PV CLIMATE METHODOLOGY

PM001

Agriculture and Forestry Carbon Benefit Assessment Methodology

Version 1.0
08 Nov 2023

Contents

1   Summary

This methodology provides details of carbon accounting procedures that can be used in smallholder agriculture and community forestry projects that generate Plan Vivo Certificates (PVCs). It is a modular methodology and project coordinators, or other parties, may submit modules or tools for inclusion in the methodology following the Plan Vivo methodology approval process. Additions or amendments to the methodology proposed by Project Coordinators or other parties will also be considered by Plan Vivo.

2   Sources

This methodology applies the following modules and tools.

2.1   Modules

PU001 Estimation of Baseline and Project GHG Removals by Carbon Pools in Plan Vivo Projects, Version 1.0

PU002 Estimation of Baseline and Project GHG Emissions from Carbon Pools in Plan Vivo Projects, Version 1.0

PU003 Estimation of Baseline and Project GHG Emissions from Emission Sources in Plan Vivo Projects, Version 1.0

PU004 Estimation of GHG Emissions from Leakage in Plan Vivo Projects, Version 1.0

PU005 Estimation of Uncertainty of Carbon Benefit Estimates in Plan Vivo Projects, Version 1.0

2.2   Tools

AR-TOOL02 Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities, Version 1.0

AR-TOOL04 Tool for testing significance of GHG emissions in A/R CDM project activities, Version 1.0.

PT001 Smallholder Agriculture Monitoring and Baseline Assessment (SHAMBA) tool, Version 2.0

PT002 Estimation of Climate Benefits from REDD in Community Managed Forest, Version 2.0

3   Definitions

Definitions used in this module follow the latest version of the Plan Vivo Glossary, and the following additional terms:

Activity shifting leakage
An increase in net GHG emissions that results from the displacement of activities or resources from inside the project area to locations outside the project area as a result of project activities.

Afforestation
Conversion of land that has not been forested for a period of at least 50 years to forested land through planting, seeding, or promotion of natural regeneration

Agroforestry

Land management system that includes trees or shrubs grown around or among crops or pastureland.

Biomass
Aboveground and belowground living biomass

Farm Forestry
Tree planting on farms, where trees are grown separately from cropland or pastureland.

Forest
A vegetation type dominated by trees. Many definitions of the term forest are in use throughout the world, reflecting wide differences in bio-geophysical conditions, social structure, and economics. The definition used by projects must therefore be locally appropriate.

Forest protection
Prevention of deforestation and/or forest degradation

Forest restoration
The process of assisting the recovery of forest from a degraded state

Improved forest management
Introduction of management practices that increase carbon stock of forest lands managed for wood production

Livestock
Domesticated animals including but not limited to dairy cattle, non-dairy cattle, buffalo, sheep, goats, camels, horses, mules, asses, swine, poultry, alpacas and llamas.

Market leakage
An increase in net GHG emissions when a project changes the supply and demand equilibrium, causing other market actors to shift their activities.

Reforestation
Conversion to forest of land that has previously contained forests but that has been converted to some other use

Wetland
Land that is covered or saturated by water for all or part of the year (e.g., peatland)

4 Applicability Conditions

4.1 Project Interventions

This methodology covers all Plan Vivo project interventions that take place on forest land, cropland or grassland; or that result in conversion to-forest, cropland or grassland. This includes:

- Agroforestry and farm forestry;
- Changes to cultivation practices;
- Changes to livestock and manure management;
- Afforestation and reforestation;
- Forest restoration;
- Forest protection; and
- Improved forest management.

The methodology is applicable to all types of forest including forested wetlands such as swamp forest and mangroves; and all types of cropland and grassland.

Project activities must not include flood irrigation, drainage, or other activities that affect the ground water table.

Projects applying this methodology must comply with the applicability conditions of any modules and tools applied.

The modules and tools that are currently available for use with this methodology are listed in Section 2. Development of additional modules and tools that increase the scope of activities that the methodology can be applied to is encouraged.

4.2   Certificate Types

The approaches in this methodology can be used to produce future, reported and verified Plan Vivo Certificates (fPVCs, rPVCs and vPVCs) from project interventions that generate net GHG removals (i.e. afforestation, reforestation and forest restoration).

Project interventions that generate net GHG emission reductions (i.e. forest protection and improved forest management) can only produce rPVCs or vPVCs.

fPVCs can be claimed for up to 90% of the expected carbon benefits at any time during the crediting period. rPVCs can be claimed when carbon benefits are reported in an annual report to Plan Vivo. vPVCs can be claimed when carbon benefits have been verified. Further details and procedures for conversion between certificate types are described in the Plan Vivo Procedures Manual.

