FINAL
ASSESSMENT REPORT
OF

Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation (REDD-NM-002 / Version 01.3)

under
Voluntary Carbon Standard 2007.1 (VCS 2007.1)

REPORT NO. BRAZIL-5166/2009
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BUREAU VERITAS CERTIFICATION

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Summary:

Bureau Veritas Certification has made the first assessment for validation of the new methodology "Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation" (REDD-NM-002 / Version 01.3) 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 third output of the evaluation process where the responses to the Clarification and Corrective Actions Requests (CL and CAR) raised in the first and second assessment where addressed by the methodology proponent (please refer to Annex A).

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 third 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 raised during the first and second assessment were solved by the methodology proponent (see Annex A), thus Bureau Veritas Certification recommends the methodology for approval under VCS 2007.1

Report No.: BRAZIL-5166/2009	Subject Group: VCS	
Project title: ""Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation" (REDD-NM-002 / Version 01.3) "		
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1 Introduction

Fundação Amazonas Sustentável (FAS) has commissioned Bureau Veritas Certification to perform an assessment of the proposed "Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation" (REDD-NM-002)", work out by FAS.

This report summarizes the findings of assessment of the new methodology, performed on the basis of IPCC criteria, 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 first reviewer as independent entity for the evaluation.

The preliminary assessment for examination of new baseline and monitoring methodology was prepared based on the following document: "REDD Frontier Methodology 28nov08_Under_Revision.pdf", while the second assessment was prepared based in the document: "REDD frontier methodology v2_19abr2010.doc" and the third and final assessment was prepared based in the REDD frontier methodology revised_v2 04-LP_VS-clean.doc".

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 has to comply with the following VCS 2007.1 requirements:

- All methodologies applying for approval under the VCS Program shall be approved via the double approval process (VCS 2007.1, Section 6.1).

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- 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 own 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.

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

5 Conflict of Interest Review

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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, GIS, remote sensing and REDD projects experience, as well as familiarity with the sectoral scopes 14 (Afforestation and Reforestation):

1.) Diego Serrano – Forest specialist;
2.) Bruno Matta – GIS and Remote Sensing specialist

7 Corrective Actions and Clarifications

The team has 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 and the Annex A 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 The new methodology covers the Voluntary Carbon standard 2007.1 requirements 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.

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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 and approaches used are adequately explained and reliable.

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.

9.1 Major changes:

The major changes has been indentified for the following CARs: CAR 01, CAR 03, CAR 07, CAR 16, CAR 22, CAR 23 and CAR 34, regarding the following subjects, respectevely: Additionality tool adjustments, definition of leakage belt, quantitative criteria to assess similarity of conditions between reference region and project area, inclusion of others agents which do not cause deforestation in the baseline scenario in order to keep a conservative baseline approach and averting an induced argument, expert definition for project assumptions, the mandatory use of any applicable sub-national in order to avoid inconsistencies between project-level baselines and sub-national or national baselines.
(for more details, please refer o annex A)

9.2 Minor changes:

All the other CAR's not mentioned above, and all the CL's raised during the process of methodology review are considered punctual, and not supposed to have impact in the mains structure of the methodology.
(for more details, please refer o annex A)

10. General information on the submitted proposed new methodology

10.1 One sentence describing the purpose of the methodology

This methodology is for project activities that reduce emissions of greenhouse gases (GHG) from frontier deforestation and, where significant and measurable, increase carbon stocks of degraded and secondary forests that would be deforested in absence of the project activity.

10. 2 Summary description of the methodology

10.2.1.) Baseline scenario

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Baseline activities that may be displaced by the REDD project activity include logging for timber, fuel-wood collection, charcoal production, agricultural and grazing activities.

The methodology requires using existing deforestation baselines if these are VCS or UNFCCC approved or meet certain applicability criteria which are outlined in the methodology. If such baselines do not exist or cannot be applied according to the applicability criteria, a spatially explicit baseline projection must be presented at the time of validation.

10.2.2.) Additionality

The project developer must demonstrate that the planned deforestation/degradation would occur in the absence of the VCS REDD project activity. The Additionality is demonstrated using an adaptation of the "Tool for the Demonstration and Assessment of Additionality in A/R CDM Project Activities - version 2" especially adapted for REDD projects and presented in Part 1 - Applicability conditions and additionality of the REDD-NM-002.

10.2.3.) Baseline emissions

The baseline emissions are the CO_2 emissions from changes in carbon stocks in forest biomass that would occur in the absence of project activities due to deforestation.

Emissions of non-CO2 gases in the baseline are conservatively omitted, except CH4 and N2O emissions from biomass burning, which can be counted when fire is the main technology used to deforest and when the project proponent considers that ignoring this source of emission would substantially underestimate baseline GHG emissions.

10.2.4.) Project emissions

The three sources of GHG emissions listed in Table below are eligible in this methodology, as follow:

Sources	Gas	Included/TBD[1]/ excluded	Justification / Explanation of choice
Biomass burning	CO2	Excluded	Counted as carbon stock change
	CH4	TBD	According to guidance provided in the methodology
	N2O	TBD	According to guidance provided in the methodology
Use of fertilizers	CO2	Excluded	Not a significant source
	CH4	Excluded	Not a significant source
	N2O	TBD	According to guidance provided in the methodology
Livestock	CO2	Excluded	Not a significant source

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emissions	CH4	TBD	According to guidance provided in the methodology
	N2O	TBD	According to guidance provided in the methodology

1) TBD = To Be Decided by the project proponent. The source can be excluded only when its exclusion does not lead to a significant over-estimation of the net anthropogenic GHE emission reductions of the REDD project activity.

10.2.5.) Leakage emission

The methodology considers two potential sources of leakage:

(i) Activity displacement leakage; and

(ii) Increased emissions due to leakage prevention measures.

If activity displacement leakage must be quantified and accounted, two approaches can be used: (i) a 40% discount on the estimated GHG emission reductions within the project area*; or (ii) monitoring of deforestation and associated carbon stock changes and GHG emissions in the leakage belt area.

10.2.6.) Calculation and monitoring of emission reductions:

There are three main monitoring tasks:

1 Monitoring of actual carbon stock changes and GHG emissions within the project area.

2 Monitoring of leakage.

3 Ex post calculation of net anthropogenic GHG emission reductions.

The net anthropogenic GHG emission reduction of the REDD *project activity* (ex-ante and ex-post) is calculated as follows:

$$\Delta REDD_t = (\Delta CBSL_t + EBSL_t) - (\Delta CPS_t + EPSL_t) - (\Delta CLK_t + ELK_t)$$

Where:

ΔREDDt Ex ante estimated net anthropogenic greenhouse gas emission reduction attributable to the REDD project activity at year t; tCO2e

* The discount factor is based on Fearnside (2009) and the following assumptions: 100% of the reduced deforestation is displaced in the short term; in the long term (100 years) more forest is conserved that in the baseline case, as the basic effect of the project activity is to reduce the area available for deforestation; a discount rate of 1% to account for the effect of time. A preprint version is available at http://philip.inpa.gov.br/publ_livres/Preprints/2009/Leakage%20from%20Reserves-preprint.pdf.

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ΔCBSLt	Ex ante estimated net baseline carbon stock changes in the project area at year t; tCO2e
EBSLt	Ex ante estimated baseline GHG emissions in the project area at year t; tCO2e
ΔCPSt	Ex ante estimated net carbon stock changes in the project area at year t; tCO2e
	Note: for ex post estimations replace "ex ante" by "ex post"
EPSLt	Ex ante estimated emissions in the project area at year t; tCO2e
	Note: for ex post estimations replace "ex ante" by "ex post"
ΔCLKt	Ex ante estimated net leakage carbon stock changes at year t; tCO2e
	Notes:

If the cumulative sum of ΔCLKt within a fixed baseline period is > 0, ΔCLKt shall be set to zero.

For ex post estimations replace "ex ante" by "ex post"

ELKt	Ex ante estimated leakage emissions at year t; tCO2e

Note: for ex post estimations replace "ex ante" by "ex post".

10.3 Relationship with approved or pending methodologies

The methodology is an adaptation to "Frontier Deforestation" of the methodology for "Mosaic Deforestation" developed by the BioCarbon Fund.

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 and evaluation of the proposed new methodology.

11.1 Applicability conditions

The methodology is applicable under the following conditions:

a) Deforestation is linked to infrastructure development, which makes the forest accessible to deforestation agents, or to the expansion of the agricultural frontier.

b) Baseline activities that may be displaced by the REDD project activity include logging for timber, fuel-wood collection, charcoal production, agricultural and grazing activities.

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c) The project area can include different types of forest, such as old-growth forest, degraded forest, secondary forests, planted forests and agro-forestry systems meeting the definition of "forest".

d) At project commencement, the project area shall include only land qualifying as "forest" for a minimum of 10 years prior to the project start date.

e) Changes in the ground water table are excluded in both the baseline and project scenarios or must be the same under the two scenarios.

11.1.1. Considerations of the validator regarding methodology applicability conditions

The applicability conditions are consistent and suitable to the REDD methodological approaches. The CAR's and CL's regarding the applicability conditions were all closed in the version 01.3 of the methodology (for more information please refer to Annex A).

11.2 Definition of the project boundary

a) The spatial boundaries are defined as follow:

1 Reference Region;

2 Project Area;

3 Leakage belt;

4 Leakage management areas; and

5 Forest.

b) The temporal boundaries are defined as follow:

1 Starting date and end date of the historical reference period

2 Starting date and end date of the REDD project activity

3 Starting date and end date of the first fixed baseline period

4 Duration of the monitoring periods

c) The carbon pools eligible in the methodology are the following:

Carbon pools	Included / TBD[1] / Excluded	Justification / Explanation of choice
Above-ground	Tree: Included	*Carbon stock* change in this pool is always significant

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	Non-tree: TBD	To be included if significantly[2] greater in *the baseline* compared to the project case
Below-ground	TBD	Recommended but not mandatory
Dead wood	TBD	
Harvested wood products	TBD	To be included if significantly[2] greater in *the baseline* compared to the project case.
Litter	TBD	
Soil organic carbon	TBD	Recommended when forests are converted to cropland.

Notes:

1) TBD = To Be Decided by the project proponent. The pool can be excluded only when its exclusion does not lead to a significant over-estimation of the net anthropogenic GHG emission reductions of the REDD project activity.

