CARBON
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TERO.002 – APD

VERSION 2.1

METHODOLOGY, AFOLU, AVOIDED DEFORESTATION

TERO CARBON AVALIAÇÕES E CERTIFICAÇÕES S.A.

IDENTIFICATION

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SOLUTION	Nature-Based Solutions (NBS)
SECTOR	Agriculture, Forestry and Other Land Use (AFOLU)
TYPE	Avoided Deforestation
ASSET GENERATED	Verified Carbon Unit (VCU) - Carbon Credit Asset
PROJECT ACTIVITIES	Avoided planned deforestation (APD)
GHG MITIGATION	Reduction/Avoidance

LIST OF ACRONYMS

AGB	Above-Ground Biomass
AFOLU	Agriculture, Forestry, and Other Land Use
APD	Avoided Planned Deforestation
BGB	Below-Ground Biomass
BP	Buffer Pool
CIM	Inter-ministerial Committee on Climate Change (of the SBCE)
CONAREDD+	National Commission for REDD+ (or successor/designated body for the purposes of Art. 43 of Law No. 15,042/2024)
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CRVE	Verified Emission Reduction or Removal Certificate (from the SBCE)
CS	Carbon Stock
DDW	Down Dead Wood
ER	External Reviewer
EUC	Emissions Unit Criteria
FI	Fractional Issuance
GHG	Greenhouse Gas
HCA	Host Country Attestation
ICAO	International Civil Aviation Organization
ICROA	International Carbon Reduction and Offsetting Alliance
IPCC	Intergovernmental Panel on Climate Change
ITMOs	Internationally Transferable Mitigation Outcomes
KPI	Key Performance Indicator
LB	Leakage Belt

LRA	Legal Reserve Area
MRV	Measurement, Reporting, and Verification
MUA	Multiple-Use Area
NBS	Nature-based Solutions
NDC	Nationally Determined Contribution
NPR	Non-Permanence Risk
PA	Project Area
PB	Property Boundary
PDD	Project Design Document
PPA	Permanent Preservation Area
QA/QC	Quality Assurance /Quality Control
RR	Reference Region
SBCE	Brazilian Greenhouse Gas Emissions Trading System (*Sistema Brasileiro de Comércio de Emissões de Gases de Efeito Estufa*)
SDG	Sustainable Development Goals
SOC	Soil Organic Carbon
TAC	Term of Conduct Adjustment (*Termo de Ajustamento de Conduta*)
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit - Carbon Credit Asset
VVB	Validation/Verification Body

LIST OF PROGRAMS

ID	NAME
DC.CER.001	Certification Program
DC.MET.001	Methodologies Program
DC.REG.001	Asset Program

LIST OF SUPPORTING DOCUMENTS

ID	NAME	SOLUTION
DC.COM.001	Definitions	All
DC.COM.003	Stakeholder Consultation Procedure	All
DC.GOV.001	Tero Carbon Governance Structure	All
DC.GOV.004	Grievance Management Procedure	All
DC.CER.002	Land Tenure Compliance Manual and Tero Carbon Seals for NBS Projects	NBS
DC.CER.003	Technical Guidelines for Carbon Quantification in AFOLU Projects	NBS
DC.CER.004	Procedure for Communication of Non-Participation in Jurisdictional REDD+ Scheme and Request for Exclusion	NBS
FR.CER.001	Project Scale Analysis Tool	All
FR.CER.002	Social and Environmental Safeguards Analysis Tool	All
FR.CER.003	Project Additionality Demonstration Tool	All
FR.CER.004	Non-Permanence Risk Analysis and Guarantee Mechanism Tool	NBS
FR.CER.005	Leakage Assessment and Management Tool for NBS VCU Projects	NBS
FR.CER.007	Acceptance Criteria Analysis Tool for Project Verification	All
TP.CER.004	[Template] Zero Deforestation Declaration	NBS
TP.CER.005	[Template] Leakage Risk Assessment and Negligibility Justification Form for Small-Scale NBS VCU Projects	NBS
TP.CER.006	[Template] Communication of Non-Participation in Jurisdictional REDD+ Scheme and Request for Exclusion	NBS

Law n° 15.042/2024	Establishes the Brazilian Greenhouse Gas Emissions Trading System (SBCE)	All

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1. INTRODUCTION

This methodology establishes guidelines and requirements for the measurement, reporting, and verification (MRV) of Greenhouse Gas (GHG) emission reductions in Nature-Based Solutions (NBS) projects in the AFOLU (Agriculture, Forestry, and Other Land Use) sector, with a focus on keeping forests standing.

