

PLAN VIVO PROJECTS TOOLS AND MODULE ASSESSMENT

Review of Plan Vivo Tools PT003 and PT004, and Module PU001

 Version 1.1
 12 May 2025

Review conducted by



Preferred by Nature

REVIEW DETAILS	
Report Title:	Review of Plan Vivo Tools PT003 and PT004, and Module PU001
Version:	1.1
Scope:	Technical Review of Plan Vivo Climate Tools and Module
PV Climate Tools Reviewed:	PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects [Version 1.0; 02 May 2025]
	PT004: Identification of Degraded and Degrading Land in PV Climate Projects [Version 1.0; 02 May 2025]
PV Climate Module Reviewed:	PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects [Version 1.1; 02 May 2025]
Sectoral Scope:	AFOLU
Client:	Plan Vivo
Date of Approval:	12 May 2025
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1. Introduction

1.1 Objective

The objective of the assessment is the technical review of one Plan Vivo Module and two Tools. of estimation of baseline and project GHG removals by carbon pools in plan vivo projects module. As per the agreed scope, the assessment of the new module and tools introduced under PV Climate Module and Tool has been completed in accordance with Plan Vivo Standard Methodology Requirements, v1.2 and Plan Vivo Climate Methodology PM001 Agriculture and Forestry Carbon Benefit Assessment Methodology, v1.0.

The scope of the technical review includes following listed tools and module. The validation opinion has been provided on the finalised version of the tools and module. The application of the tools and module in project follows the requirement of PV Climate Methodology PM001, v1.0. Any revisions in the methodology PM001, v1.0 shall require consideration of review of validated tools and module under this scope.

TOOL/MODULE	TITLE	VERSION; DATE
PV Climate Tool	PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects	Version 1.0; 02 May 2025
PV Climate Tool	PT004: Identification of Degraded and Degrading Land in PV Climate Projects	Version 1.0; 02 May 2025
PV Climate Module	PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects	Version 1.1; 02 May 2025

1.2 VVB and assessment team

Validation and Verification Body

Preferred by Nature is an international non-profit organisation that works to support better land management and business practices that benefit people, nature, and the climate. We work with businesses, NGOs, and governments on developing solutions to major global challenges such as deforestation and climate change.

For almost 30 years, Preferred by Nature has worked to foster sustainable land use and responsible trade in forest and agricultural commodities. We do this through innovative projects, training courses, support services and certification. Our projects seek to promote effective ways of preserving the Earth's land resources whilst supporting human development. We have 300+ staff working through our 27 international offices across six continents, as well as 200+ partners and consultants, working in 100+ countries. Preferred by Nature has over 25 years' experience in leading the implementation of development projects.

Preferred by Nature provides services for the validation and verification of Land Use and Forestry activities, and is accredited by ANSI National Accreditation Board (ANAB) under 17029: 2019 Conformity Assessment-General Principles and Requirements for Validation and Verification bodies in the field of Environmental Information, in accordance with the standards and programs listed:

- ISO 14065: 2020 General principles and requirements for bodies validating and verifying environmental information
- ISO 14064-3:2019 Part 3: Specification with guidance for the verification and validation of greenhouse gas statements

Preferred by Nature has been contracted by Plan Vivo to conduct the technical review one Module and two Tools. The Plan Vivo Foundation has sought approved VVB to conduct a review of an update to an approved module (PU001) and two new tools (PT003 and PT004), developed as part of the Methodology Approval Process. The module and the two tools were developed by The Landscapes and Livelihoods Group (TLLG) and the Plan Vivo Technical Advisory Committee.

Assessment team

Pablo Rodríguez-Noriega, Climate and Restoration Programme Manager, Lead auditor, Preferred by Nature

Pablo Rodríguez-Noriega holds an MSc in forestry Engineering from the Polytechnic University of Madrid, Spain (2009). With more than 20 years of experience, he is an expert in Forest and Climate Change Mitigation, forest management planning, and wood construction. He started working on Climate Change Mitigation in 2006 in Costa Rica, in the framework of the CDM initiative. For more than ten years, he has led the development of carbon footprint and forest carbon projects in several countries. He has extensive experience with the validation of AR, IFM, and REDD + projects (CDM, VCS-VERRA, FCPF, Plan Vivo, or Gold Standard) both from the project developer and validator perspective. In most of these projects, Pablo was responsible for the GHG accounting, methodology, and further monitoring. Pablo is an FSC Forest Management and Carbon Projects auditor with working experience from different countries.