2) The VCS defines as "significant" those carbon pools and sources that account for more than 5% of the total GHG benefits generated (VCS 2007.1, 2008 p.17). To determine significance, the most recent version of the "Tool for testing significance of GHG emissions in A/R CDM project activities" shall be used

d) The sources of GHG emissions defined by the methodology are the following:

Sources	Gas	Included/TBD[1]/ excluded	Justification / Explanation of choice
Biomass burning	CO2	Excluded	Counted as carbon stock change
	CH4	TBD	According to guidance provided in the methodology
	N2O	TBD	According to guidance provided in the methodology
Use of fertilizers	CO2	Excluded	Not a significant source
	CH4	Excluded	Not a significant source
	N2O	TBD	According to guidance provided in the methodology
Livestock emissions	CO2	Excluded	Not a significant source
	CH4	TBD	According to guidance provided in the methodology
	N2O	TBD	According to guidance provided in the methodology

1) TBD = To Be Decided by the project proponent. The source can be excluded only when its exclusion does not lead to a significant over-estimation of the net anthropogenic GHE emission reductions of the REDD project activity.

11.2.1. Considerations of the validator regarding the project boundary

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In the version 01.3 of the methodology, the project boundaries are consistent, suitable and meet the demand for REDD methodology regarding temporal and spatial boundary, and also regarding carbon pools and emission source. The CAR's and CL's regarding to project boundaries were all closed in the version 01.3 of the methodology (for more information please refer to Annex A).

11.3 Determining the baseline scenario

The baseline scenario is defined by the information on historical deforestation of reference region and projected into the future to spatially locate the area that will be deforested in the absence of the project activities, this assessment is done based in deforestation rates, agents, drivers, and patterns of land-use and land-cover change.

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

The basis for assessing the baseline scenario is appropriate and adequate. Based on the information of the historical deforestation in the reference region, the baseline scenario modeling considers not just the agents, drivers and patterns of the deforestation, but also the future deforestation rate and location of its deforestation. The CARs and CLs raised for baseline scenario modeling in the previous version of the methodology has been properly addressed and were closed (for more information please refer to Annex A).

11.4 Demonstrating the additionality

The following steps are used to demonstrate additionality:

Step 0. Preliminary screening based on the starting date of the REDD project activity;
Step 1. Identification of alternative land use scenarios to the REDD project activity;
Step 2. Investment analysis to determine that the proposed project activity is not the most economically or financially attractive of the identified land use scenarios; or
Step 3. Barriers analysis; and
Step 4. Common practice analysis.

The proposed REDD project activity within the project boundary shall not violate of any applicable law even if the law is not enforced.
The demonstration of additionality shall be consistent with the selected baseline scenario and the proposed REDD project activity.

The project developer must demonstrate that the planed deforestation/degradation would occur in the absence of the VCS REDD project activity. The Additionality is demonstrated using an adaptation of the "Tool for the Demonstration and Assessment

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of Additionality in A/R CDM Project Activities - version 2" especially adapted for REDD projects and presented in Part 1 - Applicability conditions and additionality of the REDD-NM-002.

11.4.1 Considerations of the validator regarding the demonstration of additionality

The first approach presented by the methodology proponent was the adoption, without adjustments, of the A/R CDM tool for the Demonstration and Assessment of Additionality, however based in the incompatibility between A/R and REDD projects the CAR 01 was raised. Therefore the methodology proponent has submitted in Part 1 of the methodology document an adaptation of the A/R additionality tool for REDD project. According to the validator opinion this adaptation has been well conduced and the additionality tool provided in the methodology document is suitable and adequate for assessment of additionality in REDD projects (for more information please refer to Annex A).

11.5 Methodological basis for calculating baseline emissions and emission reductions

The baseline emission is calculated based in the emissions that would occur due to deforestation in the project area in the absence of the project activities. The baseline emission calculation follow four methodological steps presented below:

step 2: Analysis of historical land-use and land-cover change, that means:
"To collect and analyze spatial data in order to identify current land-use and land-cover conditions and to analyze land-use and land-cover change during the historical reference period within the reference region and the project area".

Step 3: Analysis of agents, drivers and underlying causes of deforestation, for:
"Estimating the quantity and location of future deforestation; and Designing effective measures to address deforestation, including leakage prevention measures".

Step 4: Projection of future deforestation:
"Its objective is to locate in space and time the baseline deforestation expected to occur within the reference region and the project area during the first fixed baseline period and, optionally, the project crediting period".

Step 5: Definition of the land-use and land-cover change component of the baseline:
"The goal of this step is to identify the forest classes that will be deforested and the non-forest classes that will replace them in the baseline case".

While the emission reduction is calculated as being the emission that would occur due to deforestation in the baseline scenario in the project area, minus the deforestation

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foreseen (ex-ante) or measured (ex-post) after the implementation of the project activities, as addressed in the step 6 as follow:

Step 6: Estimation of baseline carbon stock changes and non-CO2 emissions

"Carbon stock changes are calculated differently, depending on whether activity data are available for classes or for categories.

If activity data are available for classes (Method 1), the total baseline carbon stock change in the project area at year t is calculated as follows:

$$\Delta CBSLPA_t = \sum_{icl=1}^{Icl} ABSLPA_{icl,t} * Ctot_{icl,t} - \sum_{fcl=1}^{Fcl} ABSLPA_{fcl,t} * Ctot_{fcl,t}$$

Where:

$\Delta CBSLPA_t$: Total baseline carbon stock change within the project area at year t; tCO2-e
$ABSLPA_{icl,t}$: Area of initial forest class icl deforested at time t within the project area in the baseline case; ha
$Ctot_{icl,t}$:Average carbon stock of all accounted carbon pools in the initial forest class icl at time t; tCO2-e
$ABSLPA_{fcl,t}$: Area of the final non-forest class fcl deforested at time t within the project area in the baseline case; ha
$Ctot_{fcl,t}$: Average carbon stock of all accounted carbon pools in non-forest class fcl at time t; tCO2-e
icl 1, 2, 3, … Icl initial (pre-deforestation) forest classes
fcl 1, 2, 3, … Fcl final (post-deforestation) non-forest classes
t 1, 2, 3, … T a year of the proposed crediting period

Note: Carbon stocks are assumed not to change within a fixed baseline period"

Or;

"If activity data are available for categories (Method 2), first calculate the carbon stock change factor ($\Delta Ctot_{ct,t}$)* of each category (also called "emission factor"), then calculate the total baseline carbon stock change in the project area at year t as follows:

$$\Delta CBSLPA_t = \sum_{ct=1}^{CT} ABSLPA_{ct,t} * \Delta Ctot_{ct,t}$$

Where:
$\Delta CBSLPA_t$: Total baseline carbon stock change within the project area at year t; tCO2-e

* The *carbon stock change factor* (or "emission factor") is the difference between the sum of the carbon stocks in the carbon pools accounted in the final class minus those accounted in the initial class.

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$ABSLPA_{ct,t}$: Area of category ct deforested at time t within the project area in the baseline case; ha
$\Delta Ctot_{ct,t}$: Carbon stock change factor (also called emission factor) for all accounted carbon pools in category ct at time t; tCO2-e ha-1

Note: Carbon stock change factors are assumed not to change within a fixed baseline period
ct 1, 2, 3, … CT categories of LU/LC change
t 1, 2, 3, … T a year of the proposed crediting period"

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

The using of land use change modeling for baseline emissions estimations is appropriate and adequate for REDD project, the parameters used for this purpose and presented as step 2, 3, 4 and 5 are adequate. All the CARs and CLs raised in previous version of the methodology for this section were closed (for more information please refer to Annex A).

11.6 Leakage

According to the version 1.03 of the REDD-NM-002:

"If the project area is located within a sub-national area or a country having a UNFCCC or VCS-approved monitoring, verification, reporting (MRV) and accounting scheme for emissions from deforestation, activity displacement leakage must not be assessed and a leakage belt is not required, because any decrease in carbon stocks or increase in GHG emissions outside the project area is already measured, reported, verified and accounted at the broader scale[13] of the sub-national area or country. In all other cases, activity displacement leakage must be accounted. Two approaches can be used to do such accounting:

- Approach 1: Time discount approach
- Approach 2: Monitoring of the leakage belt area.

If approach 2 is chosen, a leakage belt area must be defined".

"The leakage belt is the land area or land areas surrounding or adjacent to the project area in which baseline activities could be displaced due to the project activities implemented in the project area. The leakage belt area is not necessarily connected to the boundary of the project area, as it must be placed at forested locations that remain forested at end of the crediting period according to the baseline projections".

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"If carbon stocks in the leakage belt area decrease during the crediting period this will indicate that leakage due to displacement of baseline activities has occurred. Leakage due to activity displacement can thus be estimated by ex post monitoring of deforestation in the leakage belt area. Ex ante, however, activity displacement leakage can only be guessed based on the anticipated combined effectiveness of the proposed leakage prevention measures and project activities".

"Under the time discount approach, activity displacement leakage is assumed to be the difference between actual emission reductions and their net present value for climate change mitigation. The net present value is calculated based on the assumption that the project activity will cause a 100% displacement of the baseline deforestation. As a consequence, the overall deforestation rate will not change compared to the baseline situation. However, the total area of unprotected forest in the region or country where the project is located will be reduced due to the implementation of the REDD project activity, which will anticipate the time point when deforestation will end and reduce the total area deforested in the long-term".

11.6.1 Considerations of the validator regarding the leakage treatment

The REDD-NM-002 has presented some new approaches for the treatment of leakage (e.g: not assessment of leakage based when sub-national area or a country having a UNFCCC or VCS-approved monitoring, verification, reporting (MRV) and accounting scheme; the time discount approach and the GHG emissions associated with leakage prevention measures), notwithstanding, these approaches are presented in a clear manner and are well supported in the version 01.3 of the methodology, thus they are appropriate and adequate. The CARs and CLs raised in the previous version of the methodology were closed (for more information please refer to Annex A)

11.7 Key assumptions

Some of the key assumptions are provided in the methodology document (e.g.: 40% of discount rate for deforestation regarding to leakage measurement, project activity displacement of 100% of the baseline deforestation, applying the simplifying (and conservative) assumption that all extracted biomass not retained in long-term wood products after 100 years is emitted in the year harvested).

In the other hand some important assumptions are required to be presented during the VCS PD elaboration (e.g.: input data for the investment analysis, criteria used for the leakage belt determination, variables used for future trends of deforestation). In the case of the assumptions defined during the VCS PD elaboration, the methodology requires the adoption of conservative and referenced values as presented in the text of the methodology (e.g. "…To determine the future values of the variables included in the model official projections, expert opinion, other models, and any other relevant and verifiable source of information must be used…", "…use values that yield conservative estimates of the projected deforestation" , "…the project proponent shall make a conservative assumption about the effectiveness of the proposed project activities…"

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Also regarding the Heuristic approach for creation of the Factor Maps (section 4.2.1), the “value functions” must be based on expert opinion according to the VCS Program Normative Document, definition.