The methodology was developed in line with the principles of integrity and best practices recognized internationally, including those established by the Intergovernmental Panel on Climate Change (IPCC) and aiming for alignment with the criteria of high-quality accreditation programs, such as the International Civil Aviation Organization (ICROA) Code of Best Practice and the Emissions Unit Criteria (EUCs) of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).

Additionally, this methodology was prepared considering Law No. 15,042, of December 11, 2024, which establishes the Brazilian Greenhouse Gas Emissions Trading System (SBCE). The aim is thus to provide a technical framework that is not only robust for the voluntary market but can also facilitate the eventual accreditation of this methodology and the recognition of the Verified Emission Reduction or Removal Certificates (CRVEs) generated by projects that use it within the scope of the SBCE, as per Art. 25 and Art. 44 of the said Law.

Projects submitted under this methodology cover Avoided Planned Deforestation (APD) initiatives, which aim to mitigate GHG emissions by avoiding vegetation suppression in areas where there is a legal prerogative to convert vegetation for other uses. It is assumed that waiving the legal prerogative to deforest, thereby maintaining forest cover beyond the limits of the Legal Reserve Areas (LRA) and Permanent Preservation Areas (PPA), constitutes the project's baseline.

The conservation of forests plays a fundamental role in mitigating climate change by ensuring continuous carbon sequestration and preventing emissions associated with deforestation. Furthermore, APD projects generate environmental and socioeconomic co-benefits, including biodiversity preservation, protection of water sources, and the maintenance of essential ecosystem services.

The objective of this methodology is to guide the development of projects eligible for the generation of Verified Carbon Units (VCUs), classified as Reductions/Avoidances of emissions. This document presents technical criteria for calculating the climate impact of projects, ensuring integrity, additionality, permanence, and compliance with the best international practices applicable to both the Voluntary and Regulated Carbon Markets.

This methodology is the intellectual property of Hdom Engenharia e Projetos Ambientais Ltda and was developed and registered under the Tero Carbon "Methodologies Program (DC.MET.001)". It **MUST** be used in conjunction with the Tero Programs ("Certification Program (DC.CER.001)", "Methodologies Program (DC.MET.001)", "Asset Program (DC.REG.001))" and their complementary documents (Tools, Policies, Manuals, Procedures, and Templates), which provide mandatory and detailed requirements for crucial aspects such as additionality, land tenure compliance, non-permanence risk analysis, leakage assessment, application of social and environmental safeguards, stakeholder consultation, and the validation and verification processes. This document also operates under the principles of the "Tero Carbon Governance Structure (DC.GOV.001)".

2. SCOPE, ACCEPTANCE CRITERIA, AND ACTIVITIES

2.1. Scope

This methodology applies to Avoided Planned Deforestation (APD) projects that can prove they have the legal prerogative to convert native vegetation in the Multiple-Use Area (MUA). Applicable to private areas in various Brazilian biomes, its scope focuses on maintaining forest cover, preventing emissions from deforestation, and ensuring climate and ecological benefits.

2.2. Acceptance Criteria

This methodology applies to projects that meet the following acceptance criteria:

i. **Land Tenure Compliance:** The project must be implemented on rural properties with proven land tenure regularity, according to the "Land Tenure Compliance Manual and Tero Carbon Seals for NBS Projects (DC.CER.002)", and may be privately or publicly owned.
ii. **Territorial Configuration:** The area can be contiguous or composed of multiple parcels, as long as it forms an ecological mosaic that ensures the connectivity and integrity of the biome.
iii. **Additional Social and Environmental Impacts:** In addition to avoiding emissions, the project must demonstrate, through clear and monitorable indicators (as per the "Social and Environmental Safeguards Analysis Tool (FR.CER.002)"), the occurrence of at least two social and environmental co-benefits (SDGs, excluding SDG 13).