Riya Sharma, Senior Carbon Project Specialist, Lead Auditor, Preferred by Nature

Riya Sharma has a background in Biodiversity and Conservation with specialisation in forest carbon stock assessment. She has worked for forest landscape restoration and nature based solutions projects. She is a Lead ISO Certified Auditor and has been auditing carbon projects across various registries viz., VERRA (VCS, CCB), CDM, Gold Standard, GCC, Plan Vivo, ICR, and ORMEX (newest) for more than three years. She is experienced with validation and verification of ALM, ARR, IFM and REDD+ projects in several countries (Africa, Asia, Europe, LATAM, and Oceania). Riya has a strong understanding of forestry and agricultural practices, land use dynamics, and carbon accounting principles, with experience in forest landscape restoration and nature-based solutions projects.

S.No.	Assessment Team	Role/s	
		Technical Review	Report Writing
1	Pablo Rodríguez-Noriega	Y	Y
2	Riya Sharma	N	Y

1.3 Summary Description

Below is the summary description of PV Climate tools and module assessment.

TOOL/MODULE	TITLE	VERSION; DATE
PV Climate Tool	PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects	Version 1.0; 02 May 2025
PV Climate Tool	PT004: Identification of Degraded and Degrading Land in PV Climate Projects	Version 1.0; 02 May 2025
PV Climate Module	PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects	Version 1.1; 02 May 2025

The tools PT003 and PT004, and module PU001 are being developed to be applied to all PV Climate projects using PV Climate Methodology PM001 Agriculture and Forestry Carbon Benefit Assessment Methodology, v1.0 and/ or other approved PV Climate Methodology. The tools and module meet all the requirements of PV Methodology Requirements and are aligned with ISO 14064:2:2019, and The Greenhouse Gas Protocol.

The tool PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0 provides guidance on the use of models in estimation of carbon baselines and expected and actual carbon benefits in PV Climate projects, that is consistent with Methodology Requirements 1.2.2 and 1.5.1. The guidance for calibration, validation, verification and uncertainty estimation in existing models used by projects provided in the tool has been assessed and the assessment is summarised in following sections of the report. However, it is to be noted that procedure of model validation and calibration shall be developed and validated in model validation report, independently assessed by model experts. PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0 is the tool used for the identification of degraded and degrading lands in projects certified under the Plan Vivo Carbon Standard (PV Climate). The tool provides methods that use best practices to produce reliable assumptions about the state and course of land degradation in project regions. The module, PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1 is applicable with PV Climate Methodology PM001, v1.0 for the calculations of net-removal of GHGs from the atmosphere, including afforestation and reforestation, forest restoration, agroforestry and farm forestry, changes to livestock management, and changes to cultivation practices.

The assessment of tools and module are provided in following sections and are approved to be used by project developers for developing Carbon Benefits of Plan Vivo projects.

2. Assessment Methods & Criteria

2.1 Assessment Methods

Preferred by Nature has been contracted by Plan Vivo to conduct the technical review of one module and two tools (See table in section 1.1.).

The methods and requirements include document reviews, literature reviews and evidence provided by the Methodology Developer. Inconsistencies, clarification and other doubts were raised as findings in the form of Clarification Request (CL), Corrective Action Request (CAR), and New Information Request (NIR).

As per the requirements in section 1.1 of Methodology Requirement Standard ver 1.2 – the reviewed tools and module were found to be in conformance with the fundamental requirements for the baseline, additionality, and uncertainty analysis. The tools and module meet all the requirements of PV Methodology Requirements and can be applied in all PV Climate projects using PV Climate Methodology PM001 Agriculture and Forestry Carbon Benefit Assessment Methodology, v1.0 and/or other approved PV Climate Methodology.

