

SUMMARY OF PUBLIC CONSULTATION

VM0010 Methodology for Improved Forest Management (Logged to Protected), v1.4

A draft of VM0010 Methodology for Improved Forest Management (Logged to Protected), v1.4 was open for public consultation between June 10 and July 10, 2024. This document includes a list of all comments received and the developer’s response.

GENERAL FEEDBACK

Section 3 - Definitions

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#	Organization	Comment	Developer’s Response
1	Foster Forestry and Environmental Consulting LLC	Forest Parcel could easily be interpreted to mean Forest Management Unit or Compartment defined by Ownership. Instead, the methodology defines Forest Parcel per "annual logging and timber extraction operations." Standard forestry terminology should be used here in terms of Polygons/Stands or Fractions Thereof to refer to similar species composition, age, site quality and structure. Another alternative is for methodology to use term Harvest Area to align with VM0035 instead of introducing novel term outside of forest management more generally or forest carbon more specifically.	Thanks for the feedback. We have adapted some but not all of these definitions based on the suggestions and also based on the SAF's dictionary of forestry from 2018
2	Foster Forestry and Environmental Consulting LLC	All of these definitions should circle back to established sources such as Dictionary of Forestry by Helms or modern IFM methodologies otherwise the definitions deviate from common professional understanding. Commercial Timber Harvest should be defined as "Felling, transporting and processing trees (logging definition) to produce dimensional lumber from timber and other wood products for sale." Diameter at Breast Height should be defined as "Diameter of bole outside bark uphill at 1.3 meters (international metric) or 1.37 m (imperial) with POM (point of measure) of 3 m or 6 m	Thanks for the feedback. We have adapted some but not all of these definitions based on the suggestions and also based on the SAF's dictionary of forestry from 2018

Section 3 - Definitions

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		<p>for tall buttresses." Forest Infrastructure is fine but should be further specified as "...haul roads, log landings, skid trails and winch lines." Forest Inventory definition is one of the few that corresponds to existing sources. Logging slash should mention tree tops in particular, should define "downed or lying deadwood pool (as opposed to standing snags)" and should replace "left in the forest estate" with "left on-site" to prevent confusion as forest estate can have multiple meanings and is not defined. Since "merchantable trees" are mentioned multiple times these should be defined as "Trees with boles of minimum acceptable grade in terms of defect and size in terms of top diameter typically >7 cm suitable for sale for wood products." Timber harvest plan for first element should change "non-harvest" areas which can change with market conditions to "non-operable or restricted areas" to include for example Streamside Management Zones (SMZs) where timber may sometimes be removed depending on provincial/state law but only under restricted conditions. Also, as mentioned earlier, division of forest into stands and polygons is common practice but "annual operating areas" is not.</p>	

Section 4 – Applicability Conditions
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#	Organization	Comment	Developer's Response
3	Foster Forestry and Environmental Consulting LLC	<p>Applicability conditions should also specifically exclude commercial plantations in project scenario (rather than exclusively converse of protected forest to commercial plantation in baseline).</p>	<p>Thank you for this observation. The project cannot change the land use under VM0010, therefore a natural forest in the baseline must remain a natural forest in the project. In addition, the applicability conditions already specify that project scenario cannot include planted forests and commercial timber harvest, i.e., project area can't become a commercial plantation.</p>

