PV Climate

Methodology Review for Quantifying Carbon Benefits from Small-scale Agroforestry Methodology and additional modules

Version 4.0

22-09-2025

Review Details	
Report Title:	Methodology Review for Quantifying Carbon Benefits from Small-scale Agroforestry Methodology and additional modules
Version:	4.0
Methodology/Methodological Elements Reviewed:	• glossary_pvclimate_v5_1.3 • PM002 Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0 20250718.docx • PT005 Tool for Assessment of Historic Deforestation on Small-scale Agroforestry v1.0 20250718.docx • PT006 Tool for Ground Truth Sampling v1.0 20250718.docx • PU006 Module for Model Development, Calibration, Validation and Application of Remote Sensing based Models of Aboveground Biomass in Smallholder Agroforestry v1.0 20250718.docx • PU007 Module for Performing Adaptive Pre-project Woody Biomass Baseline for Small-scale Agroforestry v1.0 20250718.docx

	• PU008 Module for Estimating Uncertainty of Carbon Benefits from Small-scale Agroforestry v1.0 20250718.docx • PU009 Module for Estimation of Carbon Benefits from Small-scale Agroforestry with Partial Felling and Harvesting of Trees v1 20250718.docx
Sectoral Scope	AFOLU
Client:	ACORN
Date of Approval:	22-09-2025
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1. Introduction

1.1. Objective and Scope

The purpose of the assessment was to conduct an independent review of the PM002 *Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry*, version 2.0, and its associated modules (PM002 to PU009), to determine whether they comply with the Methodology Requirements, as set out in the guidance documents listed in Section 2.2 of this Methodology Review Report.

This assessment includes an evaluation of the methodology's procedures for the following areas:

- **Eligibility criteria for project activities**: including agroforestry definitions, exclusion of wetlands, and deforestation checks (PT005).
- **Baseline scenario and additionality**: including the use of CDM tools and stakeholder consultations to determine plausible land use scenarios and barriers to implementation.
- **Calculation of carbon benefits**: covering direct field measurements (PT006), remote sensing model calibration and validation (PU006), pre-project biomass adjustment (PU005), uncertainty estimation (PU008), and treatment of partial felling and harvesting (PU009).
- **Leakage assessment**: including procedures for identifying and quantifying leakage emissions or applying conservative discount factors, as outlined in PU004.

Each module was reviewed individually to assess its technical robustness, alignment with Plan Vivo's PV Climate requirements.

AENOR CONFÍA, S.A. (Unipersonal) verification/validation entity accredited by ANAB with AEN accreditation number 8993.

1.2. AENOR and Assessment Team

The audit team is formed by the following experienced people:
Javier Cócera is a forest engineer with a Master in forest management. He has developed his career focused to the forest management. Mainly he has been working through sustainability in two ways: the main one as forestry consultancy, developing forest management plans, working with GIS and LiDAR both in the field and the office and getting experience of the forest resources. The second one was developing environmental footprint projects and sustainability reports. Currently Javier is working in AENOR as auditor focused in AFOLU projects. Javier participated in courses about ISO lead auditing, Community development and also about technical skills such as remote sensing and uncertainty management. He has performed on-site audits and leaded projects in Europe, LATAM, Africa and Asia.

Marcos Recio has worked since finishing his university studies closed to the environment and climate change. The main branch of his career has been the energy efficiency and the forest management. The other path of his career has been focused to renewable energies and integrated management systems. He has worked in different countries: Spain, Senegal, Paraguay and others. In AENOR he is working with international projects, mainly in and South America, Africa, above all

in Perú. Most of the projects he is working on are AFOLU and UNFCCC verifications and validations.

Pablo Moreno is a Forest Engineer, and he has a Master's Degree in Forest engineering and management, both carried out in Polytechnic University of Madrid. Pablo has more than 3 years of experience in forestry and sustainability. He has worked since he stated his master´s studies close to the environment in different ways. The main branch of his career has been forest management, operations management, technical analysis, working with GIS and field work as well as quality assessment and R&D development in forestry production-related topics in search of efficiency and process optimization. The other path of his career has been focused to sustainability consultancy and research and climate change. He has worked in different countries: Spain, U.S.A. and Australia. In AENOR is working with international projects, mainly in Africa and South America. He is a native Spanish speaker proficient in English and holds a basic level of French.

Table 1. Assessment Team Details.

Role	Name	Affiliation	Involvement in	
			Desk/document review	Assessment findings
Team Leader	Javier Cócera	AENOR	Yes	Yes
Reviewer	Marcos Recio	AENOR	Yes	Yes
Reviewer	Pablo Moreno	AENOR	Yes	Yes

1.3. Summary Description of the Methodology

The methodology PM002 v2.0 provides the overarching method for quantifying carbon removals in smallholder agroforestry systems. It defines the eligibility criteria, baseline scenario, carbon pools, emission sources, leakage, and the issuance of Plan Vivo Certificates (rPVC´s and vPVC´s).

The supporting tools and modules enhance the robustness and applicability of the methodology:

- **PT005** ensures plot eligibility by assessing deforestation history using satellite data and local evidence.
- **PT006** defines protocols for selecting representative sample plots and collecting field data to estimate Aboveground Biomass (AGB).
- **PU006** guides the development and validation of remote sensing-based models to estimate AGB, including calibration and accuracy thresholds.
- **PU007** provides a method to estimate pre-project biomass using species-specific or generic sigmoid growth curves, ensuring fair attribution of carbon benefits.
- **PU008** outlines procedures for calculating sampling and model uncertainty, applying adjustment factors to ensure conservative reporting.

- **PU009** addresses the treatment of biomass removals due to thinning or harvesting, introducing caps and long-term modeling to maintain environmental integrity.

Together, these elements form a comprehensive and integrated system for carbon accounting in agroforestry projects, aligned with Plan Vivo's PV Climate requirements.

Table 2. Documents included under the scope of the methodology assessment.

Methodology/Module/Tool	Title	Version; Date
Methodology	PM002 – Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry	Version 2.0; July 2025
Tool	PT005 – Tool for Assessment of Historic Deforestation on Small-scale Agroforestry	Version 1.0; July 2025
Tool	PT006 – Tool for Ground Truth Sampling	Version 1.0; July 2025
Module	PU006 – Module for Model Development, Calibration, Validation and Application of Remote Sensing Models of Aboveground Biomass	Version 1.0; July 2025
Module	PU007 – Module for Performing Adaptive Pre-project Woody Biomass Baseline for Small-scale Agroforestry	Version 1.0; July 2025
Module	PU008 – Module for Estimating Uncertainty of Carbon Benefits from Small-scale Agroforestry	Version 1.0; July 2025
Module	PU009 – Module for Estimation of Carbon Benefits from Small-scale Agroforestry with Partial Felling and Harvesting of Trees	Version 1.0; July 2025

2. Assessment Methods & Criteria

2.1. Assessment Methods

The assessment was conducted as a structured desk review, focused on evaluating the design, technical robustness, and internal consistency of the methodology and associated modules, and their adherence to the PV Climate Methodology Requirements.

Specific attention was given to:

- The logical flow and internal consistency of the steps outlined in the methodology and modules.
- The appropriateness and transparency of data sources, parameters, and assumptions used.
- The validity and clarity of equations and procedures for quantifying carbon removals and emission reductions.
- The robustness of the monitoring, reporting, and uncertainty adjustment procedures.
- The integration and coherence between the core methodology (PM002) and its supporting tools and modules (PT005–PU009).

The assessment was performed against the most recent version of the relevant PV Climate v5 documentation, including:

- Methodology Requirements v1.2
- Project Requirements
- Validation & Verification Requirements
- Procedures Manual v3.4
- Methodology Review Terms of Reference) v1.0 for AENOR
- Glossary of Terms
- Project Development Guidance Manual
- Participatory Toolkit
- Public Consultation Guidance Manual

These documents were accessed via the official PV Climate documentation portal (planvivo.org/pv-climate-documentation).

The assessment was conducted by an independent entity (AENOR), who reviewed the methodology and modules from their initial versions through successive updates.
Throughout the process, AENOR issued a series of Corrective Action Requests (CARs), which were addressed and resolved by the methodology developers. All identified issues were closed prior to finalization.

In addition to the AENOR review, the documents underwent external expert consultation and public review, ensuring transparency and alignment with best practices in carbon accounting for smallholder agroforestry.

2.2. Documents Reviewed

The assessment was performed as a formal audit, in which the methodology and all supporting modules and tools were reviewed, cross-checked, and compared against the applicable PV Climate Methodology Requirements. The process followed a structured and iterative approach, including:

- A detailed review of each document's structure, logic, and technical content.
- Cross-referencing of equations, parameters, and procedures with the PV Climate guidance.
- Verification of consistency between the methodology (PM002) and its supporting modules and tools (PT005–PU009).
- Evaluation of the methodology's alignment with the principles of conservativeness, transparency, and scientific robustness.

The audit was conducted by an independent entity(AENOR), who reviewed the documents from their initial drafts through successive versions. Throughout the process, AENOR issued a series of Corrective Action Requests (CARs), which were addressed by the methodology developers. All CARs were closed prior to finalization.

In addition to the AENOR audit, the documents were subject to external expert review and public consultation, in line with Plan Vivo's participatory and transparent development process.

Table 3. Documents reviewed or referenced.

Document ID.	Author	Title and version	Source/provider
1	Plan Vivo Foundation	Methodology Requirements v1.2	https://www.planvivo.org/pv-climate-documentation
2	Plan Vivo Foundation	Procedures Manual v3.4	https://www.planvivo.org/pv-climate-documentation
3	Plan Vivo Foundation	Validation & Verification Requirements	https://www.planvivo.org/pv-climate-documentation
4	Plan Vivo Foundation	Methodology Review Terms of v1.0 for AENOR	https://www.planvivo.org/pv-climate-documentation
5	Plan Vivo Foundation	Project Requirements	https://www.planvivo.org/pv-climate-documentation
6	Plan Vivo Foundation	Glossary of Terms	https://www.planvivo.org/pv-climate-documentation
7	Plan Vivo Foundation	Project Development Guidance Manual	https://www.planvivo.org/pv-climate-documentation
8	Plan Vivo Foundation	Participatory Toolkit	https://www.planvivo.org/pv-climate-documentation
9	Plan Vivo Foundation	Public Consultation Guidance Manual	https://www.planvivo.org/pv-climate-documentation

2.3. Resolution of Findings

All documentation provided by Acorn was assessed against the applicable version of the relevant Plan Vivo Foundation Methodology Requirements v1.2 guidance document. Several New Information Requests (NIRs), Corrective Action Requests (CARs) and Observations (OBs) were raised and submitted to Acorn, which addressed them either by providing to the audit team the requested information or by making the appropriate corrections. Updated versions of the documentation were submitted by Acorn and the audit team reassessed them against the guidance documentation. This process was repeated until all Observations, NIRs and CARs were fully closed. Specifically, 17 CARs, 15 NIRs and 17 Observations were raised.

All findings issued by the AENOR audit team during the auditing process have been closed. In accordance with PV Climate Review Report Template v1.0, all findings issued during the auditing process and the inputs for their closure are described in Appendix 2 of this report.

Table 4. Methodology Review Findings Summary.

Areas of Review Findings	No. of NIRs	No. of CARs

General Requirements		
Methodology structure	2	3
Uncertainty	0	0
Quantifying emissions and removals	3	0
Measurements and sampling	1	7
Models, default factors and proxies	4	4
Methodology Components		
Applicability conditions	1	1
Carbon pools and emissions sources	1	1
Baseline scenario and additionality	0	0
Carbon baseline	0	0
Project emissions and removals	1	1
Harvesting	1	0
Leakage	0	0
Calculation of carbon benefits	1	0
Total	**15**	**17**

2.4. Public Consultation Feedback

Public comments were received by AENOR and were duly reviewed and any updates to the documentation performed due to these comments were approved by the audit team.

The methodology developer provided the opportunity for public input in accordance with Plan Vivo's Public Consultation Guidance Manual v1.0 and PV Climate Methodology Requirements v1.2. The auditor has verified that the
consultation process was properly carried out and confirms compliance with both documents above mentioned.
The result and feedback from the public consultation is available upon request to ACORN, due to the size of the document this consultation is in and its availability upon request, no summary is provided in table 5 below.

Table 5. Summary of public consultation feedback.

Feedback ID	Source	Date Received	Original Feedback	Methodology Developer Response	Outcome
N/A	N/A	N/A	N/A	N/A	N/A

3. Assessment Findings

3.1. General Requirements

3.1.1. Methodology Structure

AENOR confirms that the submitted methodology (PM002 v2.0) and its associated modules and tools (PT002 to PU009) have been developed using the latest version of the PV Climate Methodology/Module/Tool Template, as required by the Plan Vivo Foundation.

Each document adheres to the standardized structure and formatting outlined in the Methodology Requirements v1.2, including:

- Consistent versioning and dating.
- Structured sections for summary, applicability, procedures, parameters, and references.
- Use of definitions aligned with the Plan Vivo Glossary.
- Integration of uncertainty, baseline, monitoring, and carbon benefit quantification procedures.

