FINAL ASSESSMENT REPORT

OF

Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 6.3, August 2010

under
Voluntary Carbon Standard 2007.1 (VCS 2007.1)

REPORT NO. BRAZIL-00361/2009

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BUREAU VERITAS CERTIFICATION

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Date of first issue: 25th June 2010	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Infinite Earth/Shell Canada Energy	Client ref.: Brasil – 00361/2009

Summary:
Bureau Veritas Certification has made the second assessment for validation of the "new methodology Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 6.3, June 2010" on the basis of IPCC 2006 Guidelines (GL) for AFOLU criteria and Voluntary Carbon Standard Program (VCS Program) which includes the Voluntary Carbon Standard (VCS 2007.1), VCS Tool for AFOLU Methodological Issues. The VCS 2007.1 is design for project proponents, validators and verifiers and provides a global standard for voluntary GHG emission reduction and removal projects and their validation and verification. The core of this standard are the requirements in ISO 14064-2:2006, ISO 14064-3:2006 and ISO 14065:2007.

This is the second output of the evaluation process where the responses to the Clarification and Corrective Actions Requests (CL and CAR) raised in the first assessment (please refer to Annex A), where addressed by the methodology proponent.

The validation serves as new methodology verification. The validation is an independent third party assessment of the new methodology. In particular the validation has to confirm that the baseline, the monitoring plan, and the entire methodology are in compliance with relevant IPCC and VCS rules and procedures. The methodology is assessed also in order to verify that the methodology design, as documented, is sound and reasonable. The validation of the new methodology is double approval process and according to VCS standard is required as necessary to provide assurance to stakeholders of the quality of the new methodology.

In this second assessment, it is Bureau Veritas Certification's opinion that the new methodology is technically solid and was correctly and well designed, the clarifications as well as some corrective actions and public comments (see Annex A and Annex B) were solved by the methodology proponent, thus the methodology can be recommended to validation under the VCS 2007.1

Report No.: BRAZIL-00361/2009	Subject Group: VCS	
Project title: "Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 6.3, August 2010"		
Work carried out by: Mr. Diego Serrano		
Work verified by: Mr. Diego Serrano and Ricardo Fontenele		
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1 Introduction

Infinite Earth has commissioned Bureau Veritas Certification to perform an assessment of the proposed "new baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests", work out by Infinite Earth.

This report summarizes the findings of assessment of the new methodology, performed on the basis of criteria proposed to provide consistent Voluntary Carbon Standard 2007.1, as well as applicable technical knowledge and documentation.

Bureau Veritas Certification operates in the capacity of second reviewer as independent entity for the evaluation.

The preliminary assessment was prepared based on the following document examination:

- "NM Baseline Component A Land Use Change (plantations) v5 1 03dec09",
- "NM Baseline Component A Land Use Change (plantations) v5 2 corrected 13apr10" and
- "Preliminary Assessment Report Shell Canada Energy Methodology - Responses 30mar10" (annex A)

While the final assessment was prepared based in the documents:

- "NM Baseline Component A Land Use Change (plantations) v6.1 25jun10 public comments incorporated", and
- "Infinite_Responses to public comments_BV_considerations_Infinite_reply" (annex B)

2 Objective

2.1 The purpose of independent entity assessment report is to review the new methodology documentation and to assess whether the following issues are determine appropriate and adequate and are resolve:

- methodology's applicability criteria;
- project baseline;
- additionality;
- definition of the project's physical boundary
- sources and types of gases included;
- estimation of baseline emissions,
- estimation of project emissions, and emission reductions;
- approach for calculating leakage;
- monitoring approach;
- monitored and not monitored data and parameters used in emissions calculations.

2.2 The new methodology have to comply with the following VCS 2007.1 requirements:

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- All methodologies applying for approval under the VCS Program shall be approved via the double approval process (VCS 2007.1,Section 6.1).
- VCS Program methodologies shall comply with all requirements in the VCS 2007.1 clause 6.1 to 6.4.4 (VCS 2007.1,Section 6.1).
- VCS Program methodologies shall include (VCS 2007.1,Section 6.1):
  - applicability criteria that defines the area of project eligibility;
  - a process that determines whether the project is additional or not (based on criteria laid down in clause 6.4);
  - determination criteria for the most likely baseline scenario; and
  - all necessary monitoring aspects related to monitoring and reporting of accurate and reliable GHG emission reductions or removals
- Methodologies shall be informed by a comparative assessment of the project and its alternatives in order to identify the baseline scenario (VCS 2007.1,Section 6.1).
- The project proponent shall select the most conservative baseline scenario for the methodology. This shall reflect what most likely would have occurred in the absence of the project (VCS 2007.1, Section 6.3).
- In developing the baseline scenario, the project proponent shall select the assumptions, values and procedures that help ensure that GHG emission reductions or removal enhancements are not overestimated (VCS 2007.1, Section 6.3).
- Based on selected or established criteria and procedures, the project proponent shall quantify GHG emissions and/or removals separately for:
  - Each relevant GHG for each GHG source, sink and/or reservoir relevant for the project; and each GHG source, sink and/or reservoir relevant for the baseline scenario.
  - When highly uncertain data and information are relied upon, the project proponent shall select assumptions and values that ensure that the quantification does not lead to an overestimation of GHG emission reductions or removal enhancements (VCS 2007.1, Section 6.5.2).

2.3 For the case of AFOLU methodology, what is the case of this proposed methodology, the new methodology also have to comply with the VCS Tool for AFOLU Methodological Issues and the VCS Guidance for Agriculture, Forestry and Other Land Use Projects, requirements regarding REDD methodologies.

3 Assessment Scope

The assessment scope is defined as an independent and objective review of the new baseline and monitoring methodology document. The information in this document is reviewed against the i) Voluntary Carbon Standard 2007.1 (VCS 2007.1). ii) VCS Program Normative Document: Double Approval Process, v1.0, iii) VCS Tool for AFOLU Methodological Issues iv) VCS Guidance for Agriculture, Forestry and Other Land Use Projects and v) IPCC 2006 Guidelines (GL) for AFOLU, and also against the AR methodologies and technical documents referenced by the methodology.

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The scope of this assessment, as required by the VCS Program Normative Document: Double Approval Process, v1.0 includes at a minimum, the following:

i. Eligibility criteria. Assessment of whether the methodology's eligibility criteria are appropriate and adequate.

ii. Baseline approach: Assessment of whether the approach for determining the project baseline is appropriate and adequate.

iii. Additionality: Assessment of whether the approach/tools for determining whether the project is additional are appropriate and adequate.

iv. Project boundary: Assessment of whether an appropriate and adequate approach is provided for the definition of the project's physical boundary and sources and types of gases included.

v. Emissions: Assessment of whether an appropriate and adequate approach is provided for calculating baseline emissions, project emissions and emission reductions.

vi. Leakage: Assessment of whether the approach for calculating leakage is appropriate and adequate.

vii. Monitoring: Assessment of whether the monitoring approach is appropriate and adequate.

viii. Data and parameters: Assessment of whether monitored and not monitored data and parameters used in emissions calculations are appropriate and adequate.

ix. Adherence to the project-level principles of the VCS Program: Assessment of whether the methodology adheres to the project-level principles of the VCS Program (see Section 5.1.1).

4 Evaluation process

The evaluation process consisted of the following two phases:

- Desk review of the new methodology document;
- Resolution of outstanding issues and the issuance of the final assessment report and opinion.
- Conferences between BVC, first validator (Rainforest Alliance) and the methodology proponent

The overall validation, from Contract Review to Assessment Report and Opinion, was conducted using Bureau Veritas Certification internal procedures.

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5 Conflict of Interest Review

Prior to beginning of the independent assessment work on the methodology, Bureau Veritas Certification has conducted an evaluation to identify any potential conflicts of interest associated with the task. No potential conflicts were found for this project.

6 Assessment team

Bureau Veritas Certification assessment team consisted of the following individuals who were selected based on their AFOLU, forestry, and REDD projects experience, as well as familiarity with the sectoral scopes 14 of the UNFCCC (Afforestation and reforestation):

1.) Diego Serrano – AFOLU specialist;

7 Corrective Actions, Clarifications and Supplemental Information

The team requested clarification and supplemental information as well as several corrective actions during the validation. The corrective action requests, clarifications, and the responses provided are summarized in sections 9, the Annex A and Annex B, for transparency reasons.

8 Assessment Results: Evaluation of the proposed new methodology by the desk reviewer

The validation process focused on assessing the appropriateness and adequacy of the new methodology's applicability criteria, baseline approach, additionality, project boundary, emissions, leakage, monitoring, data and parameters, and compliance in the application of the new methodology with the Voluntary Carbon Standard 2007.1 (VCS 2007.1). The assessment results are summarized below, which are further substantiated with details in the following sections and in the attached annex.

8.1 Coverage of the Voluntary Carbon standard 2007.1 new methodology sections as outlined in the applicable guidelines.

8.2 The language is sufficiently transparent, precise and unambiguous to undertake a full assessment.

8.3 The proposed methodology reflects methodology-specific information and not project specific information.

8.4 The baseline methodology is internally consistent i.e., the applicability conditions, project boundary, baseline emissions estimation procedure, project emission estimation procedure, leakage, and monitoring.

8.5 The baseline scenario identification has a clear and concise presentation of methodological steps to identify baseline scenario and baseline emissions.

8.6 The additionality section has clear and concise presentation of methodological steps to assess additionality.

8.7 The emission reductions calculation section has relevant formula provided and all variables used are adequately explained.

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8.8 All the issues raised in the methodology desk review are addressed and are sufficiently and properly explained.

8.9 The baseline methodology is internally consistent with the monitoring methodology, which is clearly documented in accordance with applicable guidelines.

9 Outline changes needed to improve the methodology during the preliminary assessment and subsequent reviews.

9.1 Major changes:

No major changes or structural changes were needed to improve the methodology.

9.2 Minor changes:

All CAR's and CL's raised during the process of methodology review were considered punctual, and not supposed to have impact in the structure of the methodology, as follow.

CAR 01: was not possible to retrieve in the document of the methodology the footnotes 10, 11, 12 and 13, mentioned in table B of the methodology version 5.1.
CAR 02: No description was found for the parameter $PV_{B,it}$, presented in the equation 8 and 9 of the methodology version 5.1
CAR 03: in the equation 20 the $MC_{AG\_nontree\_sample,it}$ can not be given in t C ha^{-1} while the $MC_{AG,nontree\_sample,sf,it}$ is given in kg d.m. and the $A_{SFP,I}$ is given in m^2.
CAR 04: In the equation 69 of the methodology version 5.1, the LK parameter make reference to equation 63, however the equation 63 refers to actual net greenhouse gas emissions avoided and not leakage.
CAR 05: in the item 5.2 of section III, the methodology refers to the E_{it}^{LUC} as being a parameter of the equation 73, however this parameter is not present in this equation, but in the equation 74. Also in the item 5.2.1.1 of section III, the methodology refers to $C_{P,ik}^{extracted}$ and $C_{P,ik}^{damaged}$ as being parameters of equation 75, while these parameters are presented in equation 76.
CAR 06: in equation 81 no description for the parameter $H_{s,tr,ik}$ was given, especially regarding its unit (cm or m) that must be applied in the equation. The absence of reference for this parameter can lead to misunderstood between this and the $H_{tr,ik}$ that is in meters.
CAR 07: In the item 5.2.1.3 the function equation for $D_{drain,it}^{selective\ log ging}$ is wrongly referred to the equation 91, and also in the item 5.2.3 the function equation regarding $D_{drain,it}$ is wrongly referred to equation 95.
CAR 08: in the item 5.3 of section III, the last paragraph refers the item 5.2.1 of section II for "Sampling Framework" , however the item 5.2.1 of section II is about "GHG emissions from biomass burning for land clearing", and not about sampling framework. In this same paragraph (item 5.3 of section III) the methodology refers the

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"Estimation of mean carbon stocks in AG tree biomass" to the item 5.2.1.1 of section II, notwithstanding this item could not be found in the version 5.1 of the methodology.
CAR 09: In the section II the item 5.1.2.1 (pg 18) is followed by the item 5.2.3 (pg 28), with no reference to items 5.2, 5.2.1 or 5.2.2.
CAR 10: in the item 5.2.2 of section III of the methodology version 5.1 the "Estimation of CO2 and CH4 emission factors (EFCO2, EFCH4)" is referred to item 5.3.1.4 of Section II, however the EFCO2 and EFCH4 are actually presented in item 5.3.2.4 of section II.
CAR 11: in the item 8 of section III, the parameter $A_{defLK,t}$ and $HistHa$ are wrongly referred to equations 110 and 108, respectively, notwithstanding these parameters are presented in equation 113 and 110, respectively.