5   Carbon Pools and Emission Sources

The carbon pools and emission sources included when assessing the carbon baseline, and project emissions and removals must include all carbon pools and emissions sources that have higher net-emissions in the project scenario compared to the baseline scenario, unless the difference between baseline scenario and project scenario net-emissions is less than 5% of the total expected carbon benefit of the project. Procedures for determining eligible carbon pools and emission sources in **AR-TOOL04** can be used to demonstrate the significance of excluded carbon pools and emission sources. Justification for any assumptions made when estimating significance of excluded carbon pools and emission sources must be provided in the PDD and supported with evidence where possible.

The following carbon pools and GHG emission sources must be considered, and justification for inclusion or exclusion must be provided in the PDD. Carbon pools and emissions sources that have lower net-emissions in the project scenario compared to the baseline scenario can be conservatively excluded from accounting.

Carbon pools:

- Aboveground woody biomass
- Aboveground non-woody biomass
- Belowground biomass
- Litter
- Deadwood
- Soil organic carbon
- Wood products

GHG emission sources:

- Nitrogen fertilisers (N_2O)
- Nitrogen fixing species (N_2O)
- Biomass burning (CH_4)
- Fossil fuel use (CO_2)
- Enteric fermentation (CH_4)
- Manure deposition (CH_4, N_2O)
- Soil methanogenesis (CH_4)

6   Baseline Scenario and Additionality

The most likely land use scenario in the absence of project interventions and the additionality of the project interventions must be determined using **AR-TOOL02**. When applying this tool the following changes should be adopted:

- All instances of 'A/R CDM' or 'CDM' should be replaced with 'Plan Vivo'
- Mention of "Forestation of the land" in the applicability conditions should be replaced with "Implementation of the project intervention"
- There are no limits to the scale at which the tool can be applied
- The entirety of Paragraph 7 is replaced with the following: "If project participants claim that the project intervention has a starting date up to five years prior to the expected date of registration, then the project participants shall provide evidence that the incentive from the planned sale of PVCs was seriously considered in the decision to proceed with the project activity. This evidence shall be based on (preferably official, legal and/or other corporate) documentation that was available to third parties at, or prior to, the start of the project activity."
- The bullet points describing minimum requirements for the identified land use scenarios in Paragraph 9 is replaced with the following: "The identified land use scenarios shall at least include: i) Continuation of the pre-project land use; ii) Implementation of the project intervention within the project boundary performed without being registered as a Plan Vivo project.

The baseline scenario and additionality must be reassessed at least every 10-years using **AR-TOOL02**.

7   Carbon Baseline

The change in carbon stocks expected under the baseline scenario for each project area are calculated with Equation 1 (for afforestation, reforestation and forest restoration) and Equation 2 (for forest protection and forest management). Procedures for estimating parameters in Equation 1 and Equation 2 are provided in modules **PU001** and **PU002** respectively.

Calculation of baseline removals by carbon pools

$$BR_{a,y} = BR_{WB,a,y} + BR_{NB,a,y} + BR_{BG,a,y} + BR_{LI,a,y} + BR_{DW,a,y} + BR_{SO,a,y} + BR_{WP,a,y}$$

Equation 1

Where:

$BR_{a,y}$ Net GHG removals under the baseline scenario for project area *a* up to year *y* (t CO_2e)

4

$BR_{WB,a,y}$ Net GHG removals in aboveground woody biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

$BR_{NB,a,y}$ Net GHG removals in aboveground non-woody biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

$BR_{BG,a,y}$ Net GHG removals in belowground biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

$BR_{LI,a,y}$ Net GHG removals in litter under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

$BR_{DW,a,y}$ Net GHG removals in dead wood under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

$BR_{SO,a,y}$ Net GHG removals in soil organic carbon under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

$BR_{WP,a,y}$ Net GHG removals in wood products under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

If there is harvesting of trees in the baseline scenario $BR_{WB\_LTA,a,y}$ must be used in Equation 1 instead of $BR_{WB,a,y}$.

Where:

$BR_{WB\_LTA,a,y}$ Long-term average net GHG removals in aboveground woody biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU001**)

Calculation of baseline emissions from carbon pools

$$BE_{CP,a,y} = BE_{WB,a,y} + BE_{NB,a,y} + BE_{BG,a,y} + BE_{LI,a,y} + BE_{DW,a,y} + BE_{SO,a,y} + BE_{WP,a,y}$$

Equation 2

Where:

$BE_{CP,a,y}$ Net GHG emissions from carbon pools under the baseline scenario for project area *a* up to year *y* (t CO₂e)

$BE_{WB,a,y}$ Net GHG emissions from aboveground woody biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU002**)

$BE_{NB,a,y}$ Net GHG emissions from aboveground non-woody biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU002**)

$BE_{BG,a,y}$ Net GHG emissions from belowground biomass under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU002**)

$BE_{LI,a,y}$ Net GHG emissions from litter under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU002**)

$BE_{DW,a,y}$ Net GHG emissions from dead wood under the baseline scenario for project area *a* up to year *y* (t CO₂e; see **PU002**)

$BE_{SO,a,y}$ Net GHG emissions from soil organic carbon under the baseline scenario for project area a up to year y (t CO_2e; see **PU002**)

$BE_{WP,a,y}$ Net GHG emissions from wood products under the baseline scenario for project area a up to year y (t CO_2e; see **PU002**)

GHG emissions from emission sources under the baseline scenario for each project area are calculated with Equation 3. Procedures for estimating parameters in Equation 3 are provided in **PU003**.

