



South Asia

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Methodology Assessment Report

ASSESSMENT OF THE VCS METHODOLOGY:
“ADOPTION OF SUSTAINABLE GRASSLAND MAN-
AGEMENT THROUGH ADJUSTMENT OF FIRE AND
GRAZING”

REPORT NO. 1628948

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Summary:

TÜV SÜD South Asia Pvt Ltd (TÜV SÜD) performed the second assessment of proposed Verified Carbon Standard (VCS) methodology “Adaptation of Sustainable Grassland Management Through Adjustment Of Fires And Grazing”.

The assessment was conducted on the basis of the VCS Standard version 3.4 and respective guidance documents. The assessment was performed by means of a document review, follow-up interviews, and the resolution of outstanding issues. Findings raised are summarized in this report and detailed in Annex 1 of the report. A total of 45 Corrective Action Requests and 13 Clarification requests were issued. No uncertainties arose associated with the assessment.

In summary, TÜV SÜD concludes that the final version of the methodology (version 3.3, dated 23 July 2014) methodology meets current relevant VCS requirements and recommends the methodology to be accepted by the VCSA.

Abbreviations

AFOLU	Agriculture, Forestry and Other Land Use
ASCII	American Standard Code for Information Interchange
ASPRS	American Society for Photogrammetry and Remote Sensing
CAR	Corrective Action Request
CB	TÜV SÜD Certification Body “climate and energy”
CDM	Clean Development Mechanism
CR	Clarification Request
DOE	Designated Operational Entity
DSM	Digital Surface Model
DTM	Digital Terrain Model
EIA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
GHG	Green House Gas(es)
GIS	Geographic Information System
GPG	Good Practice Guidance
GPS	Global Positioning System
GRL	Green Resources Limited
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
KSA	Kolmogrov-Smirnov Test
LULUCF	Land-Use, Land-Use Change and Forestry
LiDAR	Light Detection and Ranging
ME	Mean Error
MP	Monitoring Plan
NGO	Non Governmental Organisation
PD	Project Document
PDOP	Position Dilution of Precision
PP	Project Participant
PRA	Participatory Rural Appraisal
SOP	Standard Operating Procedure
TÜV SÜD	TÜV SÜD South Asia Pvt Ltd
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
VVB	Validation, Verification Body

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1 INTRODUCTION

1.1 Objective

The company Soils for the Future has commissioned TÜV SÜD to conduct the second assessment of its proposed AFOLU methodology “Adaptation of Sustainable Grassland Management Through Adjustment Of Fire And Grazing” with regard to the relevant VCS requirements. The evaluation objective is an assessment by a Third Party (VVB) of the proposed new methodology against all defined criteria set for methodology approvals under the VCS.

In particular, the baseline methodology, its consistence with the monitoring methodology, emission reduction calculations and the methodology’s compliance with the requirements of the VCS standard are evaluated. This report summarizes the findings of the evaluation. The present report represents the second approval within the double approval process as defined by VCS. The first assessment was carried out by Environmental Services, Inc.

1.2 Scope

The scope of evaluation of proposed new methodology is defined as an independent and objective review of the baseline and monitoring methodology and other relevant documents.

The information in these documents is reviewed against the requirements of the VCS, in particular:

- VCS standard version 3.4;
- VCS AFOLU Requirements version 3.4;
- VCS Methodology Approval Process version 3.5;
- Technical expertise relevant to the scope and technical area of ALM projects.

1.3 Summary Description of the Methodology

The proposed project type covered by this methodology is aimed at sequestering and or reducing of greenhouse gas (GHG) emissions of soil organic carbon by adapting the grassland management through the adjustment of fire and grazing. Projects quantified under the methodology will have effects on greenhouse gas emissions through the sequestration of carbon dioxide (CO₂) and/or the reduction of methane (CH₄) emission.

The effect on greenhouse gas emissions due to the grassland management activities are estimated by following either a measured or modelled approach.

Measured approach: Emission reductions are quantified following a period (likely every 5 or more years, depending on the productivity of the site) in which soil sequestration and/or reduced methane emissions can be demonstrated after adapting the grassland management.

Modelled approach: Emission reductions are quantified by demonstrating management activities that are known to sequester carbon and/or reduce methane emissions. Reduced emissions are calculated from models with acceptable precision which have been validated for each project initially and re-calibrated at regular intervals thereafter (5-10 years, depending on the productivity of the site).

2 ASSESSMENT APPROACH

2.1 Method and Criteria

The methodology assessment applies standard auditing techniques to assess the correctness of the information provided by the project participants. The work starts with the appointment of the team covering the technical scope(s) and sectoral scope(s) for evaluating the VCS methodology activity. Once the methodology is received, members of the team carry out the desk review, office session with the developers, resolution of issues identified and finally preparation of the assessment report. The prepared assessment report and other supporting documents then undergo an internal quality control by the Certification Body “Environment and Energy” of TÜV SÜD, before final submission of the assessment report.

In order to ensure transparency, assumptions are clear and explicitly stated; the background material is clearly referenced. TÜV SÜD developed methodology-specific checklists and protocols customised for the assessment. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team, and the results from validating the identified criteria.

The assessment protocol serves the following purposes:

- To organize the details and provision of clarifications on the requirements of which a VCS methodology is expected to meet
- To elucidate how a particular requirement has been validated as well as to document the results of the assessment and any adjustments made to the methodology document.

The assessment protocol consists of two tables. The different columns in these tables are described in the figure below.

Assessment Protocol Table 1: Conformity of Methodology

VCS Requirement	Reference	Comments	Draft Conclusion	Final Conclusion
The checklist is organised in sections following the arrangement of the respective VCS requirements for methodologies.	Gives reference to documents where the answer to the checklist question or item is found.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is used to explain the conclusions reached. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column	Conclusions are presented based on the assessment of the first methodology version. This is either acceptable based on evidence provided (☑), or a Corrective Action Request (CAR) due to non-compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team identified a need for further clarification.	Conclusions are presented in the same manner based on the assessment of the final methodology version and further documents including assumptions presented in the documentation.

Assessment Protocol Table 2: Summary of Requests and Responses of Methodology Developer

Clarifications and Corrective Action Requests	Ref. to VSC requirements	Summary of response by methodology developer	Conclusion by Audit Team
Corrective Action or Clarification Requests from table 1 are listed in this section.	Reference to the respective VCS requirement.	The responses given by the client or other project participants during the communications with the validation team should be summarised in this section.	This section summarises the discussion on and revision to methodology together with the audit team’s responses and final conclusions. The conclusions is also reflected in Table 1, under “Final Conclusion”.

The completed validation protocol is enclosed in Annex 1 to this report.

2.2 Document Review

A first version of the Methodology was submitted to TÜV SÜD in May 2011. This methodology version and additional background documents related to the methodology were reviewed to verify the correctness, credibility and interpretation of the presented information, furthermore a cross-check between information provided and information from other sources was carried out as initial step of the assessment process. A complete list of all documents and proofs reviewed is attached as Annex 2 to this report.

2.3 Interviews

During the period of the assessment several conference calls were set up to discuss with the methodology developer and relevant expert who contributed to the methodology to confirm relevant information and to resolve issues identified in the first document review.

Name	Organisation
Dr. Mark E. Ritchie	Soils for the Future

2.4 Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed an assessment team in accordance with the appointment rules of the TÜV SÜD certification body “Environment and Energy”.

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Validator (VAL);
- Validator Trainee (T);

- Technical Experts (TE).

It is required that the sectoral scope(s) and the technical area(s) linked to the methodology and project have to be covered by the assessment team. For this particular methodology the assessment team members are presented in the table below. The respective appointment certificates are attached to this report as annex 3.

Assessment Team:

Name	Qualification	Coverage of scope	Coverage of technical area	Coverage of financial aspect
Sebastian Hetsch	ATL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Martin Opitz	VAL	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
Dr. Tommaso Chiti	TE		<input checked="" type="checkbox"/>	

Technical Reviewer is Viyayanand (covering the respective Technical Area).

2.5 Resolution of Findings

The objective of this phase of the assessment is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD’s positive conclusion on the methodology. All Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the assessment process, the concerns raised and responses that were given are summarised in chapter 3 below and documented in more detail in the validation protocol in Annex 1.

The methodology version 3.3 that was submitted in July 2014 served as the basis for the final assessment presented herewith.

2.6 Internal Quality Control

Internal quality control is the final step of the assessment process and is conducted by the Certification Body (CB) “Environment and Energy”. The CB checks the final documentation, which includes the assessment report and annexes.

Technical Reviewers appointed by the CB carry out corresponding review work. The completion of the quality control indicates that each report submitted has been approved either by the head of the CB or the deputy. In projects where either the Head of the CB or his/her deputy is part of the assessment team, the approval is given by the one not serving on the project team.

3 ASSESSMENT FINDING

3.1 Relationship to Approved or Pending Methodologies

The proposed methodology analysed the relationship of two approved methodologies that account for emission reductions resulting from grassland management.

VM 0017, “Adoption of Sustainable Agricultural Land Management” applies to activities to sequester carbon in the soil of cultivated croplands, and does not include manipulation of fire and grazing.

VM 0021 “Soil Carbon Quantification Methodology,” includes activities to manipulate grazing and fire but is measured (performance-based) offset only and does not allow for an activity-based carbon accounting of project emissions and reductions. The methodology was first published after this proposed methodology.

Beside the mentioned methodologies, two other VSC approved methodologies exist that are applicable for emissions reductions resulting from grassland management.

VM0026, “Methodology for Sustainable Grassland Management (SGM)” is covering a broad range of activities applicable as well as a measured or modelled approach to estimate emission reductions. Potentially the methodology could have been reasonably been revised to meet the objective of the proposed methodology. However, the development of VM0026 and its publication on the VCS webpage was after the date that this proposed new methodology started their assessment process and publication on the VSC webpage. Hence, the methodology developer did not have the respective information when starting to develop this methodology

The proposed methodology applies to uncultivated grasslands and includes a broader choice of potential models. It allows an activity-based carbon accounting of project emissions and reductions.

3.2 Stakeholder Comments

Period of the global stakeholder consultation process: 06-07-2010 until 04-08-2010	
Comment submitted by: Anonymous SunOne Solutions USA	Issues raised: 1. Aggregation - It seems that aggregation of strata is possible but not mentioned much. Can you have strata across a region? We need more clarity about how aggregation will specifically work. 2. Project start date – is there a look back period? 3. Clarification – are both fire and rangeland management requirements for eligibility? 4. Pg. 4 (I.2) - Additionality - only financial additionality mentioned here, BUT in Section II.3 mention using CDM A/R tool. Consider elaborating on additionality.

	<ol style="list-style-type: none"> 5. Pg. 5 (I.3) – Applicability conditions - Why are A, B and D present tense and C future tense? It appears that C should also be present tense “is” and not “will”, as the future tense contradicts with other areas of the document. Is animal husbandry and/or wildlife conservation not required on the land prior to project start but is a requirement as a part of future management? 6. Pg. 5 (I.3)- Explanation/Justification — broaden definition to include conversion to other non grazing grass land uses (e.g. development not just cropland). Currently reads (pg. 5): “ ii) land that is grassland that will remain so or be converted to croplands, with accompanying SOC loss, in the absence of the project. “ 7. Pg. 6 (I.4) - CO2 emissions from grazing animals = conflicting information in Table 2 and later in Section 2.4.2 8. Pg. 8 (I.5.3) - Soil Sampling/Model calibration - Every 3-10 years recalibrate soil model; what calibration interval do you use then? Why would you need to measure more frequently? Better guidelines on sampling frequency would be beneficial. 9. Pg. 8/9 –(II.1) – Better defined “under the control of the project participants” there should be an opportunity for distance to be a factor. It does not make sense to take cattle and transport state to state, so there should be a state limit or some other ability to segregate land owner’s properties that may be located in multiple different states. Contradiction in section III as well. 10. Pg. 10 (II.4.3 and II.4.4) - Tool names and numbers are reversed / confused and different than charts on back 11. Pg. 12 (III.1.6) - Replace “equivalent” with “similar” in section III.1.6 because soil stratification is similar to A/R methodology (equivalent is a strong word). 12. Pg. 14 (III.2) – This section is mis-numbered and mis-labeled. Says “five” sources of leakage, but only 4 are named. In addition, (a) and (b) are labeled but (c) and (e) are not, and (d) is not even listed. The corresponding Table 3 then lists the then in reverse order (i.e. (e) is first and (a) is last. 13. Pg. 17 (IV.3.1) – 30 cm tend to be the industry standard, and what is used in the most common soil models. The additional C from 30 – 40 would be minimal at best. Why choose 40cm? 14. Pg. 18 (IV.3.3) – There is language to reconcile using the buffer if one’s modeling has been to optimistic. But what if you’ve been too conservative in your project model of C and measure actual C sequestered is greater than anticipated? Do you get the additional offsets?
<p>Response by methodology developer: General Comments:</p> <ol style="list-style-type: none"> 1. A detailed set of guidelines for stratifying the project area is provided in section 8.1.2.2. These guidelines allow stratification on a number of bases, including vegetation cover, management history, soil 	

type, etc.

2. Project start date follows VCS program rules for AFOLU projects (for example, an earliest start date for projects of March 8 2008).
3. The methodology clearly allows (in section 2.2) projects that manage either grazing or fire or both.
4. Section 7 of the project clearly states how additionality is to be demonstrated. Projects must demonstrate additionality using a project method with the latest version of the VCS tool VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities. In this tool, project proponent(s) must (1) identify alternative land use scenarios to the proposed project activity, (2) perform investment analysis to determine that the proposed project activity is not the most economically or financially attractive of the identified land use scenarios, OR (3) identify key barriers and (4) justify how the proposed project activity deviates from common practice.
5. Applicability conditions have been thoroughly revised and are clearly stated in section 4 of the methodology. There is no requirement as to the past or future land use, only that the land is considered grassland and that land use associated with the project will reduce emissions of or sequester more greenhouse gases.
6. The methodology states (in section 4) that must be “grasslands in the baseline and project scenario.”
7. The methodology is now clear in section 5 regarding which greenhouse gas emissions and pools can be including in project accounting. As per IPCC guidelines, CO2 emissions of animals, plants and soil, are not included in project accounting emissions.
8. The methodology provides a clear recommendation and justification for a design for measuring soil carbon and re-calibration of the soil carbon model in section 8.1.3.3 and definition for “Calibration Period” in section 3.1.
9. The methodology has been revised to better specify appropriate expectations for control of the project area. This is addressed in the following two applicability conditions in section 4.
 - The project must be structured to keep livestock within the project area, and the project proponents must be able to enforce the boundaries of the project area.
 - The project must result in no net increase in activities that promote anaerobic fermentation of dung, such as an increase in the number of livestock aggregated, (eg, kept in corrals or pens) in a number or for a time that would result in more than 50 percent of the ground area covered by dung.
 - For projects that propose to modify grazing, the maximum individual project size is 3 million ha or 5 percent of a country’s land area currently or potentially used to graze livestock, as judged by national government land use inventories or other documentation.
10. There are no longer any tools listed or developed in the methodology.

No responses were provided for comments 11 to 14.

Response by TÜV SÜD:

1. Section 8.1.2.2 of the methodology contains information how projects can be stratified. An aggregation of strata is allowed.
2. To determine the project start VCS guidance need to be followed.
3. The methodology allows projects on grazed or ungrazed lands subject to fires or not.
4. To determine additionality the VCS tool VT0001 Tool for the Demonstration and Assessment of Addi-

<p>tionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities is obligatory to be applied.</p> <ol style="list-style-type: none"> 5. Applicability conditions were revised, a set of clearly described conditions is provided. A misinterpretation should be impossible. 6. Applicability conditions allow projects only on lands that have been grasslands in the baseline and will be in the project scenario. 7. As per IPCC guidelines, CO2 emissions of animals, plants and soil, are not included in project accounting emissions. 8. Recommendations and clear requirements are provided for the design to measure soil carbon and to re-calibrate the model to be applied. 9. Applicability conditions were revised, clear requirements for the cattle ranching on the project area as well as the control over the project are is provided. 10. The only tool to be applied is the VCS tool VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities 11. Since the comments have been made, the methodology was revised several times, the issues raised in the comments are no longer valid. 12. See response on comment 11. 13. Depth of soil sampling must be selected by the project proponent mainly according to the carbon model chosen. 14. The model must be re-calibrated as soon as changes in SOC can be measured.

3.3 Structure and Clarity of Methodology

The methodology is written in line with VCS requirements:

- The methodology developer followed the instructions provided in the methodology template provided. Criteria and procedures for the application of the methodology are provided in the appropriate sections of the methodology template.
- The terminology used is consistent with that used in the VCS Program respectively in the GHG accounting in general.
- Firm requirements, (non-mandatory) recommendations and permissible or allowable options are clearly defined by using respective modal verbs.
- Criteria and procedures provided in the methodology are written in an understandable, readily and consistently manner so that the methodology can be applied by potential project developers.
- The manner criteria and procedures are provided in the methodology allows potential VVBs to unambiguously validate/verify projects against the methodology.

The methodology complies with essential requirements in terms of terminology used, unambiguousness of requirements demanded and clarity of criteria and procedures provided. Thus, the methodology offers the structure and clarity required to be thoroughly applicable.

3.4 Definitions

Key terms are clearly and appropriately defined, and consistently used throughout the methodology. The definitions provide sufficient clarity in order to prevent any kind of misapprehension. Key terms are listed in alphabetical order as required. Terms already defined under the VCS Program are not repeated as required. Key acronyms used in the methodology are listed on page 10 of the methodology.

3.5 Applicability Conditions

The methodology provided a set of 8 applicability conditions determining:

- type of land in the baseline and project scenario
- types of usage in the baseline and the project scenario
- maximum area size
- abiotic risks required

The applicability conditions provided are appropriate for the project activities targeted and the quantification procedures set out by the methodology. As a whole, the applicability conditions clearly determine which project activities are eligible and which are not under the methodology. The applicability conditions as a whole are consistent and correlating.

In the following table, the applicability conditions are listed and clarified if:

- a) the applicability condition is written in a sufficiently clear and precise manner and if it can be determined whether the project activity meets with the condition
- b) Conformance with the condition can be demonstrated at the time of the project validation.

No	Applicability Condition	a)	b)
1	The project area must be grasslands in the baseline and project scenario	Yes	yes
2	Lands may be grazed or ungrazed and subject to fires or not in either the baseline or project scenarios.	Yes	yes
3	The project must be structured to keep livestock within the project area, and the project proponents must be able to enforce the boundaries of the project area.	Yes	yes
4	The project must result in no net increase in activities that promote anaerobic fermentation of dung, such as an increase in the number of livestock aggregated, (eg, kept in corrals or pens) in a number or for a time that would result in more than 50 percent of the ground area covered by dung.	Yes	yes
5	Baseline emissions derived from livelihood-driven human impacts on aboveground woody biomass (eg, cutting for fuel wood, charcoal, or timber sales) must be negligible (ie, not included in the cumulative 95 percent of total baseline emissions) and project	Yes	yes

	activities cannot significantly alter such livelihood-driven activities.		
6	For projects that propose to modify grazing, the maximum individual project size is 3 million ha or 5 percent of a country's land area currently or potentially used to graze livestock, as judged by national government land use inventories or other documentation.	Yes	yes
This methodology is not applicable under the following conditions:			
7	Project activities involve mechanical vegetation removal or soil tillage.	Yes	yes
8	The project area receives a net import of inorganic or organically-derived fertilizer.	Yes	yes

3.6 Project Boundary

The boundary has to be determined following guidelines in the latest version of the VCS document AFOLU Requirements. Due to the requirements provided in the applicability conditions in regard to the project area further guidance is provided to determine the project boundary.

The methodology contains the following carbon pools in accordance with the VCS AFOLU requirements as described below:

Carbon pool	Included?	Comment assessment team
Aboveground tree biomass	Conditional	Shall be included in the case project activities may significantly reduce the pool in accordance with VCS AFOLU Requirements, Sections 4.3.1. Depending on the project activity project developers are required to include the pool in compliance with the standard.
Aboveground non-tree biomass	No	To be excluded carbon pool in accordance with VCS AFOLU Requirements, Section 4.3.1
Belowground biomass	No	Optional carbon pool in accordance with VCS AFOLU Requirements, Section 4.3.1
Litter	No	To be excluded carbon pool in accordance with VCS AFOLU Requirements, Section 4.3.1
Deadwood	No	To be excluded carbon pool in accordance with VCS AFOLU Requirements, Section 4.3.1
Soil	Yes	Required for inclusion by VCS AFOLU Requirements Section 4.3.1.
Wood Products	No	Optional carbon pool in accordance with VCS AFOLU Requirements, Section 4.3.1

The methodology contains the following GHG sources in accordance with the VCS AFOLU requirements as described below:

Source		Gas	Included?	Justification/Explanation
Baseline	Grazing animals	CO ₂	No	Balanced with CO ₂ uptake, respiration by plants, and annual decomposition; Not required for inclusion by the VCS requirements.
		CH ₄	Yes	Target removal for methodology
		N ₂ O	No	No increase in concentration of dung and forage is not fertilized (applicability conditions)
	Burning biomass	CO ₂	No	Balanced with CO ₂ uptake by plants; Not required for inclusion by the VCS requirements.
		CH ₄	Optional	If reducing or maintaining fire is a project activity, CH ₄ can be conservatively excluded. Otherwise CH ₄ emissions must be calculated to determine net change in carbon stocks from increasing fire to induce an increase in SOC
		N ₂ O	No	Negligible under applicability conditions; ⁱ Not required for inclusion by the VCS requirements.
	Soil emissions	CO ₂	No	Assumed to be in balance with C inputs to SOC (SOC at equilibrium); Not required for inclusion by the VCS requirements.
		CH ₄	No	Negligible since project is not in wetland; Not required for inclusion by the VCS requirements.
		N ₂ O	No	Negligible under applicability conditions; Not required for inclusion by the VCS requirements.
Project	Grazing animals	CO ₂	No	Balanced with CO ₂ uptake by plants; Not required for inclusion by the VCS requirements.
		CH ₄	Yes	Target removal for methodology
		N ₂ O	No	No increase in concentration of dung (applicability conditions) and forage is low in N
	Burning biomass	CO ₂	No	Balanced with CO ₂ uptake by plants; Not required for inclusion by the VCS requirements.
		CH ₄	Optional	If reducing or maintaining fire is a project activity, can be conservatively excluded. Otherwise CH ₄ emissions must be calculated to determine net change in carbon stocks from increasing fire to induce an increase in SOC
		N ₂ O	No	Negligible under applicability conditions; Not required for inclusion by the VCS requirements.
	Soil emis-	CO ₂	Yes	Accounted for in measured ΔSOC

Source		Gas	Included?	Justification/Explanation
	sions	CH ₄	No	Negligible since project not in wetland; Not required for inclusion by the VCS requirements.
		N ₂ O	No	Negligible under applicability conditions; Not required for inclusion by the VCS requirements.