CL 01: in the item B of the section 3 of the methodology "Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 5.1" the methodology proponent refers to the baseline approach (c) as the most appropriate choice for determination of the baseline scenario. This reference looks to be taken from the paragraph 22 of the Decision 5/CMP.1 of the Kyoto Protocol, however this source was not referenced. The lack of this reference could compromise the understanding of this item by the time of the application of this methodology by a project proponent.
CL 02: in the Methodology procedure in section II item 1, the methodology proponent refers to a paragraph taken directly from the AR-AM0005, notwithstanding this paragraph is no longer present in the most recent version (v.4) of the AR-AM0005. The absence of the reference for the CDM methodology version may confuse the future users of this VCS methodology.
CL 03: in the Methodology procedure in section II item 2, the methodology proponent refers to a paragraph taken directly from the AR-AM0004, notwithstanding this paragraph is no longer present in the most recent version (v.4) of the AR-AM0004. The absence of the reference for the CDM methodology version may confuse the future users of this VCS methodology.
CL 04: it's not clear how does the incompatibility between the reforestation/afforestation activities and the land use conversion of forest (deforestation) must to be addressed by the time of the application of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities" especially in the steps where the A/R tool requires reforestation as one of the possible scenarios to be considered by the project proponent.
CL 05: it's not clear what was the reference used to state the subsidence levels of ~4.5 cm yr-1 for the drained peat. (e.g. According to the WOSTEN J. H. M. et al, 1997 The average subsidence rate for the peninsular Malaysia was found to be 2 cm per year)
CL 06: in the section 9.4 of the methodology version 5.1, the methodology proponent refers to paragraphs taken directly from the AR-AM0007, notwithstanding this paragraph is no longer present in the most recent version (v.5) of the AR-AM0007. The absence of the reference for the CDM methodology version may confuse the future users of this VCS methodology.

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CL 07: It is not clear why does the methodology requires the measurement of the height of the stump ($H_{s,tr,ik}$) and the diameter of the stump ($D_{s,tr,ik}$) refered in item 4 and 5 of the step 1a of section 5.2.1.1, once these parameters are not referred in any equation of the methodology and also considering that the $D_{bottom,tr,ik}$ (item 1), $D_{top,tr,ik}$ (item 2) and the $L_{log,tr,ik}$ (item 3) are already required.
CL 08: it is not clear why does the methodology version 5.1, in step 2a and step 2d of item 5.2.1.1 (Estimation of $EF_{logging,i}$) refers to equation 107 (average deforestation emission factor for peat drainage)
CL 09: it is not clear why the equation 106 refers to the parameter MCB,AG,it and in the description of the parameters this parameter is refereed as MCB,BB,AG,it (estimated above-ground carbon stock in the baseline scenario before burning), it is also not clear if both parameters (presented in the equation and in the description) are the same thing.

9.3 Changes suggested by Public Comments:
Some of the public comments were taken due account by the methodology applicant in the subsequent versions of the methodology. However some public comments not considered by the methodology proponent in the first moment, but relevant according to the second validator (BVC) opinion, had to be considered and led to changes in the later version, when applicable. For more information regarding how and which public comments were taken due account, please refer to annex B.

9.4 Issues raised during the reassessment of the first validator upon the version 6.1 of the methodology:
After the methodology approval by the Rainforest Alliance (first validator) the methodology was submitted to some modifications required during the second validation (BVC) and also by some applicable public comments assessed and discussed between second validator and the methodology proponent. Notwithstanding, by the time of the reassessment of this modified version of the methodology (version 6.1) Rainforest Alliance has raised new issues and observations (see Annex C).

After this new issues be assessed by the second validator and discussed with the methodology proponent; the methodology proponent has emitted a final version of the methodology (version 6.2). Based on this posterior version (v.6.2), a conference call between the methodology proponent, BVC and Rainforest Alliance was arranged in order to address the last applicable adjustments. After this discussion the methodology proponent has emitted a final version of the methodology (version 6.3) that was finally approved by both: first and second validator. (please also refer to Rain Forest Alliance final report: "*Rainforest Alliance Assessment - NM Baseline Component A Land Use Change (plantations) v6_3 08AUG10*")

10. General information on the submitted proposed new methodology

The following description of each section of the "New methodology Baseline and monitoring methodology for conservation projects that avoid planned land use

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conversion in peat swamp forests" was reviewed from the preliminary version of this report in order to consider the ultimate modifications done in the ultimate version (Version 6.3) approved by both validators.

10.1 One sentence describing the purpose of the methodology

The methodology was developed for (and is applicable to) preventing planned land use change on undrained tropical peat swamp forests in southeast Asia, the baseline methodology outlines methods to estimate the avoided net greenhouse gas emissions resulting from project activities implemented to stop planned land use conversion on tropical peat forest.

10. 2 Summary description of the methodology

1.) Baseline scenario

The methodology adopts baseline approach 22(c) – changes in carbon stocks in the pools within the project boundary from the most likely land use at the time the project starts, taking into account national, sectoral, and local policies influencing the land use prior to the start of the project activity; the scope of project alternatives relative to the baseline; and barriers to implement the avoided deforestation project activity.

The methodology anticipates several possible baseline scenarios and uses the VCS —Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities (VT0001).

2.) Additionality

The project developer must demonstrate that the planed deforestation/degradation would occur in the absence of the VCS REDD project activity. The most current version of the VCS —Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities (VT0001), approved by the VCS Board, should be used to determine additionality.

3.) Baseline emissions

The baseline emissions are the GHG emissions from planned deforestation (peat and the changes in carbon stocks in aboveground biomass of peat swamp forests) that would occur in the absence of project activities.
Baseline net GHG emissions are not monitored in this methodology. The methodology prescribes validity of the baseline identified ex ante at the start of the project activity for the crediting period, thereby avoiding the need for monitoring of the baseline over the crediting period, and achieves savings in the costs associated with baseline monitoring However, the baseline is re-assessed/revised every 10 years.
The baseline emission is based in the future deforestation trends, that is calculated according to the area and specific geographic location of all planned land use conversions in the baseline that must be known and come from written documentation

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including land use conversion permits, government records, concession maps, etc. This threat must be demonstrated by documentary proof.

4.) Project emissions

Gaseous emissions from sources other than those resulting from changes in carbon pools, as follow:

- CH_4 and N_2O fro burning of aboveground biomass
- CO_2 from peat oxidation from drainage
- CO_2 and CH_4 from burning of peat

5.) Leakage emission

According to the proposed methodology the leakage is assumed to occur as a result of:

i) The displacement of economic activities (i.e., planned land use conversion) to areas outside the project that lead to deforestation and land use change, and
ii) Leakage due to market effects in the cases where the project area would be harvested for commercial timber before clearing the site for a new land use.

Both sources of leakage are estimated in units of tCO2-e.

6.) Calculation and monitoring of emission reductions:

The actual net greenhouse gas emissions avoided represent the sum of the avoided net decreases in carbon stocks and avoided peat emissions within the project boundary (C_{BSL}), minus any GHG emissions from the baseline scenario that are not prevented within the project boundary in the project case (C_{PRJ}), such as logging, fire, or other land use changes that lead to an increase in emissions, while the ex post net anthropogenic GHG emissions avoided is calculated as the difference between the actual GHG emissions avoided minus leakage (please refer to item 10.2.5, above).

The methodology outlines the methods for monitoring land use change, forest degradation and carbon pools and forms the basis for implementing the monitoring plan.

The proposed new methodology proposes methods for monitoring the following elements:

- The proposed project activity including the project boundary, a buffer region surrounding the project boundary to ensure against impacts of outside drainage activities, and all activities that result in increased GHG emissions inside the project boundary;
- Actual net GHG emissions including changes in carbon stocks in above-ground biomass, peat emissions
- Leakage due to displacement of economic activities
- A Quality Assurance/Quality Control plan, including field measurements, data collection verification, data entry and archiving, as an integral part of the

monitoring plan of the proposed project activity, to ensure the integrity of data collected.

10.3 Relationship with approved or pending methodologies

Some parts of the document "new methodology Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests" were taken directly from:

- Approved CDM AR methodologies (AR-AM0004 v.1, AR-AM0005 v.1 and AR-AM0007 v.1)
- The certified Noel Kempff avoided deforestation project and
- The current versions of the AD Partners REDD methodology modules (v 1.0 June, 2010), currently under VCS validation.

All the texts taken from these documents mentioned above are indentified with different colors in the "new methodology Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests version 6.3" document.

No approved methodology is available at this time, because these activities are currently not eligible to the CDM. Although avoided land use conversion is eligible as a REDD activity under the VCS.

11. Details of the evaluation of the proposed new methodology.

The following validation process description refers only to the assessment carried out by the second validator based in the version 5.2, 6.0 and 6.1 of the methodology. This following description addresses the issues raised by the second validator and the public comments consideration.

This section is supposed to register the original validation process carried out during the second validation, thus the description of some sections of the methodology presented in this section might not be updated according to the ultimate version approved by both validation entities. The summary of the ultimate version of the methodology can be observed in section 10 of this report.

The changes carried out in the subsequent versions of the methodology (6.2 and 6.3), arising during the reassessment of the first validator, Rainforest Alliance and approved by both validation entities, are presented in Annex C of this report.

11.1 Applicability conditions

A proposed project activity must satisfy the following conditions in order for the proposed methodology to be applicable:

A. The methodology was developed for (and is applicable to) preventing land use change on undrained tropical peat swamp forests in southeast Asia only; it is not

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applicable to peatlands in other regions or climatic zones (boreal peat bogs, etc.) or to previously drained peatlands. Forest shall be defined according to the host country's forest definition as agreed upon under UNFCCC participation that includes minimum thresholds for area, height and crown cover. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm1.

B. The application of the procedure for determining the baseline scenario in Section II.3 leads to the conclusion that baseline approach (c) is the most appropriate choice for determination of the baseline scenario. (see Kyoto Protocol Decision 5/CMP.1 paragraph 22).

C. The methodology is applicable only for avoiding complete conversion of peat swamp forests to another known land use; it is not applicable for avoiding forest degradation. It is assumed that land preparation during the conversion of peat forest would have removed all existing aboveground biomass stocks through logging and/or burning.

D. The methodology is applicable only for preventing planned land use conversion in known, discrete parcel(s) of peatland, not for deforestation trends that follow a —frontier approach. The land use conversion avoided must be in areas officially and legally designated for and under direct threat of such conversion, and the area and specific geographic location of all planned land use conversions in the baseline must be known and come from written documentation including land use conversion permits, government records, concession maps, etc. Planned deforestation must be projected to occur within ten years of the project start date.