Assessment methodology

The assessment is completed following the steps described in the Preferred by Nature Auditor Handbook and Preferred by Nature Carbon Projects Service Handbook. The following activities shall be undertaken in the assessment process:

- Desk review of draft tools and module and other reference documents of Standard, Methodology, and other evidence.
- Assessment of assumptions, justifications and approaches provided in tools and module, ensuring their traceability and linkages through the data/information management process, any further analysis and calculation;
- Identification of misstatements and consideration of their materiality;
- Assessment of conformity with specified requirements, taking into account the assessment in line with PV Methodology Requirements document
- Reporting Assessment Findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate

As a result of the assessment process, the following was prepared:

- i. A conclusion on the outcome of the assessment. The complete assessment of tools and module are provided in Annexure 1.
- ii. A draft Plan Vivo Projects Module and Tools Assessment Report. The report shall be submitted to Plan Vivo for feedback and approval.
- iii. A final Plan Vivo Projects Module and Tools Assessment Report.

2.2 Document Review

The documents reviewed and referred for the completion of the assessment of tools and module under the scope are listed as follows:

S.No.	DOCUMENT	SOURCE	REFERENCE
1	PV Standard Methodology Requirements, v1.2	Plan Vivo	https://www.planvivo.org/Handlers/Download.ashx?IDMF=604b837e-f6c0-4a5b-b801-b7e94a83104a
2	PV Climate Methodology PM001 Agriculture and Forestry Carbon Benefit Assessment Methodology, v1.0	Plan Vivo	https://www.planvivo.org/pm01
3	PT001 Smallholder Agriculture Monitoring and Baseline Assessment (SHAMBA) Tool, Version 2.0	Plan Vivo	https://www.planvivo.org/pt001
4	PT002 Estimation of Climate benefits from REDD in community-managed forests, Version 2.0	Plan Vivo	https://www.planvivo.org/pt002
5	PU001 Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, Version 1.0	Plan Vivo	https://www.planvivo.org/pu001
6	PU002 Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, Version 1.0	Plan Vivo	https://www.planvivo.org/pu002
7	PU003 Estimation of baseline and project GHG emissions from emission sources in Plan Vivo projects, Version 1.0	Plan Vivo	https://www.planvivo.org/pu003
8	PU004 Estimation of GHG emissions from leakage in Plan Vivo projects, Version 1.0	Plan Vivo	https://www.planvivo.org/Handlers/Download.ashx?IDMF=845630e1-de90-45f7-923d-e769e7465252
9	PU005 Estimation of uncertainty of carbon benefit estimates in Plan Vivo projects, Version 1.1	Plan Vivo	https://planvivofoundation.eu.r it.org.uk/Handlers/Download.ashx?IDMF=81510a60-bc59-4d9f-8b86-4ab8bc3f20bd
10	Plan Vivo Glossary	Plan Vivo	https://www.planvivo.org/Handlers/Download.ashx?IDMF=eb5724a5-e563-4b9a-97e3-f4c36f9b2a1b
11	PV Climate Module template	Plan Vivo	https://www.planvivo.org/Handlers/Download.ashx?IDMF=753b4b79-a65c-450d-b358-52558707b21b
12	AR-ACM0003 A/R Large-scale Consolidated Methodology: Afforestation and reforestation of lands except wetlands, Version 2.0	UNFCCC	https://cdm.unfccc.int/methodologies/DB/C9QS5G3CS8FW04MYYXDOQDPXWM4OE