Calculation of baseline GHG emissions from emission sources

$$BE_{ES,a,y} = BE_{NF,a,y} + BE_{NS,a,y} + BE_{BB,a,y} + BE_{FF,a,y} + BE_{EF,a,y} + BE_{MD,a,y} + BE_{SM,a,y}$$

Equation 3

Where:

$BE_{ES,a,y}$ Net GHG emissions from emission sources under the baseline scenario for project area a up to year y (t CO_2e)

$BE_{NF,a,y}$ Net GHG emissions from nitrogen fertilser under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

$BE_{NS,a,y}$ Net GHG emissions from nitrogen fixing species under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

$BE_{BB,a,y}$ Net GHG emissions from biomass burning under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

$BE_{FF,a,y}$ Net GHG emissions from fossil fuel use under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

$BE_{EF,a,y}$ Net GHG emissions from enteric fermentation under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

$BE_{MD,a,y}$ Net GHG emissions from manure decomposition under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

$BE_{SM,a,y}$ Net GHG emissions from soil methanogenesis under the baseline scenario for project area a up to year y (t CO_2e; see **PU003**)

Baseline emissions/removals can be estimated at the start of the project period or measured throughout the project period, by applying the procedures in an approved module or tool. Modules and tools can include one or more of the following approaches:

   i.   Measurements in matched control areas e.g. biomass inventory plots
  ii.   Modelling based on observations in matched control areas e.g. projection of historical trends
 iii.   Modelling based on expected changes within the project areas e.g. tree or stand growth models, or process-based models of changes in SOC
 iv.   Emission factors applied to activity data that represents conditions under the baseline scenario

Baseline emissions from carbon pools can be conservatively assumed to be zero if net-emissions are expected from the carbon pool under the baseline scenario and the project intervention is expected to generate net-removals. Justification and supporting evidence must be provided in the PDD for all eligible carbon pools that are assumed to have net-emissions of zero under the baseline scenario.

Baseline emissions must be estimated for the same period as project emissions. Baseline emissions estimates must be updated at least every 10-years throughout the Crediting Period using the same procedures used for the initial estimate of baseline emissions.

8   Project Emissions and Removals

Change in carbon stocks and GHG emissions under the project scenario for each project area are calculated with Equation 4, Equation 5 and Equation 6. The same equations are used for estimation of expected and actual project emissions and removals. Procedures for estimating parameters in Equation 4, Equation 5 and Equation 6 are provided in modules **PU001**, **PU002**, and **PU003** respectively.

Calculation of project removals

$$PR_{a,y} = PR_{WB,a,y} + PR_{NB,a,y} + PR_{BG,a,y} + PR_{LI,a,y} + PR_{DW,a,y} + PR_{SO,a,y} + PR_{WP,a,y}$$

Equation 4

Where:

$PR_{a,y}$ Net GHG removals under the project scenario for project area *a* up to year *y* (t CO_2e)

$PR_{WB,a,y}$ Net GHG removals in aboveground woody biomass under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

$PR_{NB,a,y}$ Net GHG removals in aboveground non-woody biomass under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

$PR_{BG,a,y}$ Net GHG removals in belowground biomass under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

$PR_{LI,a,y}$ Net GHG removals in litter under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

$PR_{DW,a,y}$ Net GHG removals in dead wood under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

$PR_{SO,a,y}$ Net GHG removals in soil organic carbon under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

$PR_{WP,a,y}$ Net GHG removals in wood products under the project scenario for project area *a* up to year *y* (t CO_2e; see **PU001**)

If there is harvesting of trees in the project scenario $PR_{WB\_LTA,a,y}$ must be used in Equation 4 instead of $PR_{WB,a,y}$

Where:

$PR_{WB\_LTA,a,y}$ Long-term average net GHG removals in aboveground woody biomass under the project scenario for project area a up to year y (t CO_2e; see **PU001**)

Calculation of project GHG emissions from carbon pools

$$PE_{CP,a,y} = PE_{WB,a,y} + PE_{NB,a,y} + PE_{BG,a,y} + PE_{LI,a,y} + PE_{DW,a,y} + PE_{SO,a,y} + PE_{WP,a,y}$$

Equation 5

Where:

$PE_{CP,a,y}$ Net GHG emissions from carbon pools under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{WB,a,y}$ Net GHG emissions from aboveground woody biomass under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{NB,a,y}$ Net GHG emissions from aboveground non-woody biomass under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{BG,a,y}$ Net GHG emissions from belowground biomass under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{LI,a,y}$ Net GHG emissions from litter under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{DW,a,y}$ Net GHG emissions from dead wood under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{SO,a,y}$ Net GHG emissions from soil organic carbon under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