E. The methodology is applicable only for avoiding land use change that would be caused by corporate or governmental entities (plantation companies, national or provincial forestry departments, etc.) and not by community groups, community-based organizations, individuals or households.

F. Net peat drainage to establish the land use change in the baseline scenario would not exceed one meter in depth.

G. Carbon stocks in dead wood and litter can be expected to further decrease (or increase less) in the absence of the project activity during the time frame that coincides with the crediting period of the project activity.

H. The parcel(s) of peat swamp forest to be converted to another land use must not contain human settlements (towns, villages, etc.) or human activities that lead directly to deforestation, such as clearing for agriculture or grazing land. Activities that involve the utilization of natural resources within the project boundary that do not lead to deforestation are permitted (e.g., selective logging, collection of NTFPs, fuelwood collection, etc.) as this degradation is accounted for in the monitoring methodology.

I. The biomass of vegetation within the project boundary at the start of the project is at steady-state, or is increasing due to recovery from past disturbance, and so monitoring project GHG removals by vegetation can be conservatively neglected if desired.

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J. The volume of trees extracted as timber per hectare prior to land conversion in the baseline is conservatively assumed to be equivalent to the total volume (or biomass) of all trees above the minimum size class sold in the local timber market.

K. The project boundary shall be hydrologically intact such that the project area is not affected by drainage activities that are occurring or outside the project area in a defined buffer zone (if applicable) at the start of the project (as detected from satellite or other remote sensing imagery). Both the project boundary and the buffer zone (if applicable) shall be monitored for new drainage activities over the life of the project. The width of the buffer zone to be monitored shall be set to a default value of 3 km from the edge of the project boundary or the distance to the edge of the peat dome, whichever is smaller. The monitoring methodology accounts for the impacts of future drainage activities that occur within the project boundary, but if future monitoring detects significant new drainage within the buffer zone (such as that associated with new canals designed for transportation by boat or for developing plantations), then this methodology is no longer applicable in its current form and it shall be revised to take into consideration the extent of the outside drainage activity‘s impact on GHG emissions occurring within the project boundary. This drainage impact shall be determined using a combination of hydrological modeling and field measurements and shall be done in collaboration with at least two peat experts. If new scientific findings suggest influences for which the prescribed buffer zone would not offer effective separation between the project boundary and external drainage activities, the methodology should be revised to reflect a revised buffer width.

L. The total land area allocated to the deforestation agent for planned deforestation must be shown not to have increased solely for the purpose of eliciting REDD credits.

11.1.1. Considerations of the validator regarding methodology applicability conditions

The applicability conditions stated by the methodology are consistent with the proposal and the technical approaches presented by the methodology. The CL 01 raised for this section was closed (for more information please refer to Annex A).

11.2 Definition of the project boundary

a) carbon pools:

- Above ground tree biomass,
- Aboveground non-tree biomass,
- Peat,
- Wood Products

b) Physical delineation :

- The original project boundary is fixed over the project life.

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- The project boundary can be established in such a way that it constitutes a functionally discrete hydrological unit, as determined in consultation with experts in peat hydrology. If the project boundary represents such a discrete unit, a buffer zone around the project boundary does not need to be established and monitored to account for the influence of outside drainage activities. Where a project boundary does not represent a discrete hydrological boundary, the project developer shall establish and monitor a buffer zone around the project boundary appropriate for the expected risks, determined by the potential area of influence from external drainage activities. The width of this buffer area around the project boundary shall be determined as the edge of the peat dome or 3 km from the project boundary, whichever is smaller.

c) Gaseous emissions from sources other than those resulting from changes in carbon pools:

- CH4 and N2O from burning of aboveground biomass (CO2 is not included However, carbon stock decreases due to burning are accounted as a carbon stock change),
- CO2 from peat oxidation from drainage
- CO2 and CH4 from burning of peat

11.2.1. Considerations of the validator regarding the project boundary

The project boundary defined in terms of gases, emission sources and physical delineation is appropriate and rational. The CAR 01, CL 02 and CL 03 raised for this section were all closed (for more information please refer to Annex A).

11.3 Determining the baseline scenario and demonstrating additionality

a) Methodological basis for determining the baseline scenario:
The most current version of the CDM "*Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities"*, approved by the CDM Executive Board and adapted for REDD project activities, as shown in the item 3, section II of the methodology v 5.2. Shall be used to determine the most plausible baseline scenario.

b) Demonstration of additionality with methodology application:

The most current version of the CDM *"Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities"*, approved by the CDM Executive Board and adapted for REDD project activities, as shown in the item 3, section II of the methodology v 5.2. Shall be used to determine additionality through investment, barriers and common practice analyses, as applicable.

11.3.1. Considerations of the validator regarding the baseline scenario determination and additionality demonstration

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The basis for assessing the baseline scenario and the additionality through the application of the CDM —*Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities*, approved by the CDM Executive Board and adapted for REDD project activities, as shown in the item 3, section II of the methodology v 5.2. is appropriate and adequate. The CAR 02, 03 and CL 05 raised in this section were closed (for more information please refer to Annex A).

The basis for assessing the baseline scenario and the additionality, once is based in the *Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities*, approved by the CDM Executive Board and adapted for REDD project activities, as shown in the item 3, section II of the methodology v 5.2. is appropriate and adequate to the VCS requirements (test 1: project test), the CL04 raised in this section was closed (for more information please refer to Annex A).

11.4 Methodological basis for calculating baseline emissions and emission reductions

a) Baseline emissions estimation in the methodology

The methodology outlines methods to estimate the GHG emissions from peat and the changes in carbon stocks in aboveground biomass of peat swamp forests that would occur in the absence of project activities (baseline scenario).

For all strata, carbon stock changes in aboveground biomass can be estimated as the sum of carbon stock changes resulting from initial planned land clearing and from future planned land-use activities:

Three methods are available to measure aboveground tree biomass carbon in each stratum i: (1) the Aerial Imagery method; (2) the Biomass Expansion Factor (BEF) method; and (3) the Allometric Equations method, In order to assess the baseline emission due to the land use change (deforestation).

Baseline emissions also includes increases in GHG emissions from peat. The methodology considers the baseline GHG emissions from peat impacted by land use conversion (GHG emissions from peat drainage under the baseline scenario, plus GHG emissions from peat burning under the baseline scenario).

The *ex ante* actual net GHG avoided emissions represent the sum of the baseline GHG emissions within the project boundary, minus the increase in greenhouse gas emissions by sources measured in CO2 equivalents within the project boundary that are a result of the implementation of a project activity.

b) Project emissions estimation in the methodology

The only emissions by sources within the project boundary resulting from the implementation of forest protection activities would be emissions from fossil fuel burning for transport of project staff and forest guards. These emissions are no longer required

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to be accounted for per CDM EB 22 and 24, thus they are excluded in this proposed methodology.

11.4.1. Considerations of the validator regarding the methodological basis for calculating baseline emissions and emission reductions.

The basis for estimating of baseline emissions and project emissions are appropriate and adequate, it is based in the planned and pre-authorized land use conversion of peat forest within the project area. The CAR 02, 03 and 09 and CL 05 raised in this section were closed (for more information please refer to Annex A).

11.5 Leakage

Potential leakage addresses by the methodology

According to the proposed methodology the leakage is assumed to occur as a result of the displacement of economic activities (i.e., planned land use conversion) to areas outside the project that lead to deforestation and land use change, estimated in units of t CO2-e. Thus, as a result of the project activity, the baseline activity of planned land use change may be temporarily or permanently displaced from within the project boundary to areas outside the project boundary.

When REDD project activities result in reductions in wood harvest, it is likely that production could shift to other areas of the country to compensate for the reduction, and thus leakage as a result of market effects must also be considered in this scenario.

11.5.1 Considerations of the validator regarding the leakage treatment

The treatment of leakage is appropriate and adequate. The CAR 04 raised in this section was closed (for more information please refer to Annex A)

11.6 Key assumptions

- It is recommended that project participants identify key parameters that would significantly influence the accuracy of estimates. Local values that are specific to the project circumstances should then be obtained for these key parameters whenever possible.

- In choosing key parameters or making important assumptions based on information that is not specific to the project circumstances, such as in use of default data, project participants should select values that will lead to an accurate estimation of net GHG emissions, taking into account uncertainties. If uncertainty is significant, project participants should choose data such that it tends to underestimate, rather than overestimate, net avoided emissions.

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11.6.1 Considerations of the validator regarding the key assumptions treatment

The treatment of Key assumptions, are appropriate and adequate addresses in the proposed methodology. No CAR or CL was raised for this section of the methodology

11.7 Data and parameters not monitored (applied for ex-ante estimation)

Key data and parameters which data sources or default values are used and how the data or the measurements are obtained:

The proposed methodology describes for each parameter the: data unit, the equations of the methodology where the parameter must to be applied, a description of each parameter, the source of data and the measurement procedure (when applicable).

11.7.1 Considerations of the validator regarding the treatment of Data and parameters not monitored (applied for ex-ante estimation)

In section II, item 10 of the methodology all data and parameter referred in the ex-ante equations are addressed, thus the data and parameters not monitored for ex-ante calculation are appropriate and adequate addresses. No CAR or CL was raised in this section

11.8 Data and parameters for ex-post calculation and monitored data

The proposed methodology describes for each parameter to be collected and archived for ex-post calculation the: data unit, the equations of the methodology where the parameter must to be applied, a description of each parameter, the source of data and the measurement procedure (when applicable).

11.8.1 Considerations of the validator regarding the treatment of data and parameters for *ex-post* calculation and monitored data

Most of the data and parameter referred in the proposed methodology do not need to be monitored once the GHG emission reduction is based in the baseline scenario estimated *ex-ante,* that does not need to be monitored, just revisited every 10 years. However the area of activity shifting leakage, events that have occurred within the project boundary (deforestation, peat drainage, logging gaps, etc) as well as changes in the strata project boundary due to disturbance within the project boundary, have to be monitored as stated in the methodology, this data and parameters are described in section III item 6 and 8 (leakage). Monitoring of the GHG removed by vegetation is optional, if the additional carbon that accumulates in this vegetation over the life of the project (that would have been removed in the baseline case) is to be measured, this case is also referred in the proposed methodology.

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In item 6 and 8 of the section III of the proposed methodology, all data and parameter referred in the *ex-post* equations were addressed, including the monitored data, thus the data and parameters for *ex-post* calculation are appropriate and adequate addressed. No CAR or CL was raised in this section.

11.9 Assessment of uncertainties

Assessment of uncertainties should follow guidance offered by IPCC 2000, IPCC GPG-LULUCF and IPCC AFOLU. Particular examples of assessment of uncertainty related to expert judgment, allometric equations and literature values are provided below.

a) Uncertainty in expert judgment

- Where experts only provide an upper and a lower limiting value, assume the probability density function is uniform and that the range corresponds to the 90% confidence interval.
- Where experts also provide a most likely value, assume a triangular probability density function using the most likely values as the mode and assuming that the upper and lower limiting values each exclude 5% of the population. The distribution need not be symmetrical.

b) Uncertainty in allometric equations

Uncertainty in allometric equations used to estimate tree biomass shall be assessed by testing actual values obtained from site-specific field data against predicted values. If field data were used to develop the allometric equation, then an independent dataset must be used to verify it.
Verification is demonstrated in cases where at least 75% of measured values fall within the 90% prediction intervals of the mean predicted response and show no systematic bias.

c) Uncertainty in literature values

All parameter values derived from data reported in the literature should report both the mean and standard deviation. A 90% confidence interval shall be calculated and reported as the uncertainty around the mean value applied.