iv. **Compliance with Social and Environmental Safeguards:** The project must fully comply with the social and environmental safeguards established by the "Social and Environmental Safeguards Analysis Tool (FR.CER.002)".
v. **Clear Identification of Key Roles:** The project must explicitly present the identification of the main parties responsible for its implementation. It is mandatory to indicate, at a minimum, a Lead Proponent, a Developer, a Generator, and an Implementer. Each role must be clearly defined, detailing the respective responsibilities and contributions to the project's execution, as per the requirements of the "Certification Program (DC.CER.001)".
vi. **Project Voluntariness:** The activities cannot result from legal requirements, court orders, or formal commitments, such as TACs or mandatory environmental compensations.
vii. **Project Area Location and Additionality:** The Project Area (PA) for Avoided Planned Deforestation (APD) activities must be located in the Multiple-Use Area (MUA) of the property, i.e., outside of Permanent Preservation Areas (PPAs) and Legal Reserve Areas (LRAs), since the baseline for APD is based on the legal prerogative of converting the MUA. The additionality of non-conversion must be demonstrated according to FR.CER.003. Projects aiming for recognition of CRVEs in the SBCE must ensure that the APD activity does not conflict with conservation obligations imposed by other legislation or by the SBCE itself.
viii. **Compliance with SBCE Jurisdictional Requirements:** For REDD+ projects developed in private areas or under concession/usufruct of third parties in Brazil, the Developer must demonstrate compliance with the "Procedure for Communication of Non-Participation in Jurisdictional REDD+ Scheme and Request for Exclusion (DC.CER.004)", presenting in the PDD the formal communication of exclusion of the area from the accounting of state jurisdictional REDD+ programs, duly submitted to CONAREDD+ (or designated body), as provided for in Art. 43 of Law No. 15,042/2024. This criterion is essential to ensure the uniqueness of the credits and avoid double counting in the context of the SBCE.

2.3. Activities

This methodology provides for the generation of carbon credits (reduction/avoidance) through the following activity:

I. **Avoided planned deforestation (APD):** This activity consists of forgoing the right to deforest the multiple-use area (MUA), ensuring that the forest remains standing and that carbon stocks are preserved. This guarantees the maintenance of forest cover, preventing the release of carbon into the

atmosphere, without the need to establish a sustainable forest management plan.

3. BASELINE

3.1. Selection of Project Activity Implementation Areas

The implementation area for the project activities, the Project Area (PA), must be geographically identified (**Figure 1**), along with the main geographical polygons of the rural property: Hydrography, Property Boundary (PB), Permanent Preservation Area (PPA); Multiple-Use Area (MUA), and Legal Reserve Area (LRA).

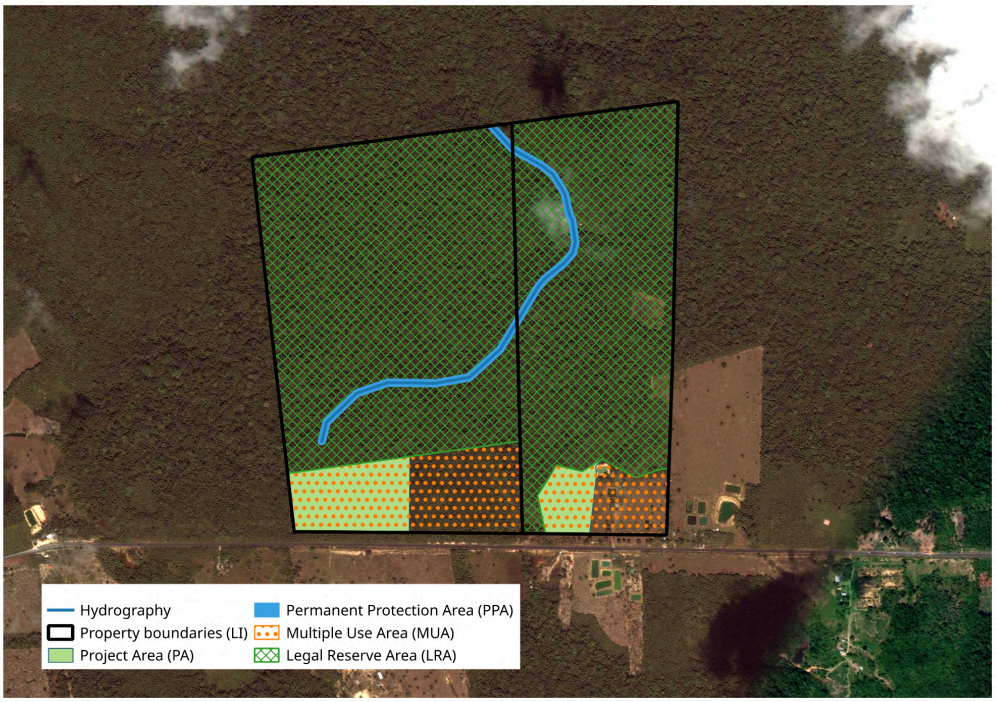

Figure 1. Map identifying the main geographical polygons of the project: Hydrography, Property Boundary (PB), Project Area (PA), Permanent Preservation Area (PPA); Multiple-Use Area (MUA), and Legal Reserve Area (LRA).

