

VCS Module

VMD0003

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

Version 1.1

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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  $\pm 5$  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 <sub>2</sub> -e ha <sup>-1</sup>
$B_{LL,sp,i}$	= Biomass of litter in sample plot $sp$ in stratum $i$ ; kg d.m.
$C$	= Carbon fraction; t C t <sup>-1</sup> d.m.
$A_{sp,i}$	= Total area of all sample plots in stratum $i$ ; m <sup>2</sup>
$sp$	= 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 <sub>2</sub> to carbon, t CO <sub>2</sub> -e t C <sup>-1</sup>

## 5 DATA AND PARAMETERS

### 5.1 Data and Parameters Available at Validation

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

### 5.2 Data and Parameters Monitored

<b>Data / Parameter:</b>	$A_{sp}$
<b>Data unit:</b>	m <sup>2</sup>
<b>Description:</b>	Total area of all sample plots
<b>Equations</b>	1
<b>Source of data:</b>	Recording and archiving of number and size of sample plots

<b>Description of measurement methods and procedures to be applied:</b>	-
<b>Frequency of monitoring/recording:</b>	<p>Where litter is an included pool monitoring must occur at least every ten years for baseline renewal.</p> <p>Where carbon stock enhancement is included and litter is an included pool monitoring shall occur at least every five years.</p>
<b>QA/QC procedures to be applied:</b>	N/A
<b>Purpose of data:</b>	Calculation of baseline and project emissions
<b>Calculation method:</b>	-
<b>Comments:</b>	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"><li>• Update to latest VCS methodology template</li><li>• Removal of references to VM0007</li></ul>