3.7 Baseline Scenario

The methodology uses a project method to identify the baseline scenario. The methodology requires the follow of the requirements of the most recent version of the VCS document AFOLU Requirements for ALM projects, i.e. internationally accepted GHG inventory protocols, such as the *IPCC 2006 Guidelines for National GHG Inventories*.

In summary, the procedures for determining the baseline scenario are appropriate, adequate and in compliance with the VCS rules for ALM projects.

3.8 Additionality

The methodology uses a project method to identify the baseline scenario. The methodology requires the application of the most recent version of the VCS Tool “Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities” in order to demonstrate additionality. The tool is appropriate for project activities covered by the methodology as the proposed project activities are AFOLU activities. Thus conformance with Section 4.6.2 of the VCS Standard Requirements is accomplished. For further details see also ANNEX 1.

In summary, the tool for demonstrating additionality is appropriate, adequate and in compliance with the VCS rules for ALM projects.

3.9 Quantification of GHG Emission Reductions and Removals

3.9.1 Baseline Emissions

As starting point for the quantification of the baseline emissions the methodology provides requirements to document and describe management activities affecting the carbon pools and corresponding sources reflected by the methodology during the baseline period. Further requirements are provided regarding the documentation of the baseline vegetation conditions.

As second step requirements for the design and establishment of permanent sampling stations are provided by specifying the calculation of the number of sample plots needed as well as how the stratification of the project are shall take place.

The actual calculation of the baseline emissions is subdivided in different sections.

1. Section 8.1.3.1 provides guidance on how to estimate baseline emission from grazing animals in compliance with the *IPCC 2006 Guidelines for National Greenhouse Gas Inventories* Chapter 10, Emissions from Livestock and Dung Management.
2. Section 8.1.3.2 provides procedures to estimate baseline emission of methane from burning of biomass.

3. Section 8.1.3.3 provides procedures to determine the change in soil carbon density depending on the approach chosen. For either approach, the baseline change in soil carbon density is conservatively assumed to be zero.

Measured approach: The initial Soil Organic Carbon (SOC) shall be calculated from multiple pooled soil cores from each sampling station.

Modelled approach: The initial SOC shall be modelled with peer-reviewed, published and validated models incorporating inter alia grazing and/or fire to determine soil carbon. Overall uncertainty of model prediction shall be calculated by application of the Monte Carlo simulation. The soil carbon model needs to be validated for the project area. The requirements regarding the precision level required are in compliance with the requirements set by the VCS Standard. Potential bias must be determined by evaluating the percent bias of a simulation relative to observed data. At the time changes in SOC can be measured the methodology requires the re-calibration of the model. The maximum SOC in the previous 10 years must be applied as initial SOC stock (section 8.1.3.4).

4. Section 8.1.3.5 declares that baseline emission removals from existing woody perennials are conservatively set 0.

In summary all criteria and procedures described section 8.1 of the methodology are appropriate for project activities covered by the methodology. The procedures for calculating baseline emissions and removals cover all GHG sources, sinks and reservoirs. All procedure, algorithms, equations and formulas presented are appropriate and without error. All models and default values are appropriate an in conformance with VCS requirements.

3.9.2 Project Emissions

The procedures provided for estimating the project emissions are similar to those for the estimation of the baseline emissions.

The only difference is the inclusion of project emissions and removals from existing woody plants. In the case management activities include the increase of fire project developers are required to demonstrate that losses in aboveground woody plant biomass does not overweight potential gains from soil carbon sequestration. Section 8.2.4 provides respective procedures.

In summary all criteria and procedures described section 8.2 of the methodology are appropriate for project activities covered by the methodology. The procedures for calculating baseline emissions and removals cover all GHG sources, sinks and reservoirs. All procedures, algorithms, equations and formulas presented are appropriate and without error. All models and default values are appropriate an in conformance with VCS requirements.

3.9.3 Leakage

Due to the applicability conditions the methodology accounts only for leakage due to uncontrolled movement of livestock off the project area in compliance with section 4.6.1 of the VCS AFOLU Requirements.

To account for leakage two approaches are presented:

Monitored approach: This approach has to follow VCS module VMD0040 *Leakage from Displacement of Grazing Activities*

Penalty approach: This approach is more conservative but no monitoring of soils and/or vegetation outside the project area is required. Leakage is calculated as proportion of net removals from increased soil carbon based on the proportion of total project livestock days that occurred off the project area.

In summary all criteria and procedures described section 8.3 of the methodology are appropriate for project activities covered by the methodology. The procedures for calculating leakage emissions cover all potential ALM sources of leakage possible under the applicability conditions. All procedures, algorithms, equations and formulas presented are appropriate and without error. All models and default values are appropriate and in conformance with VCS requirements.

3.9.4 Net GHG Emission Reductions and Removals

The calculation of the net GHG Emission Reductions and Removals are appropriate for the project activities covered by the methodology comply with Section 4.7.1 and 4.7.2 of the VCS Standard. All algorithms, equations and formulas provided are appropriate and without error.

In accordance with section 4.1.4 of the VCS Standard the methodology allows an uncertainty of +/- 30% at a 95% confidence level. In the case confidence interval exceeds 30% a deduction is required (section 8.4.4). The uncertainty is calculated based on the uncertainty assessment of in the baseline (section 8.4.2.1) and uncertainty in the project scenario (section 8.4.2.2).

In summary all algorithms, equations and formulas used are appropriate and without error. Any uncertainties associated with the quantification of net GHG emissions reductions and removals are addressed appropriately and in compliance with the VCS rules for ALM projects.

3.10 Monitoring

The specification for data and parameters available at validation are set out in sections 9.1 and data and parameters to be monitored are listed in 9.2 of the methodology element. For data and parameters that require measurement the monitoring plan and appropriate procedures for measurements are provided in section 9.3.

In the following table, the parameters available at validation provided in section 9.1 of the methodology are listed and clarified if they are appropriate in terms of:

- a) Data unit
- b) Source of data
- c) Value applied
- d) Justification of choice of data or description of measurement methods and procedures to be applied
- e) Purpose of data

Parameter	Description	a)	b)	c)	d)	e)	Comments
$PA_{m,g}$	Project area in stratum m	yes	yes	yes	yes	yes	none
GWP_{CH_4}	Global-warming potential for CH_4	yes	yes	yes	yes	yes	none
$W_{c,t}$	Average body weight for animals of category c in year t	yes	yes	yes	yes	yes	none
$N_{c,i}$	Baseline number of animals of category c in count i	yes	yes	yes	yes	yes	none
$APB_{m,b}$	Mean total above-ground plant biomass in stratum m in year t at the end of the growing season (summer or wet season)	yes	yes	yes	yes	yes	none
$FFREQ_m$	Average proportion of area burned in stratum m in past 10 years	yes	yes	yes	yes	yes	none
BC_G	Baseline combustion factor for savanna/grassland	yes	yes	yes	yes	yes	none
EF_{BG}	Emission factor for the burning of grassland	yes	yes	yes	yes	yes	none
$DEPTH_{m,j,0}$	Soil core depth at station j in stratum m at time (year) = 0 (ie, at the start of the project or since the last verification)	yes	yes	yes	yes	yes	none
$SOC\%_{j,m,0}$	Proportion soil organic carbon at station j in stratum m at time (year) = 0 (ie, at the start of the project or since the last verification)	yes	yes	yes	yes	yes	none

BULK _{m,j,0}	Bulk density at station <i>j</i> in stratum <i>m</i> at time (year) = 0 (ie, at the start of the project or since the last verification)	yes	yes	yes	yes	yes	none
MAP _m	Mean annual precipitation in stratum <i>m</i>	yes	yes	yes	yes	yes	Modelled approach only. Soil carbon models may require anywhere from a few to more than 80 parameters, so there is no definitive list of parameters that would apply to all models. The parameter is likely to be key input into soil carbon models.
ST _{j,m,y}	Soil temperature at station <i>j</i> in stratum <i>m</i> in month <i>y</i>	yes	yes	yes	yes	yes	
SAND% _{o,j,m} and/or CLAY% _{o,j,m} and/or SILT% _{o,j,m}	Proportion of soil that is sand, silt, and or clay at station <i>j</i> in stratum <i>m</i>	yes	yes	yes	yes	yes	
GI _{j,m}	Mean annual grazing intensity at station <i>j</i> in stratum <i>m</i>	yes	yes	yes	yes	yes	
MAPLC _{j,m}	Mean aboveground plant cellulose plus lignin at sampling plot <i>j</i> in stratum <i>m</i>	yes	yes	yes	yes	yes	
MSOC _{m,j,b}	Modeled SOC at station <i>j</i> in stratum <i>m</i> for each year <i>b</i> during the baseline period	yes	yes	yes	yes	yes	Modelled approach only.
MSOC ^{eq} _{m,j}	Modeled SOC at equilibrium at station <i>j</i> in stratum <i>m</i>	yes	yes	yes	yes	yes	Modelled approach only.
D	Average slope of cascade of dams	yes	yes	yes	yes	yes	Modelled approach only.
C	Proportion of wood composed of carbon	yes	yes	yes	yes	yes	none

In the following table, the parameters to be monitored provided in section 9.2 of the methodology are listed and clarified if they appropriate in terms of:

- a) Data unit
- b) Source of data
- c) Description of measurement methods and procedures to be applied
- d) Frequency of monitoring/recording
- e) QA/QC procedures to be applied
- f) Purpose of data
- g) Calculation method.

Parameter	Description	a)	b)	c)	d)	e)	f)	g)	Comments
$PA_{m,t}$	Project area in stratum m in year t	yes	none						
$PN_{c,t}$	Mean number of animals of category c in the project area during year t	yes	none						
$PFFREQ_{m,t}$	Average proportion of area burned in stratum m during project year t .	yes	See comments above						
$APB_{j,m,t}$	Aboveground plant biomass at station j in stratum m in year t at the beginning of the dry/cold or burning season	yes	none						
$APB_{j,m,t}$	Aboveground plant biomass in stratum m in year t at immediately after fire	yes	none						
$DEPTH_{m,j,t}$	Soil core depth at station j in stratum m at time (year) = 0 (ie, at the start of the project or since the last verification)	yes	none						
$SOC\%_{j,m,t}$	Proportion soil organic carbon at station j in stratum m at time t	yes	none						
$BULK_{m,j,t}$	Bulk density in stratum m , station j , year t	yes	none						
$MAP_{m,Y}$	Mean annual precipitation in stratum m over the project crediting period Y years.	yes	Modelled approach only. Soil carbon models may require anywhere from a few to more						
$ST_{j,m,Z}$	Soil temperature at station j in stratum m in month Z	yes							
$GI_{j,m,z}$	Mean annual grazing intensity at sta-	yes							

	tion j in stratum m in year t									than 80 parameters, so there is no definitive list of parameters that would apply to all models. The parameter is likely to be key input into soil carbon models.
$I_{m,t}$	Implementation proportion	yes	yes	yes	yes	n.a.	yes	yes	yes	See comments above
$AWPB_{m,j,0}$	Aboveground woody plant biomass at the project start or the year of last verification at station j and stratum m in the beginning of the monitoring period	yes	yes	yes	yes	yes	yes	yes	yes	See comments above
$AWPB_{m,j,Y}$	Circular quadrats centered at each permanent sampling station j must be sampled for number and dbh of each woody stem within a specified diameter. Radius must be 5-50 m depending on woody stem density, with smaller radii appropriate for more dense woody vegetation.	yes	yes	yes	yes	yes	yes	yes	yes	See comments above
$DN_{c,x}$	Number of livestock of each category c that were off the project area on day x									
d	Total number of days livestock were off the project area									

In summary, the specification for monitored and not monitored data and parameters is appropriate, adequate and in compliance with the VCS rules.

4 ASSESSMENT CONCLUSION

TÜV SÜD performed an assessment validation of the proposed VCS methodology: “Adaptation of Sustainable Grassland Management Through Adjustment Of Fires And Grazing”. Standard auditing techniques have been used for the assessment of the methodology. A VCS scope-specific protocol for the methodology was prepared to conduct the assessment process in a transparent and comprehensive manner.

The review of the methodology documentation, subsequent follow-up interviews, and further verification of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In the opinion of TÜV SÜD, the methodology meets all relevant VCS requirements if the underlying assumptions do not change. TÜV SÜD recommends the methodology to be accepted by the VCSA.

The assessment was performed following the requirements of the latest version of the VCS Standard and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the VCS methodology approval cycle.

5 REPORT RECONCILIATION

NA

6 EVIDENCE OF FULFILMENT OF VVB ELIGIBILITY REQUIREMENTS

In line with VCS requirements as stated in the VCS Methodology Approval Process v.3.5, section 4, TÜV SÜD is eligible to conduct this methodology assessment:

- TÜV SÜD is accredited to conduct audits in the sectoral scope 14;
- TÜV SÜD has completed over 10 project validations in the sectoral scope 14, including in particular numerous CDM validations;
- In addition, Mr. Tommaso Chiti was included in the assessment team. He is an expert on soil carbon, at the University of Tuscia, Viterbo, Italy, although not appointed by the VCS.

7 SIGNATURE

Pune, 18 November 2014



Eswar Murty

Certification Body "Environment and Energy"
TÜV SÜD South Asia

Summary of Request and Responses by Methodology Developer

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ANNEX 1: ASSESSMENT PROTOCOL

Table 1: VCS Methodology Assessment Protocol

VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
General Requirements				
TITLE PAGE: All items in the box at the bottom of the first page must be completed using Arial 10pt, black, regular (non-italic) font. The box must appear on the first page of this document until the methodology or methodology revision is approved.	1, 2, 3	The provided box of the VCS Methodology template is not used. <u>Corrective Action Request No1.</u> <ul style="list-style-type: none"> Use the correct template and format for VCS methodologies. Ensure that the number of all references in the text are correct 	CAR	<input checked="" type="checkbox"/>
METHODOLOGY: For proposed methodologies, provide justification for the new methodology (ie, demonstrate that no approved or pending methodology under the VCS Program or an approved GHG program could reasonably be revised to meet the objective of the proposed methodology), in accordance with the procedure set out in VCS document Methodology Approval Process.	1, 2, 3	It is not demonstrated that no approved or pending methodology under the VCS Program or an approved GHG program could reasonably be revised to meet the objective of the proposed methodology. <u>Clarification Request No1.</u> Demonstrate that no approved or pending methodology under the VCS Program or an approved GHG program could reasonably be revised to meet the objective of the proposed methodology.	CAR	<input checked="" type="checkbox"/>
All sections must be completed using Arial 10pt, black, regular (non-italic) font. Sections which are not applicable may be left blank but should NOT be deleted from the final document.	1, 2, 3	a) The methodology is using Times New Roman, 11pt, regular. b) The methodology is not following the sections of the VCS Methodology template. See CAR 1	CAR	<input checked="" type="checkbox"/>
General requirements (VCS v3.4 Section 4.1)				
Does the VCS Program methodology use the VCS Methodology Template?	1, 2, 3	The Methodology does not use the most recent VCS Methodology Template v.3.2. See CAR 1	CAR	<input checked="" type="checkbox"/>