AENOR has reviewed all documents across multiple iterations, from initial drafts to final versions, and confirms that the formatting and structure are fully compliant with the current PV Climate documentation standards.
Assess whether the content provides sufficient detail and clarity to ensure consistent application by Projects, and assess whether the information presented allows reviewers to determine if the Methodology Requirements are met.

3.1.2. Uncertainty

The methodology and associated modules provide a detailed and structured approach for estimating and adjusting uncertainty in the quantification of carbon benefits. The procedures are clearly articulated and consistent with international good practices in greenhouse gas accounting, including those outlined by the IPCC.

The methodology distinguishes between two primary sources of uncertainty:

1. Sampling uncertainty – arising from the variability in ground truth measurements across sample plots.
2. Model uncertainty – resulting from the error between measured and predicted values in remote sensing-based biomass models.

These uncertainties are calculated at the plot level and aggregated at the stratum level, using the procedures described in PU008 – Module for Estimating Uncertainty of Carbon Benefits. The methodology applies a 90% confidence interval, using standard statistical techniques such as:

- Calculation of residuals between measured and predicted AGB values.
- Estimation of standard error and confidence intervals.
- Normalization of uncertainty relative to the mean biomass of the validation set.

The total uncertainty (U) is then used to derive an uncertainty adjustment factor (AdjU), following the formula:

$$AdjU=0.25\times(U-0.5)$$

This adjustment is applied conservatively: if the result is negative, it is set to zero; if greater than one, it is capped at one. This ensures that only plots with acceptable uncertainty levels contribute to r/vPVCs issuance.

In PU007, uncertainty is also integrated into the estimation of pre-project biomass adjustment factors, using sigmoid growth curves. The module includes procedures for propagating uncertainty from both sampling and modeling, and applies the same 90% confidence level.

The methodology also addresses non-quantifiable sources of uncertainty through:

- Use of conservative default values (e.g., root:shoot ratios from IPCC).
- Well-correlated proxies (e.g., NDVI for biomass variation).
- Robust assumptions in model calibration and biomass estimation.
- Conservative exclusions of carbon pools and emission sources unless proven insignificant.

Overall, the methodology demonstrates a strong commitment to conservativeness and transparency in uncertainty estimation. The procedures are consistent with recognized international standards, including IPCC 2006 and 2019 guidelines, and are well-integrated into the carbon accounting of the Plan Vivo Standard.

3.1.3. Quantifying Emissions and Removals

The methodology and associated modules present a comprehensive and technically sound approach for quantifying greenhouse gas (GHG) emissions and changes in carbon stocks, consistent with internationally recognized good practices in GHG accounting, including those outlined by the IPCC.

The methodology quantifies **carbon removals and emissions separately** for each identified **carbon pool** and **emission source**, as detailed in Section 5 of PM002. The following carbon pools are considered:

- Aboveground woody biomass
- Belowground woody biomass
- Non-woody biomass (if significant)
- Deadwood (if significant)
- Soil organic carbon (SOC, if significant)

Emission sources are also assessed individually, including:

- Nitrogen fertilizer use
- Nitrogen-fixing species
- Fossil fuel use
- Enteric fermentation and manure decomposition (for silvopastoral systems)
- Soil methanogenesis (excluded if not significant)

The methodology applies **significance testing** (e.g., via AR-TOOL04) to justify exclusions, ensuring that any omitted pools or sources do not reduce total carbon benefits by more than 5%.

All GHG emissions are converted to **CO_2 equivalent** using **100-year Global Warming Potentials (GWPs)** from the most recent IPCC Assessment Report, as referenced in PM002 and supporting modules. The conversion factor from carbon to CO_2 (44/12) and the carbon fraction of biomass (0.47) are consistent with IPCC 2006 and 2019 guidelines.

The methodology clearly identifies and justifies all **data, parameters, assumptions, and calculations** used to estimate and measure carbon benefits. These include:

- Direct field measurements (PT006)
- Remote sensing-based biomass modeling (PU006)
- Pre-project biomass adjustment (PU007)
- Uncertainty estimation (PU008)

- Treatment of biomass removals due to harvesting (PU009)

Conservative approaches are evident throughout the methodology, including:

- Conservative exclusion of certain pools and sources unless proven significant
- Conservative treatment of uncertainty (e.g., capping adjustment factors)
- Use of default values and proxies when direct data is unavailable
- Application of achievement reserves and buffer pools to mitigate risk

In conclusion, the methodology provides a transparent, conservative, and scientifically robust framework for quantifying emissions and removals in smallholder agroforestry systems, fully aligned with international standards and the PV Climate requirements.

3.1.4. Measurements and Sampling

The methodology incorporates direct measurements of carbon stocks through field-based sampling of Aboveground Biomass (AGB), as described in PT006 – Tool for Ground Truth Sampling. Sample plots are selected using a stratified systematic approach to ensure representativeness across ecoregions. Within each plot, subplots are measured for tree height, diameter at breast height (DBH), species identification, and planting year. These measurements are used to calculate AGB using species-specific or generic allometric equations, consistent with international best practices such as those outlined by the IPCC and peer-reviewed sources (e.g., Chave et al., 2014).

The methodology also integrates modelled estimates of AGB using remote sensing data, as detailed in PU006. These models are calibrated and validated using the ground truth data, and uncertainty is quantified through statistical comparison of measured and predicted values.

Uncertainty adjustments are clearly addressed in PU008, where both sampling and model uncertainty are calculated at a 90% confidence level. The methodology applies a conservative adjustment factor using the formula:

$$AdjU=0.25\times(U-0.5)$$

This adjustment is applied at the plot level and ensures that only plots with acceptable uncertainty levels contribute to carbon benefit issuance. If the adjustment factor is negative, it is set to zero; if greater than one, it is capped at one.

The methodology also accounts for non-quantifiable sources of uncertainty through:

- Use of conservative default values (e.g., root:shoot ratios from IPCC).
- Application of well-correlated proxies (e.g., NDVI for biomass variation).
- Conservative exclusions of carbon pools and emission sources unless proven insignificant.
- Buffer pool contributions and achievement reserves to mitigate risk.

In conclusion, the approach to direct measurements and uncertainty adjustments is well-justified, transparent, and aligned with international best practices in greenhouse gas accounting. The methodology ensures that carbon benefits are conservatively estimated and reliably supported by empirical data and validated models.

3.1.5. Models, Default Factors and Proxies

The methodology and associated modules make extensive and well-justified use of models, default factors, and proxies to estimate carbon removals and greenhouse gas emissions. These elements are applied in a manner consistent with international best practices, including those outlined by the IPCC, CDM methodologies, and peer-reviewed literature.

Models

Models are central to the estimation of Aboveground Biomass (AGB) and are used to simulate biomass accumulation over time and across landscapes. The methodology employs two main types of models:

1. **Remote sensing-based biomass models** (PU006):
    - These models are calibrated using field data collected via PT006 and validated using independent datasets.
    - Model performance is assessed using statistical metrics such as R^2 and normalized RMSE (nRMSE), with minimum thresholds ($R^2 \geq 0.7$, nRMSE $\leq 30\%$) required for application.
    - Models are updated every five years and recalibrated with new data to ensure accuracy and relevance.
    - Documentation includes algorithm descriptions, calibration strategy, and validation results.
    - Where applicable, models are supported by peer-reviewed publications or independent validation reports.
2. **Tree growth models** (PU007 and PU009):
    - Sigmoid growth curves are used to simulate biomass accumulation for individual tree species.
    - These models are fitted using non-linear regression techniques and parameters derived from field data (e.g., maximum biomass, growth rate, age of maximum growth).
    - Species-specific curves are used when sufficient data is available; otherwise, generic curves are applied.
    - These models are used to estimate pre-project biomass and to define long-term biomass caps in harvesting scenarios.

All models incorporate conservative assumptions, such as limiting maximum biomass values, excluding plots with high uncertainty, and applying achievement reserves and buffer pools to mitigate risk.

Default Factors

The methodology uses default factors from three sources:

- **Third-party defaults**:
    - Root:shoot ratios from IPCC 2019 Table 4.4.
    - Carbon fraction of biomass (0.47) and CO_2 conversion factor (44/12) from IPCC 2006.
    - These values are publicly available, scientifically credible, and widely accepted in the carbon accounting community.
- **Novel defaults**:

- Parameters such as long-term average biomass caps (AGB_delta,cap) in PU009, derived from data and modeling.
- Full methodological details are provided, including equations, assumptions, and justification for their use.

- **Project-specific defaults**:
  - Tree growth parameters (L, k, x_o, b) derived from field measurements and fitted using regression techniques.
  - These follow best practices in ecological modeling and are transparently documented in PU007.

All default factors are applied conservatively and are subject to validation and periodic review.

Proxies

Proxies are used to enhance model calibration, stratify sampling, and improve biomass estimation. Examples include:

- **Vegetation indices** (NDVI, RVI):
  - Used to estimate biomass variation and vegetation density.
  - Derived from Sentinel-2 and other multispectral sensors.
  - Supported by peer-reviewed literature and widely used in remote sensing applications.
- **Environmental variables**:
  - Elevation, temperature, precipitation, and soil type are used to stratify sample plots and improve model accuracy.
  - These variables are sourced from global datasets (e.g., SoilGrids, ERA5, Copernicus DEM) and are well-correlated with biomass growth.

The use of proxies is well-documented and justified, with evidence of strong correlation and relevance to biomass estimation.

The methodology demonstrates a rigorous and transparent approach to the use of models, default factors, and proxies. All elements are appropriately justified, conservatively applied, and consistent with international standards. The integration of these components enhances the accuracy, credibility, and environmental integrity of the carbon benefit estimates under Plan Vivo Standard.

3.2. Methodology Components

3.2.1. Applicability Conditions

The methodology PM002 Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0 clearly defines the applicability conditions for its use in Section 4.1, ensuring alignment with the PV Climate Methodology Requirements. It is specifically designed for small-scale agroforestry systems implemented under Plan Vivo Standard and applies to any geographical location that meets the defined eligibility criteria.

The methodology outlines the following project interventions and conditions for applicability:

- Eligible interventions must involve agroforestry practices that result in the removal of greenhouse gases from the atmosphere. These interventions must meet the agroforestry definition provided in the methodology and involve the planting of native or naturalized tree species.
- Geographical scope is unrestricted, but projects must not be located on wetlands or involve the conversion of natural ecosystems.
- Land eligibility requires that plots show no evidence of woody vegetation clearance or significant soil disturbance in the 10 years prior to onboarding, unless caused by natural events. This is assessed using the PM002 Module for Assessment of Historic Deforestation.

Exclusions include:

- Use of synthetic nitrogen fertilizers that significantly increase emissions.
- Slash-and-burn practices.
- Irrigation or flooding that could increase methane emissions.
- Soil disturbance on more than 10% of the plot in areas with organic soils or sensitive land-use history.
- Additionality is ensured by requiring that the trees would not have been planted without the project intervention.

The methodology also specifies that any litter generated must remain on the plot, and that carbon benefits are only credited for biomass increases directly attributable to the project intervention.

Regarding Plan Vivo Certificate types, the methodology supports the issuance of:

- Reported Plan Vivo Certificates (rPVCs) – representing carbon benefits that have occurred but are not yet verified.
- Verified Plan Vivo Certificates (rPVCs) – representing carbon benefits that have been verified.

These certificates are issued under the Plan Vivo's PV Climate Methodology requirements.

In conclusion, the methodology provides a comprehensive and transparent method for determining applicability, with clear environmental safeguards and eligibility criteria. It ensures that only appropriate project types and locations are included, and that the issuance of Plan Vivo Certificates is consistent with the intended use and integrity of the PV Climate Standard.

3.2.2. Carbon Pools and Emissions Sources

The proposed Methodology PM002 Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0, clearly states in its Section 5 the list of Carbon Poolos and Emissions Sources with detailed justification for each:

Carbon Pools Considered:

The methodology includes the following carbon pools:

- Above-ground biomass of trees: mandatory.
- Below-ground biomass of trees: mandatory.

The proposed activities include tree planting and management practices that contribute directly to the accumulation of above-ground and below-ground biomass, which are mandatory pools under the methodology.

- Dead wood is included where the project intervention leads to a significant reduction in total expected carbon benefits. It is expected to accumulate over time due to pruning activities and will be monitored as per the methodology if it is included.
- Litter: excluded according to Applicability condition 9 (any litter generated as a result of project interventions must remain on the plot).
- Soil organic carbon (SOC) is included where the project intervention leads to a significant reduction in total expected carbon benefits. SOC is an optional pool.
- Non-woody biomass is included where the project intervention leads to a significant reduction in total expected carbon benefits.
- Harvested wood products: excluded.