$PE_{WP,a,y}$ Net GHG emissions from wood products under the project scenario for project area a up to year y (t CO_2e; see **PU002**)

Calculation of project GHG emissions from emission sources

$$PE_{ES,a,y} = PE_{NF,a,y} + PE_{NS,a,y} + PE_{BB,a,y} + PE_{FF,a,y} + PE_{EF,a,y} + PE_{MD,a,y} + PE_{SM,a,y}$$

Equation 6

Where:

$PE_{ES,a,y}$ Net GHG emissions from emission sources under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{NF,a,y}$ Net GHG emissions from nitrogen fertilser application under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{NS,a,y}$ Net GHG emissions from nitrogen fixing species under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{BB,a,y}$ Net GHG emissions from biomass burning under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{FF,a,y}$ Net GHG emissions from fossil fuel use under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{EF,a,y}$ Net GHG emissions from enteric fermentation under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{MD,a,y}$ Net GHG emissions from manure decomposition under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

$PE_{MD,a,y}$ Net GHG emissions from soil methanogenesis under the project scenario for project area a up to year y (t CO_2e; see **PU003**)

8.1   Expected project emissions and removals

Expected net GHG emissions/removals under the project scenario in each year of the project period can be estimated by applying the procedures in an approved module or tool. Modules and tools can include one or more of the following approaches:

i.   Modelling based on expected changes within the project areas e.g. tree or stand growth models, or process-based models of changes in soil organic carbon
ii.   Modelling based on assumptions of project effectiveness e.g. effectiveness of forest protection activities
iii. Emission factors applied to activity data that represents expected conditions under the project scenario

If used to claim fPVCs, expected net-emissions estimates under the project scenario must be updated prior to each verification using data collected from within the project area(s). The revised estimates will be validated during the verification.

8.2   Actual project emissions and removals

Net GHG emissions/removals under the project scenario must be estimated at least every five-years throughout the project period, by applying the procedures in one or more of the approved methodologies and tools listed in Section 2.

 Approaches for estimating net GHG emissions/removals under the project scenario can include one or more of the following approaches:

i.   Measurements within the project area
ii.   Modelling validated by measurements within the project area
iii. Modelling based on activity data from within the project area
iv.   Emission factors applied to activity data from the project area

9   Leakage

If there is potential for significant GHG emissions from activity shifting leakage, activity shifting leakage emissions must either be estimated, or a conservative leakage discount factor must be applied. Procedures in **AR-TOOL04** can be used to demonstrate the significance of potential leakage emissions. Justification for any assumptions made when estimating significance leakage must be provided in the PDD and supported with evidence where possible.

If project interventions result in a reduction in the production of wood, animals or agricultural products by agents other than those engaged in subsistence and small-scale production, market leakage must also be assessed. Since Plan Vivo projects can only take place in project areas where

the project participants are involved in subsistence and small-scale production, market leakage from changes to the activities of project participants does not need to be included in the carbon accounting.

The PDD must describe all potential sources of leakage and any leakage mitigation measures.

Net-emissions from leakage mitigation measures must be included when estimating and measuring leakage or determining an appropriate leakage discount factor if they are potentially significant, as defined by **AR-TOOL04** v1.0.

9.1 Potential leakage emissions

Potential leakage emissions are estimated by applying the procedures in an approved module or tool. Modules and tools can include one or more of the following approaches:

i. Modelling based on expected activity displacement and/or market leakage (see **PU004**)
ii. Leakage discount factor based on characteristics of the project area and project intervention (see **PU004**)

9.2 Actual leakage emissions

Leakage that occurs during a project period is estimated by applying the procedures in an approved module or tool. Modules and tools can include one or more of the following approaches:

i. Measurement of activity shifting and/or market leakage (see **PU004**)
ii. Modelling based on expected activity shifting and/or market leakage with activity data from the project area
iii. Leakage discount factor based on characteristics of the project area and project intervention (see **PU004**)

10 Calculation of Carbon Benefits

The net-increase in carbon stocks and/or reduction in greenhouse gas emissions relative to the carbon baseline as a result of project Interventions (or 'carbon benefit') is calculated with Equation 7 for the carbon benefit from removals, Equation 8 for the carbon benefit from reduced emissions from carbon pools, and Equation 9 for the carbon benefit from reduced GHG emissions from emission sources. Total carbon benefit is calculated with Equation 9. Calculation of the parameters used in these equations is described in Sections 7, 8 and 9.