3.2. Selection of Carbon Pools Used in Carbon Stock Accounting

The project must indicate which carbon pools were used in the accounting of carbon stocks. **Table 1** presents the types of pools accepted by this methodology.

Table 1. Types of carbon pools accepted by the methodology.

POOL	ACRONYM	MANDATORY
Above-Ground Biomass	AGB	Yes
Below-Ground Biomass	BGB	Yes
Litter	Litter	No
Down Dead Wood	DDW	Optional
Soil Organic Carbon	SOC	Optional

The greenhouse gas (GHG) emissions considered in the APD activity result from the avoidance of vegetation or forest suppression and are detailed in **Table 2**.

Table 2. Emission sources and avoided GHGs considered from vegetation/forest suppression.

GAS	USED	JUSTIFICATION
CO_2	Yes	The quantification of emissions in CO_2 is conservative, considering that once cut and felled, the entire carbon stock stored in the tree or plant is immediately emitted in the form of CO_2e.
CH_4	No	Conservatively excluded, due to the lack of specific studies proving the decomposition rate of dead matter and the emission flux of these gases.
N_2O		

3.3. Baseline Selection and Additionality Demonstration

The demonstration of additionality is a central pillar of carbon credit integrity, as required by standards like ICROA and CORSIA, and is a fundamental criterion for the accreditation of methodologies and projects under the SBCE (Art. 25, II and Art. 44 of Law No. 15,042/2024). Every rural property in Brazil has the constitutional right to modify its landscape, within the limits of the Multiple-Use Area (MUA), for the implementation of alternative uses, whether productive or not. Therefore, in APD projects, the total suppression of the MUA can be considered.

To demonstrate additionality, the Project Developer **MUST** fully apply the Tero Carbon "Project Additionality Demonstration Tool (FR.CER.003)", following the appropriate flow and tests for the project's scale and type. The analysis must be particularly robust for projects aiming for recognition in the SBCE, considering that additionality is a key requirement for the generation of CRVEs. The complete

analysis, including all justifications and evidence, **MUST** be presented in the Project Design Document (PDD).

3.4. Baseline for GHG Emissions Accounting

For the avoided planned deforestation (APD) activity, the baseline emissions (E_BSL_APD_n) represent the GHG emissions that would occur in the absence of the project due to the planned deforestation of the Multiple-Use Area (MUA). It is assumed that, in the baseline scenario, the initial carbon stock (CS_0) in the MUA would be lost over the Commitment Period (Pc). For a verification period "n", the avoided baseline emissions are calculated as:

$$E_{BSL\ APD\ n} = \frac{CS_{APD\ 0}}{Pc_{APD}} \times \Delta t_n - CI_{BSL\ APD\ n} \quad (1)$$

where:

E_BSL_APD_n	=	Baseline of avoided emissions in verification period "n" (in tCO_2e) by the APD activity.
CS_APD_0	=	Initial carbon stock in the Project Area (PA) at the project start (t_0) (in tCO_2e).
Pc_APD	=	Commitment Period of the APD component of the project (years).
Δt_n	=	Duration of verification period "n" (years). (E.g., t_n – t_n-1, where t_n is the end of period "n" and t_n-1 is the end of the previous period). CI_BSL_ APD_n.
CI_BSL_APD_n	=	Confidence Interval margin (e.g., half the width of the 90% or 95% CI) associated with the estimate of E_BSL_APD_n (tCO_2e), applied to ensure conservatism.

3.5. Leakage

The assessment and accounting of leakage (LK_n) are mandatory for all projects seeking to generate VCUs using this methodology. The Project Developer **MUST** fully apply the procedures and requirements established in the Tero Carbon "Leakage Assessment and Management Tool for NBS VCU Projects (FR.CER.005)".

The result of this analysis will be a Net Leakage (LK_n) value for each verification period "n", which will be used to adjust the project's net reductions. The entire leakage assessment approach, along with assumptions, data sources, calculations, and results, **MUST** be fully presented, justified, and documented in the Project Design Document (PDD) for evaluation by the VVB. The continuous monitoring of leakage throughout the crediting period must follow the specifications in Section 6 of FR.CER.005.

Additionally, the assessment and mitigation of leakage is a fundamental integrity requirement for programs like ICROA (Criterion 5.5.2.b) and CORSIA (EUC 3.6), and an important principle for the credibility of CRVEs in the SBCE (Art. 2, XXXV of Law No. 15,042/2024 defines leakage).