The methodology focuses on the following sources of uncertainty:

- Determination of rates of deforestation and degradation
- Uncertainty associated with estimation of stocks in carbon pools and changes in carbon stocks
- Uncertainty in assessment of project emissions

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Where an uncertainty value is not known or cannot be simply calculated, then a project must justify that it is using an indisputably conservative number and an uncertainty of 0% may be used for this component.

Guidance on uncertainty – a precision target of a 90% confidence interval equal to or less than 10% of the recorded value shall be targeted.

11.9.1. Considerations of the validator regarding the treatment of the key assumption

The sources and the treatment of uncertainties listed by the methodology are appropriate and adequate addresses in the proposed methodology. The CL 06 raised in this section was closed (for more information please refer to Annex A).

11.10 Transparency, conservativeness and consistency

11.10.1. Considerations of the validator regarding the Transparency, conservativeness and consistency of the methodology

a) Transparency
Despite of the inherent complexity of REDD methodologies, the proposed baseline methodology is presented in a generally adequate and transparent manner

b) Conservativeness:
Whether the methodology is conservative or not will depend on the integrity of the data used for determination of baseline emissions factors and monitoring of reliable performance data at the project plant and at the project customers.

c) Consistency:
The new baseline and monitoring methodology is internally consistent.

In general terms the proposed methodology is technical transparent, the technical approaches are conservative and the methodology as a whole is consistent.

11.11 Monitoring

The methodology outlines the methods for monitoring land use change, forest degradation and carbon pools and forms the basis for implementing the monitoring plan. It facilitates the monitoring of project activities, and serves as reference for monitoring, reporting, and verification required for evaluating project performance, and to support the accurate determination of carbon offsets by project activities.
The methodology was designed so that all necessary field measurements (including measurements of baseline carbon stocks) can be performed up front - prior to project implementation – if desired, thus limiting monitoring activities over the crediting period to monitoring activity data only (area changes).

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The proposed new methodology proposes methods for monitoring the following elements:

- The proposed project activity including the project boundary, a buffer region surrounding the project boundary to ensure against impacts of outside drainage activities, and all activities that result in increased GHG emissions inside the project boundary;
- Actual net GHG emissions including changes in carbon stocks in above-ground biomass, peat emissions
- Leakage due to displacement of economic activities and market effects
- A Quality Assurance/Quality Control plan, including field measurements, data collection verification, data entry and archiving, as an integral part of the monitoring plan of the proposed project activity, to ensure the integrity of data collected.

The sampling framework, including sample size, plot size, plot shape and plot location should be specified in the PDD. The monitoring methodology was designed so that all sampling can involve temporary plots and can occur at the beginning of the project. Thus the only monitoring activity necessary over the crediting period is annual monitoring of land cover change within the project boundary. The number of sample plots is estimated based on accuracy and costs.

11.11.1. Considerations of the validator regarding the monitoring methodology

The monitoring is appropriate and adequate addresses in the proposed methodology. The monitoring procedure is not direct applied to the GHG emission reduction calculation, unless disturbance in the project area is registered, once the GHG emission reduction is based in the *ex-ante* baseline assessment. The CAR 05, 06, 07, 08, 10 and 11 and CL 07, 08 and 09, raised in the monitoring methodology section were all closed (for more information please refer to Annex A).

11.12 Adherence to the project-level principles of the VCS Program

- The baseline scenario is identified and quantified ex ante at the beginning of the project activity and shall be re-assessed/revised every 10 years in accordance with VCS guidelines to take into account the latest scientific and technical understanding.
- Positive leakage is not considered
- Buffer reserve should be calculated using VCS Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination

11.12.1 Validator considerations regarding the Adherence to the project-level principles of the VCS Program

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In general terms the proposed methodology meets the VCS requirements stated in the VCS 2007.1 (clause 6.1 to 6.4.4), as well as the VCS Tool for AFOLU Methodological Issues and VCS Guidance for Agriculture, Forestry and Other Land Use Projects regarding REDD methodologies/projects. No CAR or CL was raised regarding specific VCS program requirements.

11.13 Public comments consideration

All the public comments posted in the VCS website have been taken due account by the methodology proponent. Some of the suggestions and observations were included in the methodology from the version 6.0 and revised in the subsequent versions (V.6.1, 6.2 and 6.3). The public comments were made by two entities: Carbon Planet and Terra Global Capital. The comments from Carbon Planet that leaded to changes or adjustments in the methodology were: CAR01-iii, CAR01-ix, CAR01-x, CAR01-xii, CAR02-iv, CAR05-ii, CAR07-v and CAR07-vii, while the comments from Terra Global Capital that have leaded to changes or adjustments in the methodology were: CAR09 and CAR10. For more information about which and how the public comments were considered by the second validator, please refer to annex B.

11.14 Any other comments

The following methodological tools have been used for evaluating of the proposed methodology:

- Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities
- VCS Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination.
- CDM Tool —Calculation of the number of sample plots for measurements within A/R CDM project activities

The following methodologies and reference documents have been used as base for the elaboration of the proposed methodology, as described in the item 1 of section I of the proposed methodology.

- AR-AM0004
- NMBL_NKCAP_A (certified Noel Kempff avoided deforestation project)
- AR-AM0007
- AR-AM0005
- AD Partners REDD Methodology Module (REDD methodology under VCS validation)

12 Final assessment of the methodology considering the last adjustments required by the first validator

The “Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, version 6.1”, was submitted to the appraisal

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of the first validator (Rainforest Alliance). Based on this version the first validator has raised some new CARs and OBS (please refer to Annex C).

After the first validator requirements be assessed by the second validator and submitted to the methodology proponent, the methodology proponent has emitted the version 6.2 of the methodology.

Based in this version v.6.2 of August 2010, a conference call between the methodology proponent, BVC and the Rainforest Alliance was done in 3rd of August 2010, in order to address some pending adjustments regarding the raised issues[1]. After this discussion between the three parties, the methodology proponent has provided to both validators an ultimate version of the methodology, (version 6.3). This ultimate version was than approved by both validator (Rainforest Alliance and Bureau Veritas Certification).

13 Final recommendations for the proposed new VCS baseline and monitoring methodology

The assessed and evaluated methodology with the title "New methodology Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests", Version 6.3 - August 2010 (revised from previous versions: V.5.2 - March 2010 and Version V.5.1 - December 2009, Version V.6.1 and version V 6.2), meets the requirements of the Voluntary Carbon Standard 2007.1 (VCS 2007.1), the VCS Tool for AFOLU Methodological Issues and relevant UNFCCC regulations and can be recommended to validation.

14 Curricula Vitae of the Assessment Team Members

Diego Serrano - Forestry specialist

Diego Serrano is forest engineer graduated by the ESALQ / USP Superior School of Agriculture "Luiz de Queiroz." University of São Paulo, Diego has master degree in Energetic System Planning in the State University of Campinas (UNICAMP). His abilities include coordination and elaboration of PDD's in the scopes 1, 4, 13 and 14.

His most relevant professional abilities include technical coordination for rural and social projects under European Union Program in Mozambique, consultancy for Extractive Reserves in Amazon basin under the UNDP Program and participation on the Brazilian Biofuels National Programme. In the ambit of GHG projects, in private sector, he was technical coordinator of LULUCF PDD's, as afforestation, reforestation and REDD projects. He was also in charge of biodiversity and protected areas programs, as well as forestry management assessment and forest inventory in several projects in different South American biomes. Also in private sector he was the technical manger for more than seventy (70) CDM and voluntary carbon projects, among them 8 LULUCF PDDs. Now he works in the Bureau Veritas (BVC) as specialist for CDM and voluntary carbon

[1] Also including some new adjustments required by the second validator

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projects and methodologies with focus in LULUCF/AFOLU. He is ISO 14001:2004 Lead Auditor and qualified as Lead Verifier GHG.

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ANNEX A

List of Corrective Action Requests (CARs) and Clarification requests (CLs) Table

Proposed new VCS Methodology "Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 5.1"

- Date: 10/03/2010
- Person in charge: Diego Machado Carrion Serrano

Corrective Action Requests	***Reference***	***Summary of project owner response***	***Validation team conclusion***
CAR 01: was not possible to retrieve in the document of the methodology the footnotes 10, 11, 12 and 13, mentioned in table B of the methodology version 5.1.	Table B, pg 8 and 9.	References in footnotes 10, 11, 12 and 13 have been provided.	OK, the references for the footnotes 10, 11, 12 and 13, were provided
CAR 02: No description was found for the parameter $PV_{B,it}$, presented in the equation 8 and 9 of the methodology version 5.1	Step 1, section 5.1.1, pg 15	$PV_{B,it}$ has been defined as the plot level volume to be extracted under the baseline scenario in straum *i* at time *t*; units are m^3 ha^{-1}. See page 24.	OK, the methodology has provided a description for theparameter "$PV_{B,it}$"
CAR 03: in the equation 20 the $MC_{AG\_nontree\_sample,it}$ can not be given in t C ha^{-1} while the $MC_{AG,nontree\_sample,sf,it}$ is given in kg d.m. and the $A_{SFP,I}$ is given in m^2.	Section 5.1.2.1, equation 20, pg 20	We added a multiplier of 10 in the equation to convert measured biomass (kg m^{-2}) into an estimate in units of t C ha^{-1}. See page 28.	OK, the equation "20" was correctly adjusted
CAR 04: In the equation 69 of the methodology version 5.1, the LK parameter make reference to equation 63, however the equation 63 refers to actual net greenhouse gas emissions avoided and not leakage.	Section 8, pg 45.	Reference was changed to Eq. 64, see page 53.	OK, the equation was referenced correctly
CAR 05: in the item 5.2 of section III, the	Item 5.2, section III,	Changed references from Eq. 73 to Eq. 74 and Eq. 75 to Eq. 76, see page 69 and 71, respectively.	OK, the equations were referenced correctly

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methodology refers to the E_{it}^{LUC} as being a parameter of the equation 73, however this parameter is not present in this equation, but in the equation 74. Also in the item 5.2.1.1 of section III, the methodology refers to $C_{P,ik}^{extracted}$ and $C_{P,ik}^{damaged}$ as being parameters of equation 75, while these parameters are presented in equation 76.	pg 60 and item 5.2.1.1, section III, pg 62, respectively.		
CAR 06: in equation 81 no description for the parameter $H_{s,tr,ik}$ was given, especially regarding its unit (cm or m) that must be applied in the equation. The absence of reference for this parameter can lead to misunderstood between this and the $H_{tr,ik}$ that is in meters.	Step 2, item 5.2.1.1, pg 64	The definition for stump height has been added to the descriptions, see page 73.	OK, the definition is correct
CAR 07: In the item 5.2.1.3 the function equation for $D_{drain,it}^{selective\ log ging}$ is wrongly referred to the equation 91, and also in the item 5.2.3 the function equation regarding $D_{drain,it}$ is wrongly referred to equation 95.	Section III, items 5.2.1.3 and 5.2.3, pg 67 and 74, respectively	Changed equation reference from Eq. 91 to 92 and from Eq. 95 to 108, see page 77 and 84, respectively.	OK, the changes are correct
CAR 08: in the item 5.3 of section III, the last paragraph refers the item 5.2.1 of section II for "Sampling Framework" , however the item 5.2.1 of section II is about "GHG emissions from biomass burning for land clearing", and not about sampling framework. In this same paragraph (item 5.3 of section III) the methodology refers the "Estimation of mean	Item 5.3, section III, pg 75.	The text has been corrected to reference the correct section, see page 84.	OK, the section was referenced correctly