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<p>(In Case of Methodologies employing a modular approach in which a framework document provides the structure of the methodology and separate modules and/or tools are used to perform specific methodological tasks).</p> <p>a) Does such a VCS Program methodology use the VCS Methodology Template for the framework document and the VCS Module Template for the modules and tools?</p> <p>b) Does the framework document clearly state how the modules and/or tools are to be used within the context of the VCS Program methodology?</p>	1, 2, 3	n/a	n.a.	n.a.
Does the VCS Program methodology clearly state the assumptions, parameters and procedures that have significant uncertainty, and describe how such uncertainty shall be addressed?	1, 2, 3	<p><u>Corrective Action Request No2.</u></p> <p>The methodology does not provide conservative values that ensure no overestimation of GHG emission reductions or removals. See also CAR 18 on Tier 1 approach when calculating CH4 from consumption from biomass.</p>	CAR	<input checked="" type="checkbox"/>
Where applicable, do elements of the VCS Program methodology provide a means to estimate a 90 or 95 percent confidence interval?	1, 2, 3	<p>For the modelled approach the methodology requires in section 6 (6) a $R^2 > 0.80$ within each stratum. For the measured approach a 95 percent confidence interval is applied due to the requirement to use the Tool Calculation of the number of sample plots for measurements within A/R CDM project activities".</p> <p><u>Corrective Action Request No3.</u></p> <p>Include requirements regarding the required correlation between predicted and observed stocks in the section regarding the estimation of the baseline and project GHG emissions and removals</p>	CAR	<input checked="" type="checkbox"/>
Where a 90 percent confidence interval is applied and the width of the confidence interval exceeds 20% of the estimated value or where a 95 percent confidence interval is applied and the width of the confidence interval exceeds 30% of the estimated value, does the VCS Program Methodology apply an appropriate confidence deduction?	1, 2, 3	<p><i>Sections IV.3.6.2; SGMAFG v.2.3</i></p> <p>An uncertainty deduction is applied, however the deduction associated with project uncertainty is not clearly explained.</p> <p><u>Corrective Action Request No4.</u></p> <ul style="list-style-type: none"> Clarify the conditions for which the uncertainty de- 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p>duction is applied. E.g. when estimating the emissions and removals at 90% confidence interval, as for baseline and project, and the confidence interval exceed 20% (page 24).</p> <ul style="list-style-type: none"> Clarify the parameters in the formulae of uncertainty deduction (i.e. Rt as for formula 8) 		
Are the methods for estimating uncertainty used by the VCS Program Methodology based on recognized statistical approaches such as those described in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories?	1, 2, 3	<p><u>Corrective Action Request No5.</u></p> <ul style="list-style-type: none"> Clarify how uncertainties associated with model applications are treated (e.g. comparison of model results with independent data; comparison of predictions of alternative models). Clarify how the bias associated with the chosen model are determined and treated (over or under-estimation of real values). Clarify how the uncertainty analyses affect the choice of the modelled vs. measured approach. Clarify how mean and standard error of the measured parameters used as model inputs can be also used with Monte Carlo analysis to generate confidence intervals (e.g. Page 24 line 25-28 refers to confidence intervals for input parameters or confidence interval for model predictions?) Be consistent in the formulas regarding uncertainty propagations (e.g. formulae 13) 	CAR	<input checked="" type="checkbox"/>
Do confidence deductions applied by the VCS Program methodology use conservative factors such as those specified in the CDM Meth Panel guidance on addressing uncertainty in its Thirty Second Meeting Report, Annex 14?	1, 2, 3	<p><u>Corrective Action Request No6.</u></p> <ul style="list-style-type: none"> Ensure that the use adopted of conservative factors when using a modelled approach (e.g. model correction factor) following the CDM Meth Panel guidance on addressing uncertainty in its Thirty Second Meeting Report, Annex 14. Include a discussion to demonstrate that model estimate of emission reduction is conservative. Specify how the uncertainties of the different model parameters are treated. Justify the choice of an appropriate model correc- 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		tion factor, or in case different correction factors are adopted, sustain and explain the choice.		
<p>In the case the VCS Program methodology mandates the use of specific models to simulate processes that generate GHG emissions (i.e., the project proponent is not permitted to use other models), is the following applied, given the note below:</p> <ol style="list-style-type: none"> 1) Models shall be publicly available, though not necessarily free of charge, from a reputable and recognized source (e.g., the model developer's website, IPCC or government agency). 2) Model parameters shall be determined based upon studies by appropriately qualified experts that identify the parameters as important drivers of the model output variable(s). 3) Models shall have been appropriately reviewed and tested (e.g., ground-truthed using empirical data or results compared against results of similar models) by a recognized, competent organization, or an appropriate peer review group. 4) All plausible sources of model uncertainty, such as structural uncertainty or parameter uncertainty, shall be assessed using recognized statistical approaches such as those described in <i>2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 1, Chapter 3</i>. 5) Models shall have comprehensive and appropriate requirements for estimating uncertainty in keeping with IPCC or other appropriate guidance, and the model 	1, 2, 3, 6	<ol style="list-style-type: none"> 1) For the modelled offsets approach the methodology requires the application of peer-reviewed, published and validated (at least once) model of soil carbon dynamics that includes parameters driven by project activities as well as critical factors affecting carbon inputs and outputs. 2) All models cited in the text are freely available 3) The use of peer-reviewed models is compulsory when applying the modelled approach of the methodology. This implies that the proposed models are validated for a specific environment. The models proposed in the methodology are widely used for grasslands SOC predictions in all the types of environments. The methodology requires that models applied have to be validated on the project area, respectively the strata identified. Nevertheless the methodology does 'not indicate how to determine the number of sampling station required for the application of the modelled approach (Calibration/ Re-validation). <p><u>NEW CAR No1.</u> Provide guidance/requirements for the calculation of the number of sampling stations for the modelled approach.</p> <ol style="list-style-type: none"> 4) Model uncertainties are required to be evaluated using a Monte Carlo analysis, as described in the IPCC guidelines 2006. 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
<p>shall be calibrated by parameters such as geographic location and local climate data.</p> <p>6) Models shall apply conservative factors to discount for model uncertainty (in accordance with the requirements set out in Section 4.1.4), and shall use conservative assumptions and parameters that are likely to underestimate, rather than overestimate, the GHG emission reductions or removals.</p> <p><i>Note – The criteria set out in (2)-(6) above are targeted at more complex models. For simple models, certain of these criteria may not be appropriate, or necessary to the integrity of the methodology. Such criteria may be disregarded, though the onus is upon the methodology developer to demonstrate that they are not appropriate or necessary.</i></p>		<p>5) Uncertainties are determined following IPCC 2006, as already mentioned above, while about calibration is not completely clear. The important parameters are the geographical location, climate (precipitation and temperatures) and soil features (e.g. SOC concentration, bulk density and soil texture). These are expectable local parameters that have to be used during calibration. In section 9.1.6. of the methodology only a few of the mentioned parameters are listed while some others are listed (e.g. soil temperature, sand content) which do not seem to be of outstanding importance when calibrating the models referred to in the methodology.</p> <p><u>NEW CAR No2.</u> Provide justification for the parameters listed for the calibration/Re-Validation of the model applied (See also comments on CAR No22).</p> <p>6) The methodology requires the application of uncertainty deduction in the case the confidence deductions is higher than 30%. This is not in line with the requirements set by the standard and referenced sources on uncertainty deduction.</p> <p><u>NEW CAR No3.</u> Ensure that the requirements of the standards are met in order to address model uncertainty.</p>		
In the case the VCS Program methodology uses default factors and standards to ascertain GHG emission data and	1, 2, 3	1) Default factors and standards used meet the requirements of the VCS Standard.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
<p>any supporting data for establishing baseline scenarios and demonstrating additionality, is the following applied:</p> <p>1) Where the methodology uses third party default factors and/or standards, such default factors and standards shall meet with the requirements for data set out in Section 4.5.6, <i>mutatis mutandis</i>.</p> <p>2) Where the methodology itself establishes a default factor, the following applies:</p> <p>a) The data used to establish the default factor shall comply with the requirements for data set out in Section 4.5.6, <i>mutatis mutandis</i>.</p> <p>b) The methodology shall describe in detail the study or other method used to establish the default factor.</p> <p>c) The methodology developer shall identify default factors which may become out of date (ie, those default factors that do not represent physical constants or otherwise would not be expected to change significantly over time). Such default factors are subject to periodic re-assessment, as set out in VCS document <i>Methodology Approval Process</i>.</p> <p>3) Where methodologies allow project proponents to establish a project-specific factor, the methodology shall provide a procedure for establishing such factors.</p>		<p>The combustion factor to be applied can be judged conservative.</p> <p>2) n.a.</p> <p>3) n.a.</p>		
In the case proxies are used, is it demonstrated that they are strongly correlated with the value of interest and that they can serve as an equivalent or better method (eg, in terms of reliability, consistency or practicality) to determine the value of interest than direct measurement of the value itself?	1, 2, 3	n.a.	n.a.	n.a.
Does the VCS Program methodology use a standardized method (i.e., performance method or activity method) or a	1, 2, 3	For the determination of the additionality and the baseline scenario the methodology requires the appli-	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
<p>project method to determine additionality and/or the crediting baseline, and does the VCS Program methodology state which type of method is used for each?</p> <p><i>A project method is a methodological approach that uses a project-specific approach for the determination of additionality and/or crediting baseline.</i></p>		<p>cation of a tool approved by the VCS. Thus the methodology uses a project method to determine additionality and the crediting baseline.</p> <p>The methodology does not state which type of method it is used.</p> <p><u>NEW CAR No4.</u> Clarify if the application of the VCS Tool VT0001 is compulsory when applying the methodology at hand.</p> <p>See also NEW CAR No5</p>		
<p><i>Methodologies may use any combination of project, performance or activity methods for determining additionality and the crediting baseline.</i></p> <p>Does the VCS Program methodology provide only one method (i.e., a project method or performance method) for determining the crediting baseline (i.e., methodologies shall not provide the option of using either a project method or a performance method for the crediting baseline)?</p>	1, 2, 3	The methodology uses only a project method for determining the crediting baseline as required by the standard.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
General requirements (AFOLU v3.4 Section 4.1)				
<p>Are the standards and factors used by the VCS Program methodology to derive GHG emissions data as well as any supporting data for baseline scenarios and additionality publicly available and come from a reputable and recognized source, such as IPCC 2006 Guidelines for National GHG Inventories or the IPCC 2003 Good Practice Guidelines for Land Use, Land-Use Change and Forestry?</p>	1, 2, 4	The standards and factors used are publicly available and come from a reputable and recognized source.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Eligible AFOLU Improved Grassland Management Category (AFOLU v3.4 Section 4.2)				
<p>Does the VCS Program methodology fall under the AFOLU project category Improved Grassland Management (IGM) as it includes practices that demonstrably reduce net GHG emissions of grassland ecosystems by increasing soil carbon stocks, reducing N2O emissions and/or reducing CH4</p>	1, 2, 4	The methodology falls under the AFOLU project category Improved Grassland Management (IGM) as it follows the points c) and d).	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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emissions, noting the following? a) Soil carbon stocks can be increased by practices that increase belowground inputs or decrease the rate of decomposition. Such practices include increasing forage productivity (eg, through improved fertility and water management), introducing species with deeper roots and/or more root growth and reducing degradation from overgrazing. b) Soil N2O emissions can be reduced by improving nitrogen fertilizer management practices on grasslands as set out in Section 4.2.2(1)(b) above. c) N2O and CH4 emissions associated with burning can be reduced by reducing the frequency and/or intensity of fire. d) N2O and CH4 emissions associated with grazing animals can be reduced through practices such as improving livestock genetics, improving the feed quality (eg, by introducing new forage species or by feed supplementation) and/or by reducing stocking rates.				
1. Sources				
Indicate key documents, methodologies and/or projects upon which the proposed methodology /revision is based. Also identify any modules or tools to which the methodology/revision refers. Include information on author of methodology/revision, if desired.	1, 2, 3	<u>Corrective Action Request No7.</u> <ul style="list-style-type: none"> List key documents, methodologies and/or projects if the methodology is based upon those. List tools the methodology is referring to. 	CAR	<input checked="" type="checkbox"/>
2. Summary Description of the Methodology		<i>Sections 1.2 and 1.5; SGMAFG v.2.3</i>		
Provide a brief summary description of the methodology/revision, including the main methodological steps.	1, 2, 3	A brief summary description of the methodology is provided in two different sections (1.2 and 1.5). <u>Corrective Action Request No8.</u> <ul style="list-style-type: none"> Combine the two sections into one section only. Clarify why measured offsets are generated for soil sequestration only 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl				
		<ul style="list-style-type: none"> Clarify how annual payment can be generated taking VCS procedures and the requirement of verification into account Ensure consistency with the content of the methodology (e.g. I.5.3 No. 3 [Dead Wood and Litter] is not mentioned in Section IV) page 9, line 35: Note that bulk density is mass/volume page 9, line 34-37: Rock fragment content should be taken into consideration as well as greatly affect SOC density, as reported by IPCC 						
<p>Does the VCS Program methodology indicate in the table below whether the methodology uses a project, performance or activity method for determining additionality, and a project or performance method for determining the crediting baseline (see the VCS Standard for further information on these methods)?</p> <table border="1" data-bbox="385 901 916 1102"> <tr> <td>Additionality</td> <td><Project/Performance/Activity Method></td> </tr> <tr> <td>Crediting Baseline</td> <td><Project/Performance Method></td> </tr> </table>	Additionality	<Project/Performance/Activity Method>	Crediting Baseline	<Project/Performance Method>	1, 2, 3	<p>It is not specified if the methodology applies a project, performance or activity method when assessing the additionality of the project. Further it is not specified if the methodology applies a project or performance method when assessing the crediting baseline.</p> <p><u>NEW CAR No5.</u> Specify and indicate whether the methodology applies a project, performance or activity method to determine the additionality and whether the methodology applies a project or performance method to determine the crediting baseline.</p>	CAR	<input checked="" type="checkbox"/>
Additionality	<Project/Performance/Activity Method>							
Crediting Baseline	<Project/Performance Method>							
3. Definitions		<i>Sections V.1 and V.2; SGMAFG v.2.3</i>						
Provide definitions of key terms and acronyms that are used in the methodology/revision.	1, 2, 3	<p>In Section V.2 Key Terms and Definitions are listed. In Section V.3 Acronyms.</p> <p><u>Corrective Action Request No9.</u> Ensure consistency with VCS Definitions and correct use of abbreviations (e.g. explanations for IPCC, UNFCCC, VCS are incorrect).</p>	CAR	<input checked="" type="checkbox"/>				
4. Applicability Conditions		<i>Section I.3; SGMAFG v.2.3</i>						
Applicability conditions (VCS v3.4 Section 4.3)								

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
Does the VCS Program methodology identify the project activities to which it applies?	1, 2, 3, 6	<p>The methodology identifies projects to which it applies as projects that introduce sustainable adjustment of grazing practices and/or fire management.</p> <p><u>Corrective Action Request No10.</u> Clearly specify and define the project activity (see also CAR 7 in project summary)</p>	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology establish criteria that describe the conditions under which the methodology can (and cannot, if appropriate) be applied?	1, 2, 3	<p>The criteria under which the methodology can be applied are described and discussed.</p> <p><u>Corrective Action Request No11.</u> <i>Applicability condition a):</i></p> <ul style="list-style-type: none"> • Define “uncultivated” grassland • The forest definition by UNFCCC varies by country, therefore the applicability condition as set out in the methodology is contradicting as many countries have other UNFCCC definitions for forest than the one presented in the meth • Explain why a minimum mean precipitation was included in the applicability condition • Explain why a minimum time of three years uncultivated land was included in the applicability condition. (<i>if e.g. the project area had been cultivated four years ago, an increase in SOC is likely</i>). • Discuss inclusion of a applicability condition that the project area is undergoing degradation processes that led to a loss of SOC. <p><i>Applicability condition b):</i></p> <ul style="list-style-type: none"> • Define “constant or increasing agricultural pressure”. • Discuss the geographical area to demonstrate “constant or increasing agricultural pressure” (project area or region?) • Discuss the need for such a applicability condition 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p>Applicability condition c):</p> <ul style="list-style-type: none"> Define the timeframe for constant or decreasing forest cover Discuss the geographical area to demonstrate “constant or decreasing forest land over time” (project area or region?) Discuss the need for this applicability condition <p>Applicability condition d):</p> <ul style="list-style-type: none"> Clarify why the second part of the sentence (lines 42-44 is considered applicability condition, as it is rather a project activity) <p>Applicability condition e):</p> <ul style="list-style-type: none"> Shifting from emission (dung) from outside to inside the project area is not considered as leakage, but a project emission Clarify if the point is already included in a) (no net import of dung) <p>Applicability condition f):</p> <ul style="list-style-type: none"> Clarify if these points listed here are rather the emission sources included in the methodology, not an applicability criteria <p>General description (page 6 starting as per line 5):</p> <ul style="list-style-type: none"> The description starting from line 5 seems to be rather description of the baseline scenario the applicability conditions, please clarify Clarify the assumptions in lines 9-19 (page 6), in particular if these are applicability conditions, and if so, how it can be sustained (e.g. what documents are acceptable to sustain the statements): <ul style="list-style-type: none"> Clarify if “degraded land” shall be an applicability condition. If so, it needs to be clearly stated (see also respective tools/guidance for determining degraded lands) 		

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<ul style="list-style-type: none"> ○ Clarify what is meant by “likely” (line 9) ○ Clarify if it shall be an applicability condition that fires occur every 1-2 years ○ Clarify if loss of SOC in the baseline is a applicability conditions (if so, include required documents to sustain) ○ Item iii): clarify why this point is needed • Line 21-24: clarify why applicability condition c allows for assuming that no natural regeneration or afforestation occurs • Line 26-29: see bullet point above, clarify statement. Considering that it is a grassland, the woody above ground biomass is potentially small • Line 31-19: <ul style="list-style-type: none"> ○ No displacement of animals is already listed as applicability condition d). ○ Clarify if livestock can be brought to the slaughterhouse. ○ Baseline count of animals through ground or aerial surveys appears to be costly, and cannot be applied retro-actively. Clarify if this is a set requirement of the methodology ○ Clarify if 100% control is required for grazing animals • Clarify if a project can be implemented on wetlands 		
Does the VCS Program methodology apply any applicability conditions set out in tools or modules?	1, 2, 3	None of the applicability conditions is set out in tools or modules.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
5. Project Boundary		<i>Section I.4; SGMAFG v.2.3</i> <i>Section II.1; SGMAFG v.2.3</i>		
Project boundary (VCS v3.4 Section 4.4)				
Does the VCS Program methodology include determination criteria or procedures for describing the project boundary?	1, 2, 3, 6	The methodology includes determination criteria to describe the project boundary, both the physical boundary and the carbon pools and GHG included. <u>Corrective Action Request No12.</u>	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<ul style="list-style-type: none"> Regarding the geographical boundary, clarify if this needs to be included in the methodology (section II.1.1. Ensure consistency with VCS requirements and guidance Start date and project crediting period do not need to be defined by the methodology, but by VCS programme documents Explain the radius of 200 km (point 3 page 10) 		
Does the VCS Program methodology include determination criteria or procedures for identifying and assessing GHG sources, sinks and reservoirs relevant to the project (controlled by the project proponent, related to the project or affected by the project) and the baseline scenarios?	1, 2, 4	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>Sources, sinks and reservoir relevant to the baseline and project scenarios are listed.</p> <p><u>Corrective Action Request No13.</u></p> <ul style="list-style-type: none"> Ensure consistency in the methodology between the proposed project activities and emission sources included (see details below) Use of fossil fuels is not listed as source but mentioned in former and subsequent sections (Ecotourism, shipping of livestock, Aircraft emission) Legume biomass is not listed as source but mentioned in the column Explanation/Justification Explain why CH₄ emissions of manure is not included N₂O Emissions from manure is included but should be excluded according to the column Explanation/Justification as it can be considered negligible. Sustain the negligibility of the N₂O Emissions from manure Clarify why N₂O Emissions from legume biomass cannot be considered negligible 	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology give a justification for GHG sources, sinks and reservoirs included or excluded?	1, 2,4	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>The methodology gives justifications for the GHG sources, sinks and reservoirs included.</p>	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl														
		See CAR 12 on former question.																
Does the VCS Program methodology where necessary, explain and apply additional criteria for identifying relevant baseline GHG sources, sinks and reservoirs?	1, 2, 4	n/a	n.a.	n.a.														
Does the VCS Program methodology compare the GHG sources, sinks and reservoirs identified for the project with those identified in the baseline scenario, to ensure equivalency and consistency?	1, 2, 4	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>The methodology does not distinguishing between baseline and project GHG sources, sinks and reservoirs as the table provided in the new VCS Methodology template is suggesting it. Nevertheless the sources, sinks and reservoirs identified can be clearly assigned to the baseline respectively the project. Equivalency and consistency is ensured.</p>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>														
B 3 Project Boundary (AFOLU v3.4 Section 4.3)																		
<p>Does the VCS Program methodology include the relevant carbon pools as per VCS requirement?</p> <table border="1"> <tbody> <tr> <td>Aboveground tree biomass</td> <td>S</td> </tr> <tr> <td>Above-ground non-tree biomass</td> <td>N</td> </tr> <tr> <td>Below-ground biomass</td> <td>O</td> </tr> <tr> <td>Litter</td> <td>N</td> </tr> <tr> <td>Dead wood</td> <td>N</td> </tr> <tr> <td>Soil</td> <td>Y</td> </tr> <tr> <td>Wood products</td> <td>O</td> </tr> </tbody> </table> <p>Y: Carbon pool shall be included. S: Carbon pool shall be included when significant N: Carbon pool does not have to be included, O: Carbon pool is optional</p>	Aboveground tree biomass	S	Above-ground non-tree biomass	N	Below-ground biomass	O	Litter	N	Dead wood	N	Soil	Y	Wood products	O	1, 2, 4	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>The methodology includes the following carbon pools:</p> <ul style="list-style-type: none"> • Above ground woody and non-woody biomass • Below ground biomass • Dead Wood • Litter • SOC <p>Thus all carbon pools mentioned in the table are included except the carbon pool wood products. The inclusion is explained respectively justified.</p> <p><u>Corrective Action Request No14.</u></p> <ul style="list-style-type: none"> • Clarify why the carbon pools above-ground woody and non-woody biomass as well as below ground biomass are included, even though they do not have to be included or are considered optional for ALM-Methodologies and in context of the applicability conditions. • Justify why above ground woody is reduced as a 	CAR	<input checked="" type="checkbox"/>
Aboveground tree biomass	S																	
Above-ground non-tree biomass	N																	
Below-ground biomass	O																	
Litter	N																	
Dead wood	N																	
Soil	Y																	
Wood products	O																	

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p>consequence of project activities.</p> <ul style="list-style-type: none"> Justify why above ground non woody could reduce/remove emissions. Clarify why the carbon pools dead wood and litter are included. Provide procedures for their assessment, and justify their inclusion considering that grassland might not have significant stocks or stock changes in the pools. 		
<p>Does the VCS Program methodology establish the criteria and procedures by which a pool or GHG source may be determined to be de minimis?</p> <p><i>For example, peer reviewed literature or the CDM A/R methodological tool for testing significance of GHG emissions in A/R CDM project activities may be used to determine whether decreases in carbon pools and increases in GHG emissions are de minimis</i></p>	1, 2, 4	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>There are no criteria and procedures to determine any pool or GHG source de minimis.</p> <p><u>Clarification Request No2.</u> Clarify why no de minimis procedures are determined.</p>	CAR	<input checked="" type="checkbox"/>
<p><i>Specific carbon pools and GHG sources do not have to be accounted for if their exclusion leads to conservative estimates of the total GHG emission reductions or removals generated.</i></p> <p>Does the VCS Program methodology establish criteria and procedures by which a project proponent may determine a carbon pool or GHG source to be conservatively excluded?</p>	1, 2, 4, 5	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>See CR2 above. (<i>The methodology does not establish criteria and procedures by which a project proponent may determine a carbon pool or GHG source to be conservatively excluded.</i>)</p>	CAR	<input checked="" type="checkbox"/>
<p>If the VCS Program methodology is applicable to projects with livestock grazing in the project or baseline scenario are CH₄ emissions from enteric fermentation and CH₄ and N₂O emissions from manure included in the project boundary?</p>	1, 2, 4, 5	<p><i>Section 1.4; SGMAFG v.2.3</i></p> <p>CH₄ from enteric fermentation is included.</p> <p><u>Corrective Action Request No15.</u></p> <ul style="list-style-type: none"> Clarify why CH₄ from manure is not included. Clarify why N₂O from manure is included but can be considered negligible. See CAR12 above on emission sources 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
If the VCS Program methodology is applicable to projects where land-use conversion requires intensive energy inputs or infrastructure development, such as the establishment of irrigation or drainage systems, does the VCS Program methodology include the GHG emissions associated with the conversion process in the project boundary?	1, 2	n/a	n.a.	n.a.
If the VCS Program methodology is applicable to projects where energy-conserving practices reduce emissions of CO2, such as adopting no-till practices to reduce fuel use, does the VCS Program methodology include these GHG emissions reductions in the project boundary?	1, 2	n/a	n.a.	n.a.
If the VCS Program methodology is applicable to projects where activities convert drained, farmed organic soils to perennial non-woody vegetation and reduce or eliminate drainage to reduce CO2 and N2O emissions from organic soils, activities may increase CH4 emissions, does the VCS Program methodology include CH4 emissions in the project boundary?	1, 2	n/a	n.a.	n.a.
6. Procedures for Determining the baseline scenario				
Baseline Scenario (VCS v3.4 Section 4.5)				
Does the VCS Program methodology establish criteria and procedures for identifying alternative baseline scenarios and determining the most plausible scenario, taking into account 1) The identified GHG sources, sinks and reservoirs. 2) Existing and alternative project types, activities and technologies providing equivalent type and level of activity of products or services to the project. 3) Data availability, reliability and limitations. 4) Other relevant information concerning present or future conditions, such as legislative, technical, economic, socio-cultural, environmental, geographic, site-specific and temporal assumptions or projections?	1, 2, 4, 5	<i>See comments below</i>	CAR	<input checked="" type="checkbox"/>
Baseline Scenario (AFOLU v3.4 Section 4.4)				
Does the VCS Program methodology provide criteria and procedures on which the project proponent can identify alternative baseline scenarios taking into account current and	1, 2, 4	<i>Section II.2; SGMAFG v.2.3</i> The methodology determines the baseline scenario as	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
previous management activities?		<p>existing or historical land management practices.</p> <p><u>Corrective Action Request No16.</u></p> <ul style="list-style-type: none"> Clearly identify criteria and procedures for the identification of alternative baseline scenarios as per VCS requirement. (see also CAR10 under applicability conditions) Clarify why the baseline scenario identified does not distinguish between existing and historical land management practices. Provide reference to the Normalized Difference Index and Soil Adjusted vegetation Index Point 3: Clarify why woody plants need to be assessed in aerial photos or HR Satellite images (4 images over 10 years), considering costs and availability of these images (and the overall relevance of the carbon pools in grassland) Point 4: Clarify how “similar areas” are defined and why 200 km is chosen as max distance 		
If the VCS Program methodology allows the use of activity-based methods for determining baseline soil carbon stocks, does the VCS Program methodology require a conservative determination of the estimates relative to the computed maximum carbon stocks that occurred in the designated project area within the previous 10 years?	1, 2, 3, 4	<p>The measured offset approach is using the initial SOC density for further estimations. The modelled approach is computing the SOC density for the previous ten years. Back projections are necessary to comply with the VCS requirement that “soil C stock estimates shall be determined relative to the computed maximum C stocks that occurred in the designated land area within the previous ten years in order to be conservative.</p> <p><u>Clarification Request No3.</u></p> <p>The determination of the baseline soil carbon stock does not clearly apply a conservative approach for the baseline approach as required by the AFOLU Requirements. (as the highest value shall be applied). Clarify how the requirement of conservativeness when</p>	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		estimating the baseline GHG emissions and removals is met.		
7. Procedure for demonstrating additionality		<i>Section II.3; SGMAFG v.2.3</i>		
A 5 Additionality (VCS v3.4 Section 4.6)				
Does the VCS Program methodology assess additionality by doing one of the following: a) Referencing and requiring the use of an appropriate additionality tool that has been approved under the VCS or an approved GHG program; b) Developing a full and detailed procedure for demonstrating and assessing additionality directly within the methodology; or c) Developing a full and detailed procedure for demonstrating and assessing additionality in a separate tool, which shall be approved via the methodology approval process, and referencing and requiring the use of such new tool in the methodology?	1, 2, 12	The methodology is referring to the VCS Additionality Tool “Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities”. As this is an already approved VCS tool, it can be also included in this methodology.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8. Quantification of GHG emissions and removals				
Quantification of GHG emission reduction and removals (VCS v3.4 Section 4.7)				
Does the VCS Program methodology establish criteria and procedures for quantifying GHG emissions and/or removals for the selected GHG sources, sinks and/or reservoirs, separately for the project (including leakage) and baseline scenarios?	1, 2, 6, 7, 10	The methodology establishes criteria and procedures for quantifying GHG emission and/or removals for the selected GHG sources, sinks and/or reservoirs, separately for the project (including leakage) and baseline scenario. A summary for calculation is provide in section II.4 <u>Corrective Action Request No17.</u> <ul style="list-style-type: none"> Ensure that all emissions and removals are included in the calculation, depending on the actual baseline scenario and project activities, emissions and carbon pools included (see formulae on page 11 and 14). Ensure consistency throughout the methodology 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p><u>Corrective Action Request No18.</u> <i>General request regarding "Tools":</i> Clarify if the procedures to quantify emissions are actual "tools" as per VCS language.</p> <p><u>Corrective Action Request No19.</u> <i>VI.1: Methane emission by biomass consumption</i></p> <ul style="list-style-type: none"> • Clarify why IPCC 2006 can be applied on project basis, considering that it intended for national GHG inventories. Further clarify what conditions the data must fulfil to be applied. • Include the actual formulas required in the methodology, a general reference to IPCC 2006 is not sufficient • Include parameters required and accepted data sources in the methodology • Provide reference data for the default data in the equations in subsection (b) <p><u>Corrective Action Request No20.</u> <i>VI.2: N₂O emissions from N-fixing species</i></p> <ul style="list-style-type: none"> • Clarify if potential emissions are considered significant und VCS requirements (see e.g. decision from UNFCCC to exclude such potential emission sources) • Clarify how the formulae was derived • Include list of parameters required (in VCS format) and include what kind of data sources are accepted by the methodology <p><u>Corrective Action Request No21.</u> <i>VI.3: non-CO₂ emission from burning biomass</i></p> <ul style="list-style-type: none"> • Clarify where the formula is derived from • Include list of parameters required (in VCS format) and include what kind of data sources are accepted by the methodology 		