Section 4 – Applicability Conditions

#	Organization	Comment	Developer's Response
4	Alaska Department of Natural Resources	It is unclear if VM0010 would be applicable to forests in Alaska or if there are applicability conditions similar to VM0045 Improved Forest Management Methodology Using Dynamic Matched Baselines from National Forest Inventories. VM0045 requires "the project area is located within the conterminous United States" (Section A1.2 of Appendix 1). The Alaska Department of Natural Resources manages over 28 million acres of forestlands, including over 2.1 million acres in our three State Forests (Haines State Forest, Southeast State Forest, and Tanana Valley State Forest). Many regions of Alaska have complete FIA forest inventory data, including our three State Forests. The Department encourages VCS and the methodology developer to clarify that VM0010 is applicable to Alaska forests.	VM0010 is applicable to forests in Alaska. Because Alaska is not included in the conterminous United States VM0045 is not applicable, thus allowing the use of VM0010.
5	Foster Forestry and Environmental Consulting LLC	Intent to Harvest has a binary choice of an easy ill-defined and a hard defined option. The latter of "valid and verifiable government-approved timber management plan" should be used over "representative site across country over last 2 years" note that representative criteria and test remain undefined and "within commercially viable distance to existing transport networks" which also remains undefined.	Verra thank you for your observation. We internally assessed whether a modification in this direction would be feasible and increase the methodology's quality. Prioritizing the latter condition should be done by eliminating the first condition. However, eliminating the first condition could impair the methodology, so we have elected to maintain current wording and requirements.

Section 5 – Project Boundary
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#	Organization	Comment	Developer's Response
6	Foster Forestry and Environmental	First, methodology developers must clarify reasoning on atypical inclusions and exclusions of dead wood, such as distinguishing naturally accumulated from logging slash and excluding standing snags while including lying dead wood. Distinguishing logging slash is easy with slash piled in clearcuts but hard with slash dispersed with	We recognize the complexity of measuring and estimating dead wood under different logging conditions. However, several studies show that, in

Section 5 – Project Boundary

#	Organization	Comment	Developer's Response
	Consulting LLC	single tree diameter limit selection. Furthermore, no global methodology can provide evidence that logging necessarily results in greater or lesser downed and standing dead wood compared to non-logged, just different quantities. For example, in some regions standing and downed wood is typically gathered by local communities for firewood once the area is made accessible via logging. Second, methodology developers must justify exclusion of derived belowground for aboveground trees. Roots from cut stumps decompose over time and rough estimates of 20% derived belowground from above and 50% emitted over time while other 50% goes to soil suggest >5% materiality for this pool. Excluding the belowground pool conventionally included also creates a perverse incentive that harvesting systems in baseline that extract stumps for bioenergy would not be penalized for this use.	fact, logging significantly increases the density of dead wood (see e.g. Keller et al. 2004 https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1529-8817.2003.00770.x for a case-study in tropical forests or Fraver et al 2002 for an example in US forests https://cdnsiencepub.com/doi/10.1139/x02-131) Regarding BGB, and in the context of Logged to protected IFM methodology, we maintain that a conservative approach is best as in this context BGB is unlikely to change significantly in forests remaining as forests and is difficult to measure, thus omission is conservative.

Section 8 – Quantification of Estimated GHG Emission Reductions and Removals
8.1 Baseline Emissions

#	Organization	Comment	Developer's Response
7	Foster Forestry and Environmental Consulting LLC	Correction 2/Eq. 12, project proponents must justify their use of an arithmetic growth rate of a constant rate of growth per area per year when forests actually grow sigmoidal in an s shape with slow, fast, then slow growth that will vary temporally and spatially.	Point well taken. It is expected that with a future use of dynamic baselines and the integration of IFM methodologies, detailed considerations to different growth patterns will be included.

8.1 Baseline Emissions

#	Organization	Comment	Developer's Response
8	Foster Forestry and Environmental Consulting LLC	First on Correction 10/Eq. 27 fuel is not net change but a deduction so should have a negative rather than positive sign to the best of my understanding. Second on same equation, methodology developers need to explain their novel approach of separating out years 1, 1-10, and 11-20 in the baseline. The assumption that all of the legally and operationally unrestricted area would be harvested in year 1 of the project is not realistic. Third on the same equation dealing with multiple potential baseline harvesting and regeneration events with various spatial and temporal dimensions, methodology developers need to justify their exclusion of growth and yield models for either historical or common practice scenarios.	Equation 27 was modified.
9	Anonymous	In equation 23, A1,i,p means the area of stratum i in land parcel p that was harvested 1 year ago, which is understandable if the harvest regime is clear cutting, but if it is selective cutting or shelterwood cutting, the equation at present might overestimate the baseline emissions. Therefore, it is recommended to adjust the equation to reflect a broader application scenarios.	Verra thanks you for your observation. We double-checked that the changes in carbon stock (tC/ha) in the different carbon pools found in equation (23) are derived from equations (5), (9), and (11), where the legend specifies "carbon stock of extracted timber per unit area". There is no restriction to quantify clear cutting only in the above mentioned and projects can quantify selective timber extraction using these equations.
10	Anonymous	Ditto for A2-10,i,p in equation 24	See response to comment #9
11	Anonymous	Ditto for A11-20,i,p in equation 25	See response to comment #9