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carbon stocks in AG tree biomass" to the item 5.2.1.1 of section II, notwithstanding this item could not be found in the version 5.1 of the methodology.			
CAR 09: In the section II the item 5.1.2.1 (pg 18) is followed by the item 5.2.3 (pg 28), with no reference to items 5.2, 5.2.1 or 5.2.2.	Item 5.2.3, section II, pg 28.	Section II.5 was re-numbered for consistency. See pages 36-48.	OK, the changes are correct
CAR 10: in the item 5.2.2 of section III of the methodology version 5.1 the "Estimation of CO2 and CH4 emission factors (EFCO2, EFCH4)" is referred to item 5.3.1.4 of Section II, however the EFCO2 and EFCH4 are actually presented in item 5.3.2.4 of section II.	Item 5.2.2, section III, pg 72.	Section II.5 was re-numbered for consistency, see pages 36-48.	OK, the change is correct
CAR 11: in the item 8 of section III, the parameter $A_{defLK,t}$ and $HistHa$ are wrongly referred to equations 110 and 108, respectively, notwithstanding these parameters are presented in equation 113 and 110, respectively.	Item 8, section III, pg 87.	Reference was changed from Eq. 110 to 113 and from 108 to 110, see page 96.	OK, the equations were referenced correctly
CL's			
CL 01: in the item B of the section 3 of the methodology "Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 5.1" the methodology proponent refers to the baseline approach (c) as the most appropriate choice for determination of the baseline scenario. This reference looks to be taken from the paragraph 22 of the Decision	item B of the section 3, pg 4.	The reference has been added, see pg. 4.	OK, the reference was added and it is correct

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5/CMP.1 of the Kyoto Protocol, however this source was not referenced. The lack of this reference could compromise the understanding of this item by the time of the application of this methodology by a project proponent.			
CL 02: in the Methodology procedure in section II item 1, the methodology proponent refers to a paragraph taken directly from the AR-AM0005, notwithstanding this paragraph is no longer present in the most recent version (v.4) of the AR-AM0005. The absence of the reference for the CDM methodology version may confuse the future users of this VCS methodology.	section II item 1, pg 8.	The version (1) has been referenced in the text, see pg. 8.	OK, the CDM AR methodology was referenced correctly
CL 03: in the Methodology procedure in section II item 2, the methodology proponent refers to a paragraph taken directly from the AR-AM0004, notwithstanding this paragraph is no longer present in the most recent version (v.4) of the AR-AM0004. The absence of the reference for the CDM methodology version may confuse the future users of this VCS methodology.	section II item 2, pg 9.	The version (1) has been referenced in the text, see pg. 10.	OK, the CDM AR methodology was referenced correctly
CL 04: it's not clear how does the incompatibility between the reforestation/afforestation activities and the land use conversion of forest (deforestation) must to be addressed by the time of the application of the "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities" especially in the steps where the A/R tool requires reforestation as one of the possible	section II item 3 and 4, pg 12.	The combined tool has been modified to suit REDD projects, and reflects the latest modification to the VCS REDD additionality module currently under development by Winrock. This version is essentially the CDM version but adapted to REDD. The adapted text is shown on pp.13-20.	OK, the adaptation of in the CDM A/R "Combined tool to identify the baseline scenario and demonstrate additionality in A/R CDM Project Activities" presented in the version 6.0 of this methodology

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scenarios to be considered by the project proponent.			meets the needs for REDD projects.
CL 05: it's not clear what was the reference used to state the subsidence levels of ~4.5 cm yr-1 for the drained peat. (e.g. According to the WOSTEN J. H. M. et al, 1997 The average subsidence rate for the peninsular Malaysia was found to be 2 cm per year)	Section 5.3.1.2, pg 34.	Reference has been provided.	OK, the subsidence levels of ~4.5 cm yr-1 for the drained peat is in accordance with the reference study.
CL 06: in the section 9.4 of the methodology version 5.1, the methodology proponent refers to paragraphs taken directly from the AR-AM0007, notwithstanding this paragraph is no longer present in the most recent version (v.5) of the AR-AM0007. The absence of the reference for the CDM methodology version may confuse the future users of this VCS methodology.	Section 9.4, pg 47.	Reference to version (1) has been noted in the text., see page 55.	OK, the CDM AR methodology was referenced correctly. (**Second validator assessment**) this paragraph has been excluded in the last version of the methodology
CL 07: It is not clear why does the methodology requires the measurement of the height of the stump ($H_{s,tr,ik}$) and the diameter of the stump ($D_{s,tr,ik}$) refered in item 4 and 5 of the step 1a of section 5.2.1.1, once these parameters are not referred in any equation of the methodology and also considering that the $D_{bottom,tr,ik}$ (item 1), $D_{top,tr,ik}$ (item 2) and the $L_{log,tr,ik}$ (item 3) are already required.	Section III, Item 5.2.1.1, pg 62.	Stump measurements are used to back calculate the DBH of the tree to enable the incidental damage as a result of logging. The diameter and height of the stump are used in Eq. 81. Also, the diameter of the stump and the diameter of the bottom of the log may not be the same.	OK, the methodology proponent approach is correct.
CL 08: it is not clear why does the methodology version 5.1, in step 2a and step 2d of item 5.2.1.1 (Estimation of $EF_{logging,i}$) refers to equation 107 (average deforestation emission factor for peat drainage)	Step 2a and 2d, item 5.2.1.1, pg 65	Changed Eq. 107 to Eq. 82 (biomass of tree), see page 74	OK, the inconsistence regarding the equation reference was solved

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CL 09: it is not clear why the equation 106 refers to the parameter MCB,AG,it and in the description of the parameters this parameter is refereed as MCB,BB,AG,it (estimated above-ground carbon stock in the baseline scenario before burning), it is also not clear if both parameters (presented in the equation and in the description) are the same thing.	Item 5.2.3 , section III, pg 74.	Changed description to match parameter, see page 84.	OK, the parameter was referenced correctly

ANNEX B

List of public comments submitted to the VCS during the public comments period for the proposed new VCS Methodology "Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests, Version 5.1"

Public comments submitted by

- Carbon Planet
- Terra Global Capital

Public Comments Carbon Planet	Description	Methodology proponent responses	BV considerations	Methodology proponent measure	BV second assessment
CAR01-i	On p8 Table B Column 3 has the heading option included/excluded with "yes" or "no" inputs. It is not clear which of the option "yes" or "no" is applied to until the information in the final column	Will change wording: "Included" for yes and "excluded" for no.	This change is not a critical issue, however it can be done if this is the choice of the methodology proponent.	terms were changed on page 8: "yes" was changed to "included" and "no" was changed to "excluded".	OK

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	Justification/Explanation of choice has been read. It is recommended that the "Excluded" option in the third column be removed to avoid confusion.				
CAR01-ii	On p 10 paragraph f, it states "for highly variable landscapes the option exists to carry out a systematic unbiased sampling to determine the percentage of the project area occupied by each stratum. It is not clear what this sentence articulates.	This is taken directly from AR-AM0004. Essentially means you can go out and sample randomly then class your plots into specific strata when you get there (post-stratify vs. pre-stratify). Text was taken from approved CDM methodologies where applicable because these methods have already been subject to verifiers' approval.	The validator understands that no changes in the methodology is necessary regarding this public comment.	No change.	OK
CAR01-iii	It is stated on p10 point f line 2 that "at each plot, based on the site specifications found, the plot shall be assigned to one of the strata identified in paragraph f." However, the strata identification is not in paragraph f.	This was carried over from the wording in AR-AM0004. Will fix this to say paragraph e.	OK, the proposed change is necessary and must be done in the new version of the methodology	Paragraph f was changed to paragraph e on page 10.	OK
CAR01-iv	On p 10, Step 2, the methodology has suggested stratification based on the project activity. However, clarification is required for	a) the section on stratification is general and applies both to ex ante and ex post stratification. B) there is additional information on stratification by project activity	The validator understands that no changes in the methodology is necessary regarding this public comment.	No change.	OK

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	the following: a) it is not clear whether it is ex post stratification or ex ante; b) there is no specification about the project activities which would distinguish various strata, and c) the stratification according to the project activity is suggested but not used anywhere.	in the monitoring section; c) the stratification according to project activity is used in the monitoring methodology (Section III, Part 2).			
CAR01-v	On p12, Eq 1, CB,it has been given the units of t CO2e. However, as CB,it is the sum of peat emissions and carbon stock changes in AG biomass under the baseline stratum I at time t, where the unit for t Is years, the correct units for CB,it would be t CO2 yr-1.	Most of the variables are denoted by a t subscript to indicate the time step (years). All t's are added up to estimate the total credits.	The validator understands that no changes in the methodology is necessary regarding this public comment.	No change.	OK
CAR01-vi	On p13 Eq 4, it is not clear why a parameter is labelled with an 'E' or a 'C' if both can be termed a carbon stock change. In addition, the parameters Etimber, Ebiomassburn, RB,growth, Eharvest as well as delta CB,Ag,it, are labelled as "sum of carbon stock changes". This	E was used to signify an Emission. R is regrowth. Delta C is the change in carbon stocks which is meant as a general term (emission or removal of C). What we call various factors does not affect the calculations in any way.	The validator understands that no changes in the methodology is necessary regarding this public comment.	No change.	OK

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	terminology does not make it clear whether a carbon stock change refers to the carbon stock remaining in the project area after the change, or it is the carbon that leaves the project area as a result of the change.				
CAR01-vii	On p17, Eq 14-16, the brackets are distorted and need to be fixed. This also occurs on p 20 for Eq 22	This is an artifact of the conversion process between Word and pdf. We tried to remedy this in earlier versions but to no avail.	The validator understands that this must be fixed, however this is not a critical issue and will not affect the validation process.	No change.	OK
CAR01-viii	On p21, AIM Step 1, the Methodology states "Estimate biomass of each tree using the allometric equation method that relates DBH or DBH and height to biomass (see Allometric Equation method below)." In addition to the DBH and hegith, crown area is also mentioned as one of the variables for biomass allometric equation method. However it is missing from the sentence above.	Crown area is not used in ground plots to estimate biomass. Crown area is correlated to estimates of biomass that are derived on the ground using standard DBH/height allometric relationships.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK
CAR01-ix	On p60 Section 5.2,	This inconsistency will be	OK, this	This inconsistency was fixed in	OK

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	paragraph 1, line 6, states "…successful and ELUC in Eq. 73 should be zero". The parameter is not in Eq. 73, rather in Eq. 74	fixed.	inconsistency must to be fixed in the new version of the methodology	the BV validation process as CAR05.	
CAR01-x	On p63, Eq 80, the parameter symbol in the equation for total carbon damage caused by logging and the symbol in the parameter description do not match	This inconsistency will be fixed.	OK, this inconsistency must to be fixed in the new version of the methodology	Theparameter symbol has been corrected on p. 81 to be consistent with the equation.	OK
CAR01-xi	On p70, Eq 98 has not used the average biomass combustion efficiency, CE, as in Eq 96.	This was purposely included to be conservative. If field measurements are not available to estimate the proportion burned in monitoring, the estimate uses the full C stock of the land that burned and assumes it is all emitted to the atmosphere.	In this conservative approach, neither the "average proportion of MCB,BB,AG,it" burnt, nor the "average biomass combustion efficiency" is considered. It is conservative in terms of project fire emissions, thus this approach can be validated. No changes in the methodology is necessary regarding this public comment if this is the opinion of the methodology developer .	No change.	OK