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<ul style="list-style-type: none"> Sustain the combustion factor of 0.75 and clarify if it can be applied for all projects applicable under the methodology Clarify which parameters have to be monitored (and how), and which are needed for baseline determination. Clarify if emission factors from IPCC can be accepted for all project activity under the methodology and how overestimation of GHG emission in the baseline / underestimation in the project scenario are avoided <p><u>Corrective Action Request No22.</u></p> <p><i>VI.4: Soil Sampling Design</i></p> <ul style="list-style-type: none"> Include list of parameters required (in VCS format) and include what kind of data sources are accepted by the methodology Define “sampling station” 		
8.1 Baseline emissions		Section II.4 SGMAFG v.2.3		
B 5 Baseline and Project Emissions/Removals (AFOLU v3.4 Section 4.5)				
General approach to determine baseline GHG emission and removals from Soil Organic Carbon	1, 2, 4, 6, 7, 10	<p>The approach of the methodology for determining baseline GHG emission and removals is presented in section II.4 of the methodology, as well as in the tools, which are already discussed above.</p> <p>For soil carbon two different approaches are suggested:</p> <ol style="list-style-type: none"> The modelled offset approach The measured approach <p>The modelled offset approach is based on models such as CENTURY or RothC. The measured approach is based on actual measurements.</p>	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p><u>Corrective Action Request No23.</u> Provide a clear structure of the methodology for the two approaches (measured and modelled), and clearly present the respective requirements (e.g. stepwise approach for each approach)</p> <p><u>Corrective Action Request No24.</u> <i>Measured Approach:</i></p> <ul style="list-style-type: none"> • Include a list of parameters as per VCS requirements for the measured approach • Clarify how the baseline carbon stock in SOC is determined in the measured approach • Clarify how ex-ante calculations are done <p><u>Corrective Action Request No25.</u> <i>Modelled Approach:</i></p> <ul style="list-style-type: none"> • Clarify which models are acceptable under the methodology; the requirement from “peer-reviewed literature” is too vague. Identify minimum requirements for other models applied • Clarify if limitation/applicability conditions of the models need to be included in the applicability condition of the methodology • Include a list of parameters as per VCS requirements for the modelled approach. Ensure consistency in the abbreviation and explanation • Provide explanation on Akaike Information Criterion • Provide definition on “standard selection procedure” (reference to a book is not sufficient) • page 13, line 3-9: Specify the units of measurements of the equation • P.13, line 6: define “region” • Page 15, line 4-13: Temperatures and soil texture are important parameters for the main SOC models such as RothC and Century, and greatly affect 		

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p>SOC density estimated by models. They should be inserted in the “key parameters” needed for calculating the SOC density at equilibrium.</p> <ul style="list-style-type: none"> Page 16, line 5-6: RothC does not fire and grazing into account. Clarify the requirement. Page 17, line 6: three years appears to be a low number to detect significant changes for field measurements (high number of samples would be required) Page 17, Equation 7: In the equation the sum symbol is missing for the different strata, since $PRSOC_t$ refers to the SOC project removals as a sum of the different strata. Alternatively the sum of the different strata can be reported in Equation 6. 		
General approach to determine baseline GHG emission and removals from Above and Belowground Biomass	1, 2, 4, 6, 7, 10	<p>The methodology is referring to the AR-CDM tool</p> <p><u>Clarification Request No4.</u></p> <ul style="list-style-type: none"> Clarify if the significance of the carbon pool, considering that the land cover remains grassland Clarify which version of the tool shall be applied 	CAR	<input checked="" type="checkbox"/>
General approach to determine baseline GHG emission and removals from litter, dead wood	1, 2, 4, 6, 7, 10	<p>The methodology is mentioning litter and dead wood to be included, but no respective procedures are included</p> <p>See CARs 7 and 13</p>	CAR	<input checked="" type="checkbox"/>
Quantification of baseline emissions	1, 2, 4, 6, 7, 10	<p>Emissions are quantified by the procedures (“tools”) presented in section VI of the methodology.</p> <p>See respective CARs 17-21 above</p>	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology use <i>the IPCC 2006 Guidelines for National GHG Inventories</i> or <i>the IPCC 2003 Good Practice Guidance for Land Use, Land-Use Change and Forestry</i> as guidance for quantifying increases or decreases in carbon stocks and GHG emissions?	1, 2, 4, 6, 7, 10	<p>The methodology use the <i>IPCC 2006 Guidelines for National GHG Inventories</i></p> <p><u>Clarification Request No5.</u> Clarify if the IPCC 2003 is referred to in the methodol-</p>	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		ogy		
Does the VCS Program methodology (if targeting Soil Carbon stock increase) quantify, where significant, concomitant increases in N ₂ O, CH ₄ and fossil-derived CO ₂ ?	1, 2, 4, 6, 7, 10	Consistency between emission sources needs to be ensured throughout the methodology See CARs 12, 14, 19	CAR	<input checked="" type="checkbox"/>
Do the procedures provided by the VCS Program methodology to measure soil carbon stocks are based on established and reliable sampling methods, with sufficient sampling density to determine statistically significant changes at a 95 percent confidence level?	1, 2, 4, 6, 7, 10	<p><i>Sections VI.4.2; SGMAFG v.2.3</i></p> <p>For the Measured Offset approach the methodology suggests the application of the A/R CDM tool “<i>Calculation of the number of sample plots for measurements within A/R CDM project activities</i>”</p> <p><u>Corrective Action Request No26.</u></p> <ul style="list-style-type: none"> Clarify if the application of the tool is required. Define the formulas and procedures to ensure a 95% confidence level when not applying the mentioned tool. <p>For the Modelled Offset approach the methodology is suggesting the application of different online calculators to define the number of sampling stations needed to reach a statistical power level of 0.9.</p> <p><u>Corrective Action Request No27.</u></p> <ul style="list-style-type: none"> Sustain the statistical power level chosen. Define the formulas and procedures for the calculation of the size and number of sample plots needed to reach the chosen statistical power level. Clarify the total reduction in sampling stations of the modelled approach compared to the measured one. 	CAR	<input checked="" type="checkbox"/>
Is the uncertainty related to sampling addressed as set out in the <i>VCS Standard (see A 1)</i> ?	1, 2, 4, 7, 9	For the modelled approach the methodology requires in section II.2 (4) a $R^2 > 0.90$ within each stratum.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		For the measured approach a 95 percent confidence interval is applied due to the requirement to use the Tool Calculation of the number of sample plots for measurements within A/R CDM project activities".		
Are soil carbon stock change factors applied that are based on measurements of soil carbon stocks to the full depth of affected soil layers (usually 30 cm), accounting for differences in bulk density as well as organic carbon concentrations?	1, 2, 4	<p><i>Sections VI.4.4; SGMAFG v.2.3</i></p> <p>The methodology is suggesting to measure SOC according to standard methods</p> <p><u>Corrective Action Request No28.</u></p> <ul style="list-style-type: none"> Specified how "pooled soil cores" are defined (e.g. ISO recommendation etc) Clarify how many soil cores have to be taken, taking e.g. ISO 200a into account Clarify the sampling from depths of deeper than 20 cm (e.g. 0-30), considering that the suggested models are not covering these depth per se. Specify the laboratory methodology to be used for analysing soil samples Clarify why rock coarse fragments (>2 mm fraction) are not mentioned when measuring the parameters needed for obtaining the carbon density. Clarify methodological requirements regarding certificate of the laboratories and certificates for equipment used 	CAR	<input checked="" type="checkbox"/>
Are the procedures provided by the VCS Program methodology to quantify N ₂ O and CH ₄ emissions factors based on scientifically defensible measurements of sufficient frequency and duration to determine emissions for a full annual cycle?	1, 2, 4	<p>Procedures for N₂O quantification are found in the tools VI.2 and VI.3. Procedures for CH₄ quantification are found in the tools VI.1 and VI.3</p> <p>See CARs 18 and 20</p>	CAR	<input checked="" type="checkbox"/>
Are minimum baseline estimates for N ₂ O and CH ₄ emissions defined and if yes are they based on documented management records averaged over the five year period	1, 2, 4, 5	There are no minimum baseline estimates for N ₂ O and CH ₄ determined.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
prior to the project start date?				
8.2 Project emissions / removals		Section III of the <i>SGMAFG v.2.3</i>		
Baseline and Project Emissions/Removals (AFOLU v3.4 Section 4.5)				
Quantification of project GHG emissions and removals	1, 2, 4	<p>Project emissions and removals are calculated in the same way as baseline emissions and removals. As stated in previous comments, the project activity needs to be clearly defined in order to calculate project emission and removals. Consistency throughout the methodology is required.</p> <p><u>Clarification Request No6.</u> Page 14, line 4: Clarify “wildlife grazers” need to be considered. If so provide further details.</p> <p><u>Corrective Action Request No29.</u> <i>Section III.2.2: estimation of new emission sources</i> (Page18, line 9-32)</p> <ul style="list-style-type: none"> • Change the wording “new emission” to “project emission” in line with general VCS and climate change language • Clarify if the emission sources listed here are significant. • Ensure consistency with emission sources listed in other parts of the methodology • List parameters and formulae for the calculations • Clarify how emissions from fertilization can occur on unfertilized land • Clarify why the number of legume biomass should increase in the project scenario • Clarify why number of livestock animals leads to greater soil carbon sequestration (not relevant unless captured by the model or in the measurements) • Clarify the concept of ecotourism in the context of the methodology 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
General approach to determine project GHG emission and removals from Soil Organic Carbon	1, 2, 4	See CARs 22 - 24	CAR	<input checked="" type="checkbox"/>
General approach to determine project GHG emission and removals from Above and Belowground Biomass	1, 2, 4, 10	See CR 4	CAR	<input checked="" type="checkbox"/>
General approach to determine project GHG emission and removals from litter, dead wood	1, 2, 4, 10	See CARs 7 and 13	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology use <i>the IPCC 2006 Guidelines for National GHG Inventories</i> or the <i>IPCC 2003 Good Practice Guidance for Land Use, Land-Use Change and Forestry</i> as guidance for quantifying increases or decreases in carbon stocks and GHG emissions?	1, 2, 4, 10	See CR 5	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology (if targeting Soil Carbon stock increase) quantify, where significant, concomitant increases in N ₂ O, CH ₄ and fossil-derived CO ₂ ?	1, 2, 4	See CARs 12, 14, 19	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology (if targeting N ₂ O emission reductions) establish the criteria and procedures by which the changes in soil carbon stocks may be deemed <i>de minimis</i> (as set out in Section 4.3.3 AFOLU v3.0) or conservatively excluded (as set out in Section 4.3.4 AFOLU v3.0).	1, 2, 4	See CR 2	CAR	<input checked="" type="checkbox"/>
Do the procedures provided by the VCS Program methodology to measure soil carbon stocks are based on established and reliable sampling methods, with sufficient sampling density to determine statistically significant changes at a 95 percent confidence level?	1, 2, 4	See CARs 25 and 26	CAR	<input checked="" type="checkbox"/>
Is the uncertainty related to sampling addressed as set out in the <i>VCS Standard (see A 1)</i> ?	1, 2, 4	See comments above	CAR	<input checked="" type="checkbox"/>
Do the procedures provided by the VCS Program methodology to estimate soil carbon stock use soil carbon stock change factors that are based on measurements of soil carbon stocks to the full depth of affected soil layers (usually 30 cm), accounting for differences in bulk density as well as organic carbon concentrations?	1, 2, 4	See CAR 27	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
Are the procedures provided by the VCS Program methodology to quantify N ₂ O and CH ₄ emissions factors based on scientifically defensible measurements of sufficient frequency and duration to determine emissions for a full annual cycle?	1, 2, 4	See CARs 18 and 20	CAR	<input checked="" type="checkbox"/>
Are minimum baseline estimates for N ₂ O and CH ₄ emissions based on documented management records averaged over the five year period prior to the project start date?	1, 2, 4	See comments above	CAR	<input checked="" type="checkbox"/>
8.3 Leakage		<i>Sections III.2; SGMAFG v.2.3</i>		
Leakage (AFOLU v3.4 Section 4.6)				
<p>Does the VCS Program methodology establish procedures to quantify all significant sources of leakage?</p> <p>1) Market leakage occurs when projects significantly reduce the production of a commodity causing a change in the supply and market demand equilibrium that results in a shift of production elsewhere to make up for the lost supply.</p> <p><i>Projects shall account for market leakage where the production of a commodity (eg, timber) is significantly affected by the project.</i></p> <p>2) Activity shifting leakage occurs when the actual agent of deforestation and/or forest or wetland degradation moves to an area outside of the project boundary and continues its deforestation activities elsewhere.</p> <p>3) Ecological leakage occurs in WRC projects where a project activity causes changes in GHG emissions or fluxes of GHG emissions from ecosystems that are hydrologically connected to the project area.</p>	1, 2, 4, 5, 9	<p>Leakage is limited by the applicability conditions. No leakage from grazing is allowed under the methodology.</p> <p>Leakage from fuelwood collection is discussed, following VCS methodology VM0009.</p> <p>Market leakage is considered to be minimal</p> <p><u>Corrective Action Request No30.</u></p> <p><u>Leakage from grazing</u></p> <ul style="list-style-type: none"> • P.17: Note that displacement from cattle or animals outside of the project area to the project area is not considered leakage (but project emissions). If this should be prevented, it should be defined as project activity • P.17. Clarify why numbers of grazing animals outside the project area shall be monitored? • Explain the 200 km radius chosen for the designated reference area • Explain why the project proponent needs to monitor animal numbers outside the project area. • Provide parameters (in compliance with VCS template requirements) and formulae for calculation • Clarify how leakage from nomads passing through potential project area should be dealt with 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p><u>Clarification Request No7.</u> <u>Leakage from fuel wood</u></p> <ul style="list-style-type: none"> • P.17, line 41:Clarify how to determine if shifts in fuel wood collection are “non-negligible” • Define “nearby reference area” • Clarify why VM0009 is applicable in this methodology (considering different applicability conditions etc) • Clarify if leakage from fuel wood collection is significant (considering that the project area is grassland and will remain grassland). Project activities should be further defined to determine if fuel wood collection is relevant • Explain why a shift in wood harvesting from inside the project area to outside the project area can occur due to the project activity <p><u>Clarification Request No8.</u> <u>Market leakage</u></p> <ul style="list-style-type: none"> • Explain how market leakage can be assumed to be minimal, taking into account, that livestock may be removed to be sold for meat or other products and that the size of the project area is not yet limited to a certain maximum area. • Clarify why a grazing census in adjutant areas is needed if market leakage can be neglected and an displacement off livestock is not allowed (applicability condition d) 		
Does the VCS Program methodology determine GHG emissions from leakage directly from monitoring, or indirectly when leakage is difficult to monitor directly but where scientific knowledge provides credible estimates of likely impact?	1, 2, 4, 5, 9	Leakage is determined directly from monitoring of reference areas outside the project area (grazing animals outside the project area/declines of woody plant cover outside the project area).	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Does the VCS Program methodology account for market	1, 2, 4,	Market leakage is not accounted for.	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
leakage?	5, 9	See CR 8 regarding <i>Sections III.2.1; SGMAFG v.2.3; Question 1)</i>		
Does the VCS Program methodology quantify leakage occurring outside the host country (international leakage)? <i>International leakage does not need to be quantified</i>	1, 2, 4, 5, 9	The methodology does not quantify international leakage.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
In case of leakage mitigation measures including tree planting, agricultural intensification, fertilization, fodder production, and/or other measures to enhance cropland and/or grazing land areas, does the VCS Program methodology account for any significant increase in GHG emissions associated with these activities, unless deemed <i>de minimis</i> (as set out in Section 4.3.3 AFOLU v3.0) or conservatively excluded (as set out in Section 4.3.4 AFOLU v3.0)?	1, 2, 4, 5, 9	See CAR 28 regarding <i>Sections III.2.2, b)</i>	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology account for positive leakage?	1, 2, 4, 5, 9	The methodology does not account for positive leakage	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Does the VCS Program methodology quantify activity shifting leakage emissions?	1, 2, 4, 5, 9	The methodology does not quantify activity shifting leakage emissions.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
8.4 Summary of GHG Emission Reduction and/or Removals				
Does the VCS-Program methodology describe the procedure for quantifying net GHG emission reductions and/or removals, as a function of baseline emissions, project emissions and leakage, as follows: $ER_y = BE_y - PE_y - LE_y$ Where: ER _y = Net GHG emissions reductions and/or removals in year y BE _y = Baseline emissions in year y PE _y = Project emissions in year y LE _y = Leakage in year y	1, 2, 3, 4	The methodology quantifies net GHG Emissions in Equation 8 as the following: $R_t = BE - PE_t + LNRBt$ Where R_t = estimate of net anthropogenic GHG emissions and removals in year t, t CO ₂ e, PE_t = Estimate of actual net GHG emissions and removals in year t, t CO ₂ e, BE = Baseline emissions and removals, t CO ₂ e, and	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl		
		<p>$LNRB_t =$ The leakage from an increase in fossil fuel use for management or ecotourism in year t.</p> <p>Clarification Request No9. Clarify if net GHG emissions are calculated in line with VCS requirements (deduct leakage)</p>				
Quantification of GHG emission reduction and removals (VCS v3.4 Section 4.7)						
Does the VCS Program methodology quantify net GHG emission as the difference between the GHG emissions and/or removals from GHG sources, sinks and reservoirs relevant for the project and those relevant for the baseline scenario?	1, 2, 3, 4	See CR 9 above	CAR	<input checked="" type="checkbox"/>		
Quantification of GHG emission reductions and removals (AFOLU v3.4 Section 4.7)						
Does the VCS Program methodology establish procedures for quantifying net GHG emission reductions and removals (the net GHG benefit), which shall be quantified as the difference between the GHG emissions and/or removals from GHG sources, sinks and carbon pools in the baseline scenario and the project scenario?	1, 2, 3, 4	See CR 9 above	CAR	<input checked="" type="checkbox"/>		
Does the VCS Program methodology establish procedures for quantifying the net change in carbon stocks, so that the number of buffer credits withheld in the AFOLU pooled buffer account and market leakage emissions may be quantified for the project?	1, 2, 3, 4	See CR 9 above	CAR	<input checked="" type="checkbox"/>		
9. Monitoring						
9.1 Data and Parameters Available at Validation		<i>Sections IV.1.2 and IV.3.4; SGMAFG v.2.3</i>				
Does the VCS Program methodology provide specification for data and parameters not monitored (i.e., that will be available at validation. Is the table copied for each data unit/parameter?	1, 2, 3, 4, 5, 6, 13, 14	<p>Data to be collected and archived for baseline and project GHG emissions and removals are listed in different sections.</p> <p>Corrective Action Request No31.</p> <ul style="list-style-type: none"> Use the table provided by the template for all parameter 	CAR	<input checked="" type="checkbox"/>		
<table border="1" style="width: 100%;"> <tr> <td style="width: 80%;">Data Unit / Parameter:</td> <td style="width: 20%;"></td> </tr> </table>		Data Unit / Parameter:				
Data Unit / Parameter:						

