcane (Saccharum officinarum L.) agroecosystems production in Chontalpa, Tabasco. Tropical and Subtropical Agroecosystems. 13. 261-269. |
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|---|---|---|
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| 27 | Proxiylo financial and investment information | EF Auditados Proxylo, SAPI de CV 2017 PWC.pdf<br>EF Auditados Proxylo, SAPI de CV 2018 EY.pdf<br>Proxylo Auditados 19-20.pdf<br>hecáreas tipo a ciclo completo_2.xls |
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|---|---|---|
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| 33 | Monitoring Plots | Monitoring data XiCO2e Mexican Reforestation Project.xls<br>Plots data XiCO2e Mexican Reforestation Project.xls<br>Plots_XiCO2e_Mexican_Reforestation_Project.shp |
| 34 | Quality control DAP and Ht measurements | Datos _Site visit March 2023.xls<br>Resultados del análisis de datos.docx |
| 35 | iPad 11 software ArboReal reports | Arboreal-Evaluation-Sveaskog-Beltinventory.pdf |
| 36 | Forest Management Plan | - Forest Management Plan.2017.<br>- Forest Management Plan 2023 (update). |
| 37 | Financial Documentation | Estados auditados 2016.pdf |
| 38 | Technical documentation - MAI | Technical documentation, MAI calibration for ex-ante_vs7.docx |

# APPENDIX II: FINDINGS

## CORRECTION ACTION REQUEST (CAR)

| **CAR 1** | **VCS Standard 4.4** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |
| According to the criteria established by VCS-VERRA, the Project Proposer (PP) must use the latest version of the standard.<br>In consideration of this requirement, the PP must consider the latest version 4.4 of the standard in the applicable project items. | | |
| **Project Participant response** | | **Date:** 25/04/2023 |
| The document has been updated considering the latest version of the version 4.4 of the VCS Standard | | |
| **Documentation provided by the Project Participant** | | |
| None | | |
| **VVB Assessment** | | **Date:** 19/05/2023 |
| The update of the pertinent information was evidenced.<br>**Closed.** | | |

| **CAR 2** | **VCS Standard – section 3.7** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |

| |
|---|
| In consideration of the project structure, the PP must present and justify all the supports of the contractual relationship between ALA-BOOL1 TRUST SA DE CV and FORLIANCE GmbH and the other participants PROXYLO S.A.P.I DE C.V. and Agresta S. Coop.<br><br>**Observation**: It is suggested to present an organizational chart where the structure and governance of the project can be observed. |

| **Project Participant response** | **Date:** 07/05/2023 |
|---|---|
| The contract between ALA-BOOL1 and FORLIANCE and the contract between ALA-BOOL1- FORLIANCE and PROXYLO have been added as supporting documentation.<br><br>An organizational chart with the structure and governance of the project has been included | |
| **Documentation provided by the Project Participant** | |
| Folder CAR 2 including<br><br>- Contract between ALA-BOOL1 and FORLIANCE and<br>- Contract between ALA-BOOL1- FORLIANCE and PROXYLO have been added as supporting documentation. | |
| **VVB Assessment** | **Date:** 19/05/2023 |
| It is pending the signing of the contract between ALA-BOOL1 and FORLIANCE.<br><br>**Open.** | |
| **Project Participant response** | **Date: 22/08/2023** |
| The complete contract signed document between Alabool and FORLIANCE can be found in the folder CAR 2. | |
| **Documentation provided by the Project Participant** | |
| The complete contract signed document between Alabool and FORLIANCE can be found in the folder CAR 2. | |
| **VVB Assessment** | **Date: 24/09/2023** |
| The complete contract was signed<br><br>**Closed** | |

| CAR 3 | VCS Standard – section 3.7 -5) | Date: 06/04/2023 |
|---|---|---|
| **Description of CAR** | | |
| The PP must demonstrate the right of ownership of the project areas.<br><br>In consideration of this requirement, the PP must guarantee the updated and complete documentation of the project participants according to their nature; it is important that the contracts with the landowners specify the rights over the carbon.<br><br>The documentary review found missing documentation such as: agreements with landowners and renewals of expired agreements. | | |
| **Project Participant response** | | **Date:** 11/05/2023 |

The information requested has been updated in folder named as CAR 3.

Leasing contracts signed between landowners and PROXILO transfer all the rights over the land to PROXILO. In the contract between Ala-boOl1-FORLIANCE and PROXYLO added in folder CAR 2, it is specified that the right over the carbon is transferred to the Project Proponents ( FORLIANCE and Ala-boOl)

The landowners assign the property of the rights over the carbon to PROXILO, and it is demonstrated by the following:

> A "Lease" exists when two contracting parties reciprocally bind themselves by means of a written document (Lease Contract), one, to grant the temporary use or enjoyment of a movable or immovable thing (land, property, etc.), and the other, to pay for such use or enjoyment a certain price, this in accordance with article 2398 of the Federal Civil Code that currently governs our Mexican Republic.
>
> Once the "Lease" exists, the lessee (in this case PROXYLO) has the right to the USUFRUCT of the land he is leasing, being this, a REAL and temporary RIGHT to enjoy the property of others and the fruits of those goods referring to article 980 of the Federal Civil Code.
>
> REAL RIGHT is the legal power exercised by the Lessee over the real estate that is being leased in a direct and immediate manner to take full or partial advantage of its fruits and products in accordance with the Mexican Legal Doctrine.
>
> For such reason, making reference to the fact that in our lease contracts there is an agreement of wills, obtaining rights and obligations; The Lessor grants the USUFRUIT to the Lessee so that the latter freely uses, enjoys and enjoys the leased real estate, as well as the disposition of all its fruits and products that emanate from the plantation.