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CAR01-xii	On p74 Eq 106, the parameter MCB,AG,it is not defined in the corresponding parameter description. Instead, MCB,BB,AG,it is presented	This was also highlighted by BV and this inconsistency will be fixed.	OK, this inconsistency has been fixed in the second version of the methodology presented to BV. This adjustment must be kept in the new/final version of the methodology	No change; this was addressed in BV validation CL09.	OK
CAR01-xiii	The Table of Contents does not display the subheadings, which makes it difficult for the reader to find particular subsections within a main section when required.	This methodology was based on the CDM new methodology template. Subheadings are not included in this template but we will include them if required.	The validator understands that this does not figure a critical issue, thus no changes in the methodology is necessary regarding this public comment if this is the opinion of the methodology proponent.	No change.	OK
CAR02-i	On p8 in point b, the methodology states that "the original project boundary is fixed over the project life. Even if unforeseen circumstances arise within the project boundary such as deforestation, degradation, fire, or other land use change, the project boundary cannot be	If there is fire in the project area during the crediting period, the project must deduct the emissions from these fires from any calculated project benefits for the year. This is a deduction in credits, and is therefore not overaccounting. If this occurs during the project, re-stratification of the project area would occur to account for the new burned	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK

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	shifted." However, the methodology expects that there could be cases of fire in the project area during the crediting period. If such an event would occur in the crediting period, it is recommended that the affected area be excluded from the project area to avoid over accounting.	area moving into a different stratum than the unburned stratum it was in before.			
CAR02-ii	On p60, Eq 74 calculates the emissions that occur within the project boundary and includes emissions due to fire in stratum I, time t. This is then subtracted from the baseline emissions by applying Eq 73 on p59 to determin the overall emission reductions. If the area disturbed by fire is not discounted from the total area in teh subsequent year, the baseline accounting will not be able to accommodate the affected area's change in carbon stock due to fire, and it will therefore treat this area similar to an area not affected by fire, thus	In the baseline, the area would have been converted to another land use and emissions associated with that are calculated. In the project, if the area that would have been converted is burned instead, the emissions from fire are deducted from the baseline emissions. I am unclear on what point this comment is trying to make - is it that if an area burns before it is projected to be cleared in the baseline, that when it is burned in teh baseline, the wrong C stock value will be used? If so, this is addressed in the project stratification - if something happens during the project that would require the project area to be re-stratified,	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK

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	leading to an overaccounting of emissions	then the project re-stratifies.			
CAR02-iii	On p56, the last dot point on the page states that "if the actual boundary falls outside the project boundary as defined in the PDD, these lands shall not be accounted as a part of the project activity" It is not clear - what is the actual boundary? It should be obvious to the project proponent that any area outside the project boundary should not be considered as part of the project area. Is this sentence therefore necessary to say that an area outside the proejct boundary is not considered as the proejct area?	This is related to ground truthing the actual boundary. If you get to the project boundary and where you are on the ground does not match up with the boundary as defined by GPS coordinates - you are actually outside of the GPS coordinates defined in the PDD - this area should be excluded. This text is taken from an approved A/R methodology.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK
CAR02-iv	On p57 the first dot point states "input the measured geographical positions into the GIS system and calculate the eligible area of each stratum. The term "eligible area" has not been defined in the document. Instead, for the	This text is an artifact of the CDM A/R text from which it was taken, where "eligible areas" apply. The text was taken verbatim to demonstrate to verifiers which text has already been approved under CDM. We can change the wording to "project area" if	This change looks to be relevant to avoid misunderstanding and must be applied in the new version of the methodology, however to replace the expression "elegible areas" by	Text was changed to that suggested by BV on the top of page 75.	OK

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	rest of the document, "project area" has been used, and this term also needs to be defined.	necessary.	"the area of each stratum within the project area" (or similar) looks more clear, than simply replace "elegible area " by "project area".		
CAR03	On p10 paragraph 2, line 14, the methodology states that a "peat depth map shall be created from sample points across the project area". However, the methodology is neither explicit on the sampling technique, design and intensity, nor suggestive of any document that could provide relevant information. In addition, it expects that the sampling design and method for the peat depth map shall be outined in teh PDD. To be a comprehensive methodology, it should provide detailed guidance for the sampling design and method of the peat depth mapping. This would establish a standard among the project proponents using the	We could provide standards for creating a peat depth map, but we do not require standards for the creation of any other GIS layer (elevation, slope, land cover maps, etc.) - just the uncertainty level of the parameter used. Because project developers will likely develop different sampling designs according to local factors, the methodology was kept purposely flexible to allow creativity in the specifics of sampling design and interpolation.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK

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	methodology.				
CAR04	On p17, Eq 14, the methodology defines Cb,AC,it as the "estimated aboveground biomass carbon stock before burning in the baseline sceanrio for stratum I, time t; t C. In the preceding paragraph it also states that this carbon stock is ultimately burnt. However, Eq. 14 also features a factor denoted as PBB which represents the average proportion of CB,AC,it burnt under the baseline scenario. As the methodology states in the same paragraph that "all biomass that is not extracted as timber is assumed to be burned and therefore...the proportion burned in the baseline is assumed to be 1". If this assumption holds and PBB equals 1, it is not clear why PBB is required in Eq. 14	This equation was used to be consistent with other CDM and IPCC methods that use this equation for calculating emissions from burning. Also, if a project has additional data to suggest that all of the biomass is not burnt, they can calculate a PBB and use this value instead.	The validator understands that to consider PBB as 1, can be considered not conservative for the baseline estimating (please refer to CAR 01 - Terra Global Capital), however no changes in the methodology is required regarding this public comment, once this issue is already addressed in other public comment ahead.	The change is explained in CAR01 - Terra Global Capital.	OK
CAR05-i	It is stated at the beginning of p23, AIM Step 2, "create a relationship between a combination of the height	The biomass values are derived from ground measurements of DBH and/or height using allometric	OK, the validator understands and agrees with the methodology	No change.	OK

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	and/or crown area and the biomass of each tree observed. Options include…" This step suggests to create a relationship between tree parameters (height and crown area) and the biomass. While it is suggested that height and crown ara are obtained from ground measurement on sample plots, the meth does not say from where the biomass data should come from. Ground estimation of biomass requires destructive sampling for validating the chosen allometric equation for biomass	equations and verified with limited destructive harvesting. The crown area/height vs. biomass relationship is developed so that plots can be measured remotely using only parameters measured from the air (crown area/height). The crown area vs. biomass relationship still needs to be created using biomass data collected using standard field sampling techniques (measuring DBH to derive biomass using allo equations), the advantage is that fewer ground plots need to be measured.	proponent approach.No changes in the methodology is required regarding to this public comment.		
CAR05-ii	On p31, Eq 50 applies PBH which is defined as "average proportion of aboveground carbon stock removed during harvest H under the baseline scenario for stratum I, time t; dimensionless. The methodology does not provide a guideline on how to measure or select this factor.	We can add in some guidance on this if required.	The validator agrees with this public comment and also understands that the methodology must provide a guideline on how to measure or select the PBH factor.	Equations for how to calculate PBH have been included on p. 41 of the methodology	OK

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CAR06	On p31, it is not clear why Eq. 52 employs (1-PBH) and PBBBH in the same equation. This appears to be repetitive. According to p30, Section 5.2.4, it is stated that "it is assumed that any biomass in the tree pool that is not harvested as timber at the end of the rotation period is burned to clear the land for the next rotation cycle." This means that the biomass not removed from the land after harvesting is burnt, which is equal to 1-PBH. According ot the methodology, PBBBH is defined as the "average proportion of remaining AG carbon stocks burnt at harvest H under the baseline scnario. It is not clear why PBBBH is included if (1-PBH) is present.	This equation was used to be consistent with other CDM and IPCC methods that use the PBB approach for calculating emissions from burning. Also, if a project has additional data to suggest that all of the biomass is not burnt, they can calculate a PBB and use this value instead.	The validator agrees with this public comment and also understands that the methodology proponent must review the aplication of both parameters (PBBBH and 1-PBH) in the same equation, once they look, as pointed by the public comment, to represent the same thing.	PBH and PBBBHit do not represent the same thing. The carbon stocks that remain on site after harvest are calculated as mean carbon stocks times (1-PBH), or the proportion removed at harvest. For example, if mean carbon stock is 100 t C/ha and 25% was removed at harvest (PBH), then the carbon that remains on site to burn would be 100 * (1-0.25) = 75 t C/ha. Of the 75 t C/ha that remains, in this methodology we assume that the proportion of that 75 t C/ha that burns (PBBBHit) is 1. I think the public comment is saying that the term PBBBH,it is unnecessary, because the methodology assigns this parameter a value of 1. While it may be repetitive, we want to leave that parameter included in the equation in case a project developer has data to suggest that the proportion burned is NOT 1, e.g., they collect field measurements and show that of the 75 t C/ha present before burning, maybe 15 t C/ha are present after	OK, the validator understands and agrees with the methodology proponent approach. No changes in the methodology is required regarding to this public comment.

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				burning, making the proportion burned only 80%.	
CAR07-i	In Eq69, p 45 in section 7, the methodology provides a general equation for estimating the ex ante net reduction in emissions from deforestatoin due to ceasing deforestation, expressed as the baseline emissions minus the leakage. On p42, the methodology provides a procedure for estimating leakage due to activity shifting based on the historical rate of degradation and buffers the leakage by the amount of area which is actually planned for clearing under the baseline scenario. However, leakage should not be based on the historical rate, rather it should be assessed in terms of current land use change that has been triggered by the implementation of the project. It is not understtod why leakage has been considered an ex ante	Leakage is an ex ante phenomenon because the CDM requires an ex ante estimate, and we followed the CDM template. Although it is estimated in the methodology, it is fairly meaningless because actual (ex post) leakage is what is deducted from baseline credits.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK

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	phenomenon				
CAR07-ii	In the VCS guidelines, "leakage is defined as any increase in GHG emissions that occurs outside a project's boundary (but within the same country) but is measurable and attributable to the project's activities. Based on this definition, leakage is associated with the project implementation. Before a project starts, there is no need to assess leakage as it cannot be attributable to a non-existent project. As such, the estimation of leakage and applying it within an ex ante estimation is not correct. In addition, contradicting this on p40 it is stated that "activity shifting leakage shall be assessed for five full years beyond the date at which deforestation was projected to occur int he baseline."	The requirement for estimating ex ante leakage carries over from the CDM world. CDM projects are required to estimate leakage prior to the start of the project. We are happy to take out this requirement under VCS, as ex ante estimates don't mean much anyway. However, historical rates of land use change are necessary to know because some land use change is likely to occur with or without the project. It is the differential between what land use change was happening anyway before the project and the new land use change that happens after the project that determines the extent of leakage.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK
CAR07-iii	The methodology has, however, accurately applied leakage due to activity shifting in the ex	ok.	The validator understands that this public comment does not imply changes in	No change.	OK

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	post calculation for REDD project and has also taken into account any emissions from LUC in the project area after implementaiton of the project		the methodology		
CAR07-iv	In the parameter descriptions, time factor has not been mention in these equations, however is present in the other sets of equations throughout the methodology	Leakage is an annual number just like the rest of the calcualtions. We didn't put per year in any other equations because everything is rolled up (summed by t) at the end.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK
CAR07-v	The methodology identifies leakage due to both activity shfiting outside the project area, and market leakage. However, on p88, these leakages are incorporated in different equations (Eq 114 and 115).	The market leakage deduction is based on a fraction of total VCUs. This is consistent with how the VCS treats market leakage in forest management projects. That is why the same approach was used here.	The methodology proponent must clarify why the market leakage was not considered in the equation used for estimation of leakage (LK), but in the equation to estimate the VCUs, and why this approach is more appropriately. The methodology proponent also must provide (or justify the absence of) a method for estimate	Market effects leakage is applicable only in cases where the project area would have been logged for timber before clearing for the new land use. In these cases, a method for calculating market effects leakage has been included starting on p. 52. Activity shifting leakage covers the new land use (e.g. palm oil plantation).	OK, the method for calculating market effects leakage has been checked by the validator and is reliable