GHG Emission Sources Considered:

The methodology identifies the following sources of GHG emissions:

Included:

- Nitrogen fertilizers (N_2O): Included where significant, as emissions may increase by up to 5% due to project intervention, per applicability condition 5 (project interventions must not increase the use of synthetic (nitrogen-containing) fertilizers that will significantly increase nitrogen fertilizer emissions relative to the baseline scenario).
- Nitrogen-fixing species (N_2O): Included where significant, though emissions are considered limited in small-scale agroforestry systems.
- Fossil fuel use (CO_2): Included where significant, though unlikely in small-scale agroforestry due to limited use of heavy machinery.
- Enteric fermentation (CH_4): Included for silvopastoral projects, where ruminant animals are present.
- Manure decomposition (CH_4, N_2O): Included for silvopastoral projects, where ruminant animals are present.

Excluded:

- Biomass burning (CO_2): Excluded, as slash-and-burn agriculture is not promoted. The exclusion is conservative, as it does not contribute to increased emissions.
- Soil methanogenesis (CH_4): Excluded, as emissions are expected to be unaffected or reduced per applicability condition 8 (project interventions must exclude flooding and must not include irrigation practices that will significantly increase methanogenesis relative to the baseline scenario).

The methodology is comprehensive in identifying and assessing both carbon pools and emission sources. All mandatory carbon pools and emissions sources are included where significant, and exclusions (for emissions sources) are justified using
simplified methods and evidence, with combined impacts below the 5% threshold. In AENOR

opinion, the consistent treatment of carbon pools and emission sources across Baseline, Project, and Leakage assessments ensures robustness and transparency.

3.2.3. Baseline Scenario and Additionality

The methodology clearly describes approaches for defining the most likely land use and land management practices in the absence of project interventions. It states standardized tools from the Clean Development Mechanism (CDM): AR-TOOL02 Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities v1.0 and AR-AMS0007 Simplified baseline and monitoring methodology for small-scale CDM afforestation and reforestation project activities implemented on lands other than wetlands v2.0.

The methodology requires project coordinators, to document the baseline scenario in the Project Design Document (PDD). The use of these standardized tools ensures clarity and consistency, as they provide structured steps to evaluate historical and current land use trends, stakeholder inputs, and local conditions. The approach is robust, as it aligns with internationally recognized CDM standards, ensuring applicability to small-scale agroforestry projects. The methodology outlines robust approaches for demonstrating the additionality of Carbon Benefits, showing that Project Interventions would not be feasible without the Plan Vivo Standard. Key elements include:

- Additionality is assessed primarily through stakeholder consultations with Project Participants and Project Coordinators, ensuring local context and barriers are identified. This is supplemented by historical data and scientific literature where available, adding credibility to the analysis.
- The methodology evaluates barriers such as lack of access to capital, technical expertise, or market incentives that would prevent Project Participants from implementing interventions without Project Coordinators.
- The results are reported in the additionality section of the Project Design Document, ensuring transparency and alignment with the Plan Vivo Standard.

The use of standardized CDM tools, combined with stakeholder-driven data collection and evidence-based justification, makes the approach robust. The methodology ensures that additionality is not assumed but rigorously proven through identified barriers.

The methodology provides adequate approaches for updating the Baseline Scenario and re-assessing additionality at each Crediting Period renewal and at least every 10 years throughout the Project Period:

- Project Coordinators, are required to re-evaluate the baseline scenario using the annex of AR-AMS0007 or Steps 1 and 2 of AR-TOOL02. These steps involve re- assessing land use trends, stakeholder inputs, and any changes in local conditions to ensure the baseline remains relevant over time.
- Additionality is re-evaluated using the same barrier analysis approach from AR-AMS0007 or AR-TOOL02, ensuring consistency with the initial assessment. Data is updated through stakeholder consultations and, where possible, supported by new historical data or scientific literature.

- The methodology mandates re-assessment at least every 10 years, with results documented in the Project Design Document. This ensures that changes in land use, management practices, or project barriers are captured, maintaining the project's alignment with the Plan Vivo Standard.

In the opinion of AENOR audit team, the methodology is clear and robust in its approaches to baseline setting and additionality demonstration for the Plan Vivo Standard. The use of AR-AMS0007 and AR-TOOL02 provides structured, and recognized methods for defining the most likely land use and management practices in the absence of the project, ensuring consistency and applicability to small-scale agroforestry. The requirement to update the baseline and re-assess additionality every 10 years, using the same standardized CDM tools and transparent documentation in the Project Design Document, ensures ongoing relevance and credibility. The audit team concludes that the methodology is clearly aligned with CDM standards, and integration of local data make it comprehensive and suitable for the Plan Vivo Standard carbon accounting needs, meeting all
requirements for robust baseline setting and additionality demonstration and reassessment.

3.2.4. Carbon Baseline

The methodology clearly describes approaches for estimating the Carbon Baseline for all relevant Carbon Pools and emission sources in each year of the Crediting Period. For Carbon Pools, the methodology includes a pre-project tree adjustment to account for existing biomass prior to the project interventions, as detailed in module PU007. This adjustment uses an adjustment factor (AdjB_(s,t)) to quantify the biomass present and its projected contribution, along with associated uncertainty (AdjU_EETBy), ensuring that only biomass increases due to project interventions are credited. For emission sources, the methodology employs equation 1 from PU003.

The described Carbon Baseline clearly reflects the Baseline Scenario and uses relevant data. For Carbon Pools, the pre-project tree adjustment (module PU007) ensures that only incremental biomass changes due to project interventions are considered, aligning with the Baseline Scenario of continued pre-project land use. For emission sources, the methodology assumes constant emissions at the pre-project rate if the Baseline Scenario involves continuation of pre-project land use, as stated in the document. This assumption is reasonable for small-scale agroforestry projects where land use changes are minimal without intervention. The methodology relies on historical, measured, or modeled activity data from the Project Area prior to the interventions, as implied by the use of pre-project biomass and emission rates.

The described Carbon Baseline appropriately reflects the Baseline Scenario and utilizes relevant data. For Carbon Pools, the pre-project tree adjustment (module PU007) ensures that only incremental biomass changes due to project interventions are considered, aligning with the Baseline Scenario of continued pre-project land use. For emission sources, the methodology assumes constant emissions at the pre-project rate if the Baseline Scenario involves continuation of pre-project land use, as stated in the document. This assumption is reasonable for small-scale agroforestry projects where land use changes are minimal without intervention. The methodology relies on historical, measured, or modeled activity data from the Project Area(s) prior to the interventions, as implied by the use of pre-project biomass and emission rates. The equations in

PU003 and the scaling approach in Equation 1 ensure that data is tailored to specific project areas, enhancing accuracy and relevance to the Baseline Scenario.

In the opinion of the audit team, the Module PU007 Module for Performing Adaptive Pre-project Woody Biomass Baseline for Small-scale Agroforestry v1.0, likely complies with the requirement for the historical reference period, as it uses tree age data from ground truth measurements that reflect pre-project conditions and are updated annually. However, the absence of an explicit statement confirming that the historical data starts within 10 years and ends within 2 years of the Start Date limits full verification. The audit team recommends that the Project Design Document explicitly document the temporal scope of the historical data used for AGB modeling to ensure compliance with the specified timeframe.

The methodology provides adequate approaches for updating the Baseline Scenario and re-assessing additionality at each Crediting Period renewal and at least every 10 years throughout the Project Period as already explained in Section 3.2.3 above.

In conclusion, the methodology provides appropriate and robust approaches for establishing the Carbon Baseline for the Plan Vivo project. The use of module PU007 for pre-project tree adjustments and PU003 equations for emission sources ensures clear and systematic estimation of Carbon Pools and emissions annually throughout the Crediting Period. The Carbon Baseline accurately reflects the Baseline Scenario of continued pre-project land use, utilizing relevant pre-project data, though explicit confirmation of the historical reference period (within 10 years starting and 2 years ending from the Start Date) should be documented. While the methodology includes procedures for reviewing and updating the Carbon Baseline every 10 years, and it relies on standardized CDM tools that provides a strong foundation for periodic reassessments. The audit team concludes that the approaches are robust but recommends enhancing the Project Design Document with explicit guidance on the historical reference period to ensure full compliance and transparency.

3.2.5. Project Emissions and Removals

The methodology presents methods for estimating Project Emission and Removals for the carbon pools and emission sources relevant described in the methodology in each year of the Crediting Period. The project emissions/removals must be compared to the Baseline Scenario and must be estimated at least every five years.
The methodology describes in module PU001 and PU003 for carbon pools and emission sources respectively. Upon review of these modules, the audit team considers that they fit the expected use for small-scale agroforestry projects.

This methodology does not describe the process to claim fPVCs but it does describe the process to claim rPVCs and vPVCs. The methodology states in section 5 the different carbon pools and emission sources to be included and under which circumstances are to be excluded if so. The description is deemed clear and complete, for example, the fossil fuel use is to be included if significant. The estimation of these types of credits is described with equations 6.1 and 6.2 of PM002 Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0 for rPVCs and vPVCs respectively, the only difference between the first and the latest is the inclusion in the first equation, for rPVCs it is included the term AR “Proportion of expected carbon benefits withheld to mitigate the risk of underperformance (10%)” These credits can be calculated every 6 months depending on the measuring date, prior to Project Area onboarding. After r/vPVC issuance, negative

biomass values need to be compensated by additional biomass growth before new r/vPVC issuance or by the risk buffer after a reversal event.

In conclusion, the methodology provides appropriate and robust approaches for estimating the project emissions and removals for the Plan Vivo project. The use of module PU001 and PU003 equations for emission sources ensures clear and systematic estimation of Carbon Pools and emissions annually throughout the Crediting Period. The estimation accurately reflects the project Scenario. The audit team concludes that the approaches are robust and clear offering guidance on the types of credits to issue ensuring full compliance and transparency.

3.2.6. Harvesting

The methodology PM002 Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0 clearly describes its use under the conditions of partial felling and harvesting. The partial felling processes are defined as those that result in a carbon stock reduction of less than 20% over the 5 year period, any reduction affecting more that 20% of the carbon stock is defined as harvesting. To avoid any miscalculation of the carbon sequestration, the issuance of r/vPVCs over the Crediting Period will be limited by a cap on the Aboveground Biomass increase from the Project Intervention, based on Project Area size. r/vPVC issuance stops when the Project Area has reached the cap for the maximum Aboveground Biomass increase for issuance of r/vPVCs. This cap is calculated by equation 1 of module PU009.

Upon review of the methodology and depending modules, the audit team concludes that the methodology complies with the relevant requirements of Plan Vivo Standard. It clearly sets a Limit for the issuance of credits in a Partial felling- harvesting scenario. The aduti team deems the harvesting approach transparent and clear.

3.2.7. Leakage

The methodology PM002 Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0 defines the Tool for testing significance of GHG emissions in A/R CDM project activities v 1.0 or AR-AM-TOOL 04 as the reference for identifying if any activity shift is relevant and should be considered as leakage and calculated as such. If significance is demonstrated, then the methodology defines module PU004 in which parameters are adapted for this methodology, to account for the identified leakage. In this module, leakage from agricultural displacement and leakage form displacement of deforestation and forest degradation are developed and the tool AR-TOOL 15 v2.0 is the basis for this calculation in each verification period.
Moreover, a leakage discount factor is considered and calculated with equation 8. The process is deemed to be clear and easy to follow by a project developer and the discount factor is tailored so it is adapted to each verification period.

In conclusion, the methodology provides appropriate and robust approaches for identifying significant leakage and estimating it. The description of a leakage discount factor is appropriate and is made to fit every verification period of the Plan Vivo project.

3.2.8. Calculation of Carbon Benefits

The calculation of Carbon Benefits is described in the methodology in section 10 where it also explains the uncertainty adjustment and the partial felling and harvesting already analysed previously in this report in sections 3.1.2 and 3.2.6 respectively.
The methodology describes that the final credits to be issued will be a result of the combination of the following:

- Change in Above ground biomass during the measurement period.
- Change in Belowground biomass during the measurement period.
- Parameters intrinsic to carbon calculation such as carbon fraction, C to CO2 conversion.
- Adj factors for pre-project biomass and uncertainty.
- Leakage discount.
- Mitigation factor. (this factor is only included in calculation of rPVCs and/or vPVCs)
- Future risk buffer contribution.
- Baseline scenario emissions to which the project scenario is compared.
- Project activity emissions during the measurement period.

Analysing the previous information reported, the methodology considers the expected Carbon Benefits and subtracts the Baseline scenario to estimate the final issuance of credits.

As reported in the leakage section, the methodology considers the leakage for each crediting period by first analysing the significance of the leakage itself but afterward it includes it, in equation 6.1 or 6.2 (depending on the types of credits to issue) for the final number.

By means of detailed analysis and scrutiny of the methodology and depending modules, the audit team was able to confirm the appropriateness of the all-encompassing process described and how it needs to be followed. Aenor considers that it is possible to follow and clear enough for a project developer to use apply the methodology and it to be checked against official and true data for a trustworthy project.

4. Assessment Opinion

The evaluation team has performed an assessment of the submitted methodology, and the opinion of the audit team is that the described approaches generally align with the Methodology Requirements of the Plan Vivo Standard version 5. All CARs and NIRs have been closed during the audit process. During the review process a document called AENOR feedback on AAG review.xlsx that outlined changes in documentation was provided, the audit team reviewed and agreed with these changes.

