

REVIEW OF VM0015

Methodology Element Title	Methodology for Avoided Unplanned Deforestation	
Version	Version 1.0	
Methodology Element Category	Methodology	x
	Methodology Revision	
	Module	
	Tool	
Sectoral Scope(s)	14 - Agriculture, Forestry and Other Land Use	

Report Title	Review of VM0015
Assessment Criteria	AFOLU Requirements
Date of Issue	3 December 2012
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Summary:
<p>The VCS Association reviewed VM0015 against Section 4.5.3 of the <i>AFOLU Requirements v3.2</i> released on 1 February 2012 to determine whether the methodology complied with the new requirements. As a result of the review, the methodology was found to be non-conformant with the requirements for the decay of soil carbon, belowground biomass, dead wood and medium-term harvested wood products. Specifically, the methodology assumes the immediate release of emissions from these pools.</p> <p>The methodology has been updated following the streamlined procedure described in Section 8.3.2 of the <i>Methodology Approval Process v3.4</i>, and sets out criteria and procedures to reliably establish the pattern of carbon loss for the decay of soil carbon, belowground biomass, dead wood, and medium-term harvested wood products. The methodology applies the default approach for modelling the decay of each of these pools as given in the <i>AFOLU Requirements</i>.</p>

Other limited modifications, edits and clarifications have also been incorporated into the methodology. Specifically, litter is included as an optional pool, sampling techniques are provided as an option for developing land-use/land cover maps, the step to analyse deforestation constraints is removed, and a process to project future land-use/land cover with zones is provided.

A description of the updates made to the methodology following a review by the VCSA as well as a description of the other revisions made to the methodology and their justifications are provided in the body of this report.

1 ASSESSMENT FINDINGS

1.1 Applicability Conditions

Not applicable.

1.2 Project Boundary

Revisions Proposed by the Developer:

The project boundary was expanded to include litter as an optional pool.

Justification for revision:

Litter was mistakenly excluded from the original version of the methodology because it was understood that litter must be excluded as per the *AFOLU Requirements*; however, this is incorrect and litter may be included in the project boundary for REDD project activities. This addition allows project proponents to include the pool where there is a significant increase in litter in the project scenario compared to the baseline scenario. The tables throughout the methodology already included litter as a pool and procedures for estimating the carbon stocks in the litter pool were already included in the methodology. In Section 6.1.2, procedures for quantifying the emissions from the litter pool were added (see Section 1.5 of this report for further discussion on these procedures).

VCSA Review:

This revision does not materially impact the methodology and is in conformance with the *AFOLU Requirements*. As such, the revisions to expand the project boundary are deemed acceptable.

1.3 Procedure for Determining the Baseline Scenario

Revisions Proposed by the Developer:

At the end of step 2, an option of using sampling techniques (in addition to wall-to-wall assessments) to estimate the area of the post-deforestation land-use/land-cover (LU/LC) classes is added to the methodology.

Justification for Revision:

Generating land-use and land-cover maps according to IPCC categories can be onerous for project proponents and results in maps that are below the required level of accuracy. Where a land-use/land-cover map depicting the LU/LC-classes cannot be generated at the required level of accuracy, areas of different LU/LC classes can be estimated by sampling techniques, or by using other sources of data. Where the area of the LU/LC-classes is estimated using sampling techniques a LU/LC-change map is not required. This revision provides an additional option for project proponents that are unable to meet the level of required accuracy.

VCSA Review:

This revision does not materially impact the methodology and is in conformance with the AFOLU Requirements. As such, the revisions to expand the project boundary are deemed acceptable.

Revisions Proposed by the Developer:

Step 4.1.2 “Analysis of constraints to the further expansion of deforestation” (from version 1.0) was removed from the procedures to project the quantity of future deforestation. Also, the process for determining the parameters *T_{optimal}*, *T_{average}* and *T_{sub-optimal}* years are moved from Approach “a” to Approach “b” in the new section 4.1.2.1, which describes the procedures for projecting deforestation into future years. Finally, after the *T_{sub-optimal}* year, the rate of deforestation is assumed to decline down to zero hectares per year over 20 years.

Justification for Revision:

Three approaches are provided for projecting deforestation into future years. Approach “a” is based on a fixed historical rate of deforestation, Approach “b” is based on a time function, and Approach “c” uses a statistical model. The step to analyse constraints was originally included to ensure that deforestation is not overestimated when projected into future years using Approaches “a” and “b”. However, as written, this step leads to a less conservative baseline, because deforestation rates are calculated at the strata level (*RBSLRR_{opt}*) and when applied at the reference region level result in an overestimation of deforestation. To prevent overestimation, Step 4.1.2 “Analysis of constraints to the further expansion of deforestation is removed from the procedure”.

Removing the steps to analyse constraints on deforestation does not substantively impact the methodology, because other checks are previously included to ensure that deforestation is not overestimated. Specifically, Approach “a” by design does not result in an overestimation of deforestation in future years, and moving the procedure to determine the parameters *T_{optimal}*, *T_{average}* and *T_{sub-optimal}* from Approach “a” to Approach “b” ensures that deforestation rates under Approach “b” decline as optimal areas for deforestation decline over time. Further, the process for estimating the decline of the rate of deforestation is clarified.

VCSA Review:

Because this analysis can result in a non-conservative overestimation of deforestation rates, removing this step is conservative. The revision to remove the analysis of constraints is deemed

acceptable.

Revisions Proposed by the Developer:

Section 5.2 of the methodology provides two methods to project the LU/LC classes that will replace forest in the baseline scenario. Method 1 uses the historical LU/LC-changes to project LU/LC-classes for future periods. It is clarified under Method 1 that post-deforestation land use need not be non-forest class only and that the reference region may be divided into zones, where each zone represents a different combination of post-deforestation LU/LC-classes. This is introduced to allow calculating different post-deforestation carbon stocks per zone.