11.7.1 Considerations of the validator regarding the key assumptions treatment

The treatment of Key are appropriately and adequately addressed in the proposed methodology. The CARs and CLs raised for this section in previous versions of the methodology were closed (for more information please refer to Annex A).

11.8 Data and parameters not monitored

All data and parameter used in the methodology is listed in the table presented in the appendix 5 of the methodology.
The last column of this table indicates if the parameter has to be monitored or not and what is the frequency. The same table also provides description of each parameter/data, relevant observations, sources, unit and the equations of the methodology where the parameter is applied.

11.8.1 Considerations of the validator regarding the treatment of Data and parameters not monitored

The appendix 5 addresses all the parameter and data used in the methodology in a tabular format, providing the relevant and applicable information for each one of them, thus the data and parameters monitored and not monitored for ex-ante and ex-post calculation are appropriately and adequately addressed. CARs and CLs raised in the previous version for this section of the methodology have been closed. (for more information please refer to Annex A).

11.9 Data and parameters to be monitored

Please refer to section 11.8, above

11.9.1 Considerations of the validator regarding the treatment of data and parameters to be monitored

Please refer to section 11.8.1, above

11.10 Assessment of uncertainties

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The methodology address the assessment of uncertainties for the carbon pool determination when assumptions based in Tier 1 method, as presented in box 2 of the appendix 2 of the REDD-NM-002 v. 01.3.
The methodology also make restriction for the using of the Volume Expansion Factors (VEF) in the cases where the forest inventory used for the tree volume definition (carbon pool quantification) has a minimum DBH higher than 30 cm. this is for avoiding uncertainties regarding the smaller DBH classes.

11.10.1. Considerations of the validator regarding the assessment of uncertainties

The most critical uncertainties regarding the quantification of the carbon pools (carbon stock) are addressed in the version 01.3 of the REDD-NM-002, as presented above. The uncertainties are appropriately and adequately addressed. No CAR or CL was raised for this section of the methodology.

11.10 Transparency, conservativeness and consistency

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:
In most critical sections of the methodology regarding baseline, leakage and project emission calculation, there are references or requirements orienting the project developer to adopt a conservative approach, however if the methodology is conservative or not will depend on the integrity of the data used for determination of baseline scenarios and emissions as well as monitoring plan of the VCS PD's submitted under the REDD-NM-002.

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

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

In general terms the last version of the REDD-NM-002 (version 1.03) is technical transparent, the technical approaches are conservative, and the conservativeness is addressed and required in the most important sections of the methodology. Finally the methodology as a whole is consistent. CARs and CLs raised regarding transparency, conservativeness and consistency during the assessment of previous version of the methodology, have been closed in this currently version (v. 1.03). (for more information please refer to Annex A).

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11.11 Monitoring

The minimum duration of a monitoring period is one year and the maximum duration is the fixed baseline period.

There are three main monitoring tasks:

a) Monitoring of actual carbon stock changes and GHG emissions within the project area.

a.1 Monitoring of project implementation.
a.2 Monitoring of land-use and land-cover change.
a.3 Monitoring of carbon stocks and non-CO2 emissions.
a.4 Monitoring of natural disturbances.

b) Monitoring of leakage, where two sources of leakage are potentially subject to monitoring:

b.1 Decrease in carbon stocks and increase in GHG emissions associated with leakage prevention measures; and,
b.2 Decrease in carbon stocks and increase in GHG emissions due to activity displacement leakage.

c) Ex post calculation of net anthropogenic GHG emission reductions.

The calculation of ex post net anthropogenic GHG emission reductions is similar to the ex ante calculation with the only difference that ex post measured emissions must be used in the case of the project scenario and leakage.

For each task the monitoring plan must include the following sections:

a) Technical description of the monitoring task.
b) Data to be collected.
c) Overview of data collection procedures.
d) Quality control and quality assurance procedure.
e) Data archiving.
f) Organization and responsibilities of the parties involved in all the above.

11.11.1. Considerations of the validator regarding the monitoring methodology

The monitoring is appropriately and adequately addressed in the proposed methodology. The monitoring procedure is not directly applied to important elements of the GHG emission reduction calculation (baseline), once the GHG emission reduction is based in the ex-ante baseline assessment. However the methodology states that the baseline should be revisited every 5 to 10 years for:

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a) Update information on agents, drivers and underlying causes of deforestation;
b) Adjust the land-use and land-cover change component of the baseline; and,
c) Adjust, as needed, the carbon stock component of the baseline.

The CARs and CLs raised in the monitoring methodology section were all closed in the version 01.3 of the REDD-NM-002 (for more information please refer to Annex A).

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

- According to the REDD-NM-002 v.01.3, the most recent VCS definition of "frontier deforestation" shall be used in applying this methodology.
- According to the REDD-NM-002 v.01.3, projects submitted under the REDD-NM-002 v.01.3 are not seeking credits for avoided degradation, if this is the case an approved VCS methodology for Improved Forestry Management (IFM) shall be applied in the strata of the project area where degradation is reduced and the baseline is not deforestation.
- The methodology requires using existing deforestation baselines "if the existing baseline has been independently validated by a VCS accredited verifier, or is registered under a VCS acknowledged system, or has been established by the national or sub-national government having adopted a REDD scheme recognized by VCS or UNFCCC, an independent validation of the projection is not required and the existing projection must be used".
- Leakage in this methodology is subject to monitoring, reporting, verification (MRV) and accounting, except when the project area is located within a broader sub-national or national area that is monitoring, reporting, verifying (MRV) and accounting emissions from deforestation under an VCS or UNFCCC acknowledged program",
- "List of plausible alternative land use scenarios to the REDD project activity that are in compliance with mandatory legislation and regulations taking into account their enforcement in the region or country and any VCS decisions… "
- "If no such applicable sub-national or national baseline is available, the national and, where applicable, sub-national government shall be consulted to determine whether the country or sub-national region has been divided in spatial units for which deforestation baselines will be developed following VCS or UNFCCC rules".
- "Following VCS 2007.1 (2008 p.16-17), new discrete units of land (referred to as "new project area") may be integrated into an existing project area if included in the monitoring report for the first verification. After the first verification, the boundary of the project area remains fixed for the rest of the crediting period".
- Regarding the inclusion of a carbon pool the methodology refers in section 1.3 table 3 to The VCS definition of "significant" that is those carbon pools and sources that account for more than 5% of the total GHG benefits generated (VCS 2007.1, 2008 p.17).

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- Regarding the Heuristic approach for creation of the Factor Maps (section 4.2.1), the "value functions" must be based on expert opinion according to the VCS Program Normative Document, definition.
- The project crediting period shall be between 20 and 100 years.
- To avoid double counting of emission reductions, land areas registered under the CDM, VCS or any other carbon trading scheme (both voluntary and compliance-oriented) should be transparently reported and excluded from the project area.
- The baseline scenario is identified and quantified ex ante at the beginning of the project activity and shall be revisited every 5 to 10 years.
- According to the current version of the methodology in section 9.3, the proportion of VCU,t to be withheld in the VCS Buffer; is to be determined using the latest version of the VCS-approved "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

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 Any other comments

Public comments consideration

According to the methodology proponent the comments posted in the VCS website has been taken due account "as much as it was considered pertinent and applicable" for more information regarding how public comments was considered, please refer to CAR 05, CAR 19 and CAR 21.

The using of following methodological tools and guidelines is referred in the proposed methodology:

- "Tool for the demonstration and assessment of additionality for afforestation and reforestation CDM project activities v.2"
- VCS Tool for AFOLU Non-Permanence Risk Analysis and Buffer Determination.
- "Tool for testing significance of GHG emissions in A/R CDM project activities"
- tool for "Estimation of direct nitrous oxide emissions from nitrogen fertilization" for A/R CDM project activities
- 2006 IPCC Guidelines for National Greenhouse Gas Inventories (volume 4)
- IPCC GPG 2000
- IPCC 2006 Guidelines for AFOLU,

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The following methodologies and reference documents have been used as base for the elaboration of the proposed methodology:

- Draft REDD-PD for the "Reserva do Juma Conservation Project" in Amazonas (Brazil), prepared by IDESAM, the Amazonas Sustainable Foundation (FAS) and the Government of Amazonas (SDS/SEPLAN-AM),
- Methodology for Estimating Reductions of GHG Emissions from Mosaic Deforestation (REDD-NM-001 / Version 01), developed by the BioCarbon Fund.

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

The assessed and evaluated methodology with the title *"Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation – version 01.3"* (revised from previous version 1 and version 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 according to the BVC technical team, can be recommended for validation under the Voluntary Carbon Standard 2007.1.

13 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 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 in several projects in different Brazilian biomes. Also in private sector he was technical manager for more than seventy CDM and voluntary carbon projects (among them 5 LULUCF PDD). Now he works in the Bureau Veritas (BVC) as specialist for CDM and voluntary carbon projects.

Bruno Matta - GIS and Remote Sensing specialist

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Bruno Melo da Matta is an environmental engineer graduated by the University of the state of São Paulo “Júlio de Mesquita Filho” (UNESP) in Sorocaba. Bruno has an expertise in the Remote Sensing and GIS area; Statistical Analysis and Modeling data in a GIS platform. His abilities include elaboration of PDD’s in the scopes 13 and 14. He also has experience in the REDD-NM-001.

His most relevant professional abilities include technical coordination of a Forestry Inventory in the Bosque Chiquitano in Bolivia to a REDD project, consultancy to a REDD project in the Marajo Island, technical reports using the Remote Sensing tools and development a methodology to calculated the Hydric Balance in a GIS platform to EMBRAPA. In the ambit of GHG projects, in private sector, he was a forestry analyst of LULUCF PDD´s, especially using the VCS, CDM and CCBA templates (among them 5 LULUCF PDDs). Now he works in the Bureau Veritas (BVC) as specialist for CDM and voluntary carbon projects.