8.2 Project Emissions			
#	Organization	Comment	Developer's Response
12	Foster Forestry and Environmental Consulting LLC	First on Correction 11, the methodology developers state "ongoing forest growth can only be included for individual trees...(that) would have been harvested under the baseline scenario." This constraint is weak when considering that baselines may be established by common practice. A stronger constraint would be "excluding areas with legally or operationally restricted harvesting." Second on Correction 11, the methodology developers state that under applicability conditions project scenario does not allow any commercial timber harvest. However, this exclusion runs contrary to VCS Program Definitions which explicitly define Harvesting Activity. Methodology developers need to provide scientific basis for overriding VCS program rules for reasons including forest health such as species-specific diseases and fire hazard mitigation.	<p>Projects are required to quantify the baseline scenario cumulative area of parcels p harvested in stratum i at time t^* (ha), therefore the ongoing forest growth is defined in relation to this existing parameter.</p> <p>Additionally, we double-checked the revised applicability condition excluding commercial timber harvest in the project scenario and confirm it does not conflict with the VCS program definition of "Harvesting activity".</p>
13	Foster Forestry and Environmental Consulting LLC	This section is titled "8.2.1.6 Determining Carbon Stock Changes" between two periods of monitoring. Impacts from harvesting and other disturbances are calculated in the subsequent section 8.2.2. Therefore, the proposed correction of replacing A_t with A_{t^*} is incorrect in my professional opinion for Correction12/Equation32.	Thanks for the observation. A_{t^*} represents the cumulative area (in ha) harvested in stratum i , at time t . The change does not have any effects on other equations so it is unclear why this would be incorrect.
14	Foster Forestry and Environmental Consulting LLC	As mentioned above regarding eligibility, methodology developers fail to clarify whether harvest of woody material below the VCS Program Definition v 4.5 Harvesting Activity of more than 20% in any 5-year period starting with first removal makes the project ineligible. If not (as I would argue), deductions for biomass removal under project activity harvests should be included in this section and subsequent sections.	Thank you for your feedback. In accordance with the applicability conditions in VM0010, the project scenario does not allow any commercial timber harvest. Thus, there is no biomass removal from harvest in the project to deduct.
15	Foster Forestry and Environmental	(1) Methodology developers provide two options for illegal logging in terms of a simply described PRA without any formal guidance or requirements or much more detailed monitoring procedure; if methodology developers provide two options than both options	We agree that more detailed guidance for the assessment of illegal logging must be included. A footnote with a

8.2 Project Emissions

#	Organization	Comment	Developer's Response
	Consulting LLC	must be equally robust with equal guidance including statistical uncertainty. Methodology developers should also explicitly discuss treatment bias with line transect placement in 1-3% of suspected illegal logging area. (2) Revised equation Correction13/Equation37 is still problematic as the first CDIST/AP should be replaced by CDIST for the sampling area only divided by the sampling area only for a fraction of illegal logging determined from the sampling area.	definition of PRA and a link for a FAO manual was added to help selecting the best approach. As for the suggestion to correct Eq. 37, the comment is not clear.