The evaluation process was conducted based on a review of the methodology documentation against the relevant criteria of the Plan Vivo Standard version 5 Methodology Requirements.

The conclusions of this report indicate that the methodological approaches, as described, are generally in line with the applicable Methodology Requirements. Our review of the documentation pertaining to baseline setting, additionality, quantification of carbon benefits, and leakage assessment has provided sufficient evidence to form this opinion.

In detail, the conclusions can be summarized as follows:

- The described approaches for quantifying GHG emissions and carbon stock changes appear

- The approaches for baseline setting and additionality demonstration are reasonable.
- The estimation of the Carbon Baseline and expected Carbon Benefits is adequately described.
- Leakage considerations appear to be addressed appropriately (where applicable).
- The calculation of Carbon Benefits is clearly outlined.
- The use of models and default factors seems to align with the Methodology Requirements.
- The applicability and certificate types are specified.

Signed for and on behalf of:
José Luis Fuentes

Name of entity: AENOR CONFÍA S.A.U

Signature:

Name of signatory:
Javier Cócera

Date: 22 September 2025

Annex 1 – Feedback Spreadsheet

Methodology review report – complete for each methodology, module or tool submitted										
Methodology name		**Methodology for Quantifying Carbon Benefits from Small-scale Agroforestry v2.0**								
Methodology code		**PM002**								
Methodology requirements				**CARs/NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**	**Methodology developer response 3**	**Reviewer feedback 4**
Section	**Requirement**	**Description**	**Guidance**							
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/Tool Template and	Methodology/Module/Tool Templates are available on the Plan Vivo website.	**CAR 01-template-Portrait**: once AENOR finalize the Methodology	Of course, gladly update once approved. Feel free to add the	You can use the AENOR logo and name.	Integrated please confirm whether it is alright by AENOR	Ok. Item closed.		

		must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the Methodology Requirements.		review process, ACORN must enter details of Validation and Verification Body that approved the module/tool (according to the template). Also the version of this Module shall be updated.	text to your liking.					
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a	none						

		sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project could claim would be reduced by 5%							
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe approaches for estimating model uncertainty as a percentage of the measured value; and specify appropriate uncertainty adjustments if model uncertainty exceeds 50% at a		none						

		90% confidence level.								
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.		none						
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error),		none						

		appropriate default values, proxies that are strongly correlated with the values they are used to predict, and robust assumptions.								
	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.		NIR 01: Section 8 of the Methodology address to Modulo AM006. In its section 5 is stated "For determining leakage adjustment, a buffer zone extending 5 km around	Added text to AM006 explaining that this is the most likely area of replacing activities for smallholder farmers. For determining leakage adjustment, a buffer zone	This item has not been fully addressed. iii) When around the project area there are polygons such as agricultural crops without deforestation risk, the buffer area is increased accordingly (more than 5 km)? Please all	iii). For all instances, the 5 km buffer is applied to all plots and never increased or decreased. Also, prematurely integrate PV methodology ID numbers. For example AM-006 is now PU009, these numbers will be confirmed after approval by you and PV. No adjustments made to PM002(=PM002) but further updated AM006(=PU009).	AENOR requested that all the information shall be added to Section 5 of the Module AM-006 (PU009). However, it has not been done. Acorn shall explain	To our understanding we have now included all information but please confirm or respond if you see this differently. i.) previous round included text indicatin	Now, Section 5 of the Module AM-006 (PU009) has been updated with the information required. Item closed.

				the project area is established." Hence, please i) provide further clarification of why ACORN decides to fix 5km of buffer zone (distance from the PA) and also ii) explain the sense of establishing the buffer zone for leakages only around the	extending 5 km around the project area is established, as it is found the most likely area for replacement of activities. The application of a 5km buffer is motivated by a number of studies suggesting low mobility of Smallholder Farmers, usually below	the information must be addedd in the Module AM006. Item still open. **X**		clearly (in Section 5) why for all instances, the 5 km buffer is applied to all plots and never increased or decreased. Item still open. **X**	g it is for all instances ii.) previous round included text indicating why, most likley area underpinned by literature. iii.) Now added sentence explicately stating in will always be 5 km not increase nor decrease pending on the deforest	

				project area. iii) when around the project area there are polygons such as agricultural crops without deforestation risk, the buffer area is increased accordingly? Please all the information must be addedd in the Module AM006.	2km (Belay, 2020; Alam, 2010; Rapsomanikis, 2015).				ation risk.	

1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.	none						
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.	none						

	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits		**CAR 02:** In section 12 of the Methodology ACORN must add missing parameters which are included in several modules (for example, Modulo PT006: CWD, DBH, Elevation, etc.) **CAR 03:** there are typos in Parts: i) Equations, ii) Source and iii) Justification of	CAR02: Please consult PV on this guidance. Acorn has been instructed to only include parameters from the parameters behind the '=' sign. following that logic all parameters are included in section 12 of AM-001 CAR03: Spelling check performed, please note that	CAR 02: if ACORN was instructed to only include parameters from the parameters behind the '=' sign, provide such evidence. Item still open. **X** CAR03: Section 12 of th AM-001 has been improved. Item closed.	CAR02: Apologies this was communicated to me in Dutch over Teams, from Greg Gordon from PV team. There is a screenshot. Feel free to reach out to him to confirm. Translated this text is: *For PV we indeed only expect parameters that appear after the = sign in the parameter section. It also follows how the Plan Vivo methodology is put together. The parameters should be part of the list if they come from another document/reference and then become part of the equation.*	CAR 02: Understood. Item closed.		

				choice of data or description of measurement methods and procedures applied. Please review each parameter in section 12 of the Methodology and improve.	we are following communication criteria of the Bank, American English.					
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertainty	Stratified sampling is recommended to reduce levels of uncertainty.	none						

		estimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).								
1.5 Models, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-	Although models must be publicly available, they do not have to be free to use.	none						

		estimation of Carbon Benefits (see Section 1.2).								
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.		none						
	1.5.3	If Methodologies include novel default factors, full details of the methods and data used to establish the default factors must be provided.		**NIR 02**: In section 11.2 of the Methodology, there is the following statement: "If an ecological zone cannot	Apologies, I see the value was missing. It is corrected to 0.32, like in our previous methodology versions (1.0 and 1.1). In	Clarification provided and deemed correct. Item closed.				

				be mapped to an ecoregion, or if Table 4.4 from IPCC (2019) cannot be used for any reason, a default value of 0. (Kim, Kirschbaum & Beedy, 2016) should be applied." Please, explain the value of zero (0) used when an ecological zone cannot be	short, the default value is only applied as a last resort. R of 0.32 is only applied as default value when there is missing data from IPCC table. The meta study of (Kim, 2016) analyses 109 earlier observations and 56 publications this provide as with an					

				mapped to an ecoregion, or if Table 4.4 from IPCC (2019) cannot be used for any reason; in addition provide the evidence of the data source.	evidence-based average for the Root:Shoot ratio and is an approach developed to the best of our knowlegde.					
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.		none						

	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.		none						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable to, and any other criteria for determining the situations in which they can or cannot be applied.		none						
	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred.	none						

			Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved and Verified. For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration of the Crediting Period or 50-years (whichever if shorter).							

2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.		none						
	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass, Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.	none						

		organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)								
	2.2.3	Carbon Pools and emission sources must be included if the Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.		none						

	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.	none						
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline, Project emissions and		none						

		removals, and Leakage								
2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	The Baseline Scenario and Additionality assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region	none						
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in the absence of the Project.		none						

	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re-assessing Additionality at least every 10-years throughout the Project Period.		none						
2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	Approaches for reviewing the Carbon Baseline could include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the Crediting Period.							

	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)		**NIR 03**: The Methodology PM002 states in Section 6 the determination of the baseline scenario is through AR-TOOL02 from the CDM. Please, in such section of the Methodology, provide further information of: i) how is the baseline scenario	Included more details of what analysis are done and based on what type of data. i.) Following the step identified in AR-Tool2. Starting with preliminary screening, followed by identifying alternative scenarios and determine current	There is an incongruences between this statement (point iii) and the one provided to PV in during review: "The baseline scenario does not look only at the project area (i.e., specific farms onboarded to Acorn), but instead also provides insight into the neighbouring geographic	Could you please show to us where we shared this comment with PV? We can not find it and it could be outdated information. We herewith confirm that baseline measurements are performed on plot areas, in line with project requirements of PV. To avoid confusion altered the text in AM-001 and replaced 'project region' with 'project area'	You shared this comment here: "Acorn Methodology review report for TRP - TRP reviewer 2_excel file". Hence, explain if this is an error and justify clearly whether the baseline scenario look only at the project area (i.e.,	We could not trace back us sharing with you this document, eitherway, we confirm that baseline measurement and carbon baseline scenario are performed on 'project area' (acorn plots only). Explanation: This is what is been requeste	Explanation deemed correct. Item closed.

				determinated?, ii) what is the determination of baseline scenario based on?, iii) Is the baseline scenario look only at the project area? iv) where do the data required to determine the baseline scenario come from?	land-use. Ii.) Most importantly, local knowledge and context provided by LP or collected through stakeholder consultation. Backed up by, if available, historical data and scientific literature. iii.) Yes iv.) see answer ii.)	al area surrounding the plots onboarded to Acorn." Therfore provide further explanation to clarify it. Item still open. **X**		specific farms onboarded to Acorn). Therfore, provide further explanation to clarify it. Item still open. X	d by PV project requirement 3.1.1. Please don't confuse with broader 'project region' description requirements for livelihood and ecosystem baseline scenario (PV requirement 3.3.1 and 3.4.1). As this document is the method	

									ology, it relates to carbon baseline and therefor e in first sentence of section 6 used 'project area'. Reverse change made last time 'project area' back to 'project region' to align with PV project require ment	
	2.4.3	If the Carbon Baseline is developed using historical data to		none						

		establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.								
	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon Baseline at least every 10-years, throughout the Crediting Period.		none						
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit has already	none						

		Crediting Period (for fPVCs).	happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and removals will not be used to claim fPVCs, estimates of expected Carbon Benefits do not need to conform with Requirement 1.2.5.							
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.								
	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in each Verification Period.								

2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is 30-years, average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on	**NIR 04**: The Methodology PM002 has the Module PU009 where is stated Equation 1 used to estimate Maximum long-term average Aboveground Biomass increase from the project intervention in the project area(s) in the Acorn Project Period for CRU generatio	Equation 1 is calculated over the biomass project intervention biomass, and therefore does not take into account the baseline. The dynamic baseline module (PU007) covers baseline change.	Equation 1 used to estimate Maximum long-term average Aboveground Biomass does not consider growth in the baseline AGB. Please, explain how change in baseline AGB (AGB_GTBaseline) is accounted for in Equation 1.	Equation 1 does not include the AGB_GTBaseline or growth of it, because this equation purely concerns biomass from the project intervention (trees planted), because that is what is determining the LongTermAverage (LTA) increase. This Long Term Average is being applied for harvesting designs over the delta measurement, which concerns the newly planted trees. The delta measurement is already adjusted for the baseline. Hence, the equation does not need to take into account the GTBaseline or changes in it. The GTBaseline and updates on that is modeled seperately	Clarification provided. Item closed.		

			improved forest management.	n (tonne/ha). However, in such formula is not including change in baseline AGB. Please provide clarification.			via the PU007 module.			
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo		none						

		Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that includes the final harvest.								
	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.		none						
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage include displacement of	none						

		year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	agricultural production, wood harvesting, firewood gathering, livestock, mining, and other activities or events that degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Intervention. If Leakage Discounts are used instead of measuring Leakage that occurs, the Leakage Discount should represent the maximum Leakage emissions that could be attributed to the							
	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate Leakage Discount during each Verification period.								

			Project Intervention(s).							
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.		none						

	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario emissions and measured or maximum-potential Leakage emissions from the Carbon Baseline emissions.								
Duplication of functions				**CARs/NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**		

Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?										
Any other comments										
Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs										
Section	**Requirement**	**Description**								

Methodology	N/A	Please, explicitly states in the Methodology the Source of data for all Equations.			Could you please indicate where you find this is lacking? All parameter tables include source information, some updates are made.	Review Section 11 (equation 1 and equation 2) and explicitly states in the Methodology the Source of data.	Reference in section 11 is only made to corresponding modules. Added ABGy module reference but for other parameters such as R that is based on literature the source can be found in the parameter section. Similar approach to PM001 PV methodology.	The explanation is deemed correct and Section 11 has been updated. Item closed.		
3. Definitions	N/A	The link is broken.					Link is updated again, please confirm whether it works now. Otherwise we need to find an alternative way to implement the link. https://acorn.rabobank.com/en/	The link is now wrking well. Item closed.		