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ANNEX A

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

- Proposed new VCS Methodology "Methodology for Estimating Reductions of Greenhouse Gases Emissions from *Frontier Deforestation* (REDD-NM-002 / Version 02)"
- Date: 24/05/2010
- Person in charge: Diego Machado Carrion Serrano

Corrective Action Requests	***Reference***	***Summary of project owner response***	***Validation team conclusion***
CAR 01: According to the "*Tool for the demonstration and assessment of additionality for afforestation and reforestation CDM project activities v.2"* REDD activities is not among those activities where this tool is applicable. The proponent must also provide explanations why the methodology, while a VCS proposed methodology, doesn't use one of the three tests provided by the section 5.8 of the *"Voluntary Carbon Standard 2007.1"*	2. Additionality, pg 9	The revised version of the methodology contains a new section on additionality which fully complies REDD projects.	OK. The methodology proponent has adapted the AR additionality tool of the CDM for REDD projects. **CAR CLOSED**
CAR 02: The project proponent must provide reliable explanations why the *"Demonstration of additionality is not necessary where the country has adopted an emission limitation or reduction target (a REDD target)"* considering that even in this situation there are case where the activity of forest conservation can be considered not additional either legal and/or based in the common practices.	2. Additionality, pg 9 (footnote #3)	The footnote has been deleted but some of its spirit has been retained in the revised methodology. The revised version requires project proponents to use pre-existing baselines if these are either VCS or UNFCCC approved or meet certain criteria, which are specified in a new table (Table 2,	OK. The exclusion of the non-necessity of demonstration of the additionality "*where the country has adopted an emission limitation or reduction target (a REDD target)"* is conservative and well addressed . Also the methodology proponent approach for avoiding different baselines in the same reference region is applicable and well addressed. **CAR CLOSED**

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		page 23). This is to avoid situations in which different projects located within the same reference region, validated by distinctive VCS verifiers, come up with different baselines.	
CAR 03: It's important to define and show how the leakage belt will be delimitated in the spatial boundaries.	Page 11, step 1.1	The revised methodology now contains two methodological options to define the boundary of the leakage belt area (section 1.1.3, page 26), called "Opportunity Cost Analysis" (Option 1) and "Mobility Analysis" (Option 2). The two options are adequately explained as follow: • Option 1 defines the leakage belt area as those forests near the project area that would not be deforested in the baseline case, but that would be economically profitable to deforest. The underlying assumption is that leakage cannot happen where deforestation is not profitable. This option is only applicable where the main motivation to deforest is economic profit and this can be demonstrated; and • Option 2 is based on multi-	Ok. The car was solved the methodology proponent has adopted 2 methodological options to define and delimitate the spatial boundaries of the leakage belt. **CAR CLOSED**

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		criteria analysis to determine potential mobility of the deforestation agents. Please note that the definition of "leakage belt" has been changed in the revised methodology (see Appendix 1). The leakage belt area contains only forest land remaining forest land at the end of the project crediting period in the baseline case. If some of this forest land would be deforested under the project scenario, the associated carbon stock changes and GHG emissions will be considered activity displacement leakage.	
CAR 04: In paragraph 2 is made a reference to the study of Sandra Brown in which she suggests the size of the reference region establishing a range of the project area and using this range to define the proportional size of the reference region. But this assumption does not consider the dynamics of land use, is arbitrary values which can lead to overestimate the Reference region and possibly the agents, drivers of deforestation, deforestation rates and patterns of change in land use resulting in a baseline established erroneously, in this way is preferable to omit the reference.	Page 11, step 1.1.1 - Reference Region	The revised text provides criteria for defining the boundary of the reference region (section 1.1.1, page 23). The reference was kept as it is the most solid one found in the scientific literature. Please note that a problem would only exist if the reference region is too small and therefore not adequate to represent future patterns within the project area. If the reference region is very large, project proponents will work harder to gather data and calibrate the baseline model. But if the model is adequately designed (e.g. stratified), there will not be	Ok, with the new considerations and criteria the establishment of the reference region is adequate. However, as the methodology proponent observed on its own answer the use of the reference values can occur in a problem in the case of the reference region is too small. In this case it is necessary to provide this information in the VCS methodology to avoid any methodological problems in small REDD projects. **CAR NOT CLOSED**

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		any risk of a non-conservatism approach on using a larger reference region.	
		Based on the comments of the second review, we decided to delete the reference to the values suggested in the paper of Sandra Brown. In this way, there will be no ambiguity and proponents of projects will apply the criteria proposed in the first review.	Ok, the CAR was solved by the methodology proponent with decision of delete the reference values that can lead misunderstand which was suggested in the paper of Sandra Brown. **CAR CLOSED**
CAR 05: According with the VCS public comment from Gabriel Thoumi (comment 2), why the proposed change wasn't adopted?	Page 11, step 1.1	The revised text includes recommendations from this public comment.	The CAR was not solved, the public comment from Gabriel Thoumi which is relevant and important to the methodology wasn´t adopted in the step 1. **CAR NOT CLOSED**

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		Please note that the public comment from Gabriel Thoumi is no longer available in the VCS website. To address the underlying concern expressed in the public comment (as far as we can remember it) we added to the first paragraph of Section 1.1.2. the following sentence: "To demonstrate control on the land, legal documents demonstrating land ownership must be collected (e.g. land title from the public registry or other legally valid documents in the country), as well as documents demonstrating that the land owner(s) agree with the project activities in their lands. If some of the boundaries of ownership are unclear, these must be ratified in association with the interested parties (see Mustalahti, 2008)."	Ok, the CAR was solved by the methodology proponent with the addition of the sentence mentioned in the section 1.1.2 **CAR CLOSED**
CAR 06: This criterion is addressed to the reference region neediness to include a stratum where some roads were built in the past for analysis of new infrastructure. If there is not a scenario similar in the reference region, it's purposed that the approach to new infrastructure should enlarge the reference region to cover a given situation in the past. However, it would be a risk, because a bigger reference region can	Page 12, step 1.1.1 – Reference Region, criteria to determine the conditions of the likelihood of deforestation – Access to	The reference region must include areas in which historical deforestation patterns are representative of future deforestation patterns expected to occur within the project area. This is exactly the reason why a reference region larger than the project area is needed, particularly in frontier deforestation projects. If new infrastructure is planned	OK. The methodological proponent has used reasonable assumptions and arguments to show and avoid some possible baseline overestimation. **CAR CLOSED**

causes a different analysis of the deforestation rates and may overestimate the baseline. How the methodology developers intend to avoid this baseline overestimation?	forest	within or near the project area, the only possible option to properly foresee the impacts of such event on the project area's forest is to calibrate the deforestation model inputting historical data from an area within the reference region where such infrastructure development and related deforestation already had happened. This is the key-issue on using a reference region larger than the project area. Besides, the deforestation rate in the reference region and in the project area will never be the same where a spatial model is developed. The modeling is a two-step process: 1. The deforestation rate of the reference region is determined based on historical land-use and land-cover change analysis in association with an analysis of agents and drivers (which may be a stratified analysis); Then spatial analysis is performed to spatially locate the projected deforestation within the reference region. Finally, the polygon of the project area is overlaid to the spatial model for the reference	

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		region to determine the rate and location of projected baseline deforestation within the project area. Location analysis is thus determining the deforestation rate within the project area. The quality of the spatial model is a key factor for avoiding an overestimation of the deforestation baseline within the project area. For this reason the methodology require project proponents to perform model calibration and validation using verifiable historical data.	
CAR 07: This step refers to the reference region and the Project area that must be the same type of ecologic conditions. It's important to establish which conditions and if these conditions can be similar or need to be identical of the reference region, it's also important to analyze and establish the factors that might increase the likelihood of the deforestation.	Page 13, step 1.1.1 – Reference Region, criteria to determine the conditions of the likelihood of deforestation – Ecologic conditions	The revised methodology contains quantitative criteria to assess similarity of conditions between reference region and project area (section 1.1.1, page 22).	OK, with the adoption of four conditions to establish the ecologic conditions the methodological proponent has solved this CAR. **CAR CLOSED**
CAR 08: *Forest* –Please, make reference to the step which establishes the MMU	Page 13, step 1.1.3 - Forest	The CAR was solved by adding: "The Minimum Mapping Unit (MMU), which shall be equal or above the minimum area threshold used for defining "forest", but not above 5 times this value."	The assumption used to determine the minimum mapping unit (MMU) is incorrect because if the MMU is above the threshold used for defining "forest", the accuracy and the map scale will change. For example: If the MMU is equal a 1ha (threshold) than the map scale is equal a 1:20,000 and the accuracy is equal 0.05 ha. If we use a value above of the threshold (1ha) such as 10ha the map scale is equal a 1:50,000 and the accuracy is equal 0.5ha.

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		We have no problem in our project for establishing the MMU equal to the minimum area threshold used for defining "forest". In Brazil this threshold is 1.0 ha and we can map and model our deforestation at this resolution. However, other countries have defined this threshold at 0.1 hectares or less (e.g. Dominican Republic), and mapping deforestation and modeling it at this resolution would be prohibitively costly in these countries. National GHG inventories reported to the UNFCCC by these countries were accepted with data at a coarser resolution than the minimum area threshold of the forest definition. Furthermore, finding high resolution data for the past may be impossible in many cases, implying that the MMU will be determined by the available RS data. In case of Landsat TM the minimum would be 0.08 ha (= 1 pixel) which is above the UNFCCC minimum of 0.05 ha. We therefore suggest BV to reconsider this CAR. Nevertheless, in the revised methodology we have stated: "*The Minimum Mapping Unit (MMU), which shall be equal the*	In this way the correct manner of expressing the MMU, would be like that: "The Minimum Mapping Unit (MMU), which shall be equal the minimum area threshold used for defining "forest". **CAR NOT CLOSED** Ok, with the adoption of the expression suggested by BV the CAR was solved by the methodology proponent. **CAR CLOSED**

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		minimum area threshold used for defining 'forest'."	
CAR 09: According to the VCS website (http://www.v-c-s.org/methodologies.html), the REDD Methodological Module for VCS that comprehends the "Estimation of carbon stocks and changes in carbon stocks in the wood products pool" is currently under validation and is not validated yet. Please provide the reference in accordance with the currently status of the "Estimation of carbon stocks and changes in carbon stocks in the wood products pool" document.	1.3 Carbon pools, Pg 15.	Appendix 3 has been revisited and a new section on wood products carbon stock has been included in it (and the former Appendix 7 has been deleted).	OK. The new approach for "*Estimation of carbon stocks in the harvested wood products carbon pool*" presented in appendix 3 of the REDD-NM-002, vesion 2 is reliable and well addressed. **CAR CLOSED**
CAR 10: the proposed methodology states that *"market effects are not considered as attributable"* for leakage prevention measures, notwithstanding according to the paragraph 23, section 5 of the *"Tool for AFOLU Methodological Issues"* of the VCS: Leakage caused by market effects must be considered for the case where timber production is significantly affected. Please consider the market effects in cases where the timber production is significantly affected.	1.4 Sources of GHG emissions, page 18 (footnote #13)	According VCS 2007.1, 2008b (p. 27) market leakage effects associated with stopping illegal logging need not be considered if the project proponent chooses not to claim carbon credits from stopping such activities (i.e. illegal logging is not considered in the baseline or project scenario). The proposed methodology does not allow claiming credits for avoided logging activities in the baseline, so market effect leakage can be ignored. The methodology implicitly uses the same logic in the case of fuel-wood collection	According to the response given for CAR 10: *"The proposed methodology does not allow claiming credits for avoided logging activities in the baseline"*, it is important that the methodology proponent clarify that the baseline logging activities not allowed for credits claiming refers to illegal logging, once according to the REDD-NM-002, version 2 *"Baseline activities that may be displaced by the REDD project activity include logging for timber, fuel-wood collection, charcoal production, agricultural and grazing activities".* **CAR NOT CLOSED** OK, the approach presented by the methodology proponent regarding market leakage effects associated with stopping legal and illegal logging is in accordance with the VCS tool for AFOLU, once there is no claim for the credits of reduced degradation caused by reducing or stopping logging,