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl																
<table border="1"> <tr><td>Data unit:</td><td></td></tr> <tr><td>Description:</td><td></td></tr> <tr><td>Source of data:</td><td></td></tr> <tr><td>Justification of choice of data or description of measurement methods and procedures applied:</td><td></td></tr> <tr><td>Any comment:</td><td></td></tr> </table>	Data unit:		Description:		Source of data:		Justification of choice of data or description of measurement methods and procedures applied:		Any comment:			<ul style="list-style-type: none"> • Ensure to list both data and parameters available at validation and data and parameters monitored (distinction needed). • Ensure that the name of the parameter matches the name of the parameter used in the respective equation • Ensure that all parameters mentioned in the calculations are listed • Ensure that all parameters mentioned in the calculations are expressed with the same unit of measurement. • Ensure that there is a justification for each data or description of measurement methods and procedures • Include requirements for Standard Operational Procedures and QA/QC 								
Data unit:																				
Description:																				
Source of data:																				
Justification of choice of data or description of measurement methods and procedures applied:																				
Any comment:																				
9.2 Data and Parameters Monitored																				
<p>Does the VCS Program methodology provide specification for data and parameters not monitored (i.e., that will be available at validation. Is the table copied for each data unit/parameter?</p> <table border="1"> <tr><td>Data Unit / Parameter:</td><td></td></tr> <tr><td>Data unit:</td><td></td></tr> <tr><td>Description:</td><td></td></tr> <tr><td>Source of data:</td><td></td></tr> <tr><td>Description of measurement methods and procedures to be applied:</td><td></td></tr> <tr><td>Frequency of monitoring/recording:</td><td></td></tr> <tr><td>QA/QC procedures to be applied:</td><td></td></tr> <tr><td>Any comment:</td><td></td></tr> </table>	Data Unit / Parameter:		Data unit:		Description:		Source of data:		Description of measurement methods and procedures to be applied:		Frequency of monitoring/recording:		QA/QC procedures to be applied:		Any comment:		1, 2, 3, 4, 5, 6, 13, 14	See CAR 30 and CARs 31 - 33	CAR	<input checked="" type="checkbox"/>
Data Unit / Parameter:																				
Data unit:																				
Description:																				
Source of data:																				
Description of measurement methods and procedures to be applied:																				
Frequency of monitoring/recording:																				
QA/QC procedures to be applied:																				
Any comment:																				
Does the VCS Program methodology identify how the	1, 2, 3,	The methodology identifies the source of the parame-	CAR	<input checked="" type="checkbox"/>																

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
data/parameter is measured? Is equipment specifications provided, if applicable?	4, 5, 6, 13, 14	ters. <u>Corrective Action Request No32.</u> <ul style="list-style-type: none"> Clarify the measurement of each parameters Define the equipment specifications for e.g. analysis of SOC 		
Does the VCS Program methodology identify measurement and recording frequency	1, 2, 3, 4, 5, 6, 13, 14	The frequency is defined by the methodology <u>Corrective Action Request No33.</u> Discuss monitoring frequency (<i>annual measurement needed?</i>)	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology identify calibration information such as frequency, date of last calibration and validity	1, 2, 3, 4, 5, 6, 13, 14	<u>Corrective Action Request No34.</u> <ul style="list-style-type: none"> Define calibration information Define QA/QC Clarify why no SOPs are required 	CAR	<input checked="" type="checkbox"/>
Data and Parameters (VCS v3.4 Section 4.8.1)				
Does the VCS Program methodology describe the data and parameters to be reported, including sources of data and units of measurement?	1, 2, 3, 4, 5, 6, 13, 14	See CAR 30 and CARs 31 - 33	CAR	<input checked="" type="checkbox"/>
Do standards and factors used by the VCS Program methodology to derive GHG emission data meet the following requirements? a) Be publicly available from a reputable and recognized source (e.g., IPCC, published government data, etc). b) Be reviewed as part of its publication by a recognized competent organization. c) Be appropriate for the GHG source or sink concerned. d) Be current at the time of quantification.	1, 2, 3, 4, 5, 6, 13, 14	See CAR 30 and CARs 31 - 33	CAR	<input checked="" type="checkbox"/>
When highly uncertain data and information are relied upon, does the VCS Program methodology select conservative values that ensure that the quantification does not lead to	1, 2, 3, 4, 5, 6,	See CAR 2	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
an overestimation of net GHG emission reductions or re-movals?	13, 14			
Does the VCS Program methodology use metric tonnes as the unit of measure?	1, 2, 3, 4, 5, 6, 13, 14	The methodology uses metric tonnes as the unit of measure <u>Corrective Action Request No35.</u> Be consistent in using metric tonnes in all the parts of the methodology (e.g. monitoring) and in reporting the unit of measurements in all formulas.	CAR	<input checked="" type="checkbox"/>
Does the VCS Program methodology convert the quantity of each type of GHG to tonnes of CO ₂ e?	1, 2, 3, 4, 5, 6, 13, 14	The methodology converts the quantity of each type of GHG to tonnes of CO ₂ e	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Does the VCS Program methodology monitor leakage?	1, 2, 3, 4, 5, 6, 13, 14	The methodology monitors leakage	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
9.3 Description of the Monitoring Plan				
Monitoring (AFOLU v3.4 Section 4.8)				
Does the VCS Program methodology establish criteria and procedures for monitoring, and specify the data and parameters to be monitored, as set out in the <i>VCS Standard</i> ?	1, 2, 3, 4, 5, 6, 13, 14	<u>Clarification Request No10.</u> <u>Sections IV.1.1 SGMAFG v.2.3</u> <ul style="list-style-type: none"> • P.19, line 5-7: clarify which parameters need to be measured and list parameters in respective format • Line 24-30: clarify the procedures for sampling vegetation, and grazing (ensure consistency with requirements on remote sensing data). • Line 29: Clarify if a GPS precision with a meter is needed, as this would require differential GPS for boundary measurement • Clarify why permanent sample plots need to be marked with e.g. metal posts and at the same time located with GPS with a precision < 1 m. • Clarify if aboveground woody plants can or shall be measured following standard methods, please list 	CAR	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p>the methods referenced in the methodology</p> <p><u>Corrective Action Request No36.</u></p> <ul style="list-style-type: none"> Line 9-19: Define the minimum parameters needed to identify the fire and grazing management practices Line 43-46: specify further the requirements and parameters for sampling grazing animals Line 48-49: further specify the requirements and parameters for area burned and respective emission sources (e.g. amount of biomass burnt, fire intensity, combustion efficiency, etc). If remote sensing should be used for determining area burnt, define procedure for determining the area base don MODIS images and accuracy levels and procedures. Define minimum requirements if other sources than MODIS are used <p><u>Clarification Request No11.</u></p> <p><i>Sections IV.2.1 SGMAFG v.2.3</i></p> <ul style="list-style-type: none"> Clarify if the samplings plots for measuring SOC have to be permanent of not and add respective information in section VI.4 <p><u>Corrective Action Request No37.</u></p> <p><i>Sections IV.2.2 SGMAFG v.2.3:</i></p> <ul style="list-style-type: none"> Ensure to use the format required by VCS and include all relevant information <p><u>Corrective Action Request No38.</u></p> <p><i>Sections IV.3.1 SGMAFG v.2.3</i></p> <ul style="list-style-type: none"> The suggested models Century and RothC normally are used for predictions upon a depth of max. 20 cm. Lines 12-15 are unclear considering the applicability of RothC and CENTURY 		

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
		<p><u>Corrective Action Request No39.</u> <u>Sections IV.3.2 SGMAFG v.2.3</u></p> <ul style="list-style-type: none"> • Only RothC is working with Evapotranspiration (not strictly necessary but also obtainable by literature), if CENTURY is applied the information is not required. Clarify if the requirement is in the methodology shall be applicable in all cases • Clarify why texture is not listed among the parameters to be recorded since it is essential for modelling SOC dynamics. • Initial soil carbon density (point 3) cannot be measured annually, change wording <p><u>Clarification Request No12.</u> <u>Sections IV.3.3 SGMAFG v.2.3: Pg. 23, l.11</u> clarify if PSQ is < or > MPRS?</p>		
Does the VCS Program methodology describe the criteria and procedures for obtaining, recording, compiling and analyzing data and information important for quantifying and reporting GHG emissions and/or removals relevant for the project and baseline scenario.	1, 2, 3, 4, 5, 6, 13, 14	See CARs and CRs above	CAR	<input checked="" type="checkbox"/>
Where measurement plots or data from research plots are used to calibrate belowground biomass, soil carbon and dead wood decay models (as described above in Section 4.5.3), does the VCS Program methodology require to apply sound and reliable methods for monitoring changes in carbon stocks, including representative location of samplings sites and sufficient frequency and duration of sampling shall be applied?	1, 2, 3, 4, 5, 6, 13, 14	The methodology indicates accurately the sampling stations for the measured approach. For the modelled no indication concerning the number of sampling stations is given. See also New CAR No1.	CAR	<input checked="" type="checkbox"/>
In addition, does the VCS Program methodology require that plots used to calibrate soil carbon models are measured considering appropriate sampling depths, bulk density and the estimated impact of any significant erosion (or plots with significant erosion shall be avoided)?	1, 2, 3, 4, 5, 6, 13, 14	The methodology suggests adapting the sampling depth to that required by the model applied. Further the measurement of SOC and bulk density is required.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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VCS Requirement	Ref	COMMENTS	Draft Concl	Final Concl
Does the VCS Program methodology require that data used to calibrate belowground biomass and dead wood models have to consider an estimation of oven-dry wood density and the state of decomposition?	1, 2, 3, 4, 5, 6, 13, 14	n.a.	n.a.	n.a.
Monitoring Plan (VCS v3.4 Section 4.8.2)				
Does the VCS Program methodology establish criteria and procedures for monitoring, which cover the following? a) Purpose of monitoring. b) Monitoring procedures, including estimation, modelling, measurement or calculation approaches. c) Procedures for managing data quality d) Monitoring frequency and measurement procedures.	1, 2, 3, 4, 5, 6, 13, 14	See CARs and CRs above	CAR	<input checked="" type="checkbox"/>
10. References and other information				
Include any relevant references and any other information relevant to the methodology/revision.	1, 2, 3, 4	Relevant references and other relevant information is listed. <u>Corrective Action Request No40.</u> Ensure that all references are updated and the links provided are functioning.	CAR	<input checked="" type="checkbox"/>
Other information listed in the methodology				
Calculation of VCUs		<u>Clarification Request No13.</u> Note the use of the risk tool is not defined in the methodology, but by VCS program documents	CAR	<input checked="" type="checkbox"/>

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Table 2: Summary of Requests and Responses by Methodology Developer

Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p><u>Corrective Action Request No1.</u></p> <ul style="list-style-type: none"> • Use the correct template and format for VCS methodologies. • Ensure that the number of all references in the text are correct 	<p>General Requirements (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Document is now in correct format</p> <p>25/01/12 Response Audit Team: The correct template and format for VCS methodologies is now used as required. The numbering of the references in the Text match with the references at the end of the methodology</p> <ul style="list-style-type: none"> • Ensure that the numbering of the sections referred to is correct <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> • I checked every reference and they are all correct now. <p>22/05/13 Response Audit Team:</p> <ul style="list-style-type: none"> • Ensure that the numbering of the sections referred to is correct (e.g. p.26, section 8.2.1.3.2 is referring to section 8.1.2.3.2 which does not exist /p. 45, section 9.2.4 is referring to initial SOC in section 8.1.3.4 which does not introduce initial SOC. etc.) • The sector scope of the methodology is not AFOLU 'ALM SGM. Ensure to name the sector scope in line with the AFOLU requirements. <p>15/11/13 Response PP:</p> <ul style="list-style-type: none"> • I have gone through the entire document and checked all referred sections to make sure they are correct. In addition, I have edited the entire document thoroughly. • This has been fixed on the cover page and elsewhere in the document (p. 54). • Following the call with Martin, this has been further corrected to spell out the names Agriculture, Forestry and Other Land Use, Agricultural Land Management, and Sustainable Grass- 	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>land Management</p> <p>09/12/13 Response Audit Team: Numbering and internal references was revised. The sector scope of the methodology (Improved Grassland Management) is not correct.</p> <p>March 2014 Response PP: I used the description: sector 14, AFOLU, specific project type: ALM, Agriculture Land Management in the blue table following the other SGM methodology now in second assessment</p> <p>25/06/14 Final Response Audit Team: The project category is defined as ALM (Agricultural Land Management). The subcategory Improved Grass Management (IGM) is not mentioned. As VCS is not complaining the Audit Team will no longer insist in the proper nomination of the project subcategory. Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>	
<p><u>Clarification Request No1.</u></p> <p>Demonstrate that no approved or pending methodology under the VCS Program or an approved GHG program could reasonably be revised to meet the objective of the proposed methodology.</p>	<p>General Requirements (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Page 2 has a paragraph addressing this.</p> <p>25/01/12 Response Audit Team: A paragraph was added proving that no approved or pending methodology under the VCS Program or an approved GHG program could meet the objective of the methodology as those are focusing on the preservation and/or management of forests or solely on the emission of methane and nitrous oxide from intensive agriculture. The significant differences between the methodologies are described as required.</p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No2.</u></p>	<p>General require-</p>	<p>17/01/12 Response PP: Method for estimating methane emissions is greatly revised. Calcula-</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>The methodology does not provide conservative values that ensure no overestimation of GHG emission reductions or removals. See also CAR18 on Tier 1 approach when calculating CH4 from consumption from biomass.</p>	<p>ments (VCS v3.4 Section 4.1)</p>	<p>tions are conservative because</p> <ol style="list-style-type: none"> 1. Baseline methane emissions now use the harmonic mean relative to an arithmetic mean for the project scenario leading to a conservative estimate for reductions in methane emissions p.19 2. Increases in woody biomass from project activities are conservatively excluded. P. 10 3. Emission factor for methane emissions from biomass burning uses a conservative value of 0.5 to make it more difficult to justify increasing fire frequency to remove woody shrubs, p. 10 and 20 4. Initial baseline SOC level for modelled offsets (activity-based offsets) is now the maximum of the previous 10 years p. 23 <p>25/01/12 Response Audit Team: The methodology applies conservative values in order to avoid overestimation of GHG emission reductions or removals as required by the methodology. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No3.</u></p> <p>Include requirements regarding the required correlation between predicted and observed stocks in the section regarding the estimation of the baseline and project GHG emissions and removals</p>	<p>General requirements (VCS v3.4 Section 4.1)</p>	<p>17/01/12 Response PP: Requirements for model correlation are now in p. 9 and 21</p> <p>25/01/12 Response Audit Team: The methodology requires the use of the Monte Carlo simulation in order to determine the total uncertainty of model predictions of baseline SOC, changes in SOC or eventual equilibrium SOC to produce a mean model prediction with a 95% confidence interval.</p> <ul style="list-style-type: none"> • Point out that a 95% confidence interval is required when applying the modelled approach in line with the general requirements of the VCS. <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> • This is fixed on page 13 and 31 	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>22/05/13 Response Audit Team: The methodology requires a 95% confidence interval for the modelled and measured approach in line with the requirements of the standard. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No4.</u></p> <ul style="list-style-type: none"> Clarify the conditions for which the uncertainty deduction is applied. E.g. when estimating the emissions and removals at 90% confidence interval, as for baseline and project, and the confidence interval exceed 20% (page 24). Clarify the parameters in the formulae of uncertainty deduction (i.e. Rt as for formula 8) 	<p>General requirements (VCS v3.4 Section 4.1)</p>	<p>17/01/12 Response PP: Conditions are set to use the 95% confidence interval and 30% uncertainty as the threshold for an uncertainty deduction on page 32</p> <p>25/01/12 Response Audit Team: The methodology applies an appropriate confidence deduction if the confidence interval exceeds 30% of the estimated value at a 95% confidence interval a required by the general VCS requirements. Parameters in the formulae presented are clarified as requested. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No5.</u></p> <ul style="list-style-type: none"> Clarify how uncertainties associated with model applications are treated (e.g. comparison of model results with independent data; comparison of predictions of alternative models). Clarify how the bias associated with the chosen model are determined and treated (over or underestimation of real values). Clarify how the uncertainty analyses affect the choice of the modelled vs. measured approach. Clarify how mean and standard error of the measured parameters used as model inputs can be also used with Monte Carlo analysis to generate confidence intervals (e.g. Page 24 line 25-28 refers to confidence intervals) 	<p>General requirements (VCS v3.4 Section 4.1)</p>	<p>17/01/12 Response PP: Uncertainties with model application * Explicit treatment of model results with independent data are dealt with on p.22 * Treatment of model bias and calibration is on p. 23 * Uncertainty affecting choice of model or measurement approaches is discussed on p. 4 in section 2 *The way in which Monte Carlo analyses are done is discussed on p. 21 and 22. *The development of the uncertainty analysis is much more transparent and consistent and is presented on p. 29-31</p> <p>25/01/12 Response Audit Team: The methodology now indicates the need to validate the model specifically for the ecosystem under which the project is comprised. The model performance are evaluated by comparison of predicted and measured values, and the uncertainty in the model prediction is carried out using Monte Carlo analysis that allow to assign a specific error to each pa-</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>for input parameters or confidence interval for model predictions?)</p> <ul style="list-style-type: none"> • Be consistent in the formulas regarding uncertainty propagations (e.g. formulae 13) 		<p>parameter used as input in the model. The use of the Monte Carlo analyses is now correctly explained. The role of bias is now correctly addressed, but it is not clear how it is evaluated. When using models usually the model performance (BIAS comprised) are evaluated using specific parameters (e.g. RMSE; MD, ME).</p> <ul style="list-style-type: none"> • Specify how the role of Bias is evaluated. <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> • This is done on p. 22 <p>22/05/13 Response Audit Team:</p> <p>The bias is introduced at the end of the paragraph 8.1.3.3.2 (modelled offset approach). At present it is only introduced the ratio between root mean square error and standard deviation (RSR). In the case the ratio is > 0.7 significant bias occurs. Nevertheless it is not clarified how bias are quantitatively evaluated (A formula for bias quantification would be welcome and much more clear).</p> <p>15/11/13 Response PP:</p> <p>* Bias can be determined by evaluating the root mean square error (RMSE) of the regression, RMSR. $RMSR = RMSE/SD_y$ where $RMSE = (1 - R^2)^{0.5} SD_y$, and SD_y is the standard deviation of the measurements from chemical or combustion methods). The criteria of $R^2 > 0.90$, slope = 1 and intercept = 0 will ensure a lack of bias, that is, and $RMSR < 0.7$. This has been written in to the criteria presented on pp. 23, 24, and 39.</p> <p>09/12/13 Response Audit Team:</p> <p>The formula provided evaluates the model performance, not bias although referring to correct references (Moriassi et al. 2007). The formula is not presented in the manner as all other formulas in the methodology. The requirement regarding the value of R^2 is not consistent throughout</p>	