8.3 Leakage Emissions

#	Organization	Comment	Developer's Response
16	Foster Forestry and Environmental Consulting LLC	The first criterion for activity-shifting leakage of historical trends should be relatively easy for project proponents to meet as historical trends can vary widely. However, the second piece of evidence of forest management plans prepared 24+ months prior to project start then not changing for the duration of the project is non-sensical and creates perverse incentive for project proponent not to update management plans due to changing market, legal and environmental conditions.	Management plans are linked to the baseline scenario via 'Intent to harvest'. While it is true that conditions can change, since is expected that no harvest would occur in the project, a need to update the management plan becomes optional. The subsequent sections indicate the conditions that would require project proponent to update where leakage or activity shifting may occur.
17	Foster Forestry and Environmental Consulting LLC	(1) Methodology developers should cite their evidence for market leakage calculations based on likely displacement, including 15% threshold. (2) Methodology developers also need to provide guidance for how to calculate both "where in the country's forest estate harvesting would likely be displaced (3) Methodology developers also need to more finely define "merchantable material" for this leakage calculation as project developers can easily go down the merchantability value chain from veneer to dimensional lumber to chip 'n saw to pulp to firewood to obtain biased numbers. (4) Methodology developers need to justify evidence to not use simpler approach of Pan et al., 2020 literature review of 10+ papers for 40% average market leakage from forestry	For 1) and 4) as these are related, VM0010 uses a 15% value from a modeling study of the Global Timber Model (https://www.researchsquare.com/article/rs-3596881/v1) that proposes a maximum of 15% for set-aside projects as VM0010 is based on forest protection. For 2), we see this as an

8.3 Leakage Emissions

#	Organization	Comment	Developer's Response
		project interventions.	estimation guided by PP and VVB directly. For 3) An additional definition of "Merchantable biomass" as per the SAF dictionary of forestry was added at the beginning of the methodology document. Overall, VERRA is working to develop a leakage tool that would be applicable to all AFOLU methodologies in the coming months and so this will be subject to an update accordingly across methodologies.

8.4 Estimated GHG Emission Reductions and Carbon Dioxide Removals

#	Organization	Comment	Developer's Response
18	Foster Forestry and Environmental Consulting LLC	For equation #42, baseline is calculated from historical or common practices, but no guidance is given in methodology on how to calculate uncertainty in calculating baseline from these sources. Uncertainty for the project of course may be calculated from inventory data.	Uncertainty in the baseline is calculated using data from the forest management plan (i.e., logging inventory). Section 8.5 of the methodology briefly explains the approach for this. Additionally, Verra takes note of your recommendation towards more detailed guidance and will address it under the next major revision of this methodology.

Section 9 – Monitoring

9.1 Data and Parameters Available at Validation			
#	Organization	Comment	Developer's Response
19	Foster Forestry and Environmental Consulting LLC	Historic data pathway: Shouldn't this also allow for data from landowner immediately prior to project proponent with history of logging operations if project inception marked by land title transfer? Common practice pathway: No parameters for sampling are given, thus the opportunity for bias such as cherry picking is high. Shouldn't only academic and governmental sources be allowed to prevent this potential bias?	<p>Yes, the historic data pathway is about the project proponent providing data from the logging operations immediately prior to project start.</p> <p>Regarding the common practice pathway, the methodology does list peer reviewed literature as a source of information, Additionally, Verra takes note of your recommendation towards more stringency on the data allowed under the common practice pathway and will address it under the next major revision of this methodology.</p>
20	Foster Forestry and Environmental Consulting LLC	For infrastructure should not the conservative assumption be that timber cleared for infrastructure is processed for pulpwood or firewood including slash piles for faster emissions rather than sawlogs?	<p>Most active projects using VM0010 are located in tropical regions where the vegetation cleared for building infrastructure is often transformed to sawlogs in the case of commercial species. Some parts can be used for firewood but most biomass is left on site.</p>
21	Foster Forestry and Environmental Consulting LLC	FC harvest should include "snigging/SKIDDING" as different terms are used in different parts of the world, and should also include terms "DELIMBING" and "BUCKING" as these are important processing steps via machinery that must be included in	<p>Thanks for the comments, we have now edited this section accordingly.</p>
22	Foster Forestry and Environmental	f (X,Y) and m3 appear outdated with references to developing own allometric and volumetric equations. These options could lead to a lot of work and disputes instead of relying on now widely established and reliable allometric and volumetric equations. Suggested sources such as Chojnackey et al., 2014 for the USA should be provided by	<p>Local allometric equations, either for a specific forest or species, are generally preferred for better accuracy over regional and global models.</p>