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		and charcoal production activities.	**CAR CLOSED**
		We believe that if there is no claim of credits for reduced degradation caused by reducing or stopping logging, then accounting for market leakage effects is not required according to the VCS Tool for AFOLU methodological issues. In the following we try to explain our rationale. It is true that logging may be displaced, but it is also true that it would have happened anyway in the baseline case, so there is no increase in emissions caused by the project activity. All what happens is a simple relocation WITHOUT any claim of credits. There is a precedent in the CDM that illustrates our point. It´s the	

		case of emissions from enteric fermentation and manure deposited by cattle within the project area in the baseline case of an AR project, which are displaced outside the project area due to the AR project activity. Since the AR project is not claiming credits for suspending enteric fermentation and reducing manure deposits, the EB agreed that displacing enteric fermentation and manure deposits outside the project area should NOT be considered leakage. The case of baseline logging in REDD projects is the similar: prior to the start of the REDD project activity, logging happens within the project area, once the REDD project activity starts, logging is displaced outside. There is no increase in emissions going into the atmosphere because the project is NOT claiming credits for suspending logging activities. In our project we only have some level o illegal logging in the baseline, so we could have chosen to satisfy the CAR by simply clarifying that only “illegal” logging is allowed in the baseline. However, we are seeing many	

		projects being considered in areas where logging is legal, and therefore we would like that our methodology becomes applicable to those projects as well. According to our reading of the "VCS Tool for AFOLU methodological issues" our methodology should be applicable to all cases with logging in the baseline. Paragraph 25 of the VCS Tool is applicable only if credits are claimed for suspending illegal logging activities, which is NOT the case in this methodology. Footnote 15 of the VCS Tool further specifies that "Activities that reduce legally harvested timber production are covered under the IFM section of the VCS and are not eligible for REDD activities". "Eligible" in this context implies "eligible for activities that generate credits". Again our methodology is not claiming credits for suspending or reducing any kind of pre-project logging activity, and therefore it should not be subject to any form of leakage accounting due to changes in the level of timber harvest within the project area. We therefore would like BV to	

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		reconsider this CAR and, if our arguments are not convincing, then we would like to suggest sending a clarification request to the VCSA.	
CAR 11: Collection of appropriate data sources: In the 2006 IPCC Guidelines for National Greenhouse Gas Inventories – chapter 3.27: In the part of Ground Reference data, establishes that is a good practice to complement the remotely sensed data with ground reference data in detriment of the high resolution data, which only is cited as useful. In this way would be a better approach to enforce in the methodology the use of the ground data in detriment of high resolution satellite data.	Page 19, Step 2.1 - fourth paragraph	The CAR was solved by including a reference to the good practices' aspect mentioned in the IPCC 2006 Guidelines for National Greenhouse Gas Inventories, regarding the use of ground truth data association with satellite data.	OK, the CAR was solved using the reference of the Good Practices 2006 IPCC Guideline. **CAR CLOSED**
CAR 12: Definition of *classes* of land-use and land-cover: It's important to explain and define which IPCC methods will be used that is cited on the reference 21.	Page 21, step 2.2, third paragraph	The revised methodology does not require a mandatory use of IPCC classes. We found this requirement to be unpractical as more detailed information to define classes may be available in many projects.	OK, the CAR was solved with the changes in the Step 2.2. **CAR CLOSED**

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CAR 13: Radiometric corrections may be necessary. According with the **GOFC-GOLD, 2009, Reducing greenhouse gas emissions from deforestation and degradation in developing countries: a sourcebook of methods and procedures for monitoring, measuring and reporting, GOFC-GOLD Report version COP14-2, (GOFC-GOLD Project Office, Natural Resources Canada, Alberta, Canada),** the spectral quality should be checked and related correction are mandatory when satellite sensors with low radiometric processing levels are used, for example TM Landsat 5. Please make the appropriate assumption regarding the necessary radiometric corrections.	Page 23, step 2.4.1, item C	GOFC-GOLD states that radiometric corrections may be necessary, which implies that they are not always required. The critical aspect of RS data analysis is accuracy of the output. Project proponents must achieve a minimum accuracy, as specified in section 2.5 of the methodology. The methods applied to achieve that accuracy must be standardized as good practice RS data analysis – and the methodology provides sufficient guidance on this issue, without being too prescriptive on the details. The methodology was developed to be not too prescriptive regarding RS data analysis because methods and sources have different approaches and rapidly evolving. However, if the verifier (BVQi) still considers this change on radiometric corrections, it will be included, in the final version of the methodology, a statement saying "radiometric corrections must be performed following the latest version of GOFC-COLD´s sourcebook on REDD methods and procedures for monitoring, measuring and reporting GHG emissions form deforestation and	GOFC-GOLD states on the paragraph 3341 to 3345 on the page 2-95 that the spectral quality should be checked and related correction are mandatory when satellite sensors with low radiometric processing levels are used, for example TM Landsat 5. It´s well known in the RS area that for a correct analysis and image processing the necessity of the radiometric corrections to ensure that the images have the same spectral value for the same object. **CAR NOT CLOSED**

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		forest degradation." The requested correction has been made and the citation made by the reviewer has been added in a footnote.	OK, the CAR was solved with the correction proposed by BV and with the addition of the footnote. **CAR CLOSED**

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CAR 14: "Minimum mapping unit should be equal or above the minimum area threshold used for defining "*forest*", but not above 5 times this value. Where mapping at this spatial resolution is not possible in the *ex ante* assessment of historical LU/LC change, at least monitoring must satisfy the MMU requirement". But it's possible to attend the MMU requirement in the *ex ante* analysis using the appropriate method for delineation and class labeling, according with the **GOFC-GOLD, 2009, Reducing greenhouse gas emissions from deforestation and degradation in developing countries: a sourcebook of methods and procedures for monitoring, measuring and reporting, GOFC-GOLD Report version COP14-2, (GOFC-GOLD Project Office, Natural Resources Canada, Alberta, Canada)**	Page 24, step 2.4.2, general guidance – fourth item.	The revised version of the methodology states, as in CAR 08: • "The minimum mapping unit should be equal or above the minimum area threshold used for defining "forest", but not above 5 times this value."	Please, see the comments in the CAR 08. **CAR NOT CLOSED**
		The text in the revised methodology now reads: "Minimum mapping unit should be equal to the minimum area threshold used for defining "forest" However, we would like to remind our comment on CAR08 and propose to reconsider this CAR and perhaps to issue a clarification request to VCSA.	Ok, with the alterations in the revised methodology the proponent has solved this CAR. **CAR CLOSED**
CAR 15: The Methodology is supposed to provide some kind of orientation about the possible approaches and how the *"likely future development of the population size of the agent group*" can be assessed in order to avoid overestimations for the baseline scenario of deforestation/degradation.	3.1 Identification of *deforestation* agents, item c, pg 28.	The CAR was solved by requiring credible and verifiable sources of information to be provided at the time of validation, such as official statistics and published scientific studies (page 44).	OK. The requirement of *"credible and verifiable sources of information to be provided at the time of validation, such as official statistics and published scientific studies"* is reliable and well addressed. **CAR CLOSED**
CAR 16: Following the section 6.3 of the VCS 2007.1 *"Determine the baseline scenario relevant to VCS methodologies*"	3.5 Conclusion of the analysis	The CAR was solved by including in the methodology the reference requested, as follow: "the project	OK. According to the text presented in the REDD-NM-002, version 2, pg

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where: "*The project proponent shall select the most conservative baseline scenario for the methodology*". It's not clear in the step 3, despite of item 3.3 "*Land-use policies and their enforcement*", how does the methodology intend to deal with agents, drivers and underlying causes that can go in an opposite direction of deforestation by leading to a maintenance of the forest physiognomy in the baseline scenario (e.g. the strengthening of the environmental policies against illegal deforestation). The methodology is supposed to better address this kind of agent, drivers and underlying causes in order to avoid inducing the project developer to consider just agent, drivers and underlying causes that can lead to deforestation what can result in an unlikely and not conservative baseline scenario. Please make reference also to the agents, drivers and underlying causes that do not induce to deforestation.	of agents and drivers, pg 30	proponent shall consider both agents and drives of deforestation in all scenarios to be realistic – based on published and reliable data" (page 46).	46: *"For a conservative baseline projection, the project proponent shall consider that in all the scenarios the agents and drives of the deforestation activities are realist, based on published and reliable data and including others agents which do not cause deforestation in the baseline scenarios, e.g. concrete actions and laws avoiding deforestation, such as effective surveillance and law enforcement, thus averting an induced argument",* the conservativeness of the baseline scenario was well addressed. **CAR CLOSED**
CAR 17: When a REDD target and monitoring system has been established by the competent national or sub national authority, it's important that the baseline deforestation rate can be allocated to the project area and also to the **leakage belt.**	Page 31, step 4.1, second paragraph.	The revised methodology provides clear text on how existing and applicable baselines should be used. Same for existing monitoring systems (see Part 3, Task 1, section 1.1.2). Please note that under the revised methodology the leakage belt contains only forest land remaining forest land in the baseline case (i.e. the baseline deforestation rate in the leakage belt is zero).	OK, with the changes in the revised methodology, especially regarding to the definition of the leakage belt the CAR was solved by the methodological proponent. **CAR CLOSED**

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CAR 18: In the item 1 it's determined to identify the land use constraints, also it's important to mention the neediness of mapping the constraints to identify them spatialized.	Page 32, step 4.1.1, item 1	The revised methodology requires preparing maps for all factors identified as constraints and to process them in a GIS (section 4.2, page 58).	OK, the CAR was solved due to the new requirement of preparing maps of the constraints to possible the spatial Analysis. **CAR CLOSED**
CAR 19: According with the VCS public comment from Kyle Holland (comment 1), why the changes proposed in the approach "B"- Linear extrapolation wasn't adopted?	Page 37, step 4.1.2.1, Approach "B"	The text has been revisited and the public comment has been considered as much as it was considered pertinent and applicable (section 4.1.3.1, page 54). The public comment was properly considered in our first revision. We included in approach "b" the equation 6.b, which is the equation for logistic regression suggested by Holland. We also clarified that when using equation 6.a the linear trend can only by extrapolated during a finite number of years (basically during the initial *Toptimal* years), which are the years during which there is sufficient forest land with optimal conditions for deforestation to continue linearly. Equations 7-10 provide clear guidance to the methodology user for the case that forest land with optimal conditions is "finite".	In the methodology, linear extrapolation assumes a linear and unbounded relationship between the rate of deforestation and time. However, deforestation is bounded because for any finite area of land, there can only be complete forestation or deforestation (a ratio from zero to one in-between) at the extremes. Hence, it is a poor assumption that deforestation rate and time are linear. Because of this linear extrapolation as described in the methodology is inappropriate. It´s preferably to eliminate the linear regression approach from the methodology and restructure the approach "B". **CAR NOT CLOSED** OK, based in the assumptions and clarifications presented by the methodology proponent for the extrapolation of the values to the future this CAR was solved. **CAR CLOSED**