Calculation of carbon benefits from removals

$$CB_{CP,y} = \sum_a PR_{a,y} - BR_{a,y} - LE_{CP,a,y}$$

Equation 7

Calculation of carbon benefits from reduced emissions from carbon pools

$$CB_{CP,y} = \sum_a BE_{CP,a,y} - PE_{CP,a,y} - LE_{CP,a,y}$$

Equation 8

Calculation of carbon benefits from reduced emissions from emission sources

$$CB_{ES,y} = \sum_a BE_{ES,a,y} - PE_{ES,a,y} - LE_{ES,a,y}$$

<div align="right">Equation 9</div>

Summary of total carbon benefit

$$CB_y = CB_{CP,y} + CB_{ES,y}$$

<div align="right">Equation 10</div>

Where:

$CB_{CP,y}$ Carbon benefit of the project from carbon pools up to year y (t CO_2e; see Equation 8)

$PR_{a,y}$ Net GHG removals under the project scenario for project area a up to year y (t CO_2e; see Equation 4)

$BR_{a,y}$ Net GHG removals under the baseline scenario for project area a up to year y (t CO_2e; see Equation 1)

$LE_{CP,a,y}$ Net GHG emissions due to carbon pool leakage from project area a up to year y (t CO_2e; see Section 9)

$BE_{CP,a,y}$ Net GHG emissions from carbon pools under the baseline scenario for project area a up to year y (t CO_2e; see Equation 2)

$PE_{CP,a,y}$ Net GHG emissions from carbon pools under the project scenario for project area a up to year y (t CO_2e; see Equation 5)

$CB_{ES,y}$ $CB_{CP,y}$ Carbon benefit of the project from emission sources up to year y (t CO_2e; see Equation 9)

$BE_{ES,a,y}$ Net GHG emissions from emission sources under the baseline scenario for project area a up to year y (t CO_2e; see Equation 3)

$PE_{ES,a,y}$ Net GHG emissions from emission sources under the project scenario for project area a up to year y (t CO_2e; see Equation 6)

$LE_{ES,a,y}$ Net GHG emissions due to emission source leakage from project area a up to year y (t CO_2e; see Section 9)

CB_y Carbon benefit of the project up to year y (t CO_2e; see Equation 10)

If a leakage discount factor approach is adopted, the terms "$-LE_{CP,a,y}$" and "$-LE_{ES,a,y}$" in Equation 7, Equation 8 and Equation 9 should be replaced with "$\cdot (1 - LD_{CP,a})$" or "$\cdot (1 - LD_{ES,a})$" as appropriate.

Where:

$LD_{CP,a}$ Leakage discount factor for carbon pools in project area a (see **PU004**)

$LD_{ES,a}$ Leakage discount factor for emission sources in project area a (see **PU004**)

If more than one project intervention is implemented in the same project area, baseline emissions/removals, project emissions/removals and leakage emissions for each intervention must be included when calculating the carbon benefit of the project area.

10.1 Uncertainty Adjustment

Uncertainty adjustment for measured carbon benefit in each measurement period is calculated following the procedures in **PU005.**

10.2 Plan Vivo Certificates

10.2.1 Future PVCs

Future Plan Vivo Certificates issued for a future crediting period *F* (from *t1* to *t2*) are calculated with Equation 11. The proportion of expected carbon benefits withheld to mitigate the risk of underperformance (the 'achievement reserve') is 10%, and the proportion of Plan Vivo Certificates set aside for future contributions to the risk buffer is 20%, for all projects.

Calculation of fPVC issuance

$$fPVC_F = (CB_{CP,t2} - CB_{CP,t1}) \cdot (1 - AR) \cdot (1 - RB) + (CB_{ES,t2} - CB_{ES,t1}) \cdot (1 - AR)$$

Equation 11

Where:

$fPVC_F$ Number of future Plan Vivo Certificates issued for forward crediting period *F* (from *t1* to *t2*)

$CB_{CP,t2}$ Expected carbon benefit of the project from carbon pools up to time *t2* (t CO_2e; see Equation 7 or Equation 8)

$CB_{CP,t1}$ Expected carbon benefit of the project from carbon pools up to time *t1* (t CO_2e; see Equation 7 or Equation 8)

AR Proportion of expected carbon benefits withheld to mitigate the risk of underperformance (10%)

RB Proportion of Plan Vivo Certificates contributed to the future risk buffer (20%)

$CB_{ES,t2}$ Expected carbon benefit of the project from emission sources up to time *t2* (t CO_2e; see Equation 9)

$CB_{ES,t1}$ Expected carbon benefit of the project from emission sources up to time *t1* (t CO_2e; see Equation 9)

10.2.2 Reported and Verified PVCs

Reported Plan Vivo Certificates issued for a reporting period *R* (from *t1* to *t2*) are calculated with Equation 12. The proportion of expected carbon benefits withheld to mitigate the risk of underperformance (the 'achievement reserve') is 10%, and the proportion of Plan Vivo Certificates set aside for future contributions to the risk buffer is 20%, for all projects.