9.1 Data and Parameters Available at Validation

#	Organization	Comment	Developer's Response
	Consulting LLC	the methodology for various regions of the world.	Acknowledging that this is a lengthy and expensive process, and when not feasible other more general models are recommended. We have updated this box to include other sources for allometric equations available.
23	Foster Forestry and Environmental Consulting LLC	D, BCEF and footnote 39 on should include specific reference for wood density to avoid atypical numbers Zanne, A.E. et al. 2009. Towards a worldwide economics spectrum. Ecology Letters 12:351-366.	Thanks for this important comment. We have added this reference.
24	Foster Forestry and Environmental Consulting LLC	RGR should include "published data on forest growth after SIMILAR INTENSITY of forest harvest of the same forest type ON THE SAME QUALITY SITE within the same region as the project." Text in CAPS added.	It is indeed important to use data for conditions as similar as possible to the project. However, it is not always possible and general references are also useful. We have updated the IPCC citations and added others for this parameter.

9.3 Description of the Monitoring Plan

#	Organization	Comment	Developer's Response
25	Foster Forestry and Environmental Consulting LLC	Aburn 9.3 should include other natural mortality events besides fire including abiotic flooding and windthrow and biotic insect and disease	We thank you for this comment. Fire is not specifically mentioned in this section, but in the interest of alignment with the rest of VM0010, we have expanded the description of the type of

9.3 Description of the Monitoring Plan			
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			disturbances that should be considered.
26	Foster Forestry and Environmental Consulting LLC	9.3.2 requirements seem outdated; for example, both paper and electronic data archiving but what if all data only collected electronically then less reliable paper documents need to be produced?; also requiring durable media such as CDs isn't relevant in our cloud-computing world where CDs can easily scratch and be misplaced and few computers have CD readers anymore.	Electronic form is a very wide definition where cloud-based tools can be used as well, but we added a short sentence to clarify that this is possible too.
27	Foster Forestry and Environmental Consulting LLC	9.3.5 b should include DBH thresholds, plot clustering and plot nesting	Thanks for the comment. Sampling framework includes all of these elements.

General Comments

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#	Organization	Comment	Developer's Response
28	Anonymous	Will this revision have any impact on projects under review or on registered projects that have already been issued? What measures need to be taken for these two types of projects?	Projects currently under review or already registered are not affected by this revision in the short term and will have to apply version 1.4 of the methodology at the next verification.
29	Lars Schmidt	I would like to mention that version 1.3 of this methodology was developed by GFA Consulting Group (Martin Burian - cc-ed - and myself).	We appreciate this comment and on page 3 we have made the change to acknowledge the GFA authorship of this

General Comments			
#	Organization	Comment	Developer's Response
			methodology
30	Lars Schmidt	What I noticed when recently applying the methodology, is that it does not account for below-ground biomass, litter and soil organic carbon pools. Below-ground biomass, which could easily be quantified using root-shoot ratios, is in the range of 20+% of AGB for humid tropical forests (Mokany et al. 2006)	Please refer to table 1 of the methodology v1.3 (page 10), which excludes Below-ground biomass: "Unlikely to change significantly in forests remaining as forests and is difficult to measure-omission is conservative". Verra considers the exclusion of this carbon pool and the associated justification appropriate.
31	Lars Schmidt	There is scientific evidence (see paper from Chiti et al. 2015) that forest management in the tropics, specifically the building of roads which requires the removal of at least the topsoil, reduces the SOC in forestry concessions in the medium and long term.	This is an important point of forestry operations and their impact on soils (baseline). In a logged-to-protected project, SOC is likely to remain unaltered or may slightly increase. Thus, on page 10 of the methodology, regarding SOC, VERRA states that "exclusion is always conservative when forests remain as forest". In the future, when VM0010 goes through a major revision process, VERRA may consider a change in the carbon pools to be considered.