Methodology review report – complete for each methodology, module or tool submitted										
Methodology name		**Tool for Assessment of Historic Deforestation on Small-scale Agroforestry v1.0**								
Methodology code		**PT005**								

Methodology requirements				CARs/NIRs	Methodology developer response 1	Reviewer feedback 2	Methodology developer response 2	Reviewer feedback 3		Reviewer feedback 4
Section	**Requirement**	**Description**	**Guidance**							
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the Methodology Requirements.	Methodology/Module/Tool Templates are available on the Plan Vivo website.	**CAR 01-template-Portrait**: once AENOR finalize the Methodology review process, ACORN must enter details of Validation and Verification Body that approved the module/tool (according to the template). Also the	Of course, gladly update once approved. Feel free to add the text to your liking.	Still open so the link in Section 3 still broken. You can use the AENOR logo and name.	Both updated.	Please, address to the penultimate item in this tab (row 56) that still open. Item closed.		

				version of this Module shall be updated.						
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project							
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe								

		approaches for estimating model uncertainty as a percentage of the measured value; and specify appropriate uncertainty adjustments if model uncertainty exceeds 50% at a 90% confidence level.	could claim would be reduced by 5%							
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.								

	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used to predict, and robust assumptions.								
	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.								

1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.							
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.							

	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-year global warming potentials from the most recent IPCC Assessment Report.								
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits								
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection,	Stratified sampling is recommended to reduce levels of uncertainty.							

		analysis and uncertaintyestimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).								
1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply	Although models must be publicly available, they do not have to be free to use.							

		conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).								
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.								
	1.5.3	If Methodologies include novel default factors, full details of the methods and data used to establish the default factors								

		must be provided.								
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.								
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.								
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable		none						

		to, and any other criteria for determining the situations in which they can or cannot be applied.								
	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon							

			Benefit has been achieved and Verified. For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration of the Crediting							

			Period or 50-years (whichever if shorter).							
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.								

	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass, Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.							

		use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)								
	2.2.3	Carbon Pools and emission sources must be included if the Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.								
	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether							

		Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.							
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline, Project emissions and removals, and Leakage								
2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s)	The Baseline Scenario and Additionality assessment must be updated to incorporat							

		for each Project Area.	e the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region							
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in the absence of the Project.								
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re-assessing Additionality at least every 10-years throughout the Project Period.								

2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	Approaches for reviewing the Carbon Baseline could include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the Crediting Period.							
	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)								

	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.								
	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon Baseline at least every 10-years, throughout the Crediting Period.								
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission	For ACORN, we have agreed that they can generate Carbon Removal							

		sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and							
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.								
	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and								

		removals achieved in each Verification Period.	removals will not be used to claim fPVCs, estimates of expected Carbon Benefits do not need to conform with Requirement 1.2.5.							
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial							
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged								

		management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that includes the final harvest.	rotations included within a 50-year period. E.g. if the rotation length is 30-years, average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also be calculated using IPCC gain-loss approache s, which may be more suitable for Projects that focus on							
	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.								

			improved forest management.							
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage include displacement of agricultural production, wood harvesting, firewood gathering, livestock, mining, and other activities or events that							
	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate								

		Leakage Discount during each Verification period.	degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Interventio n. If Leakage Discounts are used instead of measuring Leakage that occurs, the Leakage Discount should represent the maximum Leakage emissions that could be							

			attributed to the Project Interventio n(s).							
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.								

	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario emissions and measured or maximum-potential Leakage emissions from the Carbon Baseline emissions.								

Duplication of functions		**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**

Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?										
Any other comments										
Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs										
Section	**Requirement**	**Description**								

3. Definitions	N/A	The link is broken			Resolved, updated hyperlink	The link still broken.	Apologies for the inconvience, we hope it works now. This is the front page	The link still broken. The audit team has tried to access to the link through three browsers (Chrome, Firefox and Microsoft Edge)	Hopefully link works now.	Now, the link works well. Item closed.
Portrait	N/A	Provide explanation why ACORN has changed the portrait format from the last AENOR desk review.					Do you mean the layout/formatting? Acorn has replaced its own style of layout with the prescribed formatting of Plan Vivo. Acorn aims to have a PV approved methodology	Ok. Item closed.		

							and this is prescribed by the certifier and has as benefit that is doesn't cause any confusion about what Acorn's role is in the market.			

Methodology review report – complete for each methodology, module or tool submitted								

Methodology name		**Module for Ground Truth Sampling v1.0**								
Methodology code		**PT006**								
Methodology requirements				**CARs/ NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**	**Methodology developer response 3**	**Reviewer feedback 4**
Section	**Requirement**	**Description**	**Guidance**							

1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the Methodology Requirements.	Methodology/Module/Tool Templates are available on the Plan Vivo website.	**CAR 01-template**: * once AENOR finalize the Methodology review process, ACORN must enter details of Validation and Verification Body that approved the module/tool (according to the	**CAR 01-template**: *1 once AENOR finalize the Methodology review process, ACORN must enter details of Validation and Verification Body that approved the module/tool (according to the template). - **Yes happy to include but please do a text proposal. Can we include AENOR logo.** *2Also, in section 2, is not stated the number version of PU006	**CAR 01-template**: *1You can use the AENOR logo and name. Also the version number of this Module shall be updated. Item still open. **X** *2 Also, in section 2 of PT006 Module, is not stated the number version of PU006	1. AENOR logo and name added. Version number remains 1.0 as the module has never been uploaded before and will be the first formal version online under this reference ID. 2. Updated 3. Similar to our response in AM-001 only add reference/source to Equation text in section 5 if it linked to a module/methodology. This is inline with PV approach as done in PM001. As the parameters of Eq1 and Eq5 are not linked to module left about. - Areasubplot: GT data - ABG subplot: results from biomass measurements and	CAR 01-template: *1 Ok. Item closed. *2 Ok. Item closed. *3 Understood. However, please add this information is Section 5 of PT006 Module. Therefore, item still open. **X** *4 Also, in section 6, the Source of data for parameter "Aboveground biomass per subplot (kg)" is not correct. PV Standard v5.0_Module template states that Source of data for parameters shall be "Describe acceptable sources of data/parameter values." ACORN has modified this	3. This information was already added to section 6 of AM-003? Please specif if you miss further information.	*3 Information added to Section 6 of AM003 Module. Item closed.

				template). - **Yes happy to include but please do a text proposal. Can we include AENOR logo.** *Also, in section 2, is not stated the number version of AM004 Module. **You sure? I**	Module. **You sure? I see version numbering to all module in section 2 from AM-001.** * 3In addition, in section 5, provide in the Module the data source for Equation 1 and Equation 5. - You mean Module AM-003 instead of AM-001 section5? In Equation 5 of AM-003 source in section 12 is added. * 4 Also, in section 6, the Source of data for parameter "Abovegroun	Module. Item still open. **X** * 3 In section 5 of PT006 Module, provide the data source for Equation 1 and Equation 5. Now, PT006 Module does not include any Section 12 and ACORN did not address this item.	GT data - AGBplant: Chave et. al. 2014 4. Parameter E has been updated 5. Parameter NDVI has been updated 6. Parameter Temperature has been updated 7. Updated 8. n/a 9. Revised entire parameter section	module and now is deemed correct. Item closed. *5 Also, in section 6, for parameter CWD, ACORN states only Equation 2 (part Equations), that is not correct so CWD is also used in Equation 3. Section 6 has been updated. Item closed. *6 Parameters: DBH, E (Environmental stress variable based on geographical location), H (tree height) and PS (review Part Equations) were updated. Item closed. *7 Ok. Item closed. *8 For parameter Soil Type, the Part Source was		

				see version numbering to all module in section 2 from AM-001. * In addition, in section 5, provide in the Module the data source for Equation 1 and Equation 5. - You mean	d biomass per subplot (kg)" is not correct. - Why do you assume this is not correct? Biomass is measured in Kg and density in tonnes. *5 Also, in section 6, for parameter CWD, ACORN states only Equation 2 (part Equations), that is not correct so CWD is also used in Equation 3. You mean section 6 of AM-003 instead of AM-001? Corrected *6 Please, do the same for	Therefore, item still open. **X** * 4Also, in section 6, the Source of data for parameter "Above ground biomass per subplot (kg)" is not correct. PV Standard v5.0_Module template states that Source of data for parame		improved. Item closed. *9 Ok. Item closed. Please, for each parameter stated in section 6, ACORN must improve the Part "Justification of choice of data or description of measurement methods and procedures applied. This item has not been addressed. According to PV Standard v5.0 Module template, Justification of choice of data or description of measurement methods and procedures applied shall be: "Describe why the data/parameter value, or		

				Module AM-003 instead of AM-001 section 5? In Equation 5 of AM-003 source in section 12 is added. * Also, in section 6, the Source of data for parameter "Aboveground biomass per subplo	parameters: DBH, E (Environmental stress variable based on geographical location), H (tree height) and PS (review Part Equations). Updated *7 For parameter E (Environmental stress variable based on geographical location), review the description of Part Purpose of Data. In addition, for parameter NDVI, both the Part Description is not correct and the Part Source must	ters shall be "Describe acceptable sources of data/parameter values." ACORN has modified this module and now is deemed correct. Item closed. *5 Also, in section 6, for parameter CWD, ACORN states only		measurement approach is appropriate." Ok. Item closed.		

				t (kg)" is not correct. - **Why do you assume this is not correct? Biomass is measured in Kg and density in tonnes.** *Also, in section 6, for parameter CWD, ACORN states only Equation 2 (part	be improved and with higer detail. Updated *8 Also, for parameter Soil Type, the Part Source muts be improved and with higer detail. Updated For parameter Temperature, the Part Description is not correct, the Part Source must be improved.Updated **Please, for each parameter stated in section 6, ACORN must improve the Part "Justification**	Equation 2 (part Equations), that is not correct so CWD is also used in Equation 3. Section 6 has been updated. Item closed. *6 Parameters: DBH, E (Environmental stress variable based on geographical location), H				

				Equations), that is not correct so CWD is also used in Equation 3. You mean section 6 of AM-003 instead of AM-001? Corrected *Please, do the same for parameters: DBH, E (Environment	**of choice of data or description of measurement methods and procedures applied.** *" 9 Finally, Also the version of this Module shall be updated.	(tree height) and PS (review Part Equations) were updated. Item closed. *7 ACORN did not address this item. Please,for parameter E (Environmental stress variable based on geographical location), review the				

				al stress variable based on geographical location), H (tree height) and PS (review Part Equations). **Updated** *For parameter E (Environmental stress variable based on geographical locatio		description of Part Purpose of Data. For parameter NDVI, the Part Description has been corrected, however the Part Source is still the same and must be improved and with higer detail. Item still open. **X**				

				n), review the description of Part Purpose of Data. In addition, for parameter NDVI, both the Part Description is not correct and the Part Source must be improved and with higer detail.		*8 For parameter Soil Type, the Part Source was improved. Item closed. *9 For parameter Temperature, the Part Description is not correct and still unmodified, the Part Source was updated. Item still open. **X** Please, for				

				Updated *Also, for parameter Soil Type, the Part Source muts be improved and with higer detail. Updated For parameter Temperature, the Part Description is not correct, the Part		each parameter stated in section 6, ACORN must improve the Part "Justification of choice of data or description of measurement methods and procedures applied. This item has not been addressed. Accordi				

				Source must be improved.Updated Please, for each parameter stated in section 6, ACORN must improve the Part "Justification of choice of data or description of measurement metho		ng to PV Standard v5.0 Module template, Justification of choice of data or description of measurement methods and procedures applied shall be: "Describe why the data/parameter value, or measurement approac				

				ds and proced ures applie d. *" Finally, Also the versio n of this Modul e shall be update d.		h is appropr iate." Item still open. **X**				

1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project could claim							
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe approaches for estimating model uncertainty as a								

		percentage of the measured value; and specify appropriate uncertainty adjustments if model uncertainty exceeds 50% at a 90% confidence level.	would be reduced by 5%							
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.								
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be								

		readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used to predict, and robust assumptions.								
	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.								
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be	Examples of international good practice for quantifying							

		consistent with international good practices in greenhouse gas accounting.	greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.							
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.							
	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-year								

		global warming potentials from the most recent IPCC Assessment Report.								
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits		**NIR 01**: please include information and clarification within Module AM003 (section 5.1.1) of the changes done: RVI (mean) instead of	NDVI and EVI are complementary indices derived from the same data source. The main benefit of EVI is at areas with extreme high biomass, where NDVI saturates. However, such areas are not typical in Agroforestry systems, which are characterized with low to mid- range of biomass values. Therefore EVI	The explanation is deemed correct. Item closed				

				EVI (mean)	do not bring added value. RVI is derived from a different data source (radar source). This would mean that it will provide new information, which is not covered by NDVI. We believe that this explanation should not have place in the methodology, as there are multiple other indices that can act similarly to NDVI. EVI is only one of them.					
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements	Stratified sampling is recomme	none						

		of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertaintyestimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).	nded to reduce levels of uncertainty.							
1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and	Although models must be publicly available, they do not have to be free to use.							

		tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).								
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.		**CAR 02**: for parameter NDVI, the Data Source must be clarified. Please, do the same with	NDVI: We added additional information on the bands and type of sensor used to estimate the parameter Soil type: We provided additional information about the parameter	Parameters Soil type and Temperature (part Source) have been updated. However, for parameter	We have now updated the source for NDVI in the table of parameters on p.19	The updates has been carried out. Item closed.		

				both parameters Soil type and Temperature. The reviewer must be able to access to all data source and please ensure that the Sources are the most up to date versions.	used from the SoilGrids database. Temperature: We provided an additional reference to the source of ERA5 data, ECMWF.	NDVI the Data Source (ESA) is unchanged. Item still open. **X**				

	1.5.3	If Methodologies include novel default factors, full details of the methods and data used to establish the default factors must be provided.								
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.								
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they								

		are used to quantify.								
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable to, and any other criteria for determining the situations in which they can or cannot be applied.		none						

	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved and Verified.							