Additionally, to the abovementioned, an addendum to the signed contract before April 2023 has been written to specify the clause on the assignment of carbon credit rights. It is intended that by 2023 more than 80% of the contract addenda will be signed, specifying the carbon rights. Evidence of 18 addenda already signed has been added as supporting documentation ( 17 in one document in pdf format and 1 recently signed in other pdf document).

This addendum will be include in the contract with new owners that will form part of the future instances.

The documentation of the property named as the Unidad Agrícola de la Mujer is attached. This documentation provides evidence of the transfer of rights from the ejidatarios to the representatives, as well as the registration in the National Agrarian Registry (RAN) and the relevant procedures with the RAN.

| **Documentation provided by the Project Participant** | |
|---|---|
| Folder CAR 3 contains:<br>1. Contratos project area folder<br>➢ 1_Contratos folder<br>• Agreements with landowners and renewals of expired agreements listed in "Relacion Tabasco contratos.xls" and "Relacion Tamaulipas contratos.xls"<br>• Updates contracts have been included in folder "contratos". "Contratos 20-21-Tabasco and 21-Tamaulipas referring to annuities 20 and 20 in Tabasco and 21 in Tamaulipas" and in folder Contratos carpetas Tabasco-17-18 and 19.<br>➢ 2_Adendas clausula carbono_folder<br>• Evidence of 17 addenda signed including the right of carbon.<br>• Evidence of one new recently addenda signed specifying the right of carbon<br>2. Future instance folder<br>• Evidence of a contract signed with the cession of carbon right included<br>*1)* | |
| **VVB Assessment** | **Date:** 21/08/2023 |
| Clarify within the database the ownership and signature of the addendum of plot 3 Z-1 P 1/1 and plots 2 Z-1 P1/1; 3 Z-1 P 1/1 and 4 Z-1 P1/1, which have a canceled text.<br>**Open**. | |
| **Project Participant response** | **Date:** 22/08/2023 |

- Parcel 3 Z-1 P 1/1 of Tamaulipas, is the School Parcel. The property is owned by the Ejido NCPE. In the document called " Año de Juarez_documentos inscritos en el RAN " (Year of Juarez_documents registered in the RAN) and on page 11 in the fourth point the Ejidal Commissariat is approved to rent the parcel on August 26, 2021. As can be seen on page 12 Gustavo Servin Morales is the Ejidal Commissariat so he can sign the addendum to this contract and the lease agreement.
- Plots 2 Z-1 P1/1; 3 Z-1 P 1/1 and 4 Z-1 P1/1 are not part of the Project area and the error has been corrected by removing the files from the supporting documentation list.
- The contracts folder has been updated with all the properties that are part of the project area. The following properties have been removed from the previous version:

| PROJECT | PROP | ID_PROP | ESTADO | MUNICIP | ANO_PL | Area_ha |
|---|---|---|---|---|---|---|
| Proxylo MX01 - Bloque Tabasco | Carlosman Alvarado Calderon | 72 | Tabasco | Cardenas | 2017 | 11.2 |
| Proxylo MX01 - Bloque Tabasco | Elio Ramos Bolaina | 68 | Tabasco | Cardenas | 2017 | 11.9 |
| Proxylo MX01 - Bloque Tabasco | Erminia Rodriguez Naranjo | 67 | Tabasco | Cardenas | 2017 | 5.2 |
| Proxylo MX01 - Bloque Tabasco | Maria Esther Lendechy | 79 | Tabasco | Cardenas | 2017 | 20.1 |
| Proxylo MX01 - Bloque Tabasco | Martin Lendechy Zarate | 80 | Tabasco | Cardenas | 2017 | 42.5 |
| Proxylo MX01 - Bloque Tabasco | Miguel Angel Naser Saca | 46 | Tabasco | Cardenas | 2018 | 31.6 |
| | | | | | | **122,5** |

| **Documentation provided by the Project Participant** | **22/08/2023** |
|---|---|

Within CAR 3 folder, see:

- Contratos folder
- Adendas a contratos folder

| **VVB Assessment** | **Date:** 21/08/2023 |
|---|---|

| |
|---|
| Documentation and areas were updated<br><br>**Closed** |

| **CAR 4** | **VCS Standard – section 3.8** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |
| The PP must present evidence to independently support the start date for project activities.<br><br>Although several activity supports are presented, these supports have dates different from the start date reported in the PD and do not account for the effectiveness of the project in GHG removals supported by the site preparation or establishment of forest plantations. | | |
| **Project Participant response** | | **Date:**07/05/2023 |
| The start date of the project has been modified from 2017, January 1st to 2017 January 11, taking in account that there is an invoice that can support evidence of the Project activities. Also, invoices dated in December 2016 has been added as evidence of some activities started in December 2016.<br><br>The soil preparation activities in Lendechy property (first ownership that was planted) started in January 11th in the majority part of the surface area, but some testing and official activities took place in December. A document signed by PROXILO has been provided to documentary evidence of this date.<br><br>Photos containing trees dated in April 2017 have been added. Metadata provide evidence of localization and data. The height of Gmelina trees give evidence that the planting exists in April 2017 and height gives evidence of several months of growth. | | |
| **Documentation provided by the Project Participant** | | |
| Folder CAR 4 contains:<br><br>- Folder "facturas" containing different invoices.<br>- Folder "fotos" containing photos with metadata.<br>- Document signed from PROXYLO giving evidence of the start date of project activities. | | |
| **VVB Assessment** | | **Date:** 19/05/2023 |
| The information presented is sufficient.<br><br>**Closed.** | | |