S.No.	DOCUMENT	SOURCE	REFERENCE
13	AR-AM0014 Afforestation and reforestation of degraded mangrove habitats, Version 3.0	UNFCCC	https://cdm.unfccc.int/methodologies/DB/KMH6O8T6RL3P5XKNBQE2N359QG7KOE
14	AR-TOOL04 Tool for testing significance of GHG emissions in A/R CDM project activities, Version 1.0	UNFCCC	https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-04-v1.pdf
15	AR-TOOL12 Estimation of carbon stocks and change in carbon stocks in dead wood and litter in A/R CDM project activities, Version 3.1	UNFCCC	https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-12-v3.1.pdf
16	AR-TOOL13 Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities, Version 1.0	UNFCCC	https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-13-v1.pdf/history_view
17	AR-TOOL14 Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities, Version 4.2	UNFCCC	https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-14-v4.2.pdf
18	AR-TOOL16 Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities, Version 1.1	UNFCCC	https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-16-v1.1.0.pdf
19	IPCC 2003 Good Practice Guidance for Land Use, Land-Use Change and Forestry. Published by the Institute for Global Environmental Strategies (IGES). ISBN 4-88788-003-0.	IPCC	https://www.ipcc.ch/site/assets/uploads/2018/03/GPG_LULUCF_FULLEN.pdf
20	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories	IPCC	https://www.ipcc-nggip.iges.or.jp/public/2019rf/index.html

2.3 Resolution Of Findings

The nature of the nonconformance identified in the assessment process is as follows.

- Validation, verification and/ or assessment reports / statements cannot be finalized until all NCRs are closed, unless otherwise allowed by the GHG program.
- Non-conformances in assessment are not major and minor, although observations may be presented in reports, unless otherwise allowed by the GHG program; and,
- Open Non-conformances in validation/verification reports require qualification of validation/verification statements where impacts of the NCRs are likely to result in material discrepancies in GHG stocks. However, this is not applicable in the current assessment.

Unless otherwise stated in GHG programmatic documents for a specific validation/verification standard, the materiality threshold shall be 5% of the total reported GHG emission reductions and/or removals and the assurance standard shall be reasonable as opposed to limited level of assurance. Preferred by Nature has formally adopted the ISO 14064-3:2019 definition of “reasonable level of assurance”.

Non-conformances raised throughout the assessment are summarized in the following formats:

Corrective Action Request – CAR: Where an issue cannot be resolved as part of a site visit. Requirement for issue to be corrected prior to completion of Validation/Verification. CAR must be closed out prior to issuance of Validation/Verification opinion. In Validation must be resolved before registration of the Project and in Verification before further issuance of PVCs. A CAR can be converted to FAR

New Information Request – NIR: Validator/Verifier needs additional information to complete assessment. Must review requested information and ensure appropriate prior to close out of Validation/Verification

Forward Action Request – FAR: Request for project coordinator to make a change/carry out an action that is not required for compliance in this validation/verification cycle but is considered necessary for future compliance. FARs must be resolved within a timeframe agreed by Plan Vivo and (where applicable) the VVB.

Observations: The assessment team may also identify the early stages of a problem which does not yet constitute a non-conformance to the standard, but which the VVB considers may lead to a future non-conformance if not addressed by the project. Such observations should be recorded in the audit report as 'Observations' for the benefit of the project and follow-up during future audits. Observations may also include recommendations for improvement. Projects are not required to take corrective actions to address Observations.

Summary of nonconformances is as follows. The details of nonconformances are provided in Annexure 1: Methodology Review Report Metrics_VVB_PBN_12May2025

Tool/ Module	CAR	NIR	FAR	Observations
PV Climate Tool PT003, v1.0	4	12	Nil	Nil
PV Climate Tool PT004, v1.0	1	5	Nil	Nil
PV Climate Module PU001, v1.1	4	5	Nil	Nil
Total	9	22	Nil	Nil

3. Assessment Findings

3.1 Relationship to Existing Approaches

The scope of the assessment is the technical review of the Tools PT003 Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0, PT004 Identification of Degraded and Degrading Land in PV Climate Projects, v1.0, ; and Module PU001 Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1.

The tools and module are developed to be applied in PV Climate Project in conjunction with an approved Plan Vivo Climate Methodology PM001 Agriculture and Forestry Carbon Benefit Assessment Methodology, v1.0 and its associated tools and modules.