			For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration of the Crediting Period or 50-years							

			(whichever if shorter).							
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.		**CAR 03:** Acorn Methodology AM001 (Table 1 and Table 2) excludes both	We have updated the definition of "woody biomass" to "Biomass in plants with hard, lignified stems, for example, trees, shrubs, palms and bamboo" in line with	Please, provide the document where the definitions are listed. AENOR was not able to	We updated Section 5.2.3 to reflect this comment. Please note, non woody biomass will be used for model calibration so that the image can be correctly interpreted by the model. Please find attached the Glossary	This item has not fully been addressed. Glossary document was provided and WOODY BIOMASS definition is included. Section 5.2.3 has not been modified. Therefore, update Section	Added justification to section 5.2.3. and bottom.	Seti on 5.2. 3 of the Mo dule has bee n mo difie d with

				carbon pools and emissions sources from the NON-WOODY BIOMASS. However, in Module AM003 (section 5.2.3 Measuring biomass per subplot_point 4) is included NON-WOODY	Verra approved methodologies. In PT006, non woody biomass has to be inventorized as part of the ground truth data collection for model training. Although non-woody biomass is not included in the model and is not part of the calculation, the model requires the information to accurately categorize the amount of vegetation.	find such clarification within Module PT006. Therefore, also update Section 5.2.3 of the Module PT006 to justify NON WOODY BIOMASS is required to properly categorize the amount of vegetation but it will no be	document with all definitions.	5.2.3 of the Module PT006 to justify NON WOODY BIOMASS is required to properly categorize the amount of vegetation but it will no be taken into account in the model training nor in the calculation. Item still open. X		the information requested by AENOR. Item closed.

				VEGETATION. AEN OR does not understand clearly whether non-woody biomass pool and emissions source are exluded or included according to Acorn Methodology AM001. Please, the		taken into account in the model training nor in the calculation. Item still open. **X**				

				information and clarification must be added to the AM003 Module in proper section.						
	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass,	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this							

		Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)	Carbon Pool.							
	2.2.3	Carbon Pools and emission sources must be included if the Project Scenario emissions from that Carbon Pool or emission source are								

		greater than in the Baseline Scenario.								
	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.							
	2.2.5	The same Carbon Pools and emission sources must be assessed for								

		quantifying the Carbon Baseline, Project emissions and removals, and Leakage								
2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	The Baseline Scenario and Additionality assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence							
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in								

		the absence of the Project.	of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region							
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re-assessing Additionality at least every 10-years throughout the Project Period.								
2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	Approaches for reviewing the Carbon Baseline could include direct or indirect measurements at control sites, and/or a reassessment of whether							
	2.4.2	The Carbon Baseline must								

		reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)	key assumptions remain valid, using data collected during the Crediting Period.							
	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.								

	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon Baseline at least every 10-years, throughout the Crediting Period.								
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit							
	2.5.2	If Methodologies are used to claim fPVCs, approaches								

		used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.	has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and removals will not be used to claim fPVCs, estimates of expected Carbon Benefits							
	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in each Verification Period.								

			do not need to conform with Requirement 1.2.5.							
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the							
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full								

		rotation that includes the final harvest.	rotation length is 30-years, average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on improved forest management.							
	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.								

2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage include displacement of agricultural production, wood harvesting, firewood gathering, livestock, mining, and other activities or events that degrade carbon stocks from the							
	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate Leakage Discount during each Verification period.								

			Project Area to other areas as a direct and/or indirect result of the Project Interventi on. If Leakage Discounts are used instead of measurin g Leakage that occurs, the Leakage Discount should represent the maximum Leakage emissions that could be attributed							

			to the Project Interventi on(s).							
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.								

	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario emissions and measured or maximum-potential Leakage emissions from the Carbon Baseline emissions.								
Duplication of functions				**CARs/ NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**		

Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?										
Any other comments										
Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs										
Section	**Requirement**	**Description**								

3. Definitions	N/A	The link is broken			Resolved, updated hyperlink	Ok. Item closed.				
Portrait	N/A	Provide explanation why ACORN has changed the portrait format from the last AENOR desk review.					To align with prescribed layout criteria set by certifier.	Ok. Item closed.		

Methodology review report – complete for each methodology, module or tool submitted								
Methodology name		**PU006 Module for Model Development, Calibration, Validation and Application of Remote Sensing based Models of Aboveground Biomass in Smallholder Agroforestry v1.0 20250718**						
Methodology code		**PU006**						
Methodology requirements				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Section	**Requirement**	**Description**	**Guidance**					
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module /Tool Template and must include sufficient information to enable their consistent	Methodology/ Module/Tool Templates are available on the Plan Vivo website.					

		application by Projects, and to enable reviewers to assess whether they meet the Methodology Requirements.						
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project could claim would be reduced by 5%					
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe approaches for estimating model uncertainty as a percentage of the measured value; and						

		specify appropriate uncertainty adjustments if model uncertainty exceeds 50% at a 90% confidence level.						
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.						
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used						

		to predict, and robust assumptions.						
	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.						
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.					
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.					

	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-year global warming potentials from the most recent IPCC Assessment Report.						
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits						
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertaintyestimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must	Stratified sampling is recommended to reduce levels of uncertainty.					

		be applied (see Section 1.2).						
1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).	Although models must be publicly available, they do not have to be free to use.					
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and						

		also the most current (up-to-date) versions.						
	1.5.3	If Methodologies include novel default factors, full details of the methods and data used to establish the default factors must be provided.						
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.						
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are						

		applicable to, and any other criteria for determining the situations in which they can or cannot be applied.						
	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved and Verified. For rPVCs to be converted to vPVCs they					

			must be Verified within 5-years of issuance. fPVCs can be issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration of the Crediting Period or 50-years (whichever if shorter).					
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.						

	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass, Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.					
	2.2.3	Carbon Pools and emission sources must be included if the						

		Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.						
	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.					
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline, Project emissions and removals, and Leakage						

2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	The Baseline Scenario and Additionality assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region					
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in the absence of the Project.						
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re- assessing Additionality at least every 10-years throughout the Project Period.						
2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all	Approaches for reviewing the Carbon Baseline could					

		relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the Crediting Period.					
	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)						
	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.						
	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon						

		Baseline at least every 10-years, throughout the Crediting Period.						
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and					
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.						
	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in						

		each Verification Period.	removals will not be used to claim fPVCs, estimates of expected Carbon Benefits do not need to conform with Requirement 1.2.5.					
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is 30-years,					
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that includes the final harvest.						

	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.	average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on improved forest management.					
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage					

	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate Leakage Discount during each Verification period.	include displacement of agricultural production, wood harvesting, firewood gathering, livestock, mining, and other activities or events that degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Intervention. If Leakage Discounts are used instead of measuring Leakage that occurs, the Leakage Discount should represent the maximum					

			Leakage emissions that could be attributed to the Project Intervention(s) .					
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.						
	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario emissions and measured or						

		maximum-potential Leakage emissions from the Carbon Baseline emissions.						
Duplication of functions				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?								
Any other comments								

Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs							

Methodology review report – complete for each methodology, module or tool submitted								
Methodology name		**Module for Performing Dynamic Pre-project Woody Biomass Baseline and Additionality for Small-scale Agroforestry v1.0**						
Methodology code		**PU007**						
Methodology requirements				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Section	**Requirement**	**Description**	**Guidance**					
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module /Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the	Methodology/ Module/Tool Templates are available on the Plan Vivo website.	None				

		Methodology Requirements.						
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project could claim would be reduced by 5%					
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe approaches for estimating model uncertainty as a percentage of the measured value; and specify appropriate uncertainty						

		adjustments if model uncertainty exceeds 50% at a 90% confidence level.						
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.						
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used to predict, and robust assumptions.						

	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.						
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.	None				
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.	None				
	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-year global warming potentials from the						

		most recent IPCC Assessment Report.						
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits		None				
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertaintyestimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).	Stratified sampling is recommended to reduce levels of uncertainty.					

1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).	Although models must be publicly available, they do not have to be free to use.	None				
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.						
	1.5.3	If Methodologies include novel default factors, full details of						

		the methods and data used to establish the default factors must be provided.						
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.						
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable to, and any other criteria for determining the situations in which they can or cannot be applied.		None				

	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved and Verified. For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be					

			issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration of the Crediting Period or 50-years (whichever if shorter).					
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.						

	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass, Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.					
	2.2.3	Carbon Pools and emission sources must be included if the						

		Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.						
	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.					
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline, Project emissions and removals, and Leakage						

2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	The Baseline Scenario and Additionality assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region					
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in the absence of the Project.						
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re- assessing Additionality at least every 10-years throughout the Project Period.						
2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all	Approaches for reviewing the Carbon Baseline could	None				

		relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the Crediting Period.					
	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)		None				
	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.						
	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon		None				

		Baseline at least every 10-years, throughout the Crediting Period.						
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and					
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.						
	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in						

		each Verification Period.	removals will not be used to claim fPVCs, estimates of expected Carbon Benefits do not need to conform with Requirement 1.2.5.					
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is 30-years,					
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that includes the final harvest.						

	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.	average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on improved forest management.					
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage					

	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate Leakage Discount during each Verification period.	include displacement of agricultural production, wood harvesting, firewood gathering, livestock, mining, and other activities or events that degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Intervention. If Leakage Discounts are used instead of measuring Leakage that occurs, the Leakage Discount should represent the maximum					

			Leakage emissions that could be attributed to the Project Intervention(s) .					
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.						
	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario						

		emissions and measured or maximum-potential Leakage emissions from the Carbon Baseline emissions.						
Duplication of functions				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?								
Any other comments								

Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs							

Methodology review report – complete for each methodology, module or tool submitted								
Methodology name		**Module for Performing Leakage Assessment of Carbon Benefits on Small-scale Agroforestry v1.0**						
Methodology code		**AM006**						
Methodology requirements				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Section	**Requirement**	**Description**	**Guidance**					
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module /Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the	Methodology/ Module/Tool Templates are available on the Plan Vivo website.	None				

		Methodology Requirements.						
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project could claim would be reduced by 5%					
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe approaches for estimating model uncertainty as a percentage of the measured value; and specify appropriate uncertainty						

		adjustments if model uncertainty exceeds 50% at a 90% confidence level.						
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than $0.25 \times U - 0.5$, where U is the uncertainty as a percentage of the measured Carbon Benefit.						
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used to predict, and robust assumptions.						

	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.						
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.					
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.					
	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-year global warming potentials from the						

		most recent IPCC Assessment Report.						
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits						
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertaintyestimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).	Stratified sampling is recommended to reduce levels of uncertainty.					

1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).	Although models must be publicly available, they do not have to be free to use.	None				
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.		None				
	1.5.3	If Methodologies include novel default factors, full details of		None				

		the methods and data used to establish the default factors must be provided.						
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.		None				
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable to, and any other criteria for determining the situations in which they can or cannot be applied.						

	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved and Verified. For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be					

			issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration of the Crediting Period or 50-years (whichever if shorter).					
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.						

	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass, Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.					
	2.2.3	Carbon Pools and emission sources must be included if the						

		Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.						
	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.					
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline, Project emissions and removals, and Leakage						

2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	The Baseline Scenario and Additionality assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region					
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in the absence of the Project.						
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re- assessing Additionality at least every 10-years throughout the Project Period.						
2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all	Approaches for reviewing the Carbon Baseline could					

		relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the Crediting Period.					
	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)						
	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.						
	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon						

		Baseline at least every 10-years, throughout the Crediting Period.						
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and					
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.						
	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in						

		each Verification Period.	removals will not be used to claim fPVCs, estimates of expected Carbon Benefits do not need to conform with Requirement 1.2.5.					
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is 30-years,					
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that includes the final harvest.						