| CAR 5 | VCS Standard – section 3.11.2 | Date: 06/04/2023 |
|---|---|---|
| **Description of CAR** | | |
| The PP must present the location and size of the project zone.<br>The PD only describes the area of the project activity of instance 1. " *The plantations of the first instance of the project are located in the States of Tabasco (municipalities of Cárdenas, Huimanguillo, Centro and Cunduacán) and Tamaulipas (municipalities of Gonzalez and El Mante)* ". | | |
| **Project Participant response** | | **Date:** 09/05/2023 |
| The description of the project zone has been added in section 1.12 | | |
| **Documentation provided by the Project Participant** | | |
| None | | |
| **VVB Assessment** | | **Date:** 19/05/2023 |
| The information presented is sufficient.<br>**Closed.** | | |

| CAR 6 | VCS Standard – section 3.17 | Date: 06/04/2023 |
|---|---|---|
| **Description of CAR** | | |
| The PP must present the supports that allow demonstrating that the project contributes to the SDGs identified within the monitoring period. | | |
| **Project Participant response** | | **Date: 26**/04/2023 |
| As Verra specified in VCS standard 4.4 in Appendix 3, projects that have applied for registration before 20 January 2023 are not required to declare SD contributions under the VCS program. Therefore, PP has amended section 1.17 by omitting the table "Sustainable Development Contributions". | | |
| **Documentation provided by the Project Participant** | | |
| None | | |
| **VVB Assessment** | | **Date:** 24/05/2023 |

| |
|---|
| The information presented is sufficient.<br><br>**Closed.** |

| **CAR 7** | **VCS Standard – section 3.18** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |
| The PP must present the supports to demonstrate compliance with the specific safeguards for the AFOLU sector:<br><br>- The local stakeholder identification process and the description of results.<br><br>- Processes to ensure ongoing communication and consultation, including a grievance redress procedure to resolve any conflicts that may arise between the project proponent and local stakeholders. | | |
| **Project Participant response** | | **Date:** 05/05/2023 |

-As per the PD (section 2.3), the process of stakeholder identification involved the use of the matrix tool to identify relevant stakeholders that could be affected by the project activities or have an interest in the project. The stakeholders identified were ranked according to their level of interest and influence in the project using secondary literature.

The process also involves field visits and first contacts with landowners (see PD section 2.3). This process ensures that all the landowners involved in the project know about the reforestation project purposes and PROXYLO objectives.

-To ensure ongoing communication and consultation between the PP and some of key stakeholders, the PP established bi-monthly scheduled meetings to report on the carbon project's progress and highlight new commitments or agreements.

Additionally, forest authorities and secondary stakeholders will be informed and updated about the project through written reports shared each six months by email. The reception will be documented through minutes or signed confirmations.

Landowners will be informed about the project progress and update through written notifications (handed periodically) and through in-person or calls. The PP maintain, mainly, periodically calls with the landowners to inform about the project's updates.

Staff and the project stakeholders will be able to make specific queries or complaints about the project to those responsible for monitoring the project. They were given the contact information of the people they could contact for their consultation or complaint (contact details in support documentation).

Additionally, to facilitate staff/stakeholders' feedback on information and problems, among others, mailboxes were installed where personnel can deposit their complaints, inquiries, recommendations, or opinions in writing. The Human Resources area will be responsible for the follow-up, with a maximum of three working days for its response.

**Documentation provided by the Project Participant**

Folder named "CAR 07"

- Folder 1_acuses de recibo autoridades. Acknowledgements of receipt from authorities of project resume and main steps.
- Folder 2_acuse de recibo propietarios. One acknowledgement of receipt of one landowner of project resume and main steps.
- Folder 3_" Local Stakeholder consultation". Process 1 and 2 to identify lands and signed contracts with landowners.
- Folder "4_atencion y quejas". Ongoing communication and grievance redress mechanism appears as"procedimiento de atencion y quejas"

| **VVB Assessment** | **Date:** 19/05/2023 |
|---|---|

Submit more evidence in folder 2. Only evidence of one owner is presented: "Carmela de la cruz".

**Open.**

| **Project Participant response** | **Date:** 21/08/2023 |
|---|---|
| • All the evidence per owner per region has been uploaded to folder named as CAR 7 and differentiate per Tabasco and Tamaulipas. | |
| **Documentation provided by the Project Participant** | |
| Folder named as CAR 7 | |
| **VVB Assessment** | **Date:** 19/05/2023 |
| The documentation is considered sufficient.<br>**Closed** | |

| **CAR 8** | **VCS Standard – section 3.13 and 3.14** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |
| Considering that the project contemplates two different geographic areas for the development of the first and other instances, the PP must demonstrate that the baseline conditions and additionality criteria are applicable for the entire area of the grouped project.<br>In this sense it is important to specify in the analysis the unified and particular criteria for each zone in the following items:<br>- Baseline alternative scenarios.<br>- Analysis of barriers including incentive policies for reforestation.<br>- Investment analysis<br>- Common practice analysis | | |
| **Project Participant response** | | **Date:** 12/05/2023 |
| Particular criteria for each zone in the abovementioned item have been included in section 3.4 | | |
| **Documentation provided by the Project Participant** | | |

Folder named CAR 08, containing the following:

1. Folder papers agriculture
   - Valverde-Rebollo, G. & Morales, J. C. & Valtierra-Pacheco, E. & Escalona-Maurice, M. (2022). Geographical analysis of rice production and storage in Mexico, 1980 – 2018. *Agro Productividad*.
   - López, G., Miranda, R., Hernández, A. & Sánchez, E. (2021). Tecnología de potencial productivo de arroz (Oryza sativa L.) en el estado de Tabasco, México y su aportación a la soberanía alimentaria. Revista Chapingo Serie Agricultura Tropical. 1. 9-23. 10.5154/r.rchsagt.2021.02.02.
   - Herrera, Héctor Emmanuel & Trejo-Téllez, Libia Iris & Gómez-Merino, Fernando. (2017). The Mexican sugarcane production system: History, current status and new trends.
   - Armida-Alcudia, L., Ruiz Rosado, O., Salgado-García, S., Gallardo-López, F., Nava-Tablada, M. & Juárez-López, J. (2011). Socioeconomic and technological factors in sugarcane (Saccharum officinarum L.) agroecosystems production in Chontalpa, Tabasco. Tropical and Subtropical Agroecosystems. 13. 261-269.
2. Folder Plantaciones forestales Comerciales with information from CONAFOR webpage
3. Folder named Proxiylo documentation with financial and investment information from Proxylo SAPI de CV and photos of the lands around the project areas as evidences of pre-existing use of soil .

| **VVB Assessment** | **Date:** 24/05/2023 |
|---|---|
| The information presented is enough.<br><br>**Closed.** | |

| **CAR 9** | **VCS Standard – section 3.15** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |

The PP must consider the following in the quantification of GHG emission reductions and removals:

***Ex ante***

1. Submit source for density (Dj)[40] and Mean annual increment in aboveground tree biomass (MAI) for *Gmelina arborea* applicable to the project conditions.

2. Change in carbon stock in dead wood - $\Delta C_{DW\_PROJ,t}$ : Consider that the bioclimatic conditions of Tabasco and Tamaulipas are different.

3. Change in carbon stock in litter – $\Delta C_{LI\_PROJ,t}$: Consider that the bioclimatic conditions of Tabasco and Tamaulipas are different.

4. Change in carbon stock in the soil organic carbon (SOC) - $\Delta C_{SOC\_PROJ,t}$ : Consider that the bioclimatic conditions of Tabasco and Tamaulipas are different.

5. Leakage - $LK_t = 0$: Support with bibliography for Tabasco and Tamaulipas.

6. Actual net GHG removals by sinks, in year t; $\Delta C_{ACTUAL,t}$: Dead wood was not included in the quantification.

***Ex post***

1. Justify the search for allometric equations and the criteria to take into account for the selection of the best equation for the project.

2. Include in the description of the allometric equation of Gmelina arborea biomass (Fonseca-González et al., 2021), diameter range and biogeographic conditions.

3. Adjust according to bioclimatic values in Tabasco and Tamaulipas for other reservoirs included in the ex-post removals.

| **Project Participant response** | **Date:** 28/04/2023 |
|---|---|

[40] http://cienciasforestales.inifap.gob.mx/index.php/forestales/article/view/644/2036

***Ex ante***

1. A literature review was conducted to obtain data on density (*Dj*) and mean annual increment of tree biomass (*MAI*) of *Gmelina arborea* applicable to the project conditions. The source of the data has been indicated in the following sections:

- *Dj*: section "*4.2 Project emissions and section*" and "*5.1 Data and Parameters Available at Validation*" of the PDD and sheet "*3.1 Wood density database* "and "*3. Values, Factors and data*" of de Excel file Ex ante GHG_assessment.
- *MAI*: section "*4.2 Project emissions and section*" of the PDD and sheet "*3. Values, Factors and data" of de Excel file* "Ex ante GHG_assessment".

2. It has been considered in the Change in dead wood carbon $\Delta C_{DW\_PROJ,t}$ and $\Delta C_{DW\_BSL,t}$ that the bioclimatic conditions of Tabasco and Tamaulipas are different. The different factors of the AR-TOOL 12 used have been indicated in the following sections:

- Excel file "*Ex ante GHG_assessment*" and "*Long term average GHG_assessment*": sheets "*3. Values,Factors and data*" and "*6.1 Carbon_ All Plantations*".
- PDD: section "*4.1 Baseline emissions*" (Table 12) and "*4.2 project emissions*".

3. It has been considered in the Change in litter carbon stock $\Delta C_{LI\_PROJ,t}$ and $\Delta C_{LI\_BSL,t}$ that the bioclimatic conditions of Tabasco and Tamaulipas are different. The different factors of the AR-TOOL 12 used have

been indicated in the following sections:

- Excels file "*Ex ante GHG_assessment*"and "*Long term average GHG_assessment*": sheets "*3. Values,Factors and data*" and "*6.1 Carbon_ All Plantations*".
- PDD: section "*4.1 Baseline emissions*"(Table 12) and "*4.2 project emissions*".

4. It has been considered in the Change in carbon stock in soil organic carbon $\Delta C_{SOC\_PROJ,t}$, that the bioclimatic conditions of Tabasco and Tamaulipas are different. The different factors used of the AR-TOOL 16 have been indicated in the following sections:

- Excels file "*Ex ante GHG_assessment* "and "*Long term average GHG_assessment*": sheets "*4. ΔSOCAL,t Tabasco*" and "*4. ΔSOCAL,t Tamaulipas*".
- PDD: section "*4.2 project emissions*".

5. Leakage - $LK_t = 0$: Bibliography for Tabasco and Tamaulipas has been included in folder CAR 8 and CL 7.

6. Dead wood has been included in Actual net GHG removals by sinks, in year t; $\Delta C_{ACTUAL,t}$, the changes have been indicated in the following sections:

- Excels file "*Ex ante GHG_assessment* "and "*Long term average GHG_assessment*": sheet " *6.1 Carbon_ All Plantations*".
- PDD: section "*4.2 project emissions*".