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		<p>the methodology.</p> <p>09/07/2014 Response PP: There is a clear statement of how bias is evaluated on p. 22 and referred to on p. 38 of the 09/07/2014 revised document. I set apart and numbered the equation for MBIAS on p. 22. The criterion of $R^2 > 0.80$ for testing the soil carbon model of choice is now consistent through the methodology (p.14, 22, 23). Note that the criterion is more rigorous ($R^2 > 0.90$) for using infrared methods to measure carbon content of soils (p. 38, 41, 45).</p> <p>18/07/14 Final Response Audit Team: A formula to calculate the bias was included in compliance with the reference cited (Moriassi et al. 200/) Formulas are presented in a consistent manner through out the methodology Consistency regarding the value of R^2 is achieved. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No6.</u></p> <ul style="list-style-type: none"> Ensure that the use adopted of conservative factors when using a modelled approach (e.g.model correction factor) following the CDM Meth Panel guidance on addressing uncertainty in its Thirty Second Meeting Report, Annex 14. Include a discussion to demonstrate that model estimate of emission reduction is conservative. Specify how the uncertainties of the different model parameters are treated. Justify the choice of an appropriate model correction factor, or in case different correc- 	<p>General requirements (VCS v3.4 Section 4.1)</p>	<p>17/01/12 Response PP: * I have entered a whole new section on conservative approach in section 8.4.1 on p. 29</p> <p>25/01/12 Response Audit Team: In the modeled approach it is now correctly stated to choose the higher value of SOC from those of the previous 10 years so to be conservative. A discussion on how the uncertainties of the different parameters are treated is provided, not in this specific paragraph but in another section. However, in the paragraph where the conservative approaches are explained neither correction factor for models nor the use of a conservative model estimate is mentioned.</p> <ul style="list-style-type: none"> Clarify/Specify correction factors for the models used Clarify that the use of conservative model estimates is obligatory 	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>tion factors are adopted, sustain and explain the choice.</p>		<p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> This corrected in section 8.4.3 items 4 and 5 on p. 32. <p>22/05/13 Response Audit Team: No correction factor is explained for the use of models. Point 4 address the conservative SOC level to be used in the baseline scenario when using models. No correction factor is used because the model can be used only if it fits to the measured data or if it is underestimating the real value (conservative). However if this is the case it has to be made clear that no correction factor is used for these reason.</p> <p>It has to be clearly stated that the use of conservative model estimates is obligatory.</p> <p>15/11/13 Response PP:</p> <ul style="list-style-type: none"> Obligatory use of conservative model parameters is mentioned on p. 28 and p.34. The lack of a correction factor is justified on p. 34. <p>09/12/13 Response Audit Team: On both pages is clearly stated the estimates produced by the model have to be unbiased or produce conservative values Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No7.</u></p> <ul style="list-style-type: none"> List key documents, methodologies and/or projects if the methodology is based upon those. List tools the methodology is referring to. 	<p>Section 1. Sources (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Key documents are listed in section 1</p> <p>25/01/12 Response Audit Team: Key documents and methodologies are listed as required by the VCS methodology template.</p> <ul style="list-style-type: none"> Clarify the existence of the referenced document: IPCC. 2000. Emissions: energy and transport. Pages 55-70 Good Practice Guidance and Uncertainty Management in National Greenhouse Gas In- 	<p style="text-align: right;"><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>ventories. IPCC National Greenhouse Gas Inventories Program.</p> <p>15/04/13 Response PP: See document at http://www.ipcc-nggip.iges.or.jp/public/gp/gpg-bgp.html</p> <p>22/05/13 Response Audit Team: The reference was provided as requested. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No8.</u></p> <ul style="list-style-type: none"> Combine the two sections into one section only. Clarify why measured offsets are generated for soil sequestration only Clarify how annual payment can be generated taking VCS procedures and the requirement of verification into account Ensure consistency with the content of the methodology (e.g. I.5.3 No. 3 [Dead Wood and Litter] is not mentioned in Section IV) page 9, line 35: Note that bulk density is mass/volume page 9, line 34-37: Rock fragment content should be taken into consideration as well as greatly affect SOC density, as reported by IPCC 	<p>Section 1. Summary Description of the Methodology (VCS Methodology Template)</p>	<p>17/01/12 Response PP: The summary description has been completely re-written. The issue of annual payment is now explicitly and clearly related to verification on p. 10.</p> <p>Methods for sampling soils are detailed on p. 20-21, with correct units and calculation of bulk density as an explicit parameter</p> <p>25/01/12 Response Audit Team: The section “summary description of the methodology” is completely re-written, explaining briefly the different approaches possible when applying the methodology and illustrating the major steps with a diagram. Further project activities and the issue of leakage are briefly discussed. The issues listed in the CAR are solved respectively clarified and discussed in the respective sections as required by the VCS methodology template. Request closed. <input checked="" type="checkbox"/></p>	<p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No9.</u></p> <p>Ensure consistency with VCS Definitions and correct use of abbreviations (e.g. explanations for IPCC, UNFCCC, VCS are incorrect).</p>	<p>Section 1. Definitions (VCS Methodology Template)</p>	<p>17/01/12 Response PP: The entries in the list of section 3 are now fixed.</p> <p>25/01/12 Response Audit Team: Abbreviations were corrected as required.</p> <ul style="list-style-type: none"> Ensure consistence with VCS Definitions (Program Definitions: VCS Version 3) 	<p><input checked="" type="checkbox"/></p>

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		<ul style="list-style-type: none"> Change the wording “new emission” to “project emission” in line with general VCS and climate change language <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> This has been corrected on pp. 7-8, including re-alphabetizing the definitions. <p>22/05/13 Response Audit Team: Section 3 was correctly updated. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No10.</u></p> <p>Clearly specify and define the project activity (see also CAR 7 in project summary)</p>	<p>Applicability conditions (VCS v3.4 Section 4.3)</p>	<p>17/01/12 Response PP: Allowable project activities are specified in section 2.2, p. 5</p> <p>25/01/12 Response Audit Team: Project activities to which the methodology applies are clearly identified as requested. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No11.</u></p> <p>Applicability condition a):</p> <ul style="list-style-type: none"> Define “uncultivated” grassland The forest definition by UNFCCC varies by country, therefore the applicability condition as set out in the methodology is contradicting as many countries have other UNFCCC definitions for forest than the one presented in the meth Explain why a minimum mean precipitation was included in the applicability condition Explain why a minimum time of three years uncultivated land was included in the applicability condition. (<i>if e.g. the project area had been cultivated four years ago, an increase in SOC is likely</i>). 	<p>Applicability conditions (VCS v3.4 Section 4.3)</p>	<p>17/01/12 Response PP: I have completely redone the applicability conditions, see new section 4. All of the conditions questioned have been eliminated and replaced with simpler conditions.</p> <p>25/01/12 Response Audit Team: The section on applicability conditions was completely revised defining clear applicability conditions. Open issues and questions arisen before were eliminated as requested. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>

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<ul style="list-style-type: none"> • Discuss inclusion of a applicability condition that the project area is undergoing degradation processes that led to a loss of SOC. <p>Applicability condition b):</p> <ul style="list-style-type: none"> • Define “constant or increasing agricultural pressure”. • Discuss the geographical area to demonstrate “constant or increasing agricultural pressure” (project area or region?) • Discuss the need for such a applicability condition <p>Applicability condition c):</p> <ul style="list-style-type: none"> • Define the timeframe for constant or decreasing forest cover • Discuss the geographical area to demonstrate “constant or decreasing forest land over time” (project area or region?) • Discuss the need for this applicability condition <p>Applicability condition d):</p> <ul style="list-style-type: none"> • Clarify why the second part of the sentence (lines 42-44 is considered applicability condition, as it is rather a project activity) <p>Applicability condition e):</p> <ul style="list-style-type: none"> • Shifting from emission (dung) from outside to inside the project area is not considered as leakage, but a project emission • Clarify if the point is already included in a) (no net import of dung) 			

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>Applicability condition f):</p> <ul style="list-style-type: none"> • Clarify if these points listed here are rather the emission sources included in the methodology, not an applicability criteria <p>General description (page 6 starting as per line 5):</p> <ul style="list-style-type: none"> • The description starting from line 5 seems to be rather description of the baseline scenario the applicability conditions, please clarify • Clarify the assumptions in lines 9-19 (page 6), in particular if these are applicability conditions, and if so, how it can be sustained (e.g. what documents are acceptable to sustain the statements): <ul style="list-style-type: none"> ○ Clarify if “degraded land” shall be an applicability condition. If so, it needs to be clearly stated (<i>see also respective tools/guidance for determining degraded lands</i>) ○ Clarify what is meant by “likely” (line 9) ○ Clarify if it shall be an applicability condition that fires occur every 1-2 years ○ Clarify if loss of SOC in the baseline is a applicability conditions (if so, include required documents to sustain) ○ Item iii): clarify why this point is needed • Line 21-24: clarify why applicability condition c allows for assuming that no natural regeneration or afforestation occurs • Line 26-29: see bullet point above, clarify statement. Considering that it is a grassland, the woody above ground biomass is potentially small 			

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<ul style="list-style-type: none"> Line 31-19: <ul style="list-style-type: none"> No displacement of animals is already listed as applicability condition d). Clarify if livestock can be brought to the slaughterhouse. Baseline count of animals through ground or aerial surveys appears to be costly, and cannot be applied retro-actively. Clarify if this is a set requirement of the methodology Clarify if 100% control is required for grazing animals Clarify if a project can be implemented on wetlands 			
<p><u>Corrective Action Request No12.</u></p> <ul style="list-style-type: none"> Regarding the geographical boundary, clarify if this needs to be included in the methodology (section II.1.1. Ensure consistency with VCS requirements and guidance Start date and project crediting period do not need to be defined by the methodology, but by VCS programme documents Explain the radius of 200 km (point 3 page 10) 	<p>Project boundary (VCS v3.4 Section 4.4)</p>	<p>17/01/12 Response PP: The project boundary descriptions have all been simplified, referring to VCS Standard and AFOLU requirements</p> <p>The transport radius idea has been eliminated.</p> <p>25/01/12 Response Audit Team: Transport radius and definitions on starting date and project crediting period have been eliminated thus no further clarification needed. Requirements regarding the project boundary were revised in line with the methodology. Request closed.</p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No13.</u></p> <ul style="list-style-type: none"> Ensure consistency in the methodology between the proposed project activities and emission sources included (see details below) Use of fossil fuels is not listed as source but 	<p>Project boundary (VCS v3.4 Section 4.4)</p>	<p>17/01/12 Response PP: The emissions sources relation to project activities is now clarified. Fossil fuels and legume N2O emissions are now shown to be negligible on p. 12. Likewise, justification for excluding CH4 and N2O from manure is justified on p. 12, given adherence to applicability condition that no net increase in paddocked or corralled animals will occur as part of the project</p>	<input checked="" type="checkbox"/>

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<p>mentioned in former and subsequent sections (Ecotourism, shipping of livestock, Aircraft emission)</p> <ul style="list-style-type: none"> Legume biomass is not listed as source but mentioned in the column Explanation/Justification Explain why CH₄ emissions of manure is not included N₂O Emissions from manure is included but should be excluded according to the column Explanation/Justification as it can be considered negligible. Sustain the negligibility of the N₂O Emissions from manure Clarify why N₂O Emissions from legume biomass cannot be considered negligible 		<p>activities.</p> <p>25/01/12 Response Audit Team: The table listing the sources covered by the methodology was revised. All inconsistencies regarding the nomination of single sources and their justifications throughout the methodology were eliminated and sustained be respective evidence.</p> <ul style="list-style-type: none"> Add Explanation of abbreviations in the column “Included” (N, Y, O) <p>15/04/13 Response PP: This was corrected on p. 10</p> <p>22/05/13 Response Audit Team: Explanation of abbreviations used in tables 1 and 2 were provided as requested. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No14.</u></p> <ul style="list-style-type: none"> Clarify why the carbon pools above-ground woody and non-woody biomass as well as below ground biomass are included, even though they do not have to be included or are considered optional for ALM-Methodologies and in context of the applicability conditions. Justify why above ground woody is reduced as a consequence of project activities. Justify why above ground non woody could reduce/remove emissions. Clarify why the carbon pools dead wood and litter are included. Provide procedures for their assessment, and justify their inclusion considering that grassland might not 	<p>B 3 Project Boundary (AFOLU v3.4 Section 4.3)</p>	<p>17/01/12 Response PP: The project activities are now clearly divided into two types, those that decrease woody plant biomass, in which case removals from project-related increases in woody plant biomass are conservatively excluded, and those that increase fires and potentially reduce woody plant biomass. In the latter case, methane emissions from biomass burning and losses of woody plant biomass are potentially more than compensated by increases in soil carbon, but all three pools must be calculated. This is spelled out in detail throughout section 8.</p> <p>Dead wood and litter are now excluded, for the reasons you cited</p> <p>25/01/12 Response Audit Team: The table listing the carbon pools covered by the methodology was revised. The revised methodology includes the following pools:</p> <ul style="list-style-type: none"> Soil Organic Carbon Aboveground woody biomass (optional) 	<p><input checked="" type="checkbox"/></p>

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have significant stocks or stock changes in the pools.		<p>Consistent justification and explanation was provided and sustained with respective evidence.</p> <ul style="list-style-type: none"> Add Explanation of abbreviations in the column "Selected(N, Y, O)" <p>15/04/13 Response PP: Corrected on p. 11.</p> <p>22/05/13 Response Audit Team: Explanation of abbreviations used in tables 1 and 2 were provided as requested. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Clarification Request No2.</u></p> <p>Clarify why no de minimis procedures are determined.</p>	B 3 Project Boundary (AFOLU v3.4 Section 4.3)	<p>17/01/12 Response PP: De minimis procedures are provided on p. 10 at the beginning of section 5.3</p> <p>25/01/12 Response Audit Team: De minimis procedures have been determined (CDM Tool "Tool for testing significance of GHG emissions in A/R CDM project activities") for baseline and project methane and project nitrous oxide emissions that are deemed negligible.</p> <ul style="list-style-type: none"> Ensure correct naming in the column Phase of the table (Baseline vs. Project Soil emissions) <p>15/04/13 Response PP: Corrected on p. 12</p> <p>22/05/13 Response Audit Team: Naming was correctly updated. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No15.</u></p> <ul style="list-style-type: none"> Clarify why CH₄ from manure is not in- 	B 3 Project Boundary (AFOLU	<p>17/01/12 Response PP: From p. 12 CH₄ and N₂O emissions from animal dung are not specifically con-</p>	<input checked="" type="checkbox"/>

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<p>cluded.</p> <ul style="list-style-type: none"> Clarify why N₂O from manure is included but can be considered negligible. See CAR12 above on emission sources 	<p>v3.4 Section 4.3)</p>	<p>sidered because an applicability condition is that there is no net increase in the density of or time spent by animals in confined corrals, where dung can pile up and begin to decompose anaerobically^[6]. Dung in pastures or open rangelands typically decomposes aerobically^[13, 14], which releases negligible CH₄ and N₂O.</p> <p>25/01/12 Response Audit Team: Clarifications as requested were provided and sustained with respective evidence. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No16.</u></p> <ul style="list-style-type: none"> Clearly identify criteria and procedures for the identification of alternative baseline scenarios as per VCS requirement. (see also CAR10 under applicability conditions) Clarify why the baseline scenario identified does not distinguish between existing and historical land management practices. Provide reference to the Normalized Difference Index and Soil Adjusted vegetation Index Point 3: Clarify why woody plants need to be assessed in aerial photos or HR Satellite images (4 images over 10 years), considering costs and availability of these images (and the overall relevance of the carbon pools in grassland) Point 4: Clarify how “similar areas” are defined and why 200 km is chosen as max distance 	<p>Baseline Scenario (AFOLU v3.4 Section 4.4)</p>	<p>17/01/12 Response PP: These comments are all fixed in section 6, pp. 12-13.</p> <p>25/01/12 Response Audit Team: After revision, Project Proponents have to follow most recent VCS AFOLU Requirements when identifying the baseline scenario. Further, the methodology clearly identifies criteria and procedures for the identification of alternative baseline scenarios by listing requirements for the data collection in order to determine the baseline conditions of the selected GHG sources. Requirements to illustrate:</p> <ul style="list-style-type: none"> - fire history - grazing practices and its impacts - forage quality - Initial Soil Carbon measurements. <p>Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<p style="text-align: right;"><input checked="" type="checkbox"/></p>
<p><u>Clarification Request No3.</u></p>	<p>Baseline</p>	<p>17/01/12 Response PP:</p>	<p style="text-align: right;"><input checked="" type="checkbox"/></p>

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<p>The determination of the baseline soil carbon stock does not clearly apply a conservative approach for the baseline approach as required by the AFOLU Requirements. (as the highest value shall be applied). Clarify how the requirement of conservativeness when estimating the baseline GHG emissions and removals is met.</p>	<p>Scenario (AFOLU v3.4 Section 4.4)</p>	<p>This is now explicitly mentioned in section 6 and a procedure discussed in section 8.1.2.1 on p. 23.</p> <p>25/01/12 Response Audit Team: The methodology is now following the AFOLU requirements as for the modeled offset approach the highest value of SOC for the last 10 years prior to project start has to be applied as baseline. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No17.</u></p> <ul style="list-style-type: none"> Ensure that all emissions and removals are included in the calculation, depending on the actual baseline scenario and project activities, emissions and carbon pools included (see formulae on page 11 and 14). Ensure consistency throughout the methodology 	<p>Quantification of GHG emission reduction and removals (VCS v3.4 Section 4.7)</p>	<p>17/01/12 Response PP: All allowed emissions and removals from sources identified in section 5 are included in the calculations of baseline emissions and removals</p> <p>25/01/12 Response Audit Team: All allowed emissions and removals are included in the calculations of baseline emissions and removals. Consistency throughout the methodology is ensured. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No18.</u></p> <p><i>General request regarding "Tools"</i></p> <ul style="list-style-type: none"> Clarify if the procedures to quantify emissions are actual "tools" as per VCS language. 		<p>17/01/12 Response PP: All "tools" in version 2.3 have been eliminated and the equations and methodological steps absorbed into the main document.</p> <p>25/01/12 Response Audit Team: Procedures for quantification of emissions are no longer declared as "tool" thus misunderstanding with VCS terminology can be excluded. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No19.</u></p> <p><i>VI.1: Methane emission by biomass consump-</i></p>		<p>17/01/12 Response PP: Estimation of methane emission from biomass consumption has been eliminated.</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p><i>tion</i></p> <ul style="list-style-type: none"> Clarify why IPCC 2006 can be applied on project basis, considering that it intended for national GHG inventories. Further clarify what conditions the data must fulfil to be applied. Include the actual formulas required in the methodology, a general reference to IPCC 2006 is not sufficient Include parameters required and accepted data sources in the methodology Provide reference data for the default data in the equations in subsection (b) 		<p>25/01/12 Response Audit Team: No further clarification needed. Request closed.</p> <p style="text-align: right;">☑</p>	
<p><u>Corrective Action Request No20.</u></p> <p><i>VI.2: N₂O emissions from N-fixing species</i></p> <ul style="list-style-type: none"> Clarify if potential emissions are considered significant and VCS requirements (see e.g. decision from UNFCCC to exclude such potential emission sources) Clarify how the formulae was derived Include list of parameters required (in VCS format) and include what kind of data sources are accepted by the methodology 		<p>17/01/12 Response PP: The whole section on methane emissions has been revised and expanded, see section 8.1.3.4, pages 18-19 Based on a literature, N₂O emissions from legumes are extremely unlikely to be significant in untilled, unfertilized grasslands</p> <p>25/01/12 Response Audit Team: N₂O emissions from N-fixing species were excluded. Request closed</p> <p style="text-align: right;">☑</p>	☑
<p><u>Corrective Action Request No21.</u></p> <p><i>VI.3: non-CO₂ emission from burning biomass</i></p> <ul style="list-style-type: none"> Clarify where the formula is derived from Include list of parameters required (in VCS 		<p>17/01/12 Response PP: We now use a conservative combustion factor = 0.5 for the baseline estimate of CH₄ from fire in the case where fire frequency is increased and then measure the combustion factor in the project scenario. If fire is decreased, we conservatively exclude the reduction in CH₄ emissions, so the emission factor is irrelevant. This is all discussed</p>	☑

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>format) and include what kind of data sources are accepted by the methodology</p> <ul style="list-style-type: none"> • Sustain the combustion factor of 0.75 and clarify if it can be applied for all projects applicable under the methodology • Clarify which parameters have to be monitored (and how), and which are needed for baseline determination. • Clarify if emission factors from IPCC can be accepted for all project activity under the methodology and how overestimation of GHG emission in the baseline / underestimation in the project scenario are avoided 		<p>on p. 20 * This point is moot because the project combustion factor is measured at the permanent sampling stations in the project area.</p> <p>25/01/12 Response Audit Team Methane emissions from biomass-burning are excluded unless the potential PP increases fire frequency. In this case the methodology defines a combustion factor of 0.5 which is conservative in comparison to IPCC 2006. Request closed</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No22.</u></p> <p><u>VI.4: Soil Sampling Design</u></p> <ul style="list-style-type: none"> • Include list of parameters required (in VCS format) and include what kind of data sources are accepted by the methodology • Define “sampling station” 		<p>17/01/12 Response PP: * All parameters that project proponents must acquire, that is, not given in this methodology are now listed in the VCS tabular form in section 9 *sampling station is defined on p. 15</p> <p>25/01/12 Response Audit Team: All potential Parameters have to be listed in the methodology regardless if actually needed for the applied model when following the modelled approach.</p> <ul style="list-style-type: none"> • Clarify why SAND%_{0,m} is taken as Parameter instead of texture or clay as required by the models suggested to be applied. <p>15/04/13 Response PP: I corrected this on p. 38-39 by mentioning all three particle size classes and that different models may require different classes or all three.</p> <p>22/05/13 Response Audit Team: The commonly used parameters (clay and silt) for modelling SOC with</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		the models suggested by the methodology were added. Request closed. <input checked="" type="checkbox"/>	
<p><u>Corrective Action Request No23.</u></p> <ul style="list-style-type: none"> Provide a clear structure of the methodology for the two approaches (measured and modelled), and clearly present the respective requirements (e.g. stepwise approach for each approach) 	<p>B 5 Base-line and Project Emissions/Removals (AFOLU v3.4 Section 4.5)</p>	<p>17/01/12 Response PP: * The structure and comparison of the two approaches is provided in section 2.1, p. 5 and Figure 1.</p> <p>25/01/12 Response Audit Team: A flowchart of the two approaches possible is provided in section 2. Throughout the methodology the approaches are clearly structured and elaborated as requested. Request closed. <input checked="" type="checkbox"/></p>	<p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No24.</u></p> <p><u>Measured Approach:</u></p> <ul style="list-style-type: none"> Include a list of parameters as per VCS requirements for the measured approach Clarify how the baseline carbon stock in SOC is determined in the measured approach Clarify how ex-ante calculations are done 		<p>17/01/12 Response PP: * A separate list of parameters is provided in section 9. * The baseline carbon stock is measured as the stock at the start of the project. This is discussed in section 8.1.3.3.4 on pp. 20-21. * Ex ante calculations are discussed in section 8.4.2, p. 30.</p> <p>25/01/12 Response Audit Team: Parameters are listed as required by the VCS template. The baseline carbon stock in the measured approach is clarified as the stock at the start of the project. Ex-ante calculation shall be based on published studies or experiments according to the proposed project activities and the length of the crediting period chosen. The Formula presented to calculate SOC is not in line with IPCC respectively good practice.</p> <ul style="list-style-type: none"> Ensure to provide a formula for SOC calculation in line with IPCC <p>15/04/13 Response PP:</p>	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>The discrepancy in the formulas (equation (4) of the methodology and relates to bulk density and coarse fragments. As I have described it in section 9.1.5, bulk density is measured after fragments are removed, whereas in the IPC recommendations, bulk measurements are assumed to include fragments and so BULK has to be multiplied by (1-frag) or the proportion of the soil volume that is free of fragments. There was also a multiplier of 10 in equation (4) that I removed, as g/cm² is equivalent to metric tons/ha. So the formulas don't look identical but they have identical function.</p> <p>22/05/13 Response Audit Team: The problem of the absence of the coarse fragments in the formula for SOC stock calculation is correctly addressed. It is explained that coarse fragments are not included since they are removed from the bulk density (paragraph 9.1.5). Thus, the formula is correct.</p> <p>However a concern is about the conversions presented in the methodology: In section 8.1.3.3.4 g/cm² is presented as equivalent to tons/ha which is not correct. To convert g/cm² to tons/ha you have to multiply by 100. The same applies of the conversion of g/cm² to tons/ha presented in section 8.2.1.3.4. In the same section the equation 12 leads to tons of CO₂ equivalent not to tons/ha since the factors are multiplied by 44/12.</p> <p>15/11/13 Response PP:</p> <ul style="list-style-type: none"> • The correct conversion factors have been inserted on p. 22 section 8.1.3.3 and p. 27, section 8.2.4. • Corrections in the unit conversions on p. 22 section 8.1.3.3 and p. 27, section 8.2.4. now make the formulas used in line with IPCC <p>09/12/13 Response Audit Team: Formula 4 was corrected as requested. Formula 12 is not resulting in tons/ha but in CO₂ equivalents.</p>	