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		We would like to keep this approach (equation 6.a) in our methodology because we have found good correlations (r2 > 90%) in some projects.	
CAR 20: The correct equation isn't displayed appropriate in the methodology, please make the correction.	Page 38, step 4.1.2.1, Approach "B", equation 6	The CAR was solved by correcting the equation in the methodology and considering some editing constraints from the MS Word (equation 7, page 57).	OK, the CAR was solved by correcting the equation in the revised methodology. **CAR CLOSED**
CAR 21: According with the VCS public comment from Kyle Holland, (comment 4, 5, 6 and 7) for the approach "C", why this proposed changes wasn't adopted?	Page 39, 40 and 41 step 4.1.2.1, Approach "C".	The text has been revisited and the public comment has been considered as much as it was considered pertinent and applicable (page 56).	OK, with the changes in the revised methodology the CAR is solved, because now allows the project developer to use the necessary and best approaches to explain the variables selection and to perform the validation of the model, not restricting this analysis in only one manner. However the changes have generated a new CAR #61. **CAR CLOSED**
CAR 22: It's a subjective approach create the driver maps based on expert opinion or other sources of information, it's important to define how a person can be considered as an expert and the appropriate sources of information that can be used?	Page 43, step 4.2.1,	"Experts" (in the context of the spatial modeling exercise) are people with local knowledge (not necessarily scientists) as well as technical experts (with scientific skills) who can provide useful experience and knowledge about the deforestation patterns and the key variables determining them in the reference region and project area. Their opinion may be subjective in some cases, but it is usually a good proxy of the real processes in the field together	OK, with the inclusion of the expert definition this CAR was solved. **CAR CLOSED**

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		with other sources of information (such as scientific papers and published studies). Thus, gathering these data, it is prepared the Driver Maps (or Factor Maps in the revised text) in order to design the model. Which of the Factor Maps is kept in the final model and how the model is structured will depend on the result of model calibration and validation (the latter is called "confirmation" in the revised text, to prevent misunderstanding with VCS validation), which is done objectively using historical data. Finally, the selection of Factor Maps is not the major part - as only those Factor Maps which contribute to a good model calibration and confirmation is retained in the final baseline model. If an "expert" proposes a Factor Map which has nothing to do with real processes, this will become evident when this model is calibrated and confirmed.	
CAR 23: It's important to define how a person can be considered as an expert.	Page 44, step 4.2.2, second paragraph.	A footnote (# 35) has been added specifying that an expert is "a person with local knowledge (not necessarily a scientist) or a technical expert (with scientific skills) that can provide useful experience and knowledge about deforestation patterns and	OK, the CAR was solved, despite of the inclusion a footnote (#35) in the revised methodology. **CAR CLOSED**

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		variables determining them in the reference region and project area". See also explanations in CAR 22.	
CAR 24: Provide the acceptable statistics threshold of the risks maps in the validation process of the two approaches options.	Page 44 and 45, step 4.2.3	To avoid a complex methodology, the revised text proposes a simple measure of "goodness of fit" for the overall model, which is called "Figure of Merit" (FOM) which confirms the model prediction in statistical manner (Pontius *et al.* 2008; Pontius *et al.* 2007)* (page 62). This method has been proposed in the revised modules of Avoided Deforestation Partners and it is a practical and useful method.	OK, with this well know and recognized scientific study as a reference of the measure of "goodness of fit" the CAR was solved. **CAR CLOSED**
CAR 25: The pronoun "that" is twice used in the phrase. "…step 2 to produce a set of maps showing for each *forest class* the polygons that that would be deforested each year…" please make the correction.	Page 47, step 5.1, first paragraph.	The text has been corrected as requested.	OK, the CAR was solved by the methodological proponent due to the necessary changes made. **CAR CLOSED**
CAR 26: Provide the exactly reference and localization of the similar technique of model the spatial suitability.	Page 48, step 5.2, option 3, first assumption.	The text under Option 3 has been redrafted taking into account the several state-of-the-art modeling tools (such as Dinamica Ego and Land-Use Change Modeler) which can consider many categories of land-use and land-cover change	OK, the CAR was solved with the reference of different modelling tools that can be used by the project developer. **CAR CLOSED**

* Pontius, R. G., Jr, W Boersma, J-C Castella, K Clarke, T de Nijs, C Dietzel, Z Duan, E Fotsing, N Goldstein, K Kok, E Koomen, C D Lippitt, W McConnell, A Mohd Sood, B Pijanowski, S Pithadia, S Sweeney, T N Trung, A T Veldkamp, and P H Verburg. 2008. Comparing input, output, and validation maps for several models of land change. Annals of Regional Science, 42(1): 11-47. Pontius, R G, Jr, R Walker, R Yao-Kumah, E Arima, S Aldrich, M Caldas and D Vergara. 2007. Accuracy assessment for a simulation model of Amazonian deforestation. Annals of Association of American Geographers, 97(4): 677-695

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		directly. Option 3 could also be implemented using multi-criteria analysis, which is explained in the revised text (page 65).	
CAR 27: The method mentioned to do this sub-step is incorrect; the right method is the option 3. Please make the correction.	Page 49, step 5.3, first paragraph.	The text has been modified and the correct method was mentioned.	OK, due to the modifications the CAR was solved. **CAR CLOSED**
CAR 28: Table 12: *"Parameters used to calculate non-CO2 emissions from forest fires"* doesn't make sense in this paragraph, once this refers to carbon stock changes by using the Method 1 of step 5. This probably refers to table 10. Please make the correction.	6.1.2 Calculation of carbon stock changes, pg 51.	Methods to estimate emissions from forest fires, and also all the tables, have been revisited in the revised version of the methodology and the text has been corrected as requested.	OK. The wrong reference given for the table was corrected in the version 2 of the methodology. The correct reference now are tables 15a – 15c **CAR CLOSED**
CAR 29: There's no table 3.A.14 in the IPCC GPG LULUCF. The methodology probably refers to table 3.A.1.14 *"Combustion Efficiency (proportion of available fuel actually burnt) relevant to land-clearing burns, and burns in heavy logging slash for a range of vegetation types and burning conditions"* Please make the correction.	6.2 Estimation of non-CO2 emissions from forest fires, pg 54	The revised text has added the correct reference.	OK. The wrong reference given for the table was corrected in the version 2 of the methodology. **CAR CLOSED**
CAR 30: There's no table 3.A.15 neither 3.A.16 in the IPCC GPG LULUCF. The methodology probably refers to table 3.A.1.15 and table 3.A.1.16 of the IPCC GPG LULUCF. Please make the correction.	6.2 Estimation of non-CO2 emissions from forest fires, pg 54	The revised text has added the correct reference.	OK. The wrong reference given for the table was corrected in the version 2 of the methodology. **CAR CLOSED**
CAR 31: Tables 12 and 13 refer to Non-CO2 emissions from forest fires and is not in	7.1.3 Calculation of	As aforementioned, all tables have been edited and the text has	OK.

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accordance with the title of the section 7.1.3 *"Calculation of actual carbon stock changes"*. Please make the correction.	actual carbon stock changes, pg 59	been corrected as requested.	The wrong reference given for the table was corrected in the version 2 of the methodology. The correct reference now is table 22. **CAR CLOSED**
CAR 32: To consider a "*common manure management system in the project area*" suggests the possibility of grazing activity and also the existence of pasture within the project area, notwithstanding this approach is not in accordance with the applicability conditions item "e" of the summary *"At project commencement, all lands within the project area meet the criteria for definition as forest"* it must be checked in order to avoid inconsistency in the applicability of "*project area*" term (as it is defined in appendix 1) in both situations.	8.1.2 Estimation of CH4 and N2O emissions from grazing animals, pg 60	The revised version of the methodology contains a new applicability condition (page 7): d) "At project commencement, the project area shall include only land qualifying as "forest" for a minimum of 10 years prior to the project start date." In the revised version of the methodology, leakage prevention measures involving grazing activities are implemented in specifically designated "leakage management areas" which must be located outside the project area and outside the leakage belt area (section 8.1.1, page 89).	OK. The new applicability condition "d" looks more realistic in terms of real situation generally found in the field. Also "*leakage management areas*" approach, presented in the version 2 of the methodology, looks to be a suitable approach for reduce the risk of activity displacement leakage. **CAR CLOSED**
CAR 33: Once the Fearnside paper "C*arbon benefits from Amazonian forest reserves: leakage accounting and the value of time*" is not free available for the public, The methodology must explain whether a shorter lifetime project (less than 100 years) is also able to use the same leakage approach and adopt the value of "*40% of the project's net anthropogenic GHG emission reductions calculated without leakage discount*".	8.2 Estimation of decreases in carbon stocks due to displacement of baseline activities Option 1: Time discount approach, pg	At the time of writing the first draft of the methodology, the paper of Philippe Fearnside was only available in draft form. It was published in Mitigation and Adaptation Strategies for Global Change in 2009 (14:557-567). A reference has been added (indicating the link) in a footnote (#4) and in the list of "`literature cited" at the end of the document. Since the non-permanence issue	OK. The VCS buffer account developed for addressing non-permanence of the forest credits supports the methodology proponent assumption regarding the perpetual protection of the forest. **CAR CLOSED**