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			market leakage, as pointed in the original text of this public comment		
CAR07-vi	On p40 "no increases in GHG emissions caused by displacement of activities associated with the project are expected…if all pre project activities are displaced to degraded nonforest land." The paragraph suggests that leakage will not occur if pre-project activities are displaced to nonforest land. This statement is correct, however, it would be easier to understand if "pre-project activities" were defined as "baseline activities" In addition, if the methodology included a definition for the leakage area (as no definition is provided), and furthermore, defined the leakage area as forest land outside the project boundary, this paragraph would not be necessary.	Leakage is likely to be quantified using data from the concession holdings of the agent of land use change. Once these areas are identified, leakage can be quantified and forest area can be overlaid onto these parcels. The "leakage area" concept as suggested by Carbon Planet is more applicable for avoided unplanned deforestation projects. This is an avoided planned deforestation project.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK
CAR07-vii	On p42 in section 7.1 area of activity shifting leakage,	yes, oops, we will fix this.	OK, this inconsistency must to	changed sign on page 55	OK

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	it is stated that "however, if the baseline agent of deforestaiton manages strata not found within the project boundary, then mBL > mLK (there will be additional strata to include in the leakage analysis)" in order to confirm with the statmenet in the bracket, the expression mBL>mLK should be mBL<mLK		be fixed in the new version of the methodology		
CAR07-viii	On p82, section 7, contains the exact copy of the section provided on pp 40-45. In the scenario where there is no major change in text, to save repetition, it is receommended to simply refer to the previous section.	Happy to do this upon verifier's approval. However, this is not technically a "corrective action" as there is no error associated with repeating text.	This change is not a critical issue, however it can be done if this is the choice of the methodology proponent.	Deleted text and referred to Section II.7.	OK
CAR08	On p58 in Section 2.3 the methodology suggests an annual monitoring frequency. It is not clear what parameters are monitored annually and how the results obtained from the monitoring be incorporated into the net GHG calculation. In addition, the meth has also suggested five years	Land use chagne happens more quickly than tree growth, hence the different monitoring frequencies. The parameters monitored annually are the areas of change if all other measurements are done at t=0. This is stated throughout the monitoring section.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK

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	monitoring period for measuring growth of individual trees.				
CAR09	On p62 Step 1, it is suggested in step 1a to measure the dimensions of commercial logs. In the case when illegal logging has happened, and consequently, some or all logs have been removed - the methodology does not account for this likely scenario and does not provide a method for estimating the emission from illegal logging whereby no (or fewer) commercial logs remain on teh forest floor.	All measurements are made in the remaining forest after logs have been extracted, legal or illegal. Stumps and crowns will be present on the forest floor regardless of whether the log extracted was legal or illegal.	According to the methodology proponent "All measurements are made in the remaining forest after logs have been extracted", notwithstanding, in this case, it is not clear how the parameter Llog,tr,ik (length of log extracted from timber tree) used in the equation 77, could be obtained. It is important to clarify how the methodology is supposed to deal with this parameter in the cases where the commercial logs have been removed from the field.	Step 1a states clearly that Llog,tr,ik is measured as the distance between the stump and the base of the crown (less any pieces of bole left on site). All of these measurements are made on the remaining forest AFTER commercial logs have been removed from the field. Therefore, no change in the methodology was made.	OK, now it is clear how the log length is supposed to be measured even in the absence of this.
CAR10	On p88, it is stated that Eq115 calculates the VCUs that can be issued at time t*=t2 (the date of verification) for the	In the equations, CO2e has a subscript t. All the t subscripts are summed to t*. In Year 1, t CO2 would be equal to the year 1 value. In Year 2, t	OK, the validator understands and agrees with the methodology proponent approach.	No change.	OK

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	monitoring period T=t2-t1. According to the VCS p8, a VCU is defined as one t CO2e. Therefore, the VCUs for a particular year will be equal to the emission reductions of that year. The VCUs for a particular monitoring period, will be the addition of the VCUs for the individual years within that monitoring period. It is not clear why in Eq.115, the net anthro GHG emissions avoided in t1 is subtracted from t2, to give the amount of VCUs that can be issued in teh monitoring period T.	CO2e would be added up for Years 1 and 2. Therefore, the difference between cumulative CO2 values (t2-t1) would equal the VCUs.	No changes in the methodology is required regarding to this public comment.		
Public Comments Terra Global Capital	**Description**	**Methodology proponent responses**	**BV considerations**	**Methodology proponent measure**	**BV second assessment**
CAR01	App Condition C - It is assumed that the removal of biomass occurs through logging and/or burning. This assumption is not conservative. Some major palm oil companies are switching to a land preparation methodology	For the operators we are familiar with, the common practice is burning. If biomass is piled and left to decompose, a project wanting to use this methodology could revise the methodology to account for this assumption. However, the difference in emissions	The validator understands the methodology proponent approach, however this approach must be clarified in the text of the methodology and guideline is supposed	No change. Changing the assumption from burning to decomposition does not change the final outcome - most of the cleared carbon ends up in the atmosphere. Furthermore, in the REDD planned baseline module being developed for VCS (and	OK, as a way to simplify the calculations, the validator accepts the assumption of equivalence (in long term) between the

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	that does not include fire. The biomass is put on piles and left to decompose. It is suggested to change the assumption to a condition that must be checked using a rigorous procedure.	between burning and decomposing biomass is simply the time period over which the emission occurs. If it is burned, all emissions occur in the year of burning. If it decomposes, these emissions occur gradually over time (first 5-10 years). To be ultra conservative, a project could divide the total emission by the length of the project (e.g. 30 years) and get annual credit for the emission from decomposition rather than all up front. It was felt that the methodology addresses the common practice in the region in which the methodology has and will be applied (burning, Central Kalimantan).	to be provided for the baseline land preparation common practice assessment and also clarifications regarding the applicability of the methodology regarding other kinds of land preparation, besides burn must be provided (e.g. state if the methodology is not applicable or the decomposing must be considered instead of burning). This concern is due to the fact that not all the biomass left for decomposing becomes GHG in the long term, as pointed in the response, some of this biomass is supposed to be incorporated to the soil carbon pool.	that has gone through several rounds of validation by TUV SUD), "With regard to emissions, instead of tracking annual emissions through burning and/or decomposition, this methodology employs the simplifying assumption that all carbon stocks are emitted in the year deforested and that no stocks are permanently sequestered (beyond 100 years after deforestation). This assumption applies regardless of whether burning is employed as part of the forest conversion process or as part of post conversion land use activities." Therefore, we kept the language in app condition C that AG biomass stocks would have been removed through logging and/or burning.	emissions from burning and decomposition, suggested by the methodology proponent
CAR02	App Condition E - It must be specified which documentation is sufficient to demonstrate that baseline conversion will be	The methodology does not address degradation or provide opportunity for getting credit from stopping degradation. It addresses only	OK, the validator understands and agrees with the methodology proponent	No change.	OK

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	caused by corporate or governmental entitities. In many areas, there is a hybrid threat of deforestation, in which land that is protected from conversion by corporate or governmental entitites is still at risk by continuous degradation by communities. Unless communities are actively targeted by project actions, biomass might be lost at higher rates than anticipated.	deforestation by corporate or governmental entities. All degradation that occurs during the project will be deducted from project benefits.	approach.No changes in the methodology is required regarding to this public comment.		
CAR03	App Condition F - How can one demonstrate what the net peat drainage depth would have been under baseline conditions? If it is common practice, please specify procedures to determine the common practice (duration of reference period, size of reference area, etc.)	In the methodology, we provide a default depth of drainage and burning (leading to net drainage depth) based on a study by Hooijer et al. (2006). We use the conservative assumption of drainage to 80 cm (reported range is 80 cm to 1.1 m for large croplands including plantations). This is the best available estimate. If project developers wish to use a different drainage depth, they can articulate their selection in the PDD (including areas and duration evaluated) and a	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK

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		verifier will evaluate its appropriateness there.			
CAR04	App Condition I - How does one know that the biomass of vegetation is at steady state without having a time series of data? Please clarify whether carbon credits are generated from an increase in vegetation after project start. If so, how is the baseline vegetation regeneration rate taken into account?	relatively undisturbed tropical forests, even those supposed by many to be in "steady state", continue to accumulate carbon (see recent literature by Baker et al. 2004, Lewis et al. 2009). Carbon credits can be generated from an increase in vegetation after the project start if a project wishes to monitor this growth (it is optional). The baseline scenario is that the trees would be cut down and replaced with a new crop (oil palm or other) - there is no natural regeneration in the baseline case. The carbon accumulated in this new crop is accounted for in the baseline calculations. Any C accumulation of the natural forest during the with-project case is additional to what would have occurred under the baseline, and a project can claim credit for this accumulation.	OK, the validator understands and agrees with the methodology proponent approach.No changes in the methodology is required regarding to this public comment.	No change.	OK
CAR05	App Condition J -How is the "local timber market" defined? By area? By	This would be defined in the PDD and would include such data as survey data, district	OK, the validator understands and agrees with the	No change.	OK

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	historical reference?	and provincial laws, etc.	methodology proponent approach.No changes in the methodology is required regarding to this public comment.		
CAR06	p28 in the baseline scenario a plantation is established. This seems to be an assumption that is not included in the baseline scenario	The plantation assumption can be replaced with "new land use".	It is not clear for the validator if the methodology proponent intents to change or not some part of the methodology due to this public comment. If any change is done in the new version of the methodology, this must be informed to the validator.	Changed on p. 37.	OK
CAR07	p30 it is assumed that any biomass in the tree pool that is not harvested is burned to clear the land." This assumption is again not included as a condition in the baseline scenario. I have seen plantation companies who mulch old tree biomass and spread the mulch onto the soil, so that part of it may become soil organic matter	See CAR01 response.	The methodology must state conditions or provide guidelines of how to proceed when different baseline scenario is indentified, as presented in this public comment (not burning of not harvested biomass). Please refer to CAR 01, above	if biomass is not burned and is left to decompose, the carbon will end up in the atmosphere anyway. The simplifying assumption is to account for all emissions from clearing in the year that the land was deforested. Therefore we keep the simple assumption that biomass is burned; this is common practice.	OK, as a way to simplify the calculations, the validator accepts the assumption of equivalence (in long term) between the emissions from burning and decomposition, suggested by