***Ex post***

1. The justification of the search for allometric equations has been included, the process and criteria used have been described. A table with the discarded allometric equations has also been included and the

reasons why they are not suitable have been described. The new information has been incorporated in section "*6.3 Project Emissions*" subsection "*Step 1: Selection specific allometric equations*" of the PDD.

2. The description of the allometric equation of the biomass of *Gmelina arborea* (Fonseca-González et al., 2021) has been included. This description includes the diametric range, age of the sample trees, location and climatic conditions of the study area. The new information has been incorporated in section "*6.3 Project Emissions*" subsection "*Step 1: Selection specific allometric equations*" of the PDD.

In order to fit the monitoring data into the ranges of application of the allometric equation, the following paragraphs have been included in the subsection above:

"*Strata 5 and 6 corresponding to the 2021 planting year do not have adequate dimensions to be able to account for biomass according to the allometric equation. Conservatively, they have been accounted as BTREE =0. It is expected that in subsequent verifications they can be accounted as BTREE >0.*

*For the same reason, and in order to ensure that the DBH measurement was taken at a height of 1.3 m (Diameter at breast height), it was decided to eliminate from the monitoring database a number of trees or plots that did not have sufficient dimensions*"

3. Two bioclimatic scenarios have been considered for Tabasco and Tamaulipas in other reservoirs included in the ex-post removals. A new stratification has been done in order to differentiate Tabasco and Tamaulipas areas, strata (*1-5*) correspond to Tabasco and stratum (*6*) corresponds to Tamaulipas. All factors have been updated in the different pools: Baseline Emissions ($C_{TREE\_BSL,t}$ , $C_{SHRUB\_BSL,t}$ ,$C_{DW\_BSL,t}$ and $C_{LI\_BSL,t}$ ), Project Emissions ( $\Delta C_{SOC\_PROJ,t,}$, $\Delta C_{TREE\_PROJ,t}$, $\Delta C_{DW\_PROJ,t,}$, $\Delta C_{LI\_PROJ,t,)}$. And all tables have been updated in the PDD.

The changes have been included in the following sections:

- Excel file "*Ex post GHG_assessment*"
- PDD: section " *6.1 Data and Parameters Monitored* ", " *6.2 Baseline Emissions* ", ".*6.3 Project Emissions*" and "*6.5 Net GHG Emission Reductions and Removals*".

| **Documentation provided by the Project Participant** | |
|---|---|
| Supporting Documentation (Balcorta y Vargas, 2004) | |
| **VVB Assessment** | **Date:** 24/05/2023 |
| The information presented is enough.<br>**Closed.** | |

| **CAR 10** | **VCS Standard – section 3.16** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |

| |
|---|
| As mentioned in the Monitoring Plan, the PP must attach detailed operating procedures and QA/QC procedures that clearly show the following:<br>1. Protocols for measurement of variables.<br>2. Equipment used and calibration procedures.<br>3. Protocols for quantification according to the data, parameters and equations.<br>4. Data quality management and quality of forest inventories.<br>**Note**: Do not limit yourself to these items only. |

| **Project Participant response** | **Date:** 12/05/2023 |
|---|---|
| The detailed operational procedures have been included in folder CAR 10 | |
| **Documentation provided by the Project Participant** | |
| - SOP_Proxylo in Spanish included in folder CAR 10 | |
| **VVB Assessment** | **Date:** 24/05/2023 |
| Although the PP presents a document detailing some procedures, it is necessary to specify the measurement equipment, calibration and specific protocols for taking measurements.<br>Submit internal audit support to verify the quality of the information: Quality assurance and quality control procedures<br>**Open**. | |
| **Project Participant response** | **Date:** 21/08/2023 |

| |
|---|
| - The measurement equipment has been described in the document "SOP Proxylo in Spanish". The main equipment used is GPS Garmin eTrex 22, a calibrated measurement tape of 10 meters, iPad 11 with Lidar sensor with the software Arboreal. A drone Mavic Air 2 is used for aerial monitoring and generation of plots orthomosaics (section 3 of the SOP document). In addition, a text for calibration has been added in section 7 below the pictures.<br>- Furthermore, for calibration of equipment, the project proponent initially does a measurement with the tablet and with a diameter tape (text added in section 5 of the SOP document). An example of this calibration procedure is shown in excel "datos calibration ipad" where the results are not significantly different between method and hence the field data measurement continues.<br>- Internal audit support documentation is shared in folder CAR 10 called "Análisis estadístico comparacion metodologias" which outlines the calibration of data monitored, quality check of the data, and the results of the comparative analysis. This includes a statistical analysis comparing a traditional diameter tape and the tablet. The results show that there is no significant difference between either method or any of the two can be used to measure the DBH. |
| **Documentation provided by the Project Participant** |
| - Information regarding internal audit and quality assurance and quality control procedures can be found in folder CAR 10 |

| **Documentation provided by the Project Participant** | **Date:** 25/09/2023 |
|---|---|
| The information presented is considered sufficient.<br>**Closed** | |

| **CAR 11** | **VCS Standard – section 3.16** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CAR** | | |

The PP must submit the report for the monitoring period in line with the established operating procedures and QA/QC procedures, considering:

1. Submit the measurement equipment used according to the measurement protocols and calibration of the measurement equipment.

2. Estimate the precision and uncertainty of the equipment used in the forest inventory. Since, during the site visit, differences were found in the measurements of DBH and Ht between the direct and indirect methods (measurement app on the tablet) for measuring these variables.

3. Present management measures for deviations in DBH and Ht measurements to be considered in the quantification of removals for the monitoring period.