	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.	average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on improved forest management.					
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage					

	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate Leakage Discount during each Verification period.	include displacement of agricultural production, wood harvesting, firewood gathering, livestock, mining, and other activities or events that degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Intervention. If Leakage Discounts are used instead of measuring Leakage that occurs, the Leakage Discount should represent the maximum					

			Leakage emissions that could be attributed to the Project Intervention(s) .					
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.						
	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario emissions and measured or maximum-potential						

		Leakage emissions from the Carbon Baseline emissions.						
Duplication of functions				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?								
Any other comments								

Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs							

Methodology review report – complete for each methodology, module or tool submitted								
Methodology name		**Module for Estimating Uncertainty of Carbon Benefits from Small-scale Agroforestry v1.0**						
Methodology code		**PU008**						
Methodology requirements				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Section	**Requirement**	**Description**	**Guidance**					
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the	Meth+D7:G36odology/Module/Tool Templates are available on the Plan Vivo website.	None				

		Methodology Requirements.						
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Bene it the Project could claim would be reduced by 5%					
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies must describe approaches for estimating model uncertainty as a percentage of the measured value; and specify appropriate uncertainty						

		adjustments if model uncertainty exceeds 50% at a 90% confidence level.						
	1.2.3	If required, uncertainty adjustments must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.						
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used to predict,						

		and robust assumptions.						
	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.						
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.					
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.					
	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-						

		year global warming potentials from the most recent IPCC Assessment Report.						
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits						
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertaintyestimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).	Stratified sampling is recommended to reduce levels of uncertainty.					

1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).	Although models must be publicly available, they do not have to be free to use.					
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.		None				

	1.5.3	If Methodologies include novel default factors, full details of the methods and data used to establish the default factors must be provided.		None				
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with international best practice.		None				
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable to, and any other criteria for determining the situations in which						

		they can or cannot be applied.						
	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved and Verified. For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be issued for Carbon Benefits that are expected to be achieved within a					

			Forward Crediting Period that does not exceed the duration of the Crediting Period or 50-years (whichever if shorter).					
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.						

	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody biomass, Aboveground non-woody biomass, Belowground biomass, Litter, Deadwood, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermentation (CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.					

	2.2.3	Carbon Pools and emission sources must be included if the Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.						
	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission sources does not exceed 5% of the total expected Carbon Benefits of the Project	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.					
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline,						

		Project emissions and removals, and Leakage						
2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approaches for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	The Baseline Scenario and Additionality assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the Project Region					
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project Interventions would not be feasible for Project Participants to implement in the absence of the Project.						
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re- assessing Additionality at least every 10-years throughout the Project Period.						

2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	Approaches for reviewing the Carbon Baseline could include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the Crediting Period.					
	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)						
	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start						

		within 10-years and end within 2-years of the Start Date.						
	2.4.4	Methodologies must describe approaches for reviewing and updating the Carbon Baseline at least every 10-years, throughout the Crediting Period.						
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon benefit has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated					
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.						

	2.5.3	Methodologies for claiming vPVCs must identify Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in each Verification Period.	Project emissions and removals will not be used to claim fPVCs, estimates of expected Carbon Benefits do not need to conform with Requirement 1.2.5.					
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is 30-years, average Carbon Bene it should be calculated over 2 full rotations. Emissions from					
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that						

		includes the final harvest.	partial felling can also be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on improved forest management.					
	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.						
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period (for fPVCs).	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage include displacement of agricultural production, wood harvesting,					

	2.7.2	Methodologies for claiming vPVCs must describe approaches for estimating Leakage that occurs, or for applying an appropriate Leakage Discount during each Verification period.	firewood gathering, livestock, mining, and other activities or events that degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Intervention. If Leakage Discounts are used instead of measuring Leakage that occurs, the Leakage Discount should represent the maximum Leakage emissions that could be attributed to the Project Intervention(s).					
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for						

		rPVCs and vPVCs) or Forward Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.						
	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period by subtracting measured Project Scenario emissions and measured or maximum-potential Leakage emissions from the Carbon Baseline emissions.						
Duplication of functions				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**

Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?								
Any other comments								
Any other comments that the TRP member has relating to e.g. overall quality, suggestions for future development. However, these comments cannot result in CARs or NIRs								

Methodology review report – complete for each methodology, module or tool submitted										
Methodology name		**Module for Estimation of Carbon Benefits from Small-scale Agroforestry with Partial Felling and Harvesting of Trees v1.0**								
Methodology code		**PU009**								
Methodology requirements				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**	**Methodology developer response 3**	**Reviewer feedback 4**
Section	**Requirement**	**Description**	**Guidance**							

1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the	Methodology/Module/Tool Templates are available on the Plan Vivo website.	it does not include enough information or does not display enough clarity in order to be fully assesed.	The documents are indeed not available [yet] on PV's website, Acorn is waiting on PV for that. Eline to coordinate with Greg.	Outstanding	PVC version of methodology and modules have been uploaded last Friday on to the PV website.	Please provide the specific route to find the documents. As they can´t be found following a sensible path in PV´s website	Please see https://www.planvivo.org/pv-climate-methodologies under section 'other pipeline methodologies'	Ok, reviewed and checked. Closed.

		Methodology Requirements.								
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approaches for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertainty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5)	Clearly identify how the calculations for uncertainty for this module, if there is in another module, please clearly identify	The biomass modeling and related sampling approaches, which are the base for the Carbon Benefits, are covered in other modules, hence this requirement is not applicable. There is no uncertainty element in the formula in this module. The reference to AM-007 has been removed.	Ok, understood. Closed				

		adjustments if the 90% confidence interval is greater than 50% of the measured value.	= 0.05, so the Carbon Bene it the Project could claim would be reduced by 5%	that in this one and the uncertainty calculation module. All interactions among modules shall be easily treaceable.					

1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply	Although models must be publicly available, they do not have to be free to use.							

		conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).								
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a								

		recognised and credible source and also the most current (up-to-date) versions.								
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for establishing the default factors must be provided and comply with		There is no information or indication how the LTA would be averaged, which data is the input in equation		Closed.			The averaging of the LTA is done via Equation 1. The division as shown in Equation 1 is the averaging of the carbon stocks over T. The inputs are described in the parameter section (e.g. AGBy). There, it is mentioned that recognized	Ok, reviewed and checked. Closed.

		internati onal best practice.		1. Also, there is no infor mati on on the quali ty of the meth ods allow ed or how to use them to estim ate harv estin g or parti al fellin g biom ass					tools or methods are allowed to determine carbon stocks in a given year, to ensure quality. Furthermore , it is indicated that felling, pruning and/or pollarding practices should be taken into account to do this modeling. Kindly note that we would not regard them as default factors, as they are specific to agroforestry designs and	

				changes.					management practices.	
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed as a result of tree harvesting within 50-years of the Start Date	The number of full rotations included when calculating average Carbon Benefits of even-aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is	This requirement is not mentioned or clear how it is going to be applied in harvesting or partial felling activities.	We updated the 'Justification of choice of data or description of measurement methods and procedures applied' under parameter T to make this alignment more explicit.	Ok, closed.				

			30-years, average Carbon Bene it should be calculate d over 2 full rotations. Emissions from partial felling can also be calculate d using IPCC gain-loss approach es, which may be more suitable for Projects that focus on improved forest manage ment.							

	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the average Carbon Benefit over at least one full rotation that includes								

		the final harvest.								
	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum post-harvest Carbon Benefit.		This requirement is not mentioned or clear how it is going to be applied in harvesting or partial felling activities.	This topic has been dealt with in depth with the TRP committee of PV. The nature of agroforestry systems makes that concepts of thinning and partial felling need to be dealt with in a different manner than in forestry carbon projects. A solution was agreed with them end of 2024 whereby both sides acknowledg	Ok, closed.				

					ed the actual methodology is line with the PV requirements on this topic. [please find email evidence provided to you seperately]					
Duplication of functions				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**		
Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?										

Any other comments										
1		Issue with the definitions of harvesting and partial felling along the document. As the definition seems to be clear as per the treshold of 20% biomass, please indicate that and do not make any other mention to potential definition			We have adjusted to text to be me more clear and precise, and refer to the Glossary definition.	OK	Great, thank you. Please formally close by labelling colomn I, same for below items.			

		s. Be as clear and concise as possible.								
2		References. Please explain how the only references in the document are to a decission made and no justification is given, just the reference. More information in need of referencing and a			Updated reference section. The references were part of the text that have been cut out in line with previous comment, and thus no longer relevant.	Ok				

		justification shall be given if desired for the decissión on the treshold and is that justification that needs to be referenced.								
3		Typos in "modeling";			Acorn is following the Bank's communication criteria which prescribes American English. 'modelling' is the standard British English spelling, while modeling is	OK				

					the standard American English spelling. Therefore consitently apply modeling in our documentation.					
4		Clearly state if the years used for the LTA must be the 50year default or the crediting period.			It is either at least one clear full rotation cycle OR 50 years. See the updated text under parameter T.	Ok				
5		Provide a rationale of the quality and recognition as trustworthy tools for the			The FarmTree Tool is a web-based model designed to help farmers, land users and	OK				

		Farm Free Tool and the Cool Farm Tool and how they meet the requirements stablished by PV.			stakeholders in landscape restoration and sustainable agriculture projects, to understand economic viability and impact of agroforestry systems. Developed by FarmTree BV, a company with roots in Wageningen University in the Netherlands, it allows users to design agroforestry systems and project their performance across various indicators such as					

					biomass, yield, farmer income, carbon sequestration, economic performance, and more. The tool has been developed by an interdisciplinary team of social and environmental scientists, agronomists, and software developers. The tool integrates multiple datasets, including site-specific climate and soil data, tree and crop biophysical variables,					

					and user input data. This comprehensive data integration allows the tool to generate accurate projections for different agroforestry scenarios. The use of the tool to estimate carbon stocks over time is necessary as existing literature and methods on carbon stocks development over time is incipient (see Villanova et al.) and					

					other tools are very limited and do not take into account managemen t practices (Cardinael et al), which have a heavy influence on carbon stock levels.					
6		Be more specific in how the equation s provided for biomass estimatio n shall be used as the methodol ogy provides examples of a kinetic equation			These values for biomass estimate are used as an input to model the Carbon Cycle over the Acorn Project Period to define the long-term average (LTA). Setting a treshold for CRU issuance. The modeling is	Ok				

		and a law refering to the decay of a radiation beam.			not related to kinetic equation or a law refering to the decay of a radiation beam.					
7		In this phrase "*Local Partners, with support of Acorn, are required to re-assess at least every 10 years that general felling practices remain within those foreseen within the formulat*			At the design phase of our projects Agroforestry Designs are being with with participants and the LP. A design is step one but actually monitoring the implementation of the design(s) are step two. If in practice operations deviate from the design you would want that to	Ok				

		ed Agroforestry Design. Local Partners, with support of Acorn, are required to realize monitoring of plots to determine the level of deviation from the Agroforestry Design and update and reflect management practices accordingly." provide			be noticed and carbon calculations should be altered accordingly moving forward.					

		clarification on what is implied by general.								
8		The parameter AGBy is not included in the parameters list and it is not clear how the developer shall source it.			We have included the parameter AGBy in the parameter list.	Ok				

Methodology review report – complete for each methodology, module or tool submitted								
Methodology name		**Module for Estimating Contributions of Small-scale Agroforestry to**						

		Soil Organic Carbon Sequestration v1.0						
Methodology code		**AM009**						
Methodology requirements				**CARs/NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Section	**Requirement**	**Description**	**Guidance**					
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/Tool Template and must include sufficient	Methodology/Module/Tool Templates are available on the Plan Vivo website.					

		information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the Methodology Requirements.						
1.2.Uncertainty	1.2.1	If sampling approaches are used to estimate Carbon Benefits, Methodologies must describe approach	Example of minimum uncertainty adjustment for measured Carbon Benefits where the uncertain					

		es for calculating sampling uncertainty at a 90% confidence level; and specify appropriate uncertainty adjustments if the 90% confidence interval is greater than 50% of the measured value.	ty at a 90% confidence level was 70% of the measured value. U = 0.7, so the minimum adjustment would be 0.25 × (0.7-0.5) = 0.05, so the Carbon Benefit the Project could claim would be reduced by 5%					
	1.2.2	If models are used to estimate Carbon Benefits, Methodologies						

		must describe approaches for estimating model uncertainty as a percentage of the measured value; and specify appropriate uncertainty adjustments if model uncertainty exceeds 50% at a 90% confidence level.						
	1.2.3	If required, uncertainty adjustme						

		nts must be applied to deduct a proportion of Carbon Benefits that is equal to or greater than 0.25 × U - 0.5, where U is the uncertainty as a percentage of the measured Carbon Benefit.						
	1.2.4	Sources of uncertainty in estimated Carbon Benefits that cannot						

		be readily quantified must be controlled through the use of best practice approaches (e.g. to reduce measurement error), appropriate default values, proxies that are strongly correlated with the values they are used to predict, and robust assumptions.						