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					the methodology proponent
CAR08	p21 Three methods are provided to determine mean carbon stocks in aboveground tree biomass. It is expected that the three methods will vary widely in their accuracy according to how they are carried out. This is especially the case for the aerial imagery method, which may have been proven in principle, but is far from standard. There is a risk for potentially overestimating biomass. The "uncertainties and conservative approach" is inadequate in quantifying all of the uncertainty sources. For example, there is no uncertainty source related to the inherent variability within a forest stratum, and no uncertainty source related to the interpretation of aerial imagery. More specifically, the true accuracy and precision of	On the comment that the aerial imagery method may overestimate biomass: completely the opposite. Imagery-assisted biomass values were calibrated with ground data and compared to field measurements using data that was not used for calibration. The aerial imagery method tends to detect the larger trees (above ~15 cm DBH) and miss the smaller trees, resulting in a smaller biomass per hectare than field plots. One can account for this by using field data on the smaller trees and adding this value to the virtually-measured values for the larger trees. Uncertainty in "inherent variability within a forest stratum" is why you stratify in the first place, and why you sample to a given accuracy and precision target within each stratum (e.g. +/-10% of mean at 90% confidence), regardless of whether you measure in field plots or virtual	OK, the validator understands that the technical approach of the aerial imagery method presented in the methodology is reliable and able to provide accuracy and precision as well to manage uncertanties. The validator does not require changes in the methodology regarding this public comment.	No change.	OK

	the aerial imagery must be determined by comparing aerial imagery-assisted values with field measurements using data that has not been used for calibration of the procedures or allometric equations.	plots. There is no need to incorporate that "uncertainty" as a separate parameter. Uncertainty in sampling is dealt with through running statistics on the sampled populations of interest.			
CAR09	The methodology does not prescribe a maximal uncertainty level for measurements, nor a discounting method to adjust net emission reductions according to uncertainties. In section 9, it is only required to estimate and report the uncertainty. The lack of either an uncertainty cutoff or an uncertainty discounting mechanism jeopardizes the reliability of the calculated emission reductions. There must be some mechanism in place that requires minimal accuracy standards.	Why should a project not be able to move forward just because they do not have low enough error bars around their mean? If projects achieve a high enough accuracy and precision (i.e., +/-10% of mean at 90% confidence), then mean values can be used. Otherwise, as long as the conservative approach is taken (lower or upper bound of uncertainty range, depending on the parameter), it is not our position to decide if it is "worth it" for a project developer to do a project based on their data collection - there are certain instances (e.g. very difficult fieldwork conditions, large project area, etc.) where a project may only be able to measure a certain number of plots cost-efficiently, so they	As pointed in this public comment, the methodology provides tools for the estimation of uncertanties, but does not provide guidelines or instructions to guarantee the adoption of conservative values in the cases of high uncertanties, (e.g. "discounting mechanism" to adjust net emission reductions according to the level of uncertanties), especially in the cases where the estimated uncertainties exceed	A section on uncertainty deduction has been added to the text as Section 9 on page 60 and Section 7 on page 100.	OK

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		are ok with receiving less credits because their uncertainty is higher than it should be. If they have more uncertain data, they will get less credits. Some projects will be ok with that.	a certain limit (e.g. using the lower or the upper bound of uncertainty range, when the uncertainty exceeds a given limit stated by the methodology).		
CAR10	The methodology bases a lot of its assumptions regarding the baseline conditions on measurements in "the vicinity" of the project, or "similar areas". There is no guidance on how to determine such a reference area. Please provide a strict procedure to demarcate a relevant area that can be used to determine baseline conditions in. Two examples: (1) p14: the annual area of forest conversion parameter is absolutely key to quantify the emission reductions. The procedure to determine the annual area of forest conversion is insufficient. The annual area of forest conversion	There are two viewpoints in defining reference areas for developing baseline assumptions: what is theoretically desirable and what is practically achieveable. Project developers are limited by the data that they can obtain on common practice. Because this methodology addresses planned deforestation, developers will be limited to some extent by the plantation companies that they are able to interview and access records for. Instituting strict rules in the methodology for defining common practice and regional rates of clearing evidence - without applying the methodology to a range of different project types first - seems unwise, as the rules set out in the methodology may not be able to implemented at	Once the annual area of forest conversion is key for the baseline emission calculation, the procedures for calculate the baseline annual rates of conversion is supposed to be explained in details, as pointed in this public comment (e.g. Specify where the “records of previous land use conversion” may come from, guidance to determine the reference area for baseline determination, how common practice should be determined, among	We included some guidance on how to calculate the annual area of forest conversion on p. 22-23.	OK, the guidance for calculating the annual area of forest conversion has been checked by the validator and is reliable

	must be determined using strict procedures and be mainly dependent on the common practice. In addition, it must be much better specified how common practice should be determined: minimal area, minimal/maximal duration of reference period, etc. The conversion area in prior plantation permits is not sufficient. The rate from permits represents the most rapid rate possible and must be constrained by practical considerations and common practice. Even if it is permitted to convert a certain area per year, it may not be practical to do so, due to large capital investments required with planting plantations. Specify where the "records of previous land use conversion" may come from. Obviously not from the project area, otherwise they would not be converted. I assume the records are coming from	a practical level. Rather, the evidence for defining these rates etc. are presented and justified in the PDD and subject to a verifier's scrutiny there.	others) and it is supposed to be presented in a specific section, instead of be summarized in two paragraphs of the section "Estimation of GHG emissions from timber extraction before land clearing", as it is, in the current version of the methodology.		

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	the area neighboring the project area, and they represent common practice, which should be further determined. Specify how the "regional rate of land use change" should be determined: minimal area of the region, how can similarity be demonstrated, etc.				

ANNEX C

Second round of CAR/OBS raised by the first validator (Rainforest Alliance) during its reassessment of the "Baseline and monitoring methodology for conservation projects that avoid planned land use conversion in peat swamp forests" (version 6.1).

CAR/OBS	Description	Response	BVC consideration	Measurements decided after the discussion between methodology proponent, Rainforest Alliance and BVC

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CAR01/10	The Methodology Developer shall revise section 7.2 to explain how the levels of tolerance for changes to past averages/trends in deforestation rates by deforestation agent classes are accounted for.	The text on classes of deforestation agents was deleted ("where only a class of agent can be identified, the rate of land conversion from forest to nonforest by this class shall be shown to be the same (plus or minus 10%) or on the same trajectory (plus or minus 10%) as before project implementation").	ok, the classes of agent approach has been removed from the meth	OK
OBS01/10	The Methodology Developer should explain the rationale for using past deforestation rates (averages or trends) for a five-year period as indicators of future rates. This explanation can be presented outside the methodology text and provided in an appendix.	The text was revised back to the original approved text of requiring a >5 and <10 year average or trend.	there was a confusion on this OBS, because the previous version (6.1) had considered 10-5 years in one paragraph of section 7.2.2 and just 5 years in other paragraphs of the methodology. in the version 6.2 it was amended, except for the"parameters table" (section 10) where the range apporach (5-10y) was not included	OK, the range of 5 to 10 years was included also in the section 10 of the version 6.3
CAR02/10	The Methodology Developer shall only deduct activity shifting leakage for emissions that occur outside a project's boundary (but within the same country), which is attributable to the project.	The text was revised to consider only agents of deforestation that are known, and therefore this limits the activity shifting leakage to that attributable to the project; the "class of deforestation agents" text was deleted.	ok, the meth was amended to consider just the agents of deforestation for leakage consideration	OK

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CAR03/10	The Methodology Developer shall remove the possibility for double counting of market leakage and activity shifting leakage.	For leakage strata that are also baseline strata, timber emissions are accounted for in activity displacement only if the area of activity displacement leakage exceeds 40% of the area of baseline deforestation. For leakage strata that do not exist in the baseline, volume to be extracted in the baseline scenario is zero and therefore market effects leakage is zero for that stratum. In this case, all timber emissions are accounted for as part of activity shifting leakage.	ok, the changes were done in section 7.2.2 of the meth	OK
CAR04/10	The Methodology Developer shall account for all emissions that occur if a concession is displaced outside the project zone as leakage	Peat drainage emissions (and soil emissions for displacement to mineral soils) are included in activity shifting leakage calculations for subsequent years after initial clearing	ok, it was addressed in equations 71 and 72	OK
CAR05/10	The Methodology Developer shall revise units related to time and rates such that they are logical, easily understood and mathematically correct.	The units were revised to show hectares in year t rather than ha yr^{-1}	Ok, the correction was done	OK
OBS02/10	The Methodology Developer should refer accurately to the scope of the different uncertainty sections of the methodology	the scope of the ex ante uncertainty section was limited to ex ante calculations.	OK, the reference for ex-post uncertainty was excluded from ex-ante uncertainty section	OK

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OBS03/10	The Methodology Developer should be clear about when, ex ante or ex post, uncertainty calculations for leakage are made.	uncertainty calculations for leakage are included in the ex post section.	ok, the reference for leakage uncertainty was excluded from ex-ante uncertainty section	OK
OBS04/10	The Methodology Developer should provide full guidance on how uncertainty data is to be gathered from literature sources.	Text was included on how uncertainty data is to be gathered from literature sources, and guidance on how to choose conservative default values was included.	ok, guidance for uncertainty gathering was included, and in the cases of absence of uncertainty the use of indisputably conservative values is required.	OK
CAR06/10	The Methodology Developer shall provide the methodological steps for calculating the uncertainty associated with the deforestation rate where actual plans were not used.	The text related to classes of deforestation agents was deleted.	ok. However the class of agent option was not excluded from the table of parameters (section 10)	OK, the class of agent was excluded from the table of parameters (section 10), once this approach is not applicable any more under the version 6.3 of the methodology
OBS05/10	The Methodology Developer should make clear exactly which parameters the uncertainty is being calculated for and which parameters must have their uncertainty assessed.	Flow diagrams were created for baseline, leakage and monitoring emissions that indicate how equations are related and which equations contain parameters that require uncertainty estimation.	ok, the diagrams clarify and help the project proponent to indentify which parameters require uncertainty estimation	OK

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CAR07/10	The Methodology Developer shall present a mathematically correct equation for summing the uncertainties with strata with the appropriate parameters listed beneath.	The equation has been corrected to calculate the square root of the sum of squares.	there's no description for the parameter Cb,it in eq 87	OK, the version 6.3 has included the description of the parameter CB,it in the equation 87
CAR08/10	The Methodology Developer shall be consistent and clear with requirements around the accuracy required in monitoring.	The text on accuracy was included in the monitoring section for land cover maps and deleted from the uncertainty section.	OK	OK
CAR09/10	The Methodology Developer shall justify any tolerance limits allowed for uncertainty.	The level of uncertainty allowed for no uncertainty deduction was made to be 10% of CREDD,t at 90% confidence. Beyond 10% uncertainty, the deduction was set equal to the amount that the uncertainty exceeds the allowable level.	ok, the methodology now provides a guideline of how to discount credits based in the uncertainty tolerance limit, the limit is also justified in the text.	OK
CAR10/10	The Methodology Developer shall use equations to deduct the uncertainty from $C_{REDD,t}$ in a way that is consistent with the rest of the methodology and is mathematically correct.	The equation has been corrected to include a new parameter that represents REDD credits after uncertainty deduction.	OK	OK
CAR11/10	The Methodology Developer shall provide scientific guidance on how uncertainties relating to emissions from the peat pool must be quantified.	The parameters for which uncertainty is estimated are listed and broken down into biomass and peat components (see OBS05/10)	ok, the diagram (figure 2) has addressed the peat parameters where the uncertainty assessment is required	OK

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OBS06/10	The Methodology Developer should remove ambiguous references to ADP REDD modules from the main body of the text, relegating them to footnotes, or the introductory section on the sources of the methodology.	The reference was made in the introductory text only and deleted from all other sections.	Ok	OK
OBS07/10	The Methodology Developer should replace the optional language around digital spatial data provision with language that reflects the VCS requirements for project registration, namely KML shape file data.	The text was changed on page 8 to require that projects provide digital KML shapefile data.	Ok	OK
OBS08/10	The Methodology Developer should reference the use of approved tools.	The baseline selection and additionality text was replaced with text for the approved VCS tool VT0001.	Ok	OK
OBS09/10	The Methodology Developer should update the date before which projects must be validated in line with VCS program update 21 Jan 2010.	The VCS-approved baseline and additionality tool (VT0001) does not include Step 0 which requires projects to do preliminary screening based on the starting date of the REDD project activity. Therefore, this step was removed from the text.	Ok	OK

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BVC new CAR	-	-	Carbon fraction in equation 8 is not rigth once the parameter refers to t.dm/ha, not tons of carbon/ha. The product of equation 8 is used in equation 13 and than in equation 5, where CF is already addressed.	OK, this inconsistence was fixed in version 6.3 of the methodology, by excluding the CF parameter from the equation 8.