The proposed tools and module provide the additional requirements to project developers as per the scope and applicability conditions mentioned in them. The tool PT003, v1.0 and tool PT004, v1.0 requirement to be introduced in the existing set of modules and tools existing in the Plan Vivo Standard has been justified. The module PU001, v1.1 has been revised from the last version 1.0. The approved PV Climate Methodology PM001, v1.0 and its associated tools and modules lack the requirements of land degradation status and trajectory in project areas, guidance for the use of models, and estimation of baseline and project GHG removals respectively. Therefore, the requirement of the new tools and revisions in the module are justified.

Further assessment and linkages to existing and valid modules and tools listed in section 2.2 of this report has also been assessed. It is concluded that the tool PT003, v1.0, tool PT004, v1.0 and module PU001, v1.1 have appropriately developed and provide applicability requirements for the application in PV Climate Projects.

3.2 Assessment Approach

Descriptions of identified findings and corrective actions required are provided in the Annexure 1: Methodology Review Report Metrics_VVB_PBN_12May2025

Evaluation of methodology developer's response follows the procedure of PV Methodology Requirements, v1.2. All the sections of document PV Methodology Requirements have been considered to provide thorough assessment of conformance of tool PT003, v1.0, tool PT004, v1.0 and module PU001, v1.1. The conclusion of the assessment identified the requirement to raise non-conformance CAR or NIR or observations. The nature of non-conformance is explained in section 2.3 of this report.

Is the scope of the methodology, module or tool relevant to the requirement?	The scope and applicability conditions of tool PT003, v1.0, tool PT004, v1.0 and module PU001, v1.1 have been checked.
If answer to column E is "no", please give a justification	In case the scope is not applicable, the Annexure 1 is completed to provide justification for each of the requirements as per PV Methodology Requirement, v1.2 document.
If the answer to E is "yes", does the methodology meet the requirement?	In case the scope and applicability conditions are relevant to the methodology PM001, v1.0, further analysis has been performed.

Non-conformances raised?	CAR/ NIRs have been raised where the tools/ module not found in line with PV Methodology Requirement, v1.0 document.
Review of Methodology Developers' response	The responses provided against the raised CAR/ NIRs have been assessed. Conclusion of assessment of tools/ module demonstrating conformance to the PV Methodology Requirement, v1.0 document is provided. Annexure 1: Methodology Review Report Metrics_VVB_PBN_12May2025 is completed for assessment conclusion.

3.3 General Requirements

3.3.1 Methodology Structure

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	The review of the tool completed and 3 NIRs and 2 CARs were raised for this section. PV Methodology Requirement, section 1.1. Methodology Structure requirement has been met following the assessment of raised non-conformances and review of appropriate revisions in the document. The response to raised non-conformance provided with revisions in the tool. The information of financial support is correctly provided. The corrections pertaining to correct referencing of documents, clarification of terms "Model calibration" vs. "Calibration", "System" and "Model Uncertainty" have been adequately provided.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, section 1.1. Methodology Structure requirement has been met following the assessment of raised non-conformances and review of appropriate revisions in the document. 3 NIRs and 1 CAR have been raised and successfully closed. The revisions in the document pertaining to providing information of financial support, inclusion of new definitions and editorial corrections have been found correctly done in the document.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	One NIR was raised as a result of the module review, to seek the information about financial support. One CAR was raised, required to clarify and update why some referenced documents in the Module are not included and IPCC reference is not updated. PV Methodology Requirement, section 1.1. Methodology Structure requirement has been met following the assessment of raised non-conformances and review of appropriate revisions in the document.