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>09/07/2014 Response PP: Equations (3) [p.]and (12) and (13) are all now in the correct units (tons/ha). They do not need to be multiplied by 100, as previously requested because using SOC%_{m,j,0} as a percent leaves a factor of 100 in the equation that, when multiplied by bulk density (g/cm³) and depth (cm) converts soil percent carbon to soil carbon density (tons/ha).</p> <p>25/06/14 Final Response Audit Team: Corrections were done as requested. Request closed. <input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No25.</u></p> <p><i>Modelled Approach:</i></p> <ul style="list-style-type: none"> Clarify which models are acceptable under the methodology; the requirement from “peer-reviewed literature” is too vague. Identify minimum requirements for other models applied Clarify if limitation/applicability conditions of the models need to be included in the applicability condition of the methodology Include a list of parameters as per VCS requirements for the modelled approach. Ensure consistency in the abbreviation and explanation Provide explanation on Akaike Information Criterion Provide definition on “standard selection procedure” (reference to a book is not sufficient) page 13, line 3-9: Specify the units of measurements of the equation P.13, line 6: define “region” 		<p>17/01/12 Response PP: The section dealing with carbon models has been greatly expanded. Aside from a comparison and general discussion of the use of models in section 2, sections 8.1.3.3.2 and 8.1.3.3.3 discuss model choice, section and selection among alternative models, including a discussion of Akaike Criteria and the calculation of uncertainty and section 8.2.1.3.2 deals with how project removals are calculated. Parameters for the model are left open in order to accommodate different possible models that , but several key ones including soil texture and temperature, as well as aboveground plant lignin and cellulose content are suggested, with baseline and project scenario parameters listed separately. The point that any model selected must be validated already at project validation is strongly emphasized and the steps to do so are also presented (section 8.1.3.3.2).</p> <p>Three different models are suggested, and none of them are RothC. They include CENTURY, EPIC, and the Hurley pasture model. Multiple references for each are provided.</p> <p>25/01/12 Response Audit Team: The choice of the model is constricted by further requirements as they have to be peer-reviewed, published and at least once independently validated. Further the model chosen has to be validated for the proposed</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<ul style="list-style-type: none"> Page 15, line 4-13: Temperatures and soil texture are important parameters for the main SOC models such as RothC and Century, and greatly affect SOC density estimated by models. They should be inserted in the “key parameters” needed for calculating the SOC density at equilibrium. Page 16, line 5-6: RothC does not fire and grazing into account. Clarify the requirement. Page 17, line 6: three years appears to be a low number to detect significant changes for field measurements (high number of samples would be required) Page 17, Equation 7: In the equation the sum symbol is missing for the different strata, since PRSOC_i refers to the SOC project removals as a sum of the different strata. Alternatively the sum of the different strata can be reported in Equation 6. 		<p>project by showing the ability to predict initial carbon stocks in different strata within the project area. The methodology requires that the model chosen generates a coefficient of determination $R^2 > .80$ across all strata. Parameters listed are correctly left open, since different models require different parameters. Not clear is the role of aboveground plant lignin and cellulose content, since they are really specific parameter not useful for all models. The uncertainty related to the parameters used in the model, calculated by a Monte Carlo simulation, is now correctly explained</p> <ul style="list-style-type: none"> Clearly stress that the assessment of the parameters used has to lead to an SOC value and a 95% confidence interval. Clarify the role of aboveground plant lignin and cellulose content in the context of the differing models. Avoid confusion by stating different values for required and desired values for R^2 (0.80 vs. 0.88). <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> Section 9.1.5 has been completely re-written to make this clear I eliminated specific mention of lignin and cellulose. This is corrected to be 0.80 in all cases. I further clarified what is meant by “independently validated” –I used the new text “peer-reviewed, published soil carbon dynamics model that has been validated at least once with an independent set of data other than that used to construct the model.” <p>22/05/13 Response Audit Team:</p> <ul style="list-style-type: none"> A 95% confidence interval is required throughout the methodology Lignin and cellulose are eliminated. This is acceptable, since they are not strictly required by models and difficult to measure. R^2 is required to be at 0.80 throughout the methodology. Ensure to provide full sentences throughout the methodology (e.g. paragraph 8.2.2.3.2). 	

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>15/11/13 Response PP:</p> <ul style="list-style-type: none"> • The entire methodology has been subjected to a full proof-read and edit and all headings and subheadings, as well as the Table of Contents are now formatted properly. • I also eliminated requirements to assess plant “nutritional quality” in assessing methane emissions (item (4) on p. 14) , as the approach used does not require it. • The need for the model parameters to yield a prediction of SOC density is now made clear in three places: p. 24, section 8.1.3.2; p. 40, section 9.1.6; and p. 47, section 9.2.4. • The need to measure aboveground lignin and cellulose depends on whether the chosen model requires it. This is made clear on p. 14 and p.28 • All of the threshold R² values are now 0.80 <p>09/12/13 Response Audit Team:</p> <ul style="list-style-type: none"> • The methodology was revised, all heading and subheadings are formatted properly, a corresponding table contents is provided • Formula 4 was corrected as requested. • Lignin and cellulose determination is left open according to the chosen model. This is explained on page 14 and 28. • However, the same parameters are still reported on page 42 (Parameters for Soil Carbon Models), <u>but it is stated at the beginning of the paragraph that there is not a list of parameter that can be generally defined for all models.</u> Nevertheless lignin, cellulose, soil temperature are still listed in section 9.2 but atmospheric temperature, a parameter required by all models is not listed. • Model parameters are required to yield a prediction of SOC density with a 95% of confidence interval • Required values for R² are not consistent throughout the methodology. <p>18/07/14 Final Response Audit Team: Consistency regarding the value of R² is achieved. Request closed.</p>	

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<input checked="" type="checkbox"/>	
<p><u>Clarification Request No4.</u></p> <ul style="list-style-type: none"> Clarify if the significance of the carbon pool, considering that the land cover remains grassland Clarify which version of the tool shall be applied 	<p>B 5 Base-line and Project Emissions/Removals (AFOLU v3.4 Section 4.5)</p>	<p>17/01/12 Response PP: Assuming CAR 4 is the same as the one listed in the Assessment report, the risk assessment tool is no longer used to deal with uncertainty. Uncertainty calculations follow the IPCC 2006 recommendations, as discussed in depth in section 8.4.3</p> <p>25/01/12 Response Audit Team: Above and below ground biomass is no longer included in the methodology. Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Clarification Request No5.</u></p> <p>Clarify if the IPCC 2003 is referred to in the methodology</p>	<p>B 5 Base-line and Project Emissions/Removals (AFOLU v3.4 Section 4.5)</p>	<p>17/01/12 Response PP: The methodology uses IPCC 2006 recommendations in calculating uncertainty, with the exception that the VCS requires the use of the full 90% or 95% confidence intervals, rather than the half-width of the confidence intervals suggested by the IPCC Guidelines.</p> <p>25/01/12 Response Audit Team: The methodology refers only to the IPCC 2006. Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p> <p>See Note under CAR No7</p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No26.</u></p> <ul style="list-style-type: none"> Clarify if the application of the tool is required. Define the formulas and procedures to ensure a 95% confidence level when not applying the mentioned tool. 		<p>25/01/12 Response Audit Team: No response on CAR No26 has been provided; it is still not clear, if potential PPs have to use the CDM tool suggested.</p> <p>15/04/13 Response PP: It is now clear that proponents must use the CDM tool.</p> <p>22/05/13 Response Audit Team: Clarification is provided; PPs have to apply the mentioned CDM tool. Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p><u>Corrective Action Request No27.</u></p> <ul style="list-style-type: none"> • Sustain the statistical power level chosen. • Define the formulas and procedures for the calculation of the size and number of sample plots needed to reach the chosen statistical power level. • Clarify the total reduction in sampling stations of the modelled approach compared to the measured one. 	<p>B 5 Base-line and Project Emissions/Removals (AFOLU v3.4 Section 4.5)</p>	<p>17/01/12 Response PP: The online tool for calculating the sample size for a minimal sampling for testing a regression model has been eliminated. Because the chosen model, if used, must be validated for the entire project area and its strata, even modelled offsets approach projects must use the design and sample size developed in section 8.1.2.</p> <p>25/01/12 Response Audit Team: The online tool for calculating the sample size for a minimal sampling and for testing the regression model has been eliminated. Measured and modeled approaches have to establish the same amount on permanent sampling plots in any case.</p> <ul style="list-style-type: none"> • Provide a response on CAR No 26 <p>15/04/13 Response PP: It is now clearly stated that proponents must use the CDM Tool</p> <p>22/05/13 Response Audit Team: Clarification is provided; PPs have to apply the mentioned CDM tool. Request closed.</p>	<p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No28.</u></p> <ul style="list-style-type: none"> • Specified how “pooled soil cores” are defined (e.g. ISO recommendation etc) • Clarify how many soil cores have to be taken, taking e.g. ISO 200a into account • Clarify the sampling from depths of deeper than 20 cm (e.g. 0-30), considering that the suggested models are not covering these depth per se. 	<p>B 5 Base-line and Project Emissions/Removals (AFOLU v3.4 Section 4.5)</p>	<p>17/01/12 Response PP:</p> <ul style="list-style-type: none"> • This is specified in section 9.1.5 p. 36 • Sampling depth must remain variable in my opinion. However, it is now specified that soil sampling must match the depth that corresponds to the chosen model, and so choice of a model like CENTURY confines the depth used to 20 cm. This is discussed in section 8.1.3. • The need to eliminate rock fragments is now explicitly mentioned on p. 21 • The methodology mentions the need to use “professional” commer- 	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<ul style="list-style-type: none"> Specify the laboratory methodology to be used for analysing soil samples Clarify why rock coarse fragments (>2 mm fraction) are not mentioned when measuring the parameters needed for obtaining the carbon density. Clarify methodological requirements regarding certificate of the laboratories and certificates for equipment used 		<p>cial or university laboratories. I disagree that these labs need to be certified – many university labs in developing countries lack formal certification but do high quality work, as demonstrated by a history of scientific publications. These labs offer analyses for samples without samples having to be shipped to and clear customs in Europe or North America.</p> <p>25/01/12 Response Audit Team: This section clarifying the measurement of SOC has been provided. However still some points need to be clarified. It is not clearly specified what a pooled soil core is. How many subsamples are necessary to obtain a composite one? Two are a small number for this! Although there is not a common agreement on the number of subsamples, this is however greater than 10. The sampling depth has now been correctly explained and strongly depend on the choice of the modelled versus measured approach. Models in fact are usually applicable only to the top soil (upper 20 or 30 cm of mineral soil). Rock coarse fragments are now mentioned as a parameter necessary to calculate the SOC stock. The methodology mentions now the use of professional laboratories for SOC concentration measurements</p> <ul style="list-style-type: none"> Clarify/specify how pooled soil cores are defined. Clarify how many samples are required to collect for each sampling plot. Provide a description and requirements for the re-validation when applying the modelled approach (See also new comments on CAR No31). <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> Section 9.1.5. has been re-written to address all of these requests <p>22/05/13 Response Audit Team: A definition of “pooled soil cores” in compliance with good practice was</p>	

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		<p>provided. Clarification of the minimum amount of samples per sample plots is not provided as a specific indication on the number of subsamples needed to form a composite sample is missing. However the methodology suggests ten or more samples which is in line with good practices.</p> <p>A description and requirements for the re-validation of the model applied under the modelled approach is not provided.</p> <ul style="list-style-type: none"> • Provide a description and respective requirements for the revalidation when applying the modelled approach. • <u>Ensure to clearly address obligatory requirements with “shall” not “should” throughout the whole methodology.</u> • Ensure to provide correct “Justifications of choice of data or description of measurement methods and procedures applied” for the parameter Bulk density. Bulk density is necessary to convert C concentration from percentage (or g kg⁻¹ that is equivalent) to an area basis value (tons/ha; g/cm²). In fact bulk density refers to a volume while SOC stock refers to an area. In the justification of the bulk density parameter it is presented that bulk density is used to convert the proportion of SOC to mass/volume. But mass/volume is the Bulk density. Provide correct justification as required by the report template <p>15/11/13 Response PP:</p> <ul style="list-style-type: none"> • A paragraph describing the procedure for re-validation was added on p. 24, section 8.1.3.3 • Shall has replaced “should” throughout the document. • The bulk density unit conversion has been corrected in section 8.1.3.3 p. 22, and section 9.1.5 on p. 40 <p>09/12/13 Response Audit Team:</p> <ul style="list-style-type: none"> • In the previous version of the methodology a definition of “pooled soil 	

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		<p>cores” was provided that was found to be in compliance with good practice by the audit team. In this last version of the methodology, this part was changed so that «at least 4 soil cores» form a composite sample since the sampling is extensive. Since there is not a common agreement on the number of samples needed to form a composite sample it can be acceptable. Also because in the same paragraph at page 39 is reported that the estimate should produce an estimate with 95% confidence interval.</p> <ul style="list-style-type: none"> On page 24 is now reported the need to re validate the model every 5-10 years All «should» have been replaced by «shall» were appropriate. A “justification of choice of data or description of measurement methods and procedures applied” for the parameter bulk density throughout the sections dealing with parameters was provided but only on page 40. On pages. 46 and 49 it is still missing. <p>Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>	
<p><u>Clarification Request No6.</u></p> <ul style="list-style-type: none"> Page 14, line 4: Clarify “wildlife grazers” need to be considered. If so provide further details. 	<p>Baseline and Project Emissions/Removals (AFOLU v3.4 Section 4.5)</p>	<p>17/01/12 Response PP: *There is no explicit mention of wildlife in the methodology.</p> <p>25/01/12 Response Audit Team: The issue of wildlife grazers was eliminated. Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>	<p style="text-align: center;"><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No29.</u></p> <p><i>Section III.2.2: estimation of new emission sources</i> (Page18, line 9-32)</p> <ul style="list-style-type: none"> Change the wording “new emission” to “project emission” in line with general VCS and climate change language 		<p>17/01/12 Response PP:</p> <ul style="list-style-type: none"> There are no “new emission sources.” All candidates are discussed and included/excluded in section 5. It’s possible that legume biomass might increase in the project area, but unfertilized, untilled grasslands or savannas that sustain greater than 300 g/m² of aboveground legume biomass under grazing, which is the abundance necessary for N fixation rates to be high enough for N₂O emissions to be non-negligible. This is discussed in 	<p style="text-align: center;"><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<ul style="list-style-type: none"> Clarify if the emission sources listed here are significant. Ensure consistency with emission sources listed in other parts of the methodology List parameters and formulae for the calculations Clarify how emissions from fertilization can occur on unfertilized land Clarify why the number of legume biomass should increase in the project scenario Clarify why number of livestock animals leads to greater soil carbon sequestration (not relevant unless captured by the model or in the measurements) Clarify the concept of ecotourism in the context of the methodology 		<p>section 5 in Table 2, p. 11-12, with references</p> <p>25/01/12 Response Audit Team: The term new emissions was eliminated. Emission sources have been listed in line with the VCS template as discussed under CAR 16 Consistency is ensured as requested. Parameters and formulae for calculations have been provided Requested clarifications were not provided but the respective issues (fertilizer/increase of soil carbon due to higher number of livestock animals/ecotourism) have been eliminated from the methodology. Clarification on the potential increase of legume biomass was provided and sustained with respective evidence; It is very unlikely that legume biomass might increase under applicability conditions, consequently it is not longer listed as optional project GHG source in the section 5.3, table 2. Request closed.</p> <p style="text-align: right;">☑</p>	
<p><u>Corrective Action Request No30.</u></p> <p><i><u>Leakage from grazing</u></i></p> <ul style="list-style-type: none"> P.17: Note that displacement from cattle or animals outside of the project area to the project area is not considered leakage (but project emissions). If this should be prevented, it should be defined as project activity P.17. Clarify why numbers of grazing animals outside the project area shall be monitored? Explain the 200 km radius chosen for the designated reference area Explain why the project proponent needs to monitor animal numbers outside the project 	<p>Leakage (AFOLU v3.4 Section 4.6)</p>	<p>17/01/12 Response PP: Leakage from displaced grazing animals is now calculated in section 8.3 and the two necessary parameters are described in section 9.3 with the standard tables. Passing nomads would not yield leakage, but rather potentially decrease project removals to SOC. However, it seems unlikely that nomads would increase total animal numbers by more than 25% and stay in the project area for more than 25% of the year, and if not, their influence on SOC would be negligible. This is discussed in section 8.3. If their animals are detected in animal censuses, they would contribute to methane emissions.</p> <p>25/01/12 Response Audit Team:</p> <ul style="list-style-type: none"> Ensure consistency with the numbering of the applicability conditions throughout the methodology. Clarify how leakage can occur when applicability conditions 3 doesn't allow a net displacement of grazing animals from inside the 	<p style="text-align: right;">☑</p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>area.</p> <ul style="list-style-type: none"> • Provide parameters (in compliance with VCS template requirements) and formulae for calculation • Clarify how leakage from nomads passing through potential project area should be dealt with 		<p>project area to outside the project area.</p> <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> • This has been fixed. throughout the document • Section 8.3.4. I added “monitoring of project activities may reveal that livestock excursions outside the project area have occurred and any impacts of such excursions on GHG emissions or reductions outside the project area should be accounted for as leakage.» <p>22/05/13 Response Audit Team: Consistency of the numbering of the applicability conditions is provided throughout the methodology.</p> <p>Clarify in how far livestock excursions outside the project area contradict applicability condition 3 which requires the capability of potential PPs to enforce the boundaries of the project area.</p> <p>15/11/13 Response PP:</p> <ul style="list-style-type: none"> • On p. 10 item 3, I have now added a 2 km buffer to the applicability condition, implying that excursions must exceed 2 km of the project area. In unfenced scenarios, such as pastoralists, 2 km should encompass the uncertainty in a herd's position either in or out of the project area. • Justification is presented in a given reference (Schlee 2013) regarding allowable buffers of 2km in grazing use between communal lands of different pastoralist ethnic groups. All other grazing systems are likely to be fenced and buffer zone is not applicable in that case <p>09/12/13 Response Audit Team: Justification for the allowable buffer zone of 2 km was described. Request closed.</p> <p style="text-align: center;"><input checked="" type="checkbox"/></p>	
<p><u>Clarification Request No7.</u></p>		<p>17/01/12 Response PP:</p>	<p style="text-align: center;"><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p><u>Leakage from fuel wood</u></p> <ul style="list-style-type: none"> • P.17, line 41:Clarify how to determine if shifts in fuel wood collection are “non-negligible” • Define “nearby reference area” • Clarify why VM0009 is applicable in this methodology (considering different applicability conditions etc) • Clarify if leakage from fuel wood collection is significant (considering that the project area is grassland and will remain grassland). Project activities should be further defined to determine if fuel wood collection is relevant • Explain why a shift in wood harvesting from inside the project area to outside the project area can occur due to the project activity 		<p>Project applicability condition (5) limits leakage from this source, as discussed in section 8.3.</p> <p>25/01/12 Response Audit Team: Leakage from fuel wood is no longer taken into account due to applicability conditions. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Clarification Request No8.</u></p> <p><u>Market leakage</u></p> <ul style="list-style-type: none"> • Explain how market leakage can be assumed to be minimal, taking into account, that livestock may be removed to be sold for meat or other products and that the size of the project area is not yet limited to a certain maximum area. • Clarify why a grazing census in adjacent areas is needed if market leakage can be neglected and an displacement off livestock is not allowed (applicability condition d) 		<p>17/01/12 Response PP: The VCS provides no guidelines for calculating this, as they argue that it is likely negligible for grassland projects.</p> <p>25/01/12 Response Audit Team: VCS argues that it is most likely negligible as e.g. grass land remains maintained for commodity production. According to the applicability conditions and the project activities listed in Section 2.1 it is unclear if market leakage can be neglected. Explain how market leakage can be assumed to be minimal, taking into account, that livestock may be removed to be sold for meat or other products and that the size of the project area is not yet limited to a certain maximum area.</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> A new applicability condition (6) for a maximum of 3 million ha or 5% of a country's land area, whichever is smaller, has been added for projects that modify grazing in order to minimize impacts of any live-stock reductions from the project on national or international live-stock markets. This change is reflected in section 8.3.4 <p>22/05/13 Response Audit Team: Clarify how market leakage can be considered negligible under the applicability conditions as e.g. only 5% of the country's land area might be suitable for grazing activities.</p> <p>15/11/13 Response PP: This is addressed by changing applicability condition (6) on p. 10 to be 5% of the area used to graze livestock.</p> <p>09/12/13 Response Audit Team: The applicability conditions concerning the project area size were re-vised. Nevertheless it is not proven that market leakage can be deemed de minimis and thus be neglected in compliance with VCS AFOLU 3.4 section 4.3.3</p> <p>09/07/2014 Response PP: I have added new text to clarify that the project area should not exceed 3 million ha or 5% of the current or potential grazing land in the designated country, as determined by government land use maps, inventories or other documents. See item (6) on p. 10, which is referred to in section 8.3.1, p. 29.</p> <p>18/07/14 Final Response Audit Team: Further specification was provided. Market leakage can be deemed de minimis and thus neglected in compliance with VCS AFOLU 3.4 section 4.3.3. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p><u>Clarification Request No9.</u></p> <p>Clarify if net GHG emissions are calculated in line with VCS requirements (deduct leakage)</p>	<p>Section 8.4 Summary of GHG Emission Reduction and/or Removals (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Leakage is subtracted from project emissions and removals in equation 17. Leakage is expected to be limited and negligible under applicability conditions. However, should it occur, there is a discussion on p.28 of how to conservatively account for it</p> <p>25/01/12 Response Audit Team: In Equation 17 leakage is added not subtracted from project emissions and removals.</p> <p>15/04/13 Response PP: Equation 16 has been changed on p. 28</p> <p>22/05/13 Response Audit Team: Equation for calculating net GHG emissions is in line with the VCS requirements. Request closed.</p>	<p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No31.</u></p> <ul style="list-style-type: none"> • Use the table provided by the template for all parameter • Ensure to list both data and parameters available at validation and data and parameters monitored (distinction needed). • Ensure that the name of the parameter matches the name of the parameter used in the respective equation • Ensure that all parameters mentioned in the calculations are listed • Ensure that all parameters mentioned in the calculations are expressed with the same unit of measurement. • Ensure that there is a justification for each 	<p>Section 9.1 Data and Parameters Available at Validation (VCS Methodology Template)</p>	<p>17/01/12 Response PP: See section 9.1 for parameters available at validation and section 9.2 for parameters available at verification and 9.3. parameters for calculating leakage. All parameters not stipulated in the methodology are listed, each in a standard table format with name and units consistent with that given in the equations in which they were introduced. Each parameter has information about how to measure or obtain it, with the vast majority being measured in the project area.</p> <p>Standard Operating Procedures and QA/QC expectations are discussed in section 9.3 on p. 47.</p> <p>25/01/12 Response Audit Team: The table provided by the template has been used for parameters available at validation only. Parameters available at validation and parameters monitored are clearly distinguished.</p>	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>data or description of measurement methods and procedures</p> <ul style="list-style-type: none"> • Include requirements for Standard Operational Procedures and QA/QC 		<p>Names and units of the listed parameters are consistent throughout the methodology. Justifications and descriptions of measurement have been provided. Requirements for SOPs and QA/QC have been provided as required.</p> <ul style="list-style-type: none"> • Ensure to use the correct template for parameters to be monitored. • Clarify why measured SOC is not listed as parameter to be monitored even though mentioned in section 2.1 and 6 (6) as necessary parameter for Re-validation of the model applied. <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> • All parameters in section 9.2 now have tables or are redundant with baseline parameters, e.g., annual precipitation. <p>22/05/13 Response Audit Team: The tables provided by the template to list parameters to be monitored are used. Parameters needed for verification and re-calibration of the model are listed. Request closed. As the Bulk density can vary over time as a consequence of the variation in the management of the sites (e.g. if animals are excluded from certain areas bulk density could increase as a consequence of their exclusion, or could also increase as a consequence of the increases of soil organic carbon concentration). Thus the monitoring of the bulk density could be necessary if the chosen model requires the bulk density as one of the parameters strictly necessary for its application.</p> <p>Clarify if bulk density needs to be listed as parameter to be monitored.</p> <p>15/11/13 Response PP: Bulk density was added to monitored parameters on p. 49 in section 9.2.4.</p> <p>09/12/13 Response Audit Team: See comments CAR No. 28</p>	