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	62	is addressed by the VCS pooled buffer, the forest within the project boundary is assumed to remain protected in perpetuity, regardless of the registered project duration. For this reason, the 40% discount is applicable regardless of the duration of the project crediting period (section 8.2, Approach 1, page 97).	
CAR 34: The methodology must clarify how the adoption of a REDD target under a state- or nation- wide REDD program, is not supposed to affect the additionality of a project submitted under this methodology and also the ex-ante project baseline calculated in the step 4, particularly in the cases where there are differences between the baseline calculated by the broader REDD program and baseline calculated by the REDD project proponent.	8.2 Estimation of decreases in carbon stocks due to displacement of baseline activities Option 2: Leakage measured and accounted in a broader, item “a”, pg 62	The revised methodology avoids any possibility to generate inconsistencies between project-level baselines and sub-national or national baselines by making mandatory the use of any applicable sub-national or national baseline. Applicability criteria are specified in Table 2 (page 23). If a project-level baseline has been VCS validated and after the validation date the sub-national or national government adopts a VCS or UNFCCC acknowledged baseline, the pre-existing project-level baseline will remain valid until the date it must be revisited, which according to VCS is within 10 years from the validation date (VCS 2007 AFOLU Guidance, page 38). At the moment of revisiting the baseline, the project will have to adopt any existing VCS or UNFCCC registered or otherwise applicable baseline.	OK. The applicability criteria for existing baseline, presented in table 2 of the version 2 of the methodology is consistent and reliable and was validated by the validation team. The validation team also understands (considering the decision of Annex 3, para. 7(b) of the 22nd meeting of the CDM Executive Board for AR projects) that REDD Policies and measures adopted by the sub-national or national government must not be considered during the additionality assessment, once this could create, as justified by the methodology proponent, “perverse incentive” for governments not to improve their environmental policies. The validation team also has the understanding that once these policies and programs are able to reduce the deforestation, this would automatically affect the ex-post calculation as well as the baseline up-dating. **CAR CLOSED**

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		Policies and measures adopted by the sub-national or national government after a threshold date (it should be defined by the VCS and this issue was raised to the AFOLU coordinator) should not be considered to avoid the "perverse incentive" for governments not to improve their policies. This logic has already been adopted in the CDM – policies adopted after the adoption date of the Marrakesh Accords (11 November 2001) must not be considered in the analysis of additionality and baselines (Decision 17/CP.7). In practice, it will not be possible to avoid including the impact of policies and programs in the calibration of the model for future fixed baseline periods because if deforestation is reduced in the reference region due to these policies and programs, this will automatically translate in a new model calibration.	
CAR 35: It's not clear if the methodology suggests that all and any increasing in the deforestation in the surrounding region of the project area must be assign to the project, if this is the case or not, the methodology must address how the region "surrounding the project area" must be defined.	8.2 Estimation of decreases in carbon stocks due to displacement of baseline activities Option 2:	The revised methodology considers any deforestation above the baseline projections in the leakage belt area as activity displacement leakage. Criteria for defining the boundary of the leakage belt are given in Part 2, Section 1.1.3.	OK. The methodology considers "*If carbon stocks in the leakage belt area will decrease during the crediting period this will be an indication that leakage due to displacement of baseline activities has occurred*". Also, the new approach provided by the methodology proponent

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	Leakage measured and accounted in a broader, item “b”, pg 62		regarding the definition of the leakage belt boundary (Opportunity Cost Analysis and Mobility Analysis) is reliable and was well addressed. **CAR CLOSED**
CAR 36: The methodology does not provide information of how to indentify "*activity displacement from the project area*” the lack of guidelines for this kind of assessment can lead to arbitraries, non-conservatives and non-verifiable approaches in terms of leakage. Please provide information of how this identification must be done.	8.2 Estimation of decreases in carbon stocks due to displacement of baseline activities Option 2: Leakage measured and accounted in a broader, pg 63	The revised text states that activity displacement leakage is any deforestation occurring in the leakage belt area under the project scenario. This will be detected by monitoring changes in forest cover within the leakage belt area (Part 3, Task 1, page 104).	OK. As presented above, The methodology considers: “*If carbon stocks in the leakage belt area will decrease during the crediting period this will be an indication that leakage due to displacement of baseline activities has occurred*”. The monitoring of leakage is addressed in section 1.2 of task 1, pg 113 of the version 2 of the new REDD methodology. **CAR CLOSED**
CAR 37: the methodology must provide some kind of guidelines for the assessment of the “*risk of leakage due to displacement of immigrant baseline activities*”, otherwise the absence of rules in the determination of leakage risks, can lead to arbitrary, non-conservatives and non-verifiable approaches for the buffer sizing during the project elaboration.	8.2 Estimation of decreases in carbon stocks due to displacement of baseline activities Option 3: Buffer of credits, pg 63	The distinction between local and immigrant deforestation agents has been removed in the revised methodology due to the difficulty to define such groups. The revised methodology states, in order to avoid double counting, monitoring of activity displacement leakage is not required if the project area is located within a broader region covered by a VCS or UNFCCC approved program	OK. The new approach provided by the methodology proponent regarding the definition of the leakage belt boundary (Opportunity Cost Analysis and Mobility Analysis) is reliable and was well addressed. **CAR CLOSED**

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		which is properly monitoring, reporting, verifying and accounting emissions from deforestation. In all other cases, one of the following two approaches must be used to estimate and account for activity displacement leakage (section 8.2, page 96): 1. Time discount approach. 2. Monitoring or the leakage belt.	
CAR 38: The hyperlink "*http//www.vcs.vcs.org/docs/VCS%20AFOLU%Guidance%20Document.pdf*" is not working properly. No valid webpage was provided when the link is accessed. Please check the link and provide a new one.	Step 9: Ex ante net anthropogenic GHG emission reductions, footnote # 49, and pg 64.	The entire text of step 9 has been redrafted and the revised version does not require the hyperlink mentioned.	OK. The new step 9 presented in the version 2 of the new methodology is consistent and was well designed. **CAR CLOSED**
CAR 39: the value 9 MJ head-1 day-1 for sheep in developing countries is different from the value provided in the table 2 of the AR-AM0003 version 2. Please make the correction	Appendix 2, table 5, pg 65.	The requested correction has been made based on AR-AM0003 version 02 (cited in footnote #71, page 126). (Note: AR-AM0003 has been replaced by AR-ACM0001, but AR-AM0003 version 2 is still available online for consulting).	OK. The wrong value was corrected and also the methodology AR-AM0003 version 2 keeps available online for consulting in the UNFCCC website. **CAR CLOSED**
CAR 40: It's not clear where is necessary to refer in the part 2 about the variables to be measured. To avoid any dubious understand	Page 66, part 3, task 1, step 1.2.1,	The text has been changed to improve clarity and references to Part 2 have been made more	OK. With the changed text the CAR was solved, however the new text has generated a new CAR #61.

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it's important to give a detailed reference.	second item	specific. A new appendix (Appendix 5) has been added with a list of all data and parameters used in the methodology, specifying how and when they have to be measured or estimated.	**CAR CLOSED**
CAR 41: It's necessary to provide reliable and trustful data to prove the relation of the natural disturbances with forest area reduces within the project boundaries.	Page 68, part 3, task 1, step 1.2.4, first item	The section on optional monitoring of natural disturbances has been redrafted and a reference has been included to Appendix 3 (methods to estimate carbon stock changes, page 128). For the determination of the boundaries of areas affected by natural disturbances the methodology suggests the same data sources, methods and procedures which are used to monitor land-use and land-cover change within the project area periodically.	OK, with the changes in the revised methodology this CAR was solved, providing as a optional the monitoring of the natural disturbances and establishing the same methods and procedures used in the part 2 of the methodology for this step. **CAR CLOSED**
CAR 42: It's important to make the appropriate reference to the appendix 3.	Page 69, part 3, task 1, step 1.2.4, first item	The revised methodology includes the proper reference to Appendix 3.	OK. The CAR was solved including the proper reference to the Appendix 3. **CAR CLOSED**
CAR 43: It's not very clear where is located the methods and tools of the leakage prevention measures in the part 2 of the methodology. Please give the detailed reference.	Page 69, part 3, task 1, step 1.3.1, first item	The revised methodology states clearly all leakage prevention measures are located in specifically designated "leakage management areas" outside the project area and leakage belt.	OK. The CAR was solved in the revised methodology making the proper reference in the part 2 – section 8.1. **CAR CLOSED**

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		Section 8.1 is entirely dedicated to the estimation of leakage from leakage prevention measures implemented in leakage management areas and references to this section have been included in Part 3, section 1.2.1 (page 108).	
CAR 44: It's important to make the detailed reference in which part of the methodology is located the ex ante assessment of the leakage due to displacement of the baseline activities.	Page 69, part 3, task 1, step 1.3.2, first paragraph	The revised methodology makes clear the references to the applicable sections of part 2 and to the tables to be used for reporting.	OK. The CAR was solved in the revised methodology making the proper reference of the applicable sections and tables presents in the part 2. **CAR CLOSED**
CAR 45: It's not clear how is identified that the leakage due to the displacement of baseline activities will be related with immigrant deforestation agents. Please give more details.	Page 69, part 3, task 1, step 1.3.2, first paragraph	As explained above (CAR 37) the distinction between immigrant and local deforestation agents in the context of leakage assessment has been removed in the revised methodology.	OK. The new approach provided by the methodology proponent regarding the definition of the leakage belt boundary (Opportunity Cost Analysis and Mobility Analysis) is reliable and was well addressed. **CAR CLOSED**
CAR 46: It's necessary to give a detailed reference of the adjustments methods described in part 2 of the methodology.	Page 70, part 3, task 2, step 2.2.1, second paragraph.	In the revised methodology has been added a reference to the applicable step of Part 2.	OK. The CAR was solved in the revised methodology making the proper reference of the applicable sections and tables presents in the part 2. **CAR CLOSED**
CAR 47: It's necessary to give a detailed reference of the adjustments methods described in part 2 of the methodology.	Page 71, part 3, task 2, step 2.2.2, second paragraph.	In the revised methodology has been added a reference to the applicable step of Part 2.	OK. The CAR was solved in the revised methodology making the proper reference of the applicable sections and tables presents in the part 2. **CAR CLOSED**
CAR 48: The parameter "*L = Total number of*	Appendix 3 –	All notations have been revisited	OK.