3.3.2 Uncertainty

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	<p>The requirement of section 1.2 Uncertainty of PV Methodology Requirement has been covered by the approved PV Climate Module PU005 for the sub-sections 1.2.1 to 1.2.5.</p> <p>However, for the requirement 1.2.6, 3 NIRs were raised against the requirement of section 1.2.6 "Approaches used for estimating uncertainty associated with modelled or sampled parameters, and combining uncertainty from different parameters used to estimate carbon benefits, must be consistent with international good practices in greenhouse gas accounting." Resolution was completed by reviewing and confirming the revisions made in the document.</p>
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	<p>PV Methodology Requirement, section 1.2 Uncertainty requirement is not required to undergo assessment. This tool provides criteria for the identification of degraded and degrading lands but does not provide methods to calculate carbon benefits. Therefore, further assessment is not required.</p>
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	<p>For the module assessment, it was found that requirements 1.2.2, 1.2.3, 1.2.4, and 1.2.5 has been covered by the approved PV Climate Module PU005. Therefore, no further assessment is required in this tool. The assessment for the requirements of 1.2.1 and 1.2.6 of section 1.2 Uncertainty of PV Methodology Requirement has been carried out. This review of Module PU001 was done considering the changes in the module linked to the development of the two new tools (Identification of Degraded and Degrading Land and Guidance for the Use of Models Validated with Measurements). Although some findings were identified regarding other topics of the Module, the review was focused on the new references included in Module regarding the mentioned two new Tools. This Module was previously approved and reviewed by another VVB and the Review report is publicly available here: https://www.planvivo.org/PU001. The review completed with no non-conformances.</p>

3.3.3 Quantifying emissions and removals

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	This tool provides Guidance for the Use of Models that can be used to quantify emissions and removals but does not provide the information required in a Methodology. The tool will be used in combination with Modules and Methodology to fulfil this requirement. One CAR was raised against the requirement of 1.3.4 "Methodologies must identify, describe and justify all data, parameters, assumptions, and calculations used to estimate and measure Carbon Benefits". Resolution was completed by reviewing and confirming the revisions made in the document.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, section 1.3. Quantifying emissions and removals has been met following the assessment of raised non-conformances and review of appropriate revisions in the document. The tool provides criteria for the identification of degraded and degrading lands but does not provide methods to quantify emissions and removals, therefore, further assessment is not required for the section 1.3.1, 1.3.3, and 1.3.4. However, one NIR has been raised against the requirement of section 1.3.2 "Methodologies must quantify greenhouse gas emissions and changes in carbon stocks separately for Carbon Pools and emission sources". Non-conformance was raised to clarify if emission sources must be considered in this tool or just carbon pool. Resolution was completed by reviewing and confirming the revisions made in the document.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	One CAR was raised in section 6 "Parameters" to update the information based on the changes done in the Module. Resolution was completed by reviewing and confirming the revisions made in the document.

3.3.4 Measuring and sampling

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	The assessment of tool confirmed the that the tool is in line with the requirement of PV Methodology Requirement, section1.4 Measuring and sampling which is "If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertainty estimation must be specified and comply with

Tool/ Module	Assessment Conclusion
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	<p>international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied." The review completed with no non-conformances.</p> <p>Since the tool does not include direct measurement of GHG emissions or carbon pools, tool assessment for the section 1.4 Measuring and sampling of PV Methodology Requirement is not applicable.</p>
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	<p>The assessment of module confirmed the that the tool is in line with the requirement of PV Methodology Requirement, section1.4 Measuring and sampling which is "If Methodologies include direct measurements of greenhouse gas emissions and carbon stocks, the methods to be used for data collection, analysis and uncertainty estimation must be specified and comply with international best practice; and adjustments to avoid over-estimation of Carbon Benefits must be applied." The review completed with no non-conformances.</p>

3.3.5 Models, default factors and proxies

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	<p>One CAR and six NIRs were raised as a result of review of tool against the requirements of PV Methodology Requirement, section 1.5 Modules, default factors and proxies. The Summary section of the Tool does not correctly include point ii) of the requirement. It is now: "have been reviewed and tested for use across the full scope of project activities" and in the requirement is: "have been reviewed and tested for use across the full scope described in the Methodology's applicability criteria". This CAR has been addressed once the revisions in the tool was checked and found complete. The requirement of the sub-section 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" were met by the tool as all NIRs were satisfactorily addressed.</p> <p>Resolution was completed by reviewing and confirming the revisions made in the document.</p>
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	<p>In line with PV Methodology Requirement, section 1.5 Modules, default factors and proxies, it was found that the tool does not include the use of models, default factors or proxies to estimate GHG emissions or carbon</p>