3.6. Quantification of the Current Carbon Stock in the Project Area

The quantification of the current carbon stock in the Project Area (CS_PROJ_n) must be presented with a known confidence interval (CI). This methodology requires the use of the document "Technical Guidelines for Carbon Quantification in AFOLU Projects (DC.CER.003)" as the primary technical reference. Complementary methods or site-specific adaptations may be presented, provided they are technically and scientifically valid, transparently documented in the PDD, demonstrate equivalence or superiority in precision and conservatism, and are approved by the VVB and Tero Carbon. For APD projects, CS_PROJ_n represents the carbon stock effectively maintained in the MUA at the end of verification period "n".

3.7. Calculation of Net GHG Reductions/Avoidances by the Project

The Net Reductions of Avoided Emissions by the APD activity in verification period "n" (NR_net_PROJ_APD_n) are calculated as the avoided baseline emissions, minus any direct project emissions:

$$NR_{net\ PROJ\ APD\ n} = E_{BSL\ APD\ n} - E_{PROJ\ APD\ n} \quad (2)$$

where:

NR_net_PROJ_APD_n	=	Net reductions of avoided emissions by the APD activity in period "n", before leakage adjustment (in tCO_2e).

`E_BSL_APD_n`	=	Baseline of avoided emissions in period "`n`" by the APD activity (calculated according to Equation 1 of this methodology) (in tCO_2e).
`E_PROJ_APD_n`	=	GHG emissions within the PA that are a direct result of the project's management activities during period "`n`" (in tCO_2e). Often zero for pure APD.

After calculating the Project's Net Reductions (`NR_net_PROJ_APD_n`) and determining the project's Net Leakage (`LK_n`) according to the "Leakage Assessment and Management Tool for NBS VCU Projects (FR.CER.005)", the Net Reductions Adjusted for Leakage (`VCU_adj_LK_APD_n`) are calculated:

$$VCU_{adj\ LK\ APD\ n} = NR_{net\ PROJ\ APD\ n} - LK_n \quad (2a)$$

where:

`VCU_adj_LK_APD_n`	=	Net reductions from the APD activity in period "`n`", adjusted for leakage (in tCO_2e). This value will serve as `VCU_base_FI_n` for the application of Fractional Issuance in Section 3.9.
`NR_net_PROJ_APD_n`	=	As per Equation 2.
`LK_n`	=	Total net leakage of the project in period "`n`", quantified as per FR.CER.005 (tCO_2e).

Confidence Interval (CI): *All estimates of carbon stock and emissions/removals must be accompanied by their respective confidence intervals. Uncertainty propagation must be performed to determine the final CI of the `VCU_adj_LK_APD_n` estimate. The final value to be carried forward for the calculation of permanent credits (Section 3.9)* ***MUST*** *be the lower bound of the confidence interval (e.g., the 5th percentile for a 90% CI), ensuring the principle of conservatism.*

3.8. Non-Permanence Risk and Guarantee Mechanisms

Ensuring the permanence of emission reductions is a fundamental requirement. Programs like ICROA (Criterion 5.3) and CORSIA (EUC 3.5) require

robust mechanisms to address the non-permanence risk (reversal) of mitigations. The SBCE, through Art. 21, § 1, V of Law No. 15,042/2024, also provides for protection mechanisms against reversal. For Avoided Planned Deforestation (APD) projects using this methodology, the standard mechanism to address Non-Permanence Risk (NPR) is **Fractional Issuance (FI)**, as detailed in the Tero Carbon "Non-Permanence Risk Analysis and Guarantee Mechanism Tool (FR.CER.004)".

The Project Developer **MUST** fully apply the procedures of the Tero Carbon "Non-Permanence Risk Analysis and Guarantee Mechanism Tool (FR.CER.004)". Specifically:

1. **Assess Non-Permanence Risk (`NPR_total`):** Use one of the options described in Section 4 of FR.CER.004 (Simplified or Detailed Approach) to calculate the project's `NPR_total`. This assessment, although not determining a buffer pool retention for the standard FI approach, serves as a crucial risk indicator.
2. **Apply Fractional Issuance (FI):** Follow the procedures in Section 6 of FR.CER.004 to calculate the Equivalence Factor (`Ef = 1/Pc`) and determine the quantity of VCUs to be issued periodically.

APD projects classified as Large-Scale may, exceptionally, request Tero Carbon to use the Buffer Pool (BP), as detailed in FR.CER.004. The entire NPR analysis and the application of the guarantee mechanism **MUST** be documented in the PDD.