4. Present the results of the verification of data entry and analysis for the monitoring period.

**Note:** Do not limit yourself to these items only.

| **Project Participant response** | **Date:** 12/05/2023 |
|---|---|

1. *The measurement equipment and QC/QA procedures have been described in the Standard Operational document available in folder CAR 10. Arboreal accuracy estimations are provided in the report available as supporting documentation Arboreal-Evaluation-Sveaskog-Beltinventory*
2. *The precision and uncertainty of the equipment used in the forest inventory has been estimated using the data from the site visit. Results are presented in the document "Resultados del análisis de datos. It is* interpreted as no difference when using the two methods with a 95% confidence (p value=0.7).
3. *No deviation measurement are needed since there is no statistical difference between estimations*
4. The results of the verification of data entry and analysis for the monitoring period are presented in the excel sheets named as Ex post GHG_assessment

**Documentation provided by the Project Participant**

CAR 11 contains the following:

1. *Arboreal-Evaluation-Sveaskog-Beltinventory*
2. Comparative of data using different monitoring equipment

| **VVB Assessment** | **Date:** 24/05/2023 |
|---|---|

However, the document presented "Results of the data analysis" presents a comparison based on the parcels selected in the audit and concludes that there are no significant differences. It is important that the PP present more evidence that allows determining that the measurement method with the Arboreal software complies with rigor for this type of inventories.

**Open**.

| Project Participant response | Date: 22/08/2023 |
|---|---|
| In the findings number 10 it is described the internal QC/QA procedures and the internal audit performed in the equipment used for forest inventory. It describes based on a statistical analysis with field data measures and considering the Ipad units and a traditional diameter tape. The results show that there is no significant difference between either method or any of the two can be used to measure the DBH<br><br>Besides this SVEASKOG FÖRVALTNING AB (n.d.) performed an analysis between a harvester, traditional measurement, and the Arboreal forest reaching to the conclusion that Arboreal Forest measurement values are generally better than using traditional methods; and diameter measurements with Arboreal Forest and Lidar give good results. Several papers have been published now on the topic of using an iPad and corresponding applications for use in forest inventories such as Mokros 2021 et al., Gollob 2021 et al.)[1]. Both papers indicate that results showed a high accuracy of the diameter estimation, and that the iPad can provide precise and efficient measurements in a broader range of possible forestry applications. Further, in contrast to the traditional instruments used in forest inventory practice, e.g., calipers, tapes, and goniometers, the iPad laser scanner performs better, and as an effective pro, the data storage is digital.<br><br>[1] Link https://www.mdpi.com/2072-4292/13/16/3129 & https://www.researchgate.net/publication/354313231_Novel_low_-cost_mobile_mapping_systems_for_forest_inventories_as_terrestrial_laser_scanning_alternatives | |
| **Documentation provided by the Project Participant** | |
| Papers regarding the use of lidar tech in diameter at breast height diameter with statistical analysis showing accuracy in the forest inventory measurements.<br><br>See folder CAR 10 for statistical analysis and procedures | |
| **VVB Assessment** | **Date:** 24/09/2023 |
| The information presented is considered sufficient.<br><br>**Closed** | |

| CAR 12 | VCS Standard – section 2.4 | Date: 06/04/2023 |
|---|---|---|
| **Description of CAR** | | |

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|---|
| The PP must update the NPRR in consideration of the following items:<br><br>1. Adjust the NPRR according to the conditions of each geographical area of the Project (Tabasco and Tamaulipas), since there are differences in climate, seismicity and other items. It is suggested to validate the relevance of presenting the NPRR for each area.<br><br>2. Demonstrate in the External risk analysis: Community Engagement the literal b) and literal c). Present the required supports.<br><br>3. Natural risk analysis: Fire. Present the support of Proxylo's management strategies as mitigation measures.<br><br>4. The Natural risk analysis: Extreme Weather. Present for each project area the analysis of environmental conditions, threats and mitigation measures. |

| **Project Participant response** | **Date:** 10/05/2023 |
|---|---|
| The NPRR has been updated on the following items as requested:<br><br>1. For all sections, the responses have been adjusted, including an answer related to Tabasco and another to Ta Tamaulipas. The answers are not separated by geographical areas.<br>2. Community engagement section has been updated. Evidence is also shown in the PD Section 2.2. Supporting documentation is available in the folder CAR 7<br>3. "Natural risk section has been updated. Evidence of Proxylo forest fires management plan containing strategies as mitigation measure can be found in folder CAR 12<br>4. Extreme weather analysis has been done per geographical areas considering the environmental condition and risk associated with that. The section has been updated and the respective links are available in the section's footnotes. | |

| **Documentation provided by the Project Participant** |
|---|
| - Non permanent Risk Report document<br>- Proxylo forest fires management named as Plan de prevencion contra incendios PROXYLO |

| **VVB Assessment** | **Date:** 24/05/2023 |
|---|---|
| **Closed**. | |

## CLARIFICATION (CL)

| CL 1 | PD Section 1.1 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| Include in section 1.1 of the combined PD-MR format the average annual removals achieved by the project and the monitoring period, specifying the start and end date of monitoring activities. | | |
| **Project Participant response** | | **Date:** 09/05/2023 |
| Section 1.1 of the combined PD-MR has been modified to include the average annual carbon removals in $tCO_2e$ and the specific start and end dates of monitoring activities. | | |
| **Documentation provided by the Project Participant** | | |
| Section 1.1 of the combined PD-MR | | |
| **VVB Assessment** | | **Date:** 22/05/2023 |
| **Closed**. | | |

| CL 2 | PD Section 1.9 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| Clarify the accreditation period of the project considering the exact accreditation period of 30 years (January 1, 2017 to December 31, 2046). | | |
| **Project Participant response** | | **Date:** 09/05/2023 |
| Section 1.9 of the PD-MR has been modified to indicate the exact accreditation period. | | |
| **Documentation provided by the Project Participant** | | |
| Section 1.9 of the PD-MR | | |
| **VVB Assessment** | | **Date:** 22/05/2023 |
| **Closed.** | | |