Tool/ Module	Assessment Conclusion
	<p>pools. Therefore, requirements 1.5.1 to 1.5.4 were not applicable. However, one NIR was raised against the requirement of section 1.5.5 to clarify if the indicators of the list in section 5.1 are examples or mandatory indicators. Resolution was completed by reviewing and confirming the revisions made in the document.</p>
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	<p>One NIR was raised and closed as the updated required in section 5.3 of module including other sources: "Baseline and project removals in belowground biomass are estimated by applying an appropriate Root:Shoot ratio or allometric equation..." were made. Another NIR was raised to update the module with application of AR-AM0014 tool. Resolution was completed by reviewing and confirming the revisions made in the document.</p>

3.4 Methodology Components

3.4.1 Applicability conditions

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	<p>PV Methodology Requirement, section 2.1.1 has been met by the tool. The tool includes Applicability conditions in Section 4. Further, the requirement of section 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)" is not applicable as Plan Vivo Certificates are not mentioned in the tool and is covered by the Methodology PM001. Therefore, no further assessment is required.</p>
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	<p>PV Methodology Requirement, section 2.1.1 has been met by the tool. The tool includes Applicability conditions in Section 4. Further, the requirement of section 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)" is not applicable as Plan Vivo Certificates are not mentioned in the tool and is covered by the Methodology PM001. Therefore, no further assessment is required.</p>
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	<p>PV Methodology Requirement, section 2.1.1 has been met by the tool. The tool includes Applicability conditions in Section 4. Further, the requirement of section 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)" is not applicable as Plan Vivo Certificates are not mentioned in the tool and is covered by the Methodology PM001. Therefore, no further assessment is required.</p>

3.4.2 Carbon pools and emission sources

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, section 2.2 Carbon pools and emission sources requirements are not applicable. Carbon pools and emission sources are not the objective of the tool and is covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, section 2.2 Carbon pools and emission sources requirements are not applicable. Carbon pools and emission sources are not the objective of the tool and is covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, section 2.2 Carbon pools and emission sources requirements are not applicable. Carbon pools and emission sources are not the objective of the module and is covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

3.4.3 Baseline scenario and additionality

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, 2.3 Baseline scenario and additionality requirements are not applicable. This tool provides Guidance for the Use of Models but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of baseline scenario and additionality in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, 2.3 Baseline scenario and additionality requirements are not applicable. This tool provides criteria for the identification of degraded and degrading lands but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of baseline scenario and additionality in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

Tool/ Module	Assessment Conclusion
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, 2.3 Baseline scenario and additionality requirements are not applicable. This module only provides guidance on estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects. Moreover, the requirements of baseline scenario and additionality in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

3.4.4 Carbon baseline

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, 2.4 Carbon Baseline requirements are not applicable. This tool provides Guidance for the Use of Models but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of carbon baseline in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, 2.4 Carbon Baseline requirements are not applicable. This tool provides criteria for the identification of degraded and degrading lands but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of carbon baseline in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, 2.4 Carbon Baseline requirements are not applicable. This module only provides guidance on estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects. Moreover, the requirements of carbon baseline in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

3.4.5 Project emissions and removals

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, 2.5 Project emissions and removals are not applicable. This tool provides Guidance for the Use of Models but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of project emissions and removals in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, 2.5 Project emissions and removals are not applicable. This tool provides criteria for the identification of degraded and degrading lands but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of project emissions and removals in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, 2.5 Project emissions and removals are not applicable. This module only provides guidance on estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects. Moreover, the requirements of project emissions and removals in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

3.4.6 Harvesting

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, 2.6 Harvesting are not applicable. This tool provides Guidance for the Use of Models but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of identification and accounting harvesting in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

Tool/ Module	Assessment Conclusion
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, 2.6 Harvesting are not applicable. This tool provides criteria for the identification of degraded and degrading lands but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of identification and accounting harvesting in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, 2.6 Harvesting are not applicable. This module only provides guidance on estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects. Moreover, the requirements of identification and accounting harvesting in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