Calculation of rPVC issuance

$$rPVC_R = (CB_{CP,t2} - CB_{CP,t1}) \cdot (1 - UD_T) \cdot (1 - AR) \cdot (1 - RB) + (CB_{ES,t2} - CB_{ES,t1}) \cdot (1 - UD_T) \cdot (1 - AR)$$

Equation 12

Where:

$rPVC_R$ Number of reported Plan Vivo Certificates issued for reporting period R (from *t1* to *t2*)

$CB_{CP,t2}$ Carbon benefit of the project from carbon pools up to time *t2* (t CO_2e; see Equation 7 or Equation 8)

$CB_{CP,t1}$ Carbon benefit of the project from carbon pools up to time *t1* (t CO_2e; see Equation 7 or Equation 8)

UD_T Uncertainty adjustment for the climate benefits achieved in monitoring period *T* (from *t1* to *t2*)*;* (see **PU005)**

AR Proportion of expected carbon benefits withheld to mitigate the risk of underperformance (10%)

RB Proportion of Plan Vivo Certificates contributed to the risk buffer (20%)

$CB_{ES,t2}$ Carbon benefit of the project from emission sources up to time *t2* (t CO_2e; see Equation 9)

$CB_{ES,t1}$ Carbon benefit of the project from emission sources up to time *t1* (t CO_2e; see Equation 9)

Calculation of vPVC issuance

$$vPVC_T = (CB_{CP,t2} - CB_{CP,t1}) \cdot (1 - UD_T) \cdot (1 - RB) + (CB_{ES,t2} - CB_{ES,t1}) \cdot (1 - UD_T)$$

Equation 13

Where:

$vPVC_T$ Number of verified Plan Vivo Certificates issued for monitoring period *T* (from *t1* to *t2*)

$CB_{CP,t2}$ Carbon benefit of the project from carbon pools up to time *t2* (t CO_2e; see Equation 7 or Equation 8)

$CB_{CP,t1}$ Carbon benefit of the project from carbon pools up to time *t1* (t CO_2e; see Equation 7 or Equation 8)

UD_T Uncertainty adjustment for the climate benefits achieved in monitoring period *T* (from *t1* to *t2; (*see **PU005)**

RB Proportion of Plan Vivo Certificates contributed to the risk buffer (20%)

$CB_{ES,t2}$ Carbon benefit of the project from emission sources up to time *t2* (t CO_2e; see Equation 9)

$CB_{ES,t1}$ Carbon benefit of the project from emission sources up to time *t1* (t CO_2e; see Equation 9)

10.2.3 PVC Conversion

If a project has been issued with fPVCs these must be converted to rPVCs or vPVCs before any additional rPVCs or vPVCs are issued.

If a project has been issued with rPVCs these must be converted to vPVCs before any additional vPVCs are issued.

11 Parameters

11.1 Data and parameters available at validation

Data/Parameter	$BR_{WB,a,y}$
Units	t CO_2e
Description	Net GHG removals in aboveground woody biomass under the baseline scenario for project area a up to year y
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{NB,a,y}$
Units	t CO_2e
Description	Net GHG removals in aboveground non-woody biomass under the baseline scenario for project area a up to year y
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{BG,a,y}$
Units	t CO_2e
Description	Net GHG removals in belowground biomass under the baseline scenario for project area a up to year y
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001

Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{LI,a,y}$
Units	t CO_2e
Description	Net GHG removals in litter under the baseline scenario for project area *a* up to year *y*
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{DW,a,y}$
Units	t CO_2e
Description	Net GHG removals in dead wood under the baseline scenario for project area *a* up to year *y*
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{SO,a,y}$
Units	t CO_2e
Description	Net GHG removals in soil organic carbon under the baseline scenario for project area *a* up to year *y*
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{WP,a,y}$
Units	t CO_2e

Description	Net GHG removals in wood products under the baseline scenario for project area *a* up to year *y*
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BR_{WB\_LTA,a,y}$
Units	t CO_2e
Description	Long-term average net GHG removals in aboveground woody biomass under the baseline scenario for project area *a* up to year *y*
Equations	Equation 1
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of baseline removals
Comments	Used instead of $BR_{WB,a,y}$ if the baseline scenario includes harvesting of trees

Data/Parameter	$BE_{WB,a,y}$
Units	t CO_2e
Description	Net GHG emissions from aboveground woody biomass under the baseline scenario for project area *a* up to year *y*
Equations	Equation 2
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{NB,a,y}$
Units	t CO_2e
Description	Net GHG emissions from aboveground non-woody biomass under the baseline scenario for project area *a* up to year *y*
Equations	Equation 2
Source	Module PU002
Value	NA

Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{BG,a,y}$
Units	t CO_2e
Description	Net GHG emissions from belowground biomass under the baseline scenario for project area a up to year y
Equations	Equation 2
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{LI,a,y}$
Units	t CO_2e
Description	Net GHG emissions from litter under the baseline scenario for project area a up to year y
Equations	Equation 2
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{DW,a,y}$
Units	t CO_2e
Description	Net GHG emissions from dead wood under the baseline scenario for project area a up to year y
Equations	Equation 2
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{SO,a,y}$
Units	t CO_2e
Description	Net GHG emissions from soil organic carbon under the baseline scenario for project area *a* up to year *y*
Equations	Equation 2
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{WP,a,y}$
Units	t CO_2e
Description	Net GHG emissions from wood products under the baseline scenario for project area *a* up to year *y*
Equations	Equation 2
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{NF,a,y}$
Units	t CO_2e
Description	Net GHG emissions from nitrogen fertilser applicationunder the baseline scenario for project area *a* up to year *y*
Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{NS,a,y}$
Units	t CO_2e
Description	Net GHG emissions from nitrogen fixing species under the baseline scenario for project area *a* up to year *y*

Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{BB,a,y}$
Units	t CO_2e
Description	Net GHG emissions from biomass burning under the baseline scenario for project area a up to year y
Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{FF,a,y}$
Units	t CO_2e
Description	Net GHG emissions from fossil fuel use under the baseline scenario for project area a up to year y
Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{EF,a,y}$
Units	t CO_2e
Description	Net GHG emissions from enteric fermentation under the baseline scenario for project area a up to year y
Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of	See module PU003

measurement methods and procedures applied	
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{MD,a,y}$
Units	t CO_2e
Description	Net GHG emissions from manure decomposition under the baseline scenario for project area a up to year y
Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$BE_{SM,a,y}$
Units	t CO_2e
Description	Net GHG emissions from soil methanogenesis under the baseline scenario for project area a up to year y
Equations	Equation 3
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of baseline emissions
Comments	May also be measured throughout the quantification period.

Data/Parameter	$LE_{CP,a,y}$
Units	t CO_2e
Description	Net GHG emissions due to carbon pool leakage from project area a up to year y
Equations	Equation 7, Equation 8
Source	Module PU004
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU004
Purpose of Data	Calculation of climate benefit
Comments	May also be measured throughout the quantification period.

Data/Parameter	$LE_{ES,a,y}$
Units	t CO$_2$e
Description	Net GHG emissions due to emission source leakage from project area *a* up to year *y*
Equations	Equation 9
Source	Module PU004
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU004
Purpose of Data	Calculation of climate benefit
Comments	May also be measured throughout the quantification period.

Data/Parameter	$LD_{CP,a}$
Units	Unitless
Description	Leakage discount factor for carbon pool leakage in project area *a*
Equations	Equation 7, Equation 8**Error! Reference source not found.**
Source	Module PU004
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU004
Purpose of Data	Calculation of climate benefit
Comments	May also be measured throughout the quantification period.

Data/Parameter	$LD_{ES,a}$
Units	Unitless
Description	Leakage discount factor for the emission source leakage in project area *a*
Equations	Equation 9
Source	Module PU004
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU004
Purpose of Data	Calculation of climate benefit
Comments	May also be measured throughout the quantification period.

Data/Parameter	ND
Units	Unitless
Description	Proportion of expected carbon benefits withheld to mitigate the risk of underperformance
Equations	Equation 11**Error! Reference source not found.**
Source	Plan Vivo Methodology Requirement #
Value	0.1

Justification of choice of data or description of measurement methods and procedures applied	See Plan Vivo Methodology Requirement #
Purpose of Data	Calculation of fPVCs
Comments	

Data/Parameter	*RB*
Units	Unitless
Description	Proportion of Plan Vivo Certificates contributed to the pooled risk buffer
Equations	Equation 13
Source	Plan Vivo Methodology Requirement #
Value	0.2
Justification of choice of data or description of measurement methods and procedures applied	See Plan Vivo Methodology Requirement #
Purpose of Data	Calculation of PVCs
Comments	

11.2 Data and parameters monitored

Data/Parameter	$PR_{WB,a,y}$
Units	t CO_2e
Description	Net GHG removals in aboveground woody biomass under the project scenario for project area *a* up to year *y*
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{NB,a,y}$
Units	t CO_2e
Description	Net GHG removals in aboveground non-woody biomass under the project scenario for project area *a* up to year *y*
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001

Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{BG,a,y}$
Units	t CO_2e
Description	Net GHG removals in belowground biomass under the project scenario for project area a up to year y
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{LI,a,t}$
Units	t CO_2e
Description	Net GHG removals in litter under the project scenario for project area a up to year y
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{DW,a,y}$
Units	t CO_2e
Description	Net GHG removals in dead wood under the project scenario for project area a up to year y
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{SO,a,t}$
Units	t CO$_2$e
Description	Net GHG removals in soil organic carbon under the project scenario for project area *a* up to year *y*
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{WP,a,y}$
Units	t CO$_2$e
Description	Net GHG removals in wood products under the project scenario for project area *a* up to year *y*
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PR_{TR\_LTA,a,y}$
Units	t CO$_2$e
Description	Long-term average net GHG removals in aboveground and belowground tree biomass under the project scenario for project area *a* up to year *y*
Equations	Equation 4
Source	Module PU001
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU001
Purpose of Data	Calculation of project removals
Comments	Used instead of $PR_{TR,a,y}$ if the baseline scenario includes harvesting of trees