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		Request closed. <input checked="" type="checkbox"/>	
<p><u>Corrective Action Request No32.</u></p> <ul style="list-style-type: none"> Clarify the measurement of each parameters Define the equipment specifications for e.g. analysis of SOC 	<p>Section 9.2 Data and Parameters Monitored (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Details of measurement of each parameter are presented in their tables or in the text of section 9</p> <p>A variety of machines, including spectrometers, spectrophotometers, and autoanalyzers can provide carbon concentrations. The accuracy specifications needed for detecting small differences in SOC concentration are discussed on p. 44</p> <p>25/01/12 Response Audit Team: Equipment specification was provided. The measurements of each parameter are accurately described. When mentioning the possible methods to determine C concentrations, it should be mentioned also the classical chemical method (Walkley-Black) that is still widely used.</p> <ul style="list-style-type: none"> Clarify why the classical chemical method (Walkley-Black) is not mentioned. <p>15/04/13 Response PP: I added this method in section 9.1.5 (p. 37) and 9.2.3 (p. 43)</p> <p>22/05/13 Response Audit Team: Commonly applied chemical methods to quantify SOC are suggested. Request closed. <input checked="" type="checkbox"/></p>	<p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No33.</u></p> <ul style="list-style-type: none"> Discuss monitoring frequency (<i>annual measurement needed?</i>) 	<p>Section 9.2 Data and Parameters Monitored (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Measurement frequency is provided with each parameter table</p> <p>25/01/12 Response Audit Team: Frequency of measurement has been provided as requested. Request closed. <input checked="" type="checkbox"/></p>	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p><u>Corrective Action Request No34.</u></p> <ul style="list-style-type: none"> Define calibration information Define QA/QC Clarify why no SOPs are required 	<p>Section 9.2 Data and Parameters Monitored (VCS Methodology Template)</p>	<p>17/01/12 Response PP: Calibration procedures for soil carbon models are described on p. ?? and for IR spectrometers on p.</p> <p>25/01/12 Response Audit Team: Calibration is mentioned but not described in any part of the methodology. The same for IR spectrometers. This point need to be clarified.</p> <ul style="list-style-type: none"> Clarify requirements for calibration and IR spectrometers <p>15/04/13 Response PP:</p> <ul style="list-style-type: none"> Calibration method and requirements are now described in section 9.1.5 (p. 37) and 9.2.3 (p. 43) <p>22/05/13 Response Audit Team: The calibration of the IR spectrometer to measure SOC against real and independent measurements is correctly explained. PPs have to provide the graphs of calibration during validation/verification. <u>Ensure to clearly address obligatory requirements with “shall” not “should” throughout the whole methodology.</u></p> <p>15/11/13 Response PP: The word “should” has been replaced by “shall” throughout the methodology.</p> <p>09/12/13 Response Audit Team: Obligatory requirements are clearly addressed with “shall”. Request closed.</p>	<p><input checked="" type="checkbox"/></p> <p><input checked="" type="checkbox"/></p>
<p><u>Corrective Action Request No35.</u></p> <p>Be consistent in using metric tonnes in all the</p>	<p>Data and Parameters (VCS)</p>	<p>17/01/12 Response PP: All parameters as presented in equations and parameter tables have their units</p>	<p><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
parts of the methodology (e.g. monitoring) and in reporting the unit of measurements in all formulas.	v3.4 Section 4.8.1)	25/01/12 Response Audit Team: Consistency throughout the methodology has been provided. Request closed. <input checked="" type="checkbox"/>	
<p><u>Clarification Request No10.</u></p> <p><i>Sections IV.1.1 SGMAFG v.2.3</i></p> <ul style="list-style-type: none"> • P.19, line 5-7: clarify which parameters need to be measured and list parameters in respective format • Line 24-30: clarify the procedures for sampling vegetation, and grazing (ensure consistency with requirements on remote sensing data). • Line 29: Clarify if a GPS precision with a meter is needed, as this would require differential GPS for boundary measurement • Clarify why permanent sample plots need to be marked with e.g. metal posts and at the same time located with GPS with a precision < 1 m. • Clarify if aboveground woody plants can or shall be measured following standard methods, please list the methods referenced in the methodology 	Monitoring (AFOLU v3.4 Section 4.8)	<p>17/01/12 Response PP: Parameters are presented in section 9 with all information. Details of measuring vegetation, fire and grazing intensity are additionally discussed in section 9.5</p> <p>GPS precision is noted at the top of p. 15</p> <p>Methods for measuring woody plants are discussed in parameter tables in section 9.1.5 and 9.2.5 following A/R methods and SOP methods used by Winrock International</p> <p>25/01/12 Response Audit Team: Requirements on GPS precision have been provided. A discussion on measurement techniques has been provided. See also comments von CAR31. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No36.</u></p> <ul style="list-style-type: none"> • Line 9-19: Define the minimum parameters needed to identify the fire and grazing management practices • Line 43-46: specify further the requirements and parameters for sampling grazing animals • Line 48-49: further specify the requirements 		<p>17/01/12 Response PP: Animal number, fire and grazing measurements are discussed at length in section 9.5 If MODIS cannot be used, photographic evidence and classification of areas around sampling stations can be used to estimate percent area burned. This is discussed in section 9.5</p> <p>25/01/12 Response Audit Team:</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
<p>and parameters for area burned and respective emission sources (e.g. amount of biomass burnt, fire intensity, combustion efficiency, etc).</p> <ul style="list-style-type: none"> If remote sensing should be used for determining area burnt, define procedure for determining the area based on MODIS images and accuracy levels and procedures. Define minimum requirements if other sources than MODIS are used 		<p>A discussion on measurement techniques has been provided. Requirements respectively minimum requirements on precision level on fire frequency and a list of preferred methods for animal census and a respective discussion have been provided as requested. Request closed.</p> <p style="text-align: center;">☑</p>	
<p><u>Clarification Request No11.</u></p> <p><u>Sections IV.2.1 SGMAFG v.2.3</u></p> <ul style="list-style-type: none"> Clarify if the samplings plots for measuring SOC have to be permanent or not and add respective information in section VI.4 		<p>17/01/12 Response PP: Sampling plots have to be permanent to reduce error in detecting change in SOC. This is made clear in section 8.1.2.</p> <p>25/01/12 Response Audit Team: Clarification has been provided as requested; sampling plots have to be permanent. Request closed.</p> <p style="text-align: center;">☑</p>	☑
<p><u>Corrective Action Request No37.</u></p> <p><u>Sections IV.2.2 SGMAFG v.2.3</u></p> <ul style="list-style-type: none"> Ensure to use the format required by VCS and include all relevant information 		<p>17/01/12 Response PP: Document is in VCS 3 format</p> <p>25/01/12 Response Audit Team: The required format has been used as requested. Request closed.</p> <p style="text-align: center;">☑</p>	☑
<p><u>Corrective Action Request No38.</u></p> <p><u>Sections IV.3.4 SGMAFG v.2.3</u></p> <ul style="list-style-type: none"> The suggested models Century and RothC normally are used for predictions upon a depth of max. 20 cm. Lines 12-15 are unclear considering the applicability of RothC and CENTURY 		<p>17/01/12 Response PP: RothC has been eliminated as a model choice. Three models are suggested: CENTURY, EPIC, and the Hurley pasture model. I don't want to specify only these models, as new models may emerge that are independently validated and can be used without submitting a methodology revision. The criteria for per-reviewed, independently validated off the project area, and validated on the project area should weed out all pretenders.</p>	☑

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>25/01/12 Response Audit Team: The maximum depth of the modelled SOC is left open to the PPs and the model applied; Reason for that is that the methodology gives clear requirements on the precision level of the prediction of the model applied. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Corrective Action Request No39.</u></p> <p><i>Sections IV.3.2 SGMAFG v.2.3</i></p> <ul style="list-style-type: none"> • Only RothC is working with Evapotranspiration (not strictly necessary but also obtainable by literature), if CENTURY is applied the information is not required. Clarify if the requirement is in the methodology shall be applicable in all cases • Clarify why texture is not listed among the parameters to be recorded since it is essential for modelling SOC dynamics. • Initial soil carbon density (point 3) cannot be measured annually, change wording 		<p>17/01/12 Response PP: Texture and temperature are listed as parameters needed for models</p> <p>25/01/12 Response Audit Team: Texture and temperature are listed as parameters; evapotranspiration is erased as the model using this parameter has been eliminated. See also comments on CAR 22. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Clarification Request No12.</u></p> <p><i>Sections IV.3.3 SGMAFG v.2.3</i></p> <ul style="list-style-type: none"> • Pg. 23, l.11 clarify if PSQ is <or >MPRS? 		<p>17/01/12 Response PP: This calculation was eliminated because modelled offsets approach will almost certainly be conservative</p> <p>25/01/12 Response Audit Team: Calculation was eliminated. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>Corrective Action Request No40.</u></p> <p>Ensure that all references are updated and the</p>	Section 10. References and	<p>17/01/12 Response PP: References were generated in EndNote and should be correct, with working links for all reports.</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
links provided are functioning.	other information (VCS Methodology Template)	<p>25/01/12 Response Audit Team: Reference list was updated, provided links are functioning. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>Clarification Request No13.</u> Note the use of the risk tool is not defined in the methodology, but by VCS programme documents</p>	Other information listed in the methodology	<p>17/01/12 Response PP: The non-permanence risk tool is no longer mentioned</p> <p>25/01/12 Response Audit Team: The risk tool is not defined in the methodology anymore. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>NEW CAR No1.</u> Provide guidance/requirements for the calculation of the number of sampling stations.</p>	General requirements (VCS v3.4 Section 4.1)	<p>15/04/13 Response PP: The requirements for calculating the number of sampling stations is specified in section 8.1.2.1, p. 15</p> <p>22/05/13 Response Audit Team: Guidance for calculation of sampling plots is provided as requested. Potential PPs are obliged to apply the CDM tool "Calculation of the number of sampling plots for measurements within A/R CDM project activities". Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>NEW CAR No2.</u> Provide justification for the parameters listed for the calibration/Re-Validation of the model applied (See also comments on CAR No22).</p>	General requirements (VCS v3.4 Section 4.1)	<p>15/04/13 Response PP: Section 9.2 now includes SOC at sampling time t since this is needed to re-validate the model. However, it is now clearly indicated in this section that this does not have to be measured at each verification event because the project is activity based. Rather the purpose is to be able to re-validate once sufficient time has passed for a change in SOC to be predicted and validated.</p> <p>22/05/13 Response Audit Team:</p>	<input checked="" type="checkbox"/>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>See also comment to CAR 28 and CAR 31.</p> <p>15/11/13 Response PP: I addressed this comment under CARs 28 and 31</p> <p>09/12/13 Response Audit Team: See comments to CAR 28 and CAR 31</p> <p>18/07/14 Response Audit Team: See comments to CAR 28 and CAR 31 Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	
<p><u>NEW CAR No2.</u> Ensure that the requirements of the standards are met in order to address model uncertainty.</p>	<p>General requirements (VCS v3.4Section 4.1)</p>	<p>15/04/13 Response PP: It is now clarified by adding items (7) and (8) in section 6 that the major estimates of modelled or measured baseline and project emissions and reductions must calculate uncertainty from 95% confidence intervals</p> <p>22/05/13 Response Audit Team: The model requires an uncertainty based on a 95% confidence interval. If uncertainty exceeds 30% a uncertainty deduction is required. The uncertainty deduction is not further specified.</p> <p>Provide specification of the uncertainty deduction to be applied.</p> <p>15/11/13 Response PP: I state that if uncertainty deductions apply, the deducted removals will be directly proportional to the uncertainty. This is written in on p. 15 in section 6, item (8).</p> <p>09/12/13 Response Audit Team: The methodology requires that a deduction due to uncertainty shall be direct proportional to the uncertainty achieved. A formula was not presented, nevertheless clear requirements are provided. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	<p style="text-align: right;"><input checked="" type="checkbox"/></p>

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Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<input checked="" type="checkbox"/>	
<p><u>NEW CAR No4.</u> Clarify if the application of the VCS Tool VT0001 is compulsory when applying the methodology at hand.</p>	<p>General requirements (VCS v3.4 Section 4.1)</p>	<p>15/04/13 Response PP: It is now clarified in section 7 that project proponents must use the VT0001 tool.</p> <p>22/05/13 Response Audit Team: Guidance for determining the additionality is provided as requested. Potential PPs are obliged to apply the VCS tool VT0001. Request closed. <input checked="" type="checkbox"/></p>	<input checked="" type="checkbox"/>
<p><u>NEW CAR No5.</u> Specify and indicate whether the methodology applies an project, performance or activity method to determine the additionality and whether the methodology applies a project or performance method to determine the crediting baseline.</p>	<p>2. Summary Description of the Methodology</p>	<p>15/04/13 Response PP: It is now specified in section 7 that additionality is calculated from an activity based method. It is now specified that the baseline is activity based in section 6.</p> <p>22/05/13 Response Audit Team: No clarification in line with the standard is provided. Note: VCS 3.3 section 4.1.9 provides further specification for standardized methods and project methods.</p> <p>15/11/13 Response PP: This addressed by including more specifications of VT0001, which is the only module available for assessing additionality in VCS sector 14 projects. Additionality and Baselines are now described as performance based in section 4 on p. 6.</p> <p>09/12/13 Response Audit Team: The clarification provided is not in line with VCS 3.4 section 4.1.9 Request not fulfilled</p> <p>09/07/2014 Response PP: I believe I have made the type of baseline and additionality methods clear in Relationship to Approved or Pending Methodologies, p. 2, section 6, p. 13, and section7, p. 15</p>	<input checked="" type="checkbox"/>

Summary of Request and Responses by Methodology Developer

Title of Methodology: Adaptation of Sustainable Grassland Management Through Adjustment Of Fires And Grazing



Clarifications and Corrective Action Requests	Ref. to Table 1	Summary of response	Validation conclusion
		<p>18/07/14 Final Response Audit Team: The type of method to determine the additionality and the crediting base-line is specify in compliance with the VCS 3.4 Standard. Request closed.</p> <p style="text-align: right;"><input checked="" type="checkbox"/></p>	

Information Reference List

Title of Methodology: Adaptation of Sustainable Grassland Management Through Adjustment Of Fires And Grazing



ANNEX 2: INFORMATION REFERENCE LIST

Ref. No.	Author/Editor/ Issuer	Title, Type of Document	Date				
1.		<p><u>Interviewed Persons:</u></p> <table border="1"> <thead> <tr> <th>Name</th> <th>Position, Organisation</th> </tr> </thead> <tbody> <tr> <td>Dr. Mark E. Ritchie</td> <td>Soils for the Future</td> </tr> </tbody> </table>	Name	Position, Organisation	Dr. Mark E. Ritchie	Soils for the Future	
Name	Position, Organisation						
Dr. Mark E. Ritchie	Soils for the Future						
2.	PP	Adaptation of Sustainable Grassland Management through Adjustment of Fire and Grazing	Version 3.3 23.7.2014				
3.	VCS	AFOLU Requirements version 3.4	Oct 2013				
4.	VCS	VCS Standard version 3.4	Oct 2013				
5.	IPCC	Emissions from livestock and dung management, in Guidelines for National Greenhouse Gas Inventories. 2006, IPCC. p. 1-85. , Chapter 10	2006				
6.	IPCC	Grasslands, in Guidelines for Greenhouse Gas Inventories. 2006, IPCC. p. 1-49., Chapter 6	2006				
7.	UNFCCC	CDM, A/R methodological tool: Calculation of the number of sample plots for measurements within A/R CDM project activities, version 2. 2009, UNFCCC Annex 19 EB 46 p. 7.	2009				
8.	Moriasi, D.N., et al.,	Model evaluation guidelines for systematic quantification of accuracy in watershed simulations. Transactions of the American Society of Agricultural and Biological Engineers, 2007. 50: p. 885- 900.	2007				
9.	IPCC	Quantifying uncertainties in practice. Ch 6, in IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories R. Odingo, Editor. 2006, IPCC.	2006				
10.	UNFCCC	CDM, A/R Methodological Tool: Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities, Version 2.1. 2011, UNFCCC Annex 13 EB 60.	2011				
11.	IPCC	Emissions: energy and transport, in Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories. 2000, IPCC National Greenhouse Gas Inventories Programme. p. 55-70.	2000				
12.	VCS	VCS tool VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities.					
13.	Hoffa, E.A., et al.,	Seasonality of carbon emissions from biomass burning in a Zambian savannah. Journal Of Geophysical Research, 1999. 104: p. 13841-13853.	1999				
14.	IPCC	GENERIC METHODOLOGIES APPLICABLE TO MULTIPLE LANDUSE CATEGORIES, in Guidelines for Greenhouse Gas Inventories. p. 1-59.	2006				