Justification for Revision:

Zones are introduced because historical projection of LU/LC change can sometimes be projected in areas where a certain post-deforestation LU/LC-class cannot exist. However, within different areas of the reference region, the projected LU/LC can exist. Zones allow for calculating different post-deforestation carbon stocks within a zone and therefore allocating the appropriate area of LU/LC change in the baseline case.

VCSA Review:

This revision does not materially impact the methodology. As such, the revisions to allow for the calculation of different post-deforestation carbon stocks per zone are deemed acceptable.

1.4 Procedure for Demonstrating Additionality

Not applicable.

1.5 Baseline Emissions

Non-Conformity Raised by VCSA:

Section 4.5.3 of the *AFOLU Requirements* requires methodologies to consider the decay of carbon in soil carbon, belowground biomass, dead wood and harvested wood products and shall not assume the immediate release of carbon from these pools in the baseline case.

- (1) In section 6.1.2, the calculation of baseline carbon stock changes is equal to the initial average carbon stock of all accounted carbon pools minus the final average carbon stocks of all accounted carbon pools (equation 14). That is, this methodology compares the average carbon stock pre-deforestation with the average carbon stock post-deforestation and assumes that the carbon from the soil carbon, belowground biomass and dead wood are immediately released following a disturbance. In the baseline case, this is non-conformant to the *AFOLU Requirements*, which explicitly states that it shall not be assumed that GHG emissions from these pools occur instantaneously in the baseline case.

The methodology needs to set out criteria and procedures to reliably establish the pattern of carbon loss or apply an appropriate decay model for the decay of belowground biomass, dead wood and soil carbon. A default approach for modelling the decay of these pools is

given in the *AFOLU Requirements* and may be applied.

- (2) For harvested wood products, this methodology states that carbon stocks in wood products are those that remain in wood products after 100 years. The remaining proportion of carbon in wood products are assumed to emit immediately (equations A3-34 to A3-37, in appendix 3). In the baseline case, this is non-conformant to the *AFOLU Requirements*, which explicitly states that it shall not be assumed that GHG emissions from the medium-term harvested wood products pool occur instantaneously in the baseline case.

The methodology needs to set out criteria and procedures to reliably establish the pattern of carbon loss or apply an appropriate decay model for the decay of medium-term harvested wood products. A default approach for modelling the decay of medium-term harvested wood products is given in the *AFOLU Requirements* and may be applied. The default approach models the decay of medium-term wood products over 20-year linear decay function.

Where the default approach is applied in updating the methodology and the clarification is added, the methodology can be updated following the streamlined procedures as set out in section 8.3.2 of the *Methodology Approval Process*.

Developer Response:

- (1) Section 6.1.2 of the methodology is revised to apply the default approach given in the *AFOLU Requirements* for modelling the decay of the carbon stocks of the original forest class. This is done for the following carbon pools: below-ground biomass, dead wood, soil organic carbon, and wood products. In the case of soil organic carbon, the long-term (20 years) average carbon stock is calculated for each post-deforestation land use class and then a linear decay function is applied from the initial carbon stock in the forest to the long-term average in the post-deforestation land use class. For all post-deforestation land-use classes the revised methodology assumes a linear increase of the carbon stock from zero to the long-term (20-year) average for the following carbon pools: above-ground biomass, below-ground biomass, litter and dead wood.
- (2) Appendix 3 of the methodology is revised to define three fractions of wood products according to the *AFOLU Requirements*: short-lived = retired within 3 years (assumed to be released immediately); medium-lived = retired between 3 and 100 years (assumed to decay linearly in 20 years); and long-lived = sequesters carbon beyond 100 years (assumed to never decay). Appendix 3 has been redrafted and allows using a conservative approach when data on the proportions of each fraction are not available. The conservative assumption is that in the baseline scenario all wood products are in the long-term fraction and that in the project scenario all products are in the short-lived fraction.
- (3) As part of the above revisions new tables are added to allow the project proponent to report carbon stock decay, and the numbering of tables is updated.

VCSA Response:

The developer response adequately addresses the findings. No further action is required.

1.6 Project Emissions

Not applicable.

1.7 Leakage

Not applicable.

1.8 Quantification of Net GHG Emission Reductions and/or Removals

Not applicable.

1.9 Monitoring

Not applicable.

1.10 Data and Parameters

Not applicable.

1.11 Use of Tools/Modules

Not applicable.

1.12 Additional revisions to the methodology

Revisions Proposed by the Developer:

The opportunity of the revision was taken to correct minor errors (spelling, numbering of equations and list of parameters in Appendix 5.) In addition the following changes were made:

- The word “guidelines” when referring to Jurisdictional and Nested REDD was changed to “requirements”.
- Equations 6.a, 6.b and 6.c were corrected to avoid negative areas.
- Equations 7.b and 12.c were corrected (“e” is the Euler Number).
- The minimum threshold requirements for the Figure of Merit (FOM) were changed and made consistent with the corresponding module of VM0007.
- The definition of the minimum mapping unit was updated to be consistent with the definition found in the VCS Jurisdictional and Nested REDD+ Requirements.
- An error was corrected in equation A3-17 (the factor 44/12 to convert tons of C to tons of CO₂-e was missing).

Justification for Revision:

These revisions correct minor errors or provide additional clarifications to the methodology and do not have a material impact on the methodology.

VCSA Review:

These revisions do not materially impact the methodology and are in conformance with the VCS rules. As such, the revisions are deemed acceptable

2 ASSESSMENT CONCLUSION

The developer has provided sufficient responses to close all findings. Further limited modifications, edits and clarifications that were made to the methodology do not materially impact the methodology and are deemed acceptable.