| CL 3 | PD Section 1.10 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| Adjust in the table of this section, the total GHG removals expected for the project (*ex-ante*) and the average annual GHG removals. | | |
| **Project Participant response** | | **Date:** 09/05/2023 |
| Total GHG removals and average annual GHG removals values have been adjusted in the table in section 1.10 of the PD-MR. | | |
| **Documentation provided by the Project Participant** | | |
| section 1.10 of the PD-MR | | |
| **VVB Assessment** | | **Date:** 22/05/2023 |
| **Closed**. | | |

| CL 4 | PD Section 1.12 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| The PP shall provide evidence to conclude that the project shall not overlap with the project area of another VCS AFOLU project. | | |
| **Project Participant response** | | **Date:** 12/05/2023 |
| *IT has been included the excel file from Verra registry of México VCS AFOLU Projects. Only the Project named as Tabasco is in the municipalities included in the Project Area. Evidence that this project does not overlap with XICO2 Project is supported with the KML file of TabasCO2 Afforestation Project* | | |
| **Documentation provided by the Project Participant** | | |
| - Excel file with all Mexican *VCS AFOLU Projects*<br>- *KML of TabasCO2 Afforestation Project* | | |
| **VVB Assessment** | | **Date:** 24/05/2023 |
| **Closed**. | | |

| CL 5 | PD Section 1.14 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| The PP should clarify the description of the "Ley General del Desarrollo Forestal Sustentable" in relation to the granting of benefits or incentives for afforestation/reforestation at the national and state level. | | |
| **Project Participant response** | | **Date:** 05/05/2023 |
| The PP now contains a summary of (article 134, 135, 137) what the law says about the granting of benefits or incentives for afforestation/reforestation at the national and state level. | | |
| **Documentation provided by the Project Participant** | | |
| Ley General de Desarrollo Forestal Sustentable Mexico.pdf | | |
| **VVB Assessment** | | **Date:** 22/05/2023 |
| **Closed**. | | |

| CL 6 | PD Section 1.16 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| The PP should indicate whether the VCUs generated from this project will be used in the context of the Paris Agreement. | | |
| **Project Participant response** | | **Date: 10/05/2023** |
| It has been indicated in the PD that the VUCs will be used in the context of Paris Agreement. The PP are not seeking for governmental adjustment of the credits. Credits are only intended to be used on the voluntary carbon market. | | |
| **Documentation provided by the Project Participant** | | |
| PD-MR | | |
| **VVB Assessment** | | **Date:** 22/05/2023 |
| **Closed**. | | |

| CL 7 | PD Section 3.2 | Date: 06/04/2023 |
|---|---|---|

| **Description of CL** | |
|---|---|
| The PP should expand the analysis and evidence to demonstrate condition b) of applicability of the ACM0003 methodology.<br>"*(b) Soil disturbance attributable to the project activity does not cover more than 10 per cent of area in each of the following types of land, when these lands are included within the project boundary:*<br>*(i) Land containing organic soils;*<br>*(ii) Land which, in the baseline, is subjected to land-use and management practices and receives inputs listed in appendices 1 and 2 to this methodology*." | |
| **Project Participant response** | **Date:** DD/MM/YYYY |

**(i)** The predominant soil unit identified in the project area through point cartography of INEGI is Vertisol. Vertisols are inorganic (mineral) soils due to a little organic material, generally from 0.5 to 3%, a commonly low SOC and a high clay content (>35%). Due to pedoturbation (soil mixing and homogenisation), Vertisols do not have classical soil horizons (Kazemian, 2018; Ahmad, 1983; Blake et al., 2016; Hua, Wang & Guo, 2017) and FAO (2023) does not indicate the existence of an organic horizon characteristic of organic soils. According to Kazemian (2018) and Schimmel and Amelung (2022) organic soils or Histosols contain a significant amount of organic material recently derived from plant remains, which is not the case for Vertisols.

The following sources have been included as supporting documentation:

Hua, K., Wang, D. & Guo, Z. (2017). Soil organic carbon contents as a result of various organic amendments to a vertisol. *Nutr Cycl Agroecosyst*, *108*, 135–148. https://doi.org/10.1007/s10705-017-9845-y.

Schimmel, H. & Amelung, W. (2022). Organic Soils. *Reference Module in Earth Systems and Environmental Sciences*. University of Bonn. https://doi.org/10.1016/B978-0-12-822974-3.00073-2

Kazemian, S. (2018). Organic Soils and Peats. In: Bobrowsky, P.T., Marker, B. (eds) Encyclopedia of Engineering Geology. *Encyclopedia of Earth Sciences Series*. Springer, Cham. https://doi.org/10.1007/978-3-319-73568-9_214.

Ahmad, N. (2008). Chapter 3 Vertisols. *Development of Soil Science*, *11*(B), 91-123. https://doi.org/10.1016/S0166-2481(08)70614-7.

Blake, G.R. et al. (2008). Pedoturbation. In: Chesworth, W. (eds) Encyclopedia of Soil Science. *Encyclopedia of Earth Sciences Series. Springer*, Dordrecht. https://doi.org/10.1007/978-1-4020-3995-9_417.

FAO (2023). Key to the FAO Soil Unit (1974). Retrieved from Key to the FAO Soil Units | FAO SOILS PORTAL | Food and Agriculture Organization of the United Nations [04.05.2023].