	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.		How is the conservativeness approach used in the organic carbon and the texture paramenters?	In the module we derive the contribution of agroforestry to the SOC pool from the estimates of above ground biomass. This ultimately means that the uncertainty is derived from the above ground biomass measurements too. The uncertainty associated with the CRU from AGB therefore is the same percentage as that of	Ok, closed.	Great, please update colomn I, Acorn formally may not close this.	

					the SOC. Conservativeness therefore is the same as that of the AGB, mostly reflected in the error propagation component of the uncertainty formula.			
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consisten	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon					

		t with international good practices in greenhouse gas accounting.	stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.					
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources.	For Carbon Pools and emissions sources to include see Section 2.2.					
	1.3.3	All greenhouse gas						

		emissions must be converted to CO2 equivalent using 100-year global warming potentials from the most recent IPCC Assessment Report.						
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate						

		and measure Carbon Benefits						
1.4 Measuring and sampling	1.4.1	If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertaintyestimation must be specified and comply with	Stratified sampling is recommended to reduce levels of uncertainty.					

		international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied (see Section 1.2).						
1.5 Modles, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have	Although models must be publicly available, they do not have to be free to use.					

		been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see						

		Section 1.2).						
	1.5.2	If Methodologies use third party default factors to quantify greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.						

	1.5.3	If Methodologies include novel default factors, full details of the methods and data used to establish the default factors must be provided.						
	1.5.4	If Methodologies allow the use of Project-specific default factors, full details of the approaches for						

		establishing the default factors must be provided and comply with international best practice.						
	1.5.5	If Methodologies use proxies, they must be strongly correlated with the value they are used to quantify.						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and						

		geographical location(s) they are applicable to, and any other criteria for determining the situations in which they can or cannot be applied.						

	2.1.2	Methodologies must specify the type(s) of Plan Vivo Certificate they can be used to claim (i.e. fPVCs, rPVCs, or vPVCs).	Carbon Benefits from greenhouse gas emission reductions are only eligible for reported Plan Vivo Certificates (rPVCs) after the emission reduction has occurred. Verified Plan Vivo Certificates (vPVCs) are issued once a Carbon Benefit has been achieved					

			and Verified. For rPVCs to be converted to vPVCs they must be Verified within 5-years of issuance. fPVCs can be issued for Carbon Benefits that are expected to be achieved within a Forward Crediting Period that does not exceed the duration					

			of the Crediting Period or 50-years (whichever if shorter).					
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria						

		and approaches for determining these.						
	2.2.2	The following Carbon Pools and emission sources must be considered for inclusion in the Methodology, and justification must be provided for any excluded Carbon Pools or emission sources: Carbon Pools – Aboveground woody	Only long-term storage of carbon in harvested wood products (i.e. >50 years) can be included when estimating the Carbon Benefits from this Carbon Pool.					

		biomass, Abovegro und non-woody biomass, Belowgro und biomass, Litter, Deadwoo d, Soil organic carbon, Wood products; Emission sources – Nitrogen fertilisers (N2O), Nitrogen fixing species (N2O), Biomass burning (CH4), Fossil fuel use (CO2), Enteric fermenta tion						

		(CH4), Manure deposition (CH4, N2O), Soil methanogenesis (CH4)						
	2.2.3	Carbon Pools and emission sources must be included if the Project Scenario emissions from that Carbon Pool or emission source are greater than in the Baseline Scenario.						

	2.2.4	Carbon Pools and emission sources that generate more emissions in the Project Scenario than the Baseline Scenario can be excluded if the total difference in emissions between the Baseline Scenario and Project Scenario for all excluded Carbon Pools and emission	The Tool for testing significance of GHG emissions in A/R CDM project activities 4 can be used to determine whether omitted Carbon Pools and emission sources could reduce Carbon Benefits by more than 5%.					

		sources does not exceed 5% of the total expected Carbon Benefits of the Project						
	2.2.5	The same Carbon Pools and emission sources must be assessed for quantifying the Carbon Baseline, Project emissions and removals, and Leakage						
2.3 Baseline scenario and additionality	2.3.1	Methodologies must describe approach	The Baseline Scenario and Additiona					

		es for describing the most likely land use and land management in the absence of Project Intervention(s) for each Project Area.	lity assessment must be updated to incorporate the impacts of any material changes that affect the most likely land use and land management scenario in the absence of Project Interventions e.g. policy or legal changes, or new developments that affect the					
	2.3.2	Methodologies must describe approaches for demonstrating the Additionality of Carbon Benefits by showing that Project						

		Interventions would not be feasible for Project Participants to implement in the absence of the Project.	Project Region					
	2.3.3	Methodologies must describe approaches for updating the Baseline Scenario and re-assessing Additionality at least every 10-years throughout the						

		Project Period.						
2.4 Carbon baseline	2.4.1	Methodologies must describe approaches for estimating the Carbon Baseline for all relevant Carbon Pools and emission sources in each year of the Crediting Period (for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	Approaches for reviewing the Carbon Baseline could include direct or indirect measurements at control sites, and/or a reassessment of whether key assumptions remain valid, using data collected during the					

	2.4.2	The Carbon Baseline must reflect the Baseline Scenario, and can be informed by historical, measured, or modelled activity data describing conditions in the Project Area(s) prior to the establishment of the Project Intervention(s)	Crediting Period.					

	2.4.3	If the Carbon Baseline is developed using historical data to establish an average or trend, the historical reference period must start within 10-years and end within 2-years of the Start Date.						
	2.4.4	Methodologies must describe approaches for reviewing and						

		updating the Carbon Baseline at least every 10-years, throughout the Crediting Period.						
2.5 Project emissions and removals	2.5.1	Methodologies must describe approaches for estimating the expected Carbon Benefits for all relevant Carbon Pools and emission sources for each year of the Crediting Period	For ACORN, we have agreed that they can generate Carbon Removal Units (CRUs). These are similar to rPVCs in that they represent an ex-post carbon benefit (the carbon					

		(for rPVCs and vPVCs) or Forward Crediting Period (for fPVCs).	benefit has already happened) that has not been verified by third party. They do not complete any form of forward / ex-ante crediting like fPVCs. If the estimated Project emissions and removals will not be used to claim fPVCs, estimates of					
	2.5.2	If Methodologies are used to claim fPVCs, approaches used to estimate the expected Carbon Benefits must conform with Requirement 1.2.5.						
	2.5.3	Methodologies for claiming vPVCs must identify						

		Carbon Indicators for each relevant Carbon Pool and emission source and describe approaches for estimating Project emissions and removals achieved in each Verification Period.	expected Carbon Benefits do not need to conform with Requirement 1.2.5.					
2.6 Harvesting	2.6.1	Plan Vivo Certificates cannot be claimed for Carbon Benefits that will be reversed	The number of full rotations included when calculating average Carbon Benefits of even-					

		as a result of tree harvesting within 50-years of the Start Date	aged management systems must not exceed the number of full or partial rotations included within a 50-year period. E.g. if the rotation length is 30-years, average Carbon Bene it should be calculated over 2 full rotations. Emissions from partial felling can also					
	2.6.2	If quantifying carbon stocks for a Project Scenario that includes harvesting with even-aged management, the number of Plan Vivo Certificates claimed must not exceed the						

		average Carbon Benefit over at least one full rotation that includes the final harvest.	be calculated using IPCC gain-loss approaches, which may be more suitable for Projects that focus on improved forest management.					
	2.6.3	If quantifying carbon stocks for a Project Scenario includes thinning or partial felling, the number of Plan Vivo Certificates claimed must not exceed the minimum						

		post-harvest Carbon Benefit.						
2.7 Leakage	2.7.1	Methodologies must describe approaches to estimate potential Leakage and/or applying an appropriate Leakage Discount in each year of the Crediting Period (for rPVCS and vPVCs) or Forward Crediting Period	Leakage beyond national boundaries does not need to be considered. Potential sources of Leakage include displacement of agricultural production, wood harvesting, firewood gathering, livestock, mining,					

		(for fPVCs).	and other activities or events that degrade carbon stocks from the Project Area to other areas as a direct and/or indirect result of the Project Interventi on. If Leakage Discounts are used instead of measurin g Leakage that occurs, the Leakage Discount					
	2.7. 2	Methodol ogies for claiming vPVCs must describe approach es for estimatin g Leakage that occurs, or for applying an appropria te Leakage Discount during each Verificati						

		on period.	should represent the maximum Leakage emissions that could be attributed to the Project Intervention(s).					
2.8 Calculation of carbon benefits	2.8.1	Methodologies must describe approaches to calculate expected Carbon Benefits for each year of the Crediting Period (for rPVCs and vPVCs) or Forward						

		Crediting Period (for fPVCs) by subtracting expected Project Scenario and Leakage emissions from the Carbon Baseline emissions.						
	2.8.2	Methodologies for claiming vPVCs must describe approaches to calculate Carbon Benefits achieved during each Verification period						

		by subtracting measured Project Scenario emissions and measured or maximum-potential Leakage emissions from the Carbon Baseline emissions.						
Duplication of functions				**CARs/NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**

Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?								
Any other comments								
1		Why is the verification done in 3 years and why a minimun of 30 samples? This will be ok or even more than necesary in smaller			In the module it is outlined that the verification must be done "within" 3 years, instead of "in". This verification is designed to verify the baseline. The maximum of	Ok	Seeing the response could you confirm we may close this item?	

	projects but not enough in bigger areas.			3 years is considered sufficient as this would be the average duration of 1 CRU generation in soils from agroforestry alone. The 30 samples is the minimum requirement for statistical significant verification. We hope this clarifies sufficiently.			

Methodology review report – complete for each methodology, module or tool submitted						

Methodology name		**Module for estimating Emissions From Livestock and Manure Decomposition for Small-scale Agroforestry V1.0**						
Methodology code		**AM010**						
Methodology requirements				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**
Section	**Requirement**	**Description**	**Guidance**					
1.1. Methodology Structure	1.1.1	Methodologies, Modules and Tools must be prepared using the most recent Plan Vivo Methodology/Module/ Tool Template and must include sufficient information to enable their consistent application by Projects, and to enable reviewers to assess whether they meet the Methodology Requirements.	Methodology/ Module/Tool Templates are available on the Plan Vivo website.	Yes				

	1.2.5	Conservative approaches must be used for estimating expected Carbon Benefits.		None				
1.3. Quantifying emissions and removals	1.3.1	Approaches used for quantifying greenhouse gas emissions and changes in carbon stocks must be consistent with international good practices in greenhouse gas accounting.	Examples of international good practice for quantifying greenhouse gas emissions and change in carbon stocks include IPCC 2019 refinement to 2006 Guidelines for National GHG Inventories.	None				
	1.3.3	All greenhouse gas emissions must be converted to CO2 equivalent using 100-year global warming potentials from the most recent IPCC Assessment Report.		None				
	1.3.2	Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for	For Carbon Pools and emissions sources to					

		Carbon Pools and emission sources.	include see Section 2.2.					
	1.3.4	Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits		None				
1.5 Models, default factors and proxies	1.5.1	If Methodologies use models to simulate greenhouse emissions, the models must: i) be publicly available; ii) have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria; and iii) apply conservative assumptions, parameters, and adjustments to avoid over-estimation of Carbon Benefits (see Section 1.2).	Although models must be publicly available, they do not have to be free to use.					
	1.5.2	If Methodologies use third party default factors to quantify		None				

		greenhouse gas emissions, they must be publicly available from a recognised and credible source and also the most current (up-to-date) versions.						
2.1 Applicability conditions	2.1.1	Methodologies must specify the Project Intervention(s) and geographical location(s) they are applicable to, and any other criteria for determining the situations in which they can or cannot be applied.		None				
2.2 Carbon pools and emission sources	2.2.1	Methodologies must identify the Carbon Pools and emission sources that will be assessed, or the criteria and approaches for determining these.		None				
Duplication of functions				**CARs /NIRs**	**Methodology developer response 1**	**Reviewer feedback 2**	**Methodology developer response 2**	**Reviewer feedback 3**

Is there any overlap in the function of sections in this methodoligy, module or tool, and other already-approved methodologies, modules or tools under Plan Vivo? Has this duplication of functions already been approved by Plan Vivo?								
Any other comments								

Annex 2 – New Information Requests, Corrective Action Requests, and Observations

Table A2.1. NIRs from this assessment.

NIR ID	xx	**Section no.**		**Date:** DD/MM/YYYY
Description of NIR				
Methodology developer response				**Date:** DD/MM/YYYY
Evidence provided by methodology developer				
AENOR assessment				**Date:** DD/MM/YYYY
The audit team identified and documented a total of 15 New Information Requests (NIRs) during the auditing process. These findings are clearly summarized and thoroughly detailed in the supporting document, *Methodology Review Report: Findings*. This report has been formally utilized by all relevant parties involved in the audit process, ensuring clear communication and alignment on the identified issues.				

Table A2.2. CARs from this assessment.

CAR ID	xx	**Section no.**		**Date:** DD/MM/YYYY
Description of CAR				
Methodology developer response				**Date:** DD/MM/YYYY
Documentation provided by methodology developer				
AENOR assessment				**Date:** DD/MM/YYYY
As mentioned above, the audit team identified and documented a total of 17 Corrective Action Requests (CARs) during the auditing process. These findings are clearly summarized and thoroughly detailed in the supporting document, *Methodology Review Report: Findings*. This report has been formally utilized by all relevant parties involved in the audit process, ensuring clear communication and alignment on the identified issues.				