3.9. Calculation of Generated Permanent Carbon Credits

For APD activities using the Fractional Issuance (FI) approach, the permanent VCUs to be issued in verification period "`n`" (`pVCU_APD_n`) are calculated according to Equation 3 of the "Non-Permanence Risk Analysis and Guarantee Mechanism Tool (FR.CER.004)":

$$pVCU_{APD\,n} = VCU_{base\,FI\,n} \times Ef_{APD} \times \Delta t_n \quad (3)$$

where:

`pVCU_APD_n` = Permanent VCUs issued for the APD project in verification period "`n`" (in tCO_2e).

`VCU_base_FI_n` = Calculation basis for Fractional Issuance in period "`n`" (in tCO_2e). This value is the `VCU_adj_LK_APD_n` calculated in Equation 2a, after the conservative application of the confidence interval as described in Section 3.7.

Ef_{APD}	=	Equivalence Factor for the APD project, calculated as $(1 / Pc_{APD})(year^{-1})$, where Pc_{APD} is the Commitment Period of the APD project, as defined in Section 6.2 of FR.CER.004.
Δt_n	=	Duration of verification period "n", in years

Permanence is ensured by issuance conditional on the maintenance of the stock throughout the Commitment Period (Pc_{APD}). If a Large-Scale APD project uses the Buffer Pool approach (with Tero Carbon's approval), the calculation of permanent credits ($pVCU_{APD,n}$) will follow Equations 4, 5, and 6 of FR.CER.004, using $VCU_{adj\_LK\_APD,n}$ as the basis for applying the permanent fraction α.

3.10. Definition of Project Scale

The project's scale (Small or Large-Scale) **MUST** be determined using the Tero Carbon "Project Scale Analysis Tool (FR.CER.001)", based on the annual estimate of $pVCU_{APD,n}$ generation. The scale classification and its justification **MUST** be presented in the PDD.

3.11. Project Start Date and Retroactivity

The Project Start Date (t_0) is defined by the Project Developer in the Project Design Document (PDD). Projects using this **TERO.002 – APD** methodology may have a retroactive t_0.

The ability to credit retroactive reductions/removals is a feature of some carbon programs. However, for compliance with schemes like CORSIA, there may be restrictions on the eligibility of very old vintages. Developers should be aware of the specific requirements of the markets their credits are intended for. Within the SBCE, the regulation may establish specific rules on retroactivity for CRVEs. APD projects that rely on the non-exclusion of areas from jurisdictional REDD+ programs for SBCE purposes (as per Art. 43, §7 and §11 of Law No. 15,042/2024) must align their start date and crediting periods with the communication and eligibility requirements of those programs.

For VCUs to be issued for periods prior to the project's validation date, the Developer **MUST** fully comply with the Measurement, Reporting, and Verification (MRV) evidence requirements for the entire claimed retroactive period. These requirements are detailed in the Tero Carbon "Certification Program (DC.CER.001)" and include, but are not limited to, the presentation of robust and auditable evidence for:

- The performance of an initial forest inventory (or equivalent, as per Section 3.6 of this methodology and the “Technical Guidelines for Carbon Quantification in AFOLU Projects (DC.CER.003)”) before or at the t_0 date.
- The maintenance of the project area's conditions and the implementation of project activities since t_0.
- Effective governance over the project area by the proponent since t_0.
- The demonstration of project additionality, valid for the entire period since t_0, according to the “Project Additionality Demonstration Tool (FR.CER.003)”.
- Continuous compliance with social and environmental safeguards (as per the “Social and Environmental Safeguards Analysis Tool (FR.CER.002)”) since t_0.
- Valid and uninterrupted land tenure compliance since t_0 (as per the “Land Tenure Compliance Manual and Tero Carbon Seals for NBS Projects (DC.CER.002)”).

The maximum retroactivity period allowed for the first issuance of VCUs is defined in the "Certification Program" (currently **15 years** prior to the PDD submission date for validation). The absence of robust and verifiable evidence for any of the requirements for the retroactive period will result in the inability to issue VCUs for that period. The final decision on the acceptance of the retroactive period and the presented evidence rests with Tero Carbon, based on the VVB's assessment.

4.MONITORING PROCEDURE

4.1. Monitoring Plan

The Project Developer **MUST** prepare and implement a detailed Monitoring Plan, which will be an integral part of the Project Design Document (PDD). This plan is fundamental to ensure the quality, traceability, transparency, and integrity of the project's results over time, to verify continued compliance with the requirements of this methodology and the Tero Programs, and to meet the Measurement, Reporting, and Verification (MRV) standards required by high-integrity markets and the SBCE (Art. 2, XVIII of Law No. 15,042/2024).