**(ii)** In the project area rice and sugar cane cultivation is dominant. In the state of Tamaulipas rice is cultivated with reduced tillage and no inputs in the municipalities of González and El Mante where the project is located. Currently, production is being reduced due to low return and competition from the growing of crop for export to United States of America (FAO, n.k.; Valverde-Rebollo (2022). In the municipality of Cárdenas, in the state of Tabasco, sugar cane production is dominant and characterized by a land intensive management including tillage, drainage and the use of fertilizers (Herrera, Trejo-Téllez & Gómez-Merino, 2017; Armida-Alcudia et al., 2011). According to the study of Lopez et al. (2021), this area has an additional medium to high productive potential for rice cultivation. It has been identified that 74.5 thousand hectares (69,7%) of Cárdenas are suitable for the cultivation of rice, however, this area has not been exploited so fare and the sown area for rice has been mainly declining in the past years.

Due to the declining rice production in González and El Mante and the great amount of land available for rice cultivation, however not used, in Cárdenas, the creation of forest plantations is not seen as a threat to the local cultivation of crops.

The following sources have been included as supporting documentation:

FAO (n.k.). Mexico. Retrieved from https://www.fao.org/3/y4347e/y4347e16.htm [04.05.2023].

Valverde-Rebollo, G. & Morales, J. C. & Valtierra-Pacheco, E. & Escalona-Maurice, M. (2022). Geographical analysis of rice production and storage in Mexico, 1980 – 2018. *Agro Productividad*.

López, G., Miranda, R., Hernández, A. & Sánchez, E. (2021). Tecnología de potencial productivo de arroz (Oryza sativa L.) en el estado de Tabasco, México y su aportación a la soberanía alimentaria. Revista Chapingo Serie Agricultura Tropical. 1. 9-23. 10.5154/r.rchsagt.2021.02.02.

Herrera, Héctor Emmanuel & Trejo-Téllez, Libia Iris & Gómez-Merino, Fernando. (2017). The Mexican sugarcane production system: History, current status and new trends.

Armida-Alcudia, L., Ruiz Rosado, O., Salgado-García, S., Gallardo-López, F., Nava-Tablada, M. & Juárez-López, J. (2011). Socioeconomic and technological factors in sugarcane (Saccharum officinarum L.) agroecosystems production in Chontalpa, Tabasco. Tropical and Subtropical Agroecosystems. 13. 261 - 269.

| **Documentation provided by the Project Participant** | |
|---|---|
| In Folder CL7 | |
| **VVB Assessment** | **Date:** 24/05/2023 |
| **Closed.** | |

| **CL 8** | **PD Section 1.4.1** | **Date: 06/04/2023** |
|---|---|---|
| **Description of CL** | | |
| Present the supports of the cartographic and GIS processes in which the eligibility analysis is supported:<br>- Metadata used images<br>- Shapefiles multitemporal analysis<br>- Accuracy estimation | | |
| **Project Participant response** | | **Date:** 10/05/2023 |
| *All information has been updated in folder CL 8* | | |
| **Documentation provided by the Project Participant** | | |
| - Metadata used images and accuracy estimation<br>- Shapefiles multitemporal analysis | | |
| **VVB Assessment** | | **Date:** 19/05/2023 |
| **Closed.** | | |

| CL 9 | PD Section 6 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| Indicate the exact date of the monitoring period. Justify the criteria for defining the closing date of monitoring. | | |
| **Project Participant response** | | **Date:** 12/05/2023 |
| *The monitoring period is from the start date of the project (11/01/2023) to the final date of the field data monitoring (30/07/2022)* | | |
| **Documentation provided by the Project Participant** | | |
| - Ex post GHG_assessment_2023_05_12<br>- Documentation of start date in CAR 4 | | |
| **VVB Assessment** | | **Date:** 24/05/2023 |
| **Closed.** | | |

| CL 10 | VCS Standard – section 3.15.4 | Date: 06/04/2023 |
|---|---|---|
| **Description of CL** | | |
| Update the GWP values according to those presented in Table 2 of the VCS Standard. | | |
| **Project Participant response** | | **Date:** 28/04/2023 |
| GWP values have been updated in the PD, according to Table 2 of the VCS Standard and Table 8.A.1 of the IPCC Fifth Assessment Report. | | |
| **Documentation provided by the Project Participant** | | |
| Paper named as "Dacota y Vargas." in folder CAR 10. Hernández, J. V., & Martínez, H. B. (2004). Variación fenotípica y selección de árboles en una plantación de melina (Gmelina arborea Linn., Roxb.) de tres años de edad. Revista Chapingo. Serie Ciencias Forestales y del Ambiente, 10(1), 13-19. | | |
| **VVB Assessment** | | **Date:** 19/05/2023 |
| **Closed.** | | |

| CL 11 | VCS Standard | Date: 06/04/2023 |
|---|---|---|

| **Description of CL** | |
|---|---|
| Include the pertinent supports of the communications with VERRA on deadlines for retroactivity. | |
| **Project Participant response** | **Date:** 28/04/2023 |
| Section 3.8.4 VCS Standard, *All AFOLU projects with ex-ante emission reduction/removal estimates of 20,000 tCO2e per year or less, and ARR, RWE and IFM (with the exclusion of Logged to Protected Forest (LtPF) projects of any size shall complete validation within eight years of the project start date.*<br><br>As regards this project, as indicated in Section 1.10 of the PD-MR, estimated annual average emission reduction or removal is 3,977.75 tCO2 and the project start date is January 1, 2017. Therefore, this project is within the appropriate period of time for validation. | |
| **Documentation provided by the Project Participant** | |
| None | |
| **VVB Assessment** | **Date:** 19/05/2023 |
| **Closed.** | |

## FORWARD ACTION REQUEST (FAR)

N/A