Data/Parameter	$PE_{WB,a,y}$
Units	t CO_2e
Description	Net GHG emissions from aboveground woody biomass under the project scenario for project area *a* up to year *y*
Equations	Equation 5
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{NB,a,y}$
Units	t CO_2e
Description	Net GHG emissions from aboveground non-woody biomass under the project scenario for project area *a* up to year *y*
Equations	Equation 5
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{BG,a,y}$
Units	t CO_2e
Description	Net GHG emissions from belowground biomass under the project scenario for project area *a* up to year *y*
Equations	Equation 5
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{LI,a,y}$
Units	t CO_2e

Description	Net GHG emissions from litter under the project scenario for project area *a* up to year *y*
Equations	Equation 5
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{DW,a,y}$
Units	t CO_2e
Description	Net GHG emissions from dead wood under the project scenario for project area *a* up to year *y*
Equations	Equation 5
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{SO,a,y}$
Units	t CO_2e
Description	Net GHG emissions from soil organic carbon under the project scenario for project area *a* up to year *y*
Equations	Equation 5
Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{WP,a,y}$
Units	t CO_2e
Description	Net GHG emissions from wood products under the project scenario for project area *a* up to year *y*
Equations	Equation 5

Source	Module PU002
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU002
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{NF,a,y}$
Units	t CO_2e
Description	Net GHG emissions from nitrogen fertilser application under the project scenario for project area *a* up to year *y*
Equations	Equation 6
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{NS,a,y}$
Units	t CO_2e
Description	Net GHG emissions from nitrogen fixing species under the project scenario for project area *a* up to year *y*
Equations	Equation 6
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{BB,a,y}$
Units	t CO_2e
Description	Net GHG emissions from biomass burning under the project scenario for project area *a* up to year *y*
Equations	Equation 6
Source	Module PU003

Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{FF,a,y}$
Units	t CO_2e
Description	Net GHG emissions from fossil fuel use under the project scenario for project area a up to year y
Equations	Equation 6
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of project emissions

Data/Parameter	$PE_{EF,a,y}$
Units	t CO_2e
Description	Net GHG emissions from enteric fermentation under the project scenario for project area a up to year y
Equations	Equation 6
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{MD,a,y}$
Units	t CO_2e
Description	Net GHG emissions from manure decomposition under the project scenario for project area a up to year y
Equations	Equation 6
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003

Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	$PE_{SM,a,y}$
Units	t CO_2e
Description	Net GHG emissions from soil methanogenesis under the project scenario for project area a up to year y
Equations	Equation 6
Source	Module PU003
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU003
Purpose of Data	Calculation of project emissions
Comments	Estimated prior to validation and measured throughout the quantification period.

Data/Parameter	U_T
Units	%
Description	Uncertainty adjustment for the climate benefits achieved in monitoring period T (from $t1$ to $t2$; (see **PU005)**
Equations	Equation 12,Equation 13
Source	Module PU005
Value	NA
Justification of choice of data or description of measurement methods and procedures applied	See module PU005
Purpose of Data	Calculation of uncertainty discount
Comments	Estimated prior to validation and measured throughout the quantification period.

12 References

AR-TOOL02 Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM project activities, Version 1.0. CDM Tool. Available from: https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-02-v1.pdf/history_view

AR-TOOL04 Tool for testing significance of GHG emissions in A/R CDM project activities, Version 1.0. CDM Tool. Available from: https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-04-v1.pdf/history_view

Plan Vivo Standard Glossary, Version 1.0. Available from: https://www.planvivo.org/standard-documents

PM001 Plan Vivo Agriculture and Forestry Project Carbon Benefit Assessment Methodology, Version 1.0. PV Climate Methodology. Available from: https://www.planvivo.org/methodologies

PT001 Smallholder Agriculture Monitoring and Baseline Assessment (SHAMBA) Tool, Version 2.0. PV Climate Tool. Available from: https://www.planvivo.org/methodologies

PT002 Estimation of Carbon Benefits from REDD in Community Managed Forest, Version 2.0. . PV Climate Tool. Available from: https://www.planvivo.org/methodologies

PU001 Estimation of Baseline and Project GHG Removals by Carbon Pools in Plan Vivo Projects, Version 1.0. PV Climate Module. Available from: https://www.planvivo.org/methodologies

PU002 Estimation of Baseline and Project GHG Emissions from Carbon Pools in Plan Vivo Projects, Version 1.0. PV Climate Module Available from: https://www.planvivo.org/methodologies

PU003 Estimation of Baseline and Project GHG Emissions from Emission Sources in Plan Vivo Projects, Version 1.0. PV Climate Module. Available from: https://www.planvivo.org/methodologies

PU004 Estimation of GHG Emissions from Leakage in Plan Vivo Projects, Version 1.0. PV Climate Module. Available from: https://www.planvivo.org/methodologies

PU005 Estimation of Uncertainty of Carbon Benefit Estimates in Plan Vivo Projects, Version 1.0. PV Climate Module. Available from: https://www.planvivo.org/methodologies