The Monitoring Plan **MUST** cover, at a minimum, the following components, with explicit references to the applicable Tero tools and procedures:

1. **Maintenance of Project Acceptance Criteria:**
    - Procedures to continuously verify that all project eligibility criteria (defined in Section 2.2 of this methodology) and commitments made

(e.g., "[Template] Zero Deforestation Declaration" (TP.CER.004)) remain valid during the crediting period.

2. **Monitoring of Carbon Stock in the Project Area (`CS_ACTUAL_n`):**

   - Parameters to be monitored for the APD activity (e.g., forest cover by remote sensing, integrity of the MUA, identification of any unauthorized degradation or deforestation hotspots).
   - Forest or biomass inventory methodology for periodic stock verification (according to the "Technical Guidelines for Carbon Quantification in AFOLU Projects (DC.CER.003)"), including sampling design (if applicable for field checks), measurement frequency (which may be less intensive for pure APD, focusing on remote sensing with targeted field verifications), and data QA/QC procedures.
   - Procedures for the periodic recalculation of carbon stocks.

3. **Monitoring of Project Emissions (`E_PROJ_n`):**

   - For pure APD projects, project emissions (`E_PROJ_n`) are generally considered zero, unless specific project area management activities result in GHG emissions (e.g., fuel use in surveillance patrols, if significant). If present, identify and quantify according to IPCC methodologies or other approved sources.

4. **Monitoring of Leakage (`LK_n`):**

   - Application of the monitoring requirements of the "Leakage Assessment and Management Tool for NBS VCU Projects" (FR.CER.005), according to the project's scale:
     - **For Small-Scale (Option A - justified negligibility):** Procedures for the periodic reconfirmation (at each verification) of the conditions supporting the negligibility justification, including remote sensing analysis of the leakage belt and statements/evidence from local stakeholders.
     - **For Large-Scale (or Small-Scale with a discount factor/quantitative analysis):** Monitoring of the defined parameters (e.g., land use, deforestation rates) in the Leakage Belt (LB) and, if applicable, in the Reference Region (RR).

5. **Monitoring of Non-Permanence Risk (NPR) and the Guarantee Mechanism (Fractional Issuance):**

   - Continuous monitoring of the risk factors (internal and external) identified in the NPR analysis (conducted according to the

"Non-Permanence Risk Analysis and Guarantee Mechanism Tool (FR.CER.004)").

- Procedures for detecting, recording, and immediately reporting to Tero Carbon any reversal events (intentional or unintentional) affecting the carbon stocks in the APD area. A reversal will impact the "`CS_Verified(t_n)`" and, consequently, the quantity of VCUs issued via FI. Reversal compensation mechanisms must be triggered as per FR.CER.004 and aligned with SBCE requirements for reversal protection.
- Monitoring the maintenance of the carbon stock in the MUA, which is the basis for fractional issuance.

6. **Monitoring of Social and Environmental Safeguards and Co-benefits:**

   - Implementation and monitoring of the effectiveness of the mitigation measures for identified social and environmental risks.
   - Monitoring of the Key Performance Indicators (KPIs) for the mandatory minimum of two co-benefits (SDGs, excluding SDG 13) and any other co-benefits claimed by the project. The MRV methodology for each KPI (baseline, data source, frequency) must be detailed, according to the "Social and Environmental Safeguards Analysis Tool (FR.CER.002)".

7. **Monitoring of Land Tenure Compliance:**

   - Procedures to ensure the maintenance of the land tenure regularity of the project area(s) throughout the crediting period, according to the requirements of the "Land Tenure Compliance Manual and Tero Carbon Seals for NBS Projects (DC.CER.002)".

8. **Monitoring of Stakeholder Engagement:**

   - Maintenance of communication channels with local stakeholders and recording of any concerns or grievances received, according to the "Stakeholder Consultation Procedure (DC.COM.003)" and the "Grievance Management Procedure (DC.GOV.004)".

For each monitored parameter, the Monitoring Plan must specify: the exact variable to be measured/observed; the unit of measurement; the collection/calculation methodology (with reference to Tero documents whenever applicable); the monitoring frequency; the party responsible for collection, analysis, and reporting; and the quality assurance and quality control (QA/QC) procedures for the data.