3.4.7 Leakage

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, 2.7 Leakage are not applicable. This tool provides Guidance for the Use of Models but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of identification and accounting leakages in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, 2.7 Leakage are not applicable. This tool provides criteria for the identification of degraded and degrading lands but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of identification and accounting leakages in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, 2.7 Leakage are not applicable. This module only provides guidance on estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects. Moreover, the requirements of identification and accounting leakages in PV Climate Projects shall be covered by the Methodology

	PM001 and its associated tools. Therefore, no further assessment is required.
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3.4.8 Calculation of carbon benefits

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	PV Methodology Requirement, 2.8 Calculation of carbon benefits are not applicable. This tool provides Guidance for the Use of Models but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of carbon benefits in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	PV Methodology Requirement, 2.8 Calculation of carbon benefits are not applicable. This tool provides criteria for the identification of degraded and degrading lands but does not provide information regarding Baseline scenario and additionality of the project intervention. Moreover, the requirements of carbon benefits in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	PV Methodology Requirement, 2.8 Calculation of carbon benefits are not applicable. This module only provides guidance on estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects. Moreover, the requirements of carbon benefits in PV Climate Projects shall be covered by the Methodology PM001 and its associated tools. Therefore, no further assessment is required.

3.4.9 Duplication of functions

Tool/ Module	Assessment Conclusion
PT003: Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0	The tool was also assessed against the requirement "Is there any overlap in the function of sections in this methodology, 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? No overlaps were identified. The tool is linked to PU005 and PU001, but no overlaps have been identified with these modules.

Tool/ Module	Assessment Conclusion
PT004: Identification of Degraded and Degrading Land in PV Climate Projects, v1.0	The tool was also assessed against the requirement "Is there any overlap in the function of sections in this methodology, 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?" No overlaps were identified.
PU001: Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1	In the module, section 5.1.3 includes information linked to the new Tool "Guidance for the Use of Models Validated with Measurements in PV Climate Projects", section 5.3.: "Model predictions do not need to be validated, but model error must be estimated and appropriate adjustments made to ensure a conservative estimate of expected project removals, for example by using the lower confidence limit for predicted values." One CAR was raised to confirm where this information should be included in this Module or in the Tool "Guidance for the Use of Models Validated with Measurements in PV Climate Projects". In the response and resolution of finding, information moved from this Module to section 5.3. of the new Tool: "Guidance for the Use of Models Validated with Measurements in PV Climate Projects".

4. Assessment Conclusion

Preferred by Nature has been contracted by Plan Vivo to conduct the technical review of two Tools and one Module. The assessment of the Tools v1.0 and PT003 Guidance for the Use of Models Validated with Measurements in PV Climate Projects, v1.0, PT004 Identification of Degraded and Degrading Land in PV Climate Projects; and Module PU001 Estimation of baseline and project GHG removals by carbon pools in Plan Vivo projects, v1.1 has been concluded following the requirements of document PV Methodology Requirements, v1.2. It is confirmed that the tools and module assessed under the scope are written in a clear, logical, concise and precise manner. The assessment confirmed the following:

- The developer has followed the instructions in the methodology/ module/ tool template and ensured that the defined criteria and procedures are documented in the appropriate sections of the template.
- The terminology used in the tools and module is consistent with that used in the PV Climate program documents, and GHG accounting generally.
- The criteria and procedures are written in a manner that can be understood and applied readily and consistently by project developers.
- The criteria and procedures are written in a manner that allows projects to be unambiguously audited against them.

In conclusion, the Tools PT003, v1.0 and PT004, v1.0; and Module PU001, v1.1 complies with the assessment criteria, including any qualifications or limitations, and meet the PV Methodology Requirements V1.2. The tools and module comply with the PV Standard 5.0 for Methodology /Module/Tools Template. The level of assurance maintained in the assessment is reasonable.

Signed for and on behalf of:

Name of entity: Preferred by Nature

Signature: _____

Name of signatory: Pablo Rodríguez-Noriega

Date: 12 May 2025

5. Annexures

Annexure 1: Methodology Review Report Metrics_VVB_PBN_12May2025 is submitted with this report. The annexure compiled the assessment of non-conformances raised and its resolutions of tools and modules reviewed.