

VCS Module

VMD0003

ESTIMATION OF CARBON STOCKS IN THE LITTER POOL (CP-L)

Version 1.1

27 November 2023

Sectoral Scope 14

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1 SUMMARY DESCRIPTION OF THE MODULE

This module allows for *ex ante* estimation of carbon stocks in forest litter in the baseline case (for both pre- and post-deforestation stocks) and the project case.

2 DEFINITIONS

All terms in the following module are used inline with VCS program definitions.

3 APPLICABILITY CONDITIONS

This module is applicable to all forest types and age classes.

4 PROCEDURES

4.1 Frequency of measurement for baseline litter stocks

Measurements of initial stocks employed in the baseline must take place within ± 5 years from the project start date, for simplicity referred to here as stocks at $t=0$.

Litter stock estimates are valid (i.e., treated as constant) for the baseline period, after which they must be re-estimated from new field measurements. For each stratum, where the re-measured estimate is within the 90% confidence interval of the $t=0$ estimate, the $t=0$ stock estimate takes precedence and is re-employed, and where the re-measured estimate is outside (i.e. greater than or less than) the 90% confidence interval of the $t=0$ estimate, the new stock estimate takes precedence and is used for the subsequent period.

4.2 *Ex ante* estimation of carbon stocks in litter

To estimate the mean carbon stock per unit area in litter for each project area stratum:

$$C_{LL,i} = \frac{10}{A_{sp,i}} * \sum_{sp=1}^{Pi} B_{LL,sp,i} * CF * \frac{44}{12} \quad (1)$$

Where:

| | |
|-----------------|--|
| $C_{LL,i}$ | = Mean carbon stock in litter for stratum i ; t CO ₂ -e ha ⁻¹ |
| $B_{LL,sp,i}$ | = Biomass of litter in sample plot sp in stratum i ; kg d.m. |
| C | = Carbon fraction; t C t ⁻¹ d.m. |
| $A_{sp,i}$ | = Total area of all sample plots in stratum i ; m ² |
| sp | = 1, 2, 3, ... P_i sample plots in stratum i |
| i | = 1, 2, 3, ... M strata |
| $\frac{44}{12}$ | = Ratio of molecular weight of CO ₂ to carbon, t CO ₂ -e t C ⁻¹ |

5 DATA AND PARAMETERS

5.1 Data and Parameters Available at Validation

| | |
|---|---|
| Data / Parameter | C |
| Data unit | t C t ⁻¹ d.m. |
| Description | Carbon fraction of dry matter |
| Equations | 1 |
| Source of data | Literature (e.g., IPCC Chapter 3.2: LUCF Sector Good Practice Guidance) |
| Value applied | Default value 0.37 t C t ⁻¹ d.m. can be used, or species-specific values from the literature (e.g., IPCC Chapter 3.2: LUCF Sector Good Practice Guidance). |
| Justification of choice of data or description of measurement methods and procedures applied | - |
| Purpose of Data | Calculation of baseline and project emissions |
| Comments | N/A |

5.2 Data and Parameters Monitored

| | |
|--------------------------|--|
| Data / Parameter: | A_{sp} |
| Data unit: | m ² |
| Description: | Total area of all sample plots |
| Equations | 1 |
| Source of data: | Recording and archiving of number and size of sample plots |

| | |
|---|--|
| Description of measurement methods and procedures to be applied: | - |
| Frequency of monitoring/recording: | Where litter is an included pool monitoring must occur at least every ten years for baseline renewal. Where carbon stock enhancement is included and litter is an included pool monitoring shall occur at least every five years. |
| QA/QC procedures to be applied: | N/A |
| Purpose of data: | Calculation of baseline and project emissions |
| Calculation method: | - |
| Comments: | Ex-ante it shall be assumed that the total area of sample plots shall remain constant during the baseline period. |

DOCUMENT HISTORY

| Version | Date | Comment |
|---------|-------------|---|
| v1.0 | 3 Dec 2010 | Initial version |
| v1.1 | 27 Nov 2023 | <ul style="list-style-type: none">• Update to latest VCS methodology template• Removal of references to VM0007 |