The PDD must clearly indicate which sections of the Monitoring Plan are mandatory for validation and what data and results are expected for each subsequent verification in the Monitoring Report.

4.2. Monitoring Methodology and Quality

As part of the monitoring procedure, the project developer must establish a clear and replicable methodology for data collection, analysis, and reporting, ensuring that the processes are auditable and consistent across verification cycles. The plan should describe the tools, technologies, and frequencies used for monitoring, as well as identify the responsibilities of the involved parties. It is also necessary for the developer to adopt measures to ensure data quality, including internal audits, control procedures, and detailed records of all monitored activities.

4.3. Period Between Verifications

The period between verifications must be defined by the developer in the Monitoring Plan, considering the nature of the project and the frequency required to ensure the quality and traceability of the results. However, this interval must not exceed three years, to ensure that the collected data remains up-to-date and consistent with the project's reality. Ideally, it is recommended that verifications be conducted annually, allowing for continuous monitoring of the project's performance, rapid identification of deviations, and implementation of corrective actions when necessary. In the event of the publication of a new major version of the TERO.002 methodology (e.g., v2.X to v3.0), the project must undergo re-validation before the next scheduled periodic verification, as established in the Tero Carbon “Certification Program (DC.CER.001)”.

4.4. Monitoring Report

For each monitoring period, when requesting a verification, the project developer must submit a comprehensive Monitoring Report. This report must present the quantified results of net emissions, clearly indicating the carbon credits requested for the crediting period. In addition to the written document, the developer must also provide spreadsheets and supporting information available in the "Acceptance Criteria Analysis Tool for Project Verification (FR.CER.007)”. This documentation ensures that all data and calculations are transparent, auditable, and consistent with the project's monitoring and verification requirements.

5. REVIEW OF THIS METHODOLOGY

This methodology (**TERO.002 – APD**) will be periodically reviewed by Tero Carbon in collaboration with the methodology author (Hdom Engenharia e Projetos Ambientais Ltda) or at the initiative of Tero Carbon, according to the procedures established in the "Methodologies Program (DC.MET.001)". Reviews may occur, at a minimum, every 5 (five) years, or sooner if necessary, to:

a. Incorporate relevant scientific and technical advances for APD activities, including new approaches for estimating carbon stocks, monitoring, or assessing deforestation and permanence risks.
b. Reflect significant changes in national policies, regulations (such as the evolution of the SBCE regulation, including definitions on jurisdictional REDD+ programs in Art. 43) or international ones, or in market requirements, including those of accreditation schemes like ICROA and CORSIA, for which Tero Carbon seeks alignment and eventual eligibility.
c. Accommodate consistent and constructive feedback from Project Developers, Validation/Verification Bodies (VVBs), experts, and other stakeholders, obtained through Tero Carbon's formal channels (e.g., "Stakeholder Consultation Procedure (DC.COM.003)", "Grievance Management Procedure (DC.GOV.004)").
d. Correct any inconsistencies, ambiguities, or errors identified that could compromise the clarity, applicability, or environmental integrity of the VCUs generated under this methodology.
e. Ensure continuous alignment with the latest versions of the Tero Programs and their complementary documents.

Revisions considered substantial by Tero Carbon (that significantly alter the scope, eligibility criteria, additionality, baseline, GHG quantification equations, or monitoring procedures) will follow the full methodological review process of the "Methodologies Program", which may include review by an External Reviewer (RE) and public consultation.

Minor revisions (e.g., editorial corrections, clarifications that do not alter the substance of the requirements, updates to references to Tero documents) may follow a simplified internal approval and publication process.

Tero Carbon reserves the right to suspend or deactivate this methodology if it becomes obsolete, demonstrably flawed, or misaligned with the principles and requirements of the Tero Programs, as detailed in the "Methodologies Program (DC.MET.001)".

VERSION HISTORY

VERSION	DATE	NOTES
2.1	06/16/2025	Complete alignment with Tero Programs v2.1. Leakage and Non-Permanence Risk (NPR) become mandatory, with Fractional Issuance (FI) as the standard mechanism for APD, referencing Tero Tools. Detailed and integrated Monitoring Plan. Retroactivity section added. Mandatory references to Tero Tools for Additionality, Stock Estimation, Scale, Safeguards, and Land Tenure Compliance. Focus on integrity and preparation for ICROA/CORSIA and SBCE.
2.0	04/02/2025	Version with substantial updates to the methodology structure, including name change and layout adjustments to meet standards.
1.0	07/24/2023	Initial version approved by the Directorate and launched for public consultation.