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LU/LC classes" does not appear in the equation A3-1 neither in the equation A3-2. Please provide a corrective action.	Methods to estimate carbon stocks, pg 88	throughout the entire methodology, including its Appendices. Certain notations do not appear in the equation, but are used in the explanations of the notations used in the equations and are therefore included to further improve clarity.	The equation and its parameter have been adjusted. Also the justification for notation not presented in the equations is correct. **CAR CLOSED**
CAR 49: The parameters AP and 44/12 are not presented in any of the respectively equations (A3-15, 16 and 17). Please provide a corrective action.	Appendix 3, section b.1, item 6, pg 97	The requested correction has been made.	OK. The equation and its parameter have been adjusted. The adjustment is correct. **CAR CLOSED**
CAR 50: The output of the equation A3-17 will not be done in tonnes CO2e ha-1, but in tonnes of C ha-1. Please make the correction.	Appendix 3, section b.1, item 6, pg 97	The CAR was solved by changing equation A3-17 (page 139).	OK. The equation and its parameter have been adjusted. The adjustment is correct. **CAR CLOSED**
CAR 51: The parameter Vp in equation A3-19 is not referenced in the parameter explanations. Please include in the explanation the parameter Vp.	Appendix 3, section b.2, item 2, pg 98	The requested correction has been made.	OK. The equation and its parameter have been adjusted. The adjustment is correct. **CAR CLOSED**
CAR 52: The using of DBH for dead wood biomass is contradictory with the use of "diameter at ground level" mentioned in paragraph b, pg 101, of the REDD-NM-002 v.1. Please define DBH as the standard diameter parameter	Appendix 3, section "*Standing dead wood (Cl,SDW)*" pg 102	The correction has been made: the methodology approaches DBH as diameter at breast height, as in standing dead wood (page 140).	For the application of the DBH for the standing dead wood volume calculation, the equation A3-27 must be changed by an allometric equation approach (e.g. the same used in equation A3-18). On the other hand if the methodology proponent chooses to keep the equation A3-27 for this purpose, the correct input data must be the "diameter at ground level". Regardless the choice of the calculation approach chosen, the text must be consistent and according to the

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		The revised methodology now allows using either diameter at the base of the tree or DBH for the calculation of standing dead trees biomass. We consider this is necessary because some standing stumps of dead trees may be less that 1.3 m high and other may not have a circular shape at the ground level.	equations. The main inconsistence was indentified between item "e" and parameter "r1" of the equation A3-27 in page 149 of the version 2 of the methodology. **NOTE**: the suggestion for keeping DBH as the standard parameter was done in order to avoid possible mistakes during the field data collection between live and dead trees, notwithstanding the choice must be determined by the methodology proponent, and both will be accepted by the validation team, but for this the consistence between parameter, equation and text must be kept. **CAR NOT CLOSED** OK, to solve this CAR, the methodology proponent has provided a conservative approach regarding the measurement for standing dead wood. **CAR CLOSED**
CAR 53: There's no step a.4 in the Appendix 3 – Methods to estimate carbon stocks. Please, make this correction	Appendix 3, *sections b.2 item 5.f, pg 99 and section "*Standing dead wood (*CI,SDW*)" item f, pg 102	The requested correction has been made by replacing the step a.4 by step 4. The requested correction has been made.	In page 150 of the methodology version 2 no mention to step 4 was found in the text, instead of it the methodology text refers to Step "e", as follow: "*…continue with **step e** of the allometric equation method*". **CAR NOT CLOSED** OK, the methodology proponent has corrected the reference. **CAR CLOSED**
CAR 54: The equation 30 and 31 mentioned in paragraphs "e" and "f" respectively was not found in the methodology REDD-NM-002 v.1. Please, make this correction	Appendix 3, *section* "Estimation of *carbon stocks* in the litter carbon pool (*CI,L*)" items	The requested correction has been made by replacing equation 30 with equation A3-23, and equation 31 with equation A3-24.	OK. The wrong reference given for the equation was corrected in the version 2 of the methodology. **CAR CLOSED**

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	"e" and "f", pg 104.		
CAR 55: The parameter "dc" and "DC" does not make sense for carbon stock in the soil organic carbon pool and is not present in the equation (A3-33). These parameters must be excluded.	Appendix 3, *section*, section "Estimation of *carbon stocks* in soil organic carbon pool (*CI, SOC*)", item h, pg 106.	The notations have been changed and corrected, where necessary, throughout the methodology.	OK. The wrong parameters have been excluded in the version 2 of the methodology. **CAR CLOSED**
CAR 56: The equation 118 mentioned in paragraphs "e" and "f" was not found in the methodology REDD-NM-002 v.1. Please, make this correction	Appendix 4, step 12, pg 110.	Appendix 4 has been deleted in the revised version of the methodology.	OK. According to the new approach given for the activity displacement leakage in the new version of the REDD-NM-002 (version 2), the annex 4 has been excluded. **CAR CLOSED**
CAR 57: The Intergovernmental Panel on Climate Change (IPCC) has revised the GWP values slightly (e.g. methane GWP has changed from 21 to 23), however this do not have to be used until the second commitment period, notwithstanding this methodology must define which value will be used (21 or 23) once the value 23 is not in accordance with the GWP stated in the equation 16 in section 6.2 of the methodology.	Appendix 5 – Methods to estimate emissions from enteric fermentation and manure Management, parameter GWP_{CH4}, pg 113 and 115	The requested correction has been made. The requested correction has been made	The GWP for methane presented in equation A4-1 (appendix 4) of the version 2 of the REDD-NM-002, is still different from the other methane GWP values, presented in the other equations of the methodology. **CAR NOT CLOSED** OK, the correction has been made and revised by validator. **CAR CLOSED**
CAR 58: Emission factor for N2O is not supposed to be presented per head, neither year, just in kg.	Appendix 5 – Methods to estimate emissions from enteric fermentation	Once the equation refers to annual emissions and EF3 and Ef4 are multiplied by *Population*$_{,t}$, which is the equivalent number of forage-fed livestock at year *t* (number of heads), the unit was	Once the parameter "Nex " is already given in kg N head-1 yr-1 and once this parameter (Nex) is already multiplied by "$Population_{,t}$" the parameter EF3 and EF4 cannot be given in kg N head-1 yr-1. For more information please refer to equations B.39 and B.40 of the

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	and manure Management, parameters EF_3 and EF_4, pg 116	not changed. The requested correction has been made.	AR-AM0006 v.1 **CAR NOT CLOSED** OK, the correction has been made and revised by validator. **CAR CLOSED**
CAR 59: the ex-ante total leakage (section 8.3 of the methodology version 2) refers wrongly to table 31, once it seems to mean table 32.	Section 8.3, Ex ante estimation of total leakage, pg 104 of the version 2 of the methodology	The requested correction has been made.	**CAR OPEN (NEW)** OK, the correction has been made and revised by validator. **CAR CLOSED**
CAR 60: the formulae 11c (approach C, step 4.1.3.1, page 56, has the number of euler, defined as estimated coefficients of the model, this is incorrect because the number of euler is a value know as a constant.	Section 4.1.3.1, page 56, approach "C"	The requested correction has been made.	**CAR OPEN (NEW)** Ok, the CAR was solved by the methodology proponent with the changes adopted in the revised methodology. **CAR CLOSED**
CAR 61: When is cited that all maps and records generated during project implementation should be conserved is recommend to determine that all digital maps should be storage in a database, preferable such as GIS.	Part 3 – Methodology for verification and re-validation of the baseline. Item 1.1.1, page 104	The correction has been made by clarifying the case of digital map layers in a footnote saying: "Digital map layers should be stored in a common GIS database using common projection, datum and vector and raster file formats".	**CAR OPEN (NEW)** Ok, the CAR was solved by the methodology proponent with the changes adopted in the revised methodology. **CAR CLOSED**

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CL's			
CL 01: The concept "the project activity will not reduce the overall deforestation rate, but the total area of unprotected forest, which will anticipate the time point when deforestation will stop" is not clear and can lead to a misunderstand in terms of the ability of a project submitted under the currently methodology to lead to a reduction in the deforestation and GHG emissions. Please clarify this in the methodology.	Summary, item 1 of the leakage, pg 8	The summary has been redrafted and the proper reference was included (footnote #3, page 7).	OK. The new text, presented in page 7 of the version 2 of the methodology has made the Fearnside discount factor approach for leakage more clear. **CL CLOSED**
CL 02: Please Clarify how does this situation is addressed once, according to some researchers, the conversion of a forest into grassland (baseline scenario) can affect (by decreasing or increasing) the groundwater table level?	1. Applicability Conditions, item d, pg 9	It was asked by the VCS AFOLU coordinator to include an applicability conditions restricting/explaining the applicability of the methodology on peat lands. The revised methodology intends to have an applicability conditions clear enough forbidden the inclusion of flooding irrigation or drainage or any other activity that may imply GHG emissions from peat lands. If these activities are included in the baseline, related emissions are conservatively ignored.	OK. The changes in the groundwater table level was mentioned in order to avoid peat land forest projects to consider the baseline GHG emissions from drainage of peat lands, when applicable. This approach is clear. **CL CLOSED**
CL 03: **Access to *Forest* –**To analysis the Forest Access, it is not clear if was exemplified the possible necessity of stratify the analysis and, also the reference region in a necessary number of sub-steps to include the new road. Please clarify this issue.	Page 12, step 1.1.1 – Reference Region, criteria to determine the conditions of the likelihood	The revised text has enlightened the stratification issue of the reference region.	OK, in the revised methodology this item was removed and eliminates any doubt. The new approach is clear and presents reasonable techniques and assumptions. **CL CLOSED**

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	of deforestation – Access to forest		
CL 04: ***LU/LC-change categories*** – In the case where a LU/LC-change category is unique to the project area and will be include in the baseline analysis could the methodology specify how this category will be included in the approach and the steps necessaries that have to be taken to ensure a conservative approach.	Page 12, step 1.1.1 – Reference Region, criteria to determine the conditions of the likelihood of deforestation – LU/LC-change categories	Table 1 (page 2) has been included in the revised methodology to clarify the categories of the project activity and each of these categories is duly discussed throughout the revised methodology.	OK, in the revised methodology this item was removed and eliminates any doubt. The new approach is clear and presents reasonable techniques and assumptions. Also with the inclusion of the table 1 the eligibility categories is clear. **CL CLOSED**
CL 05: ***Project Area*** – In this step is established that projects area that will not lead to emission reductions may be excluded from the project boundary. It's important to define how this exclusion will be made?	Page 13, step 1.1.2 – Project Area	The revised methodology provides a new definition of the project area which is clearer and solves the requested issue.	OK, the revised methodology contains the necessary definitions, approaches and assumptions to delimitate the project area solving this CL. **CL CLOSED**
CL 06: Definition of *categories* of land-use and land-cover change – Emission factors, where the selected carbon pools are different between categories, is it possible to give an example? It could be illustrative and elucidative to the users of the methodology.	Page 22, step 2.3 – third Notes	The choice of carbon pools may be different across the categories (e.g., the wood product carbon pool may not have to be considered in categories in which do not involve harvesting of long-lived wood products, but it must be considered, if timber harvesting happens in the baseline and it is	OK, the note was excluded from the revised methodology eliminating any doubt or confusion and the argumentation presented by the methodology proponent has clarified and solved the CL. **CL CLOSED**

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		significant. However, timber harvesting might not necessarily happen in all forest classes existing within the project area.	
CL 07: When is cited to give priority for already approved and validated studies, explain if also would be accepted existing studies that don't match with the project scale?	Page 23, step 2.4, second paragraph	Existing processed data can only be used if they are consistent with the methodology (e.g. regarding the MMU). If they do not cover the entire reference region or project area, the project proponent may complement the dataset with additional solid RS data analysis.	OK, it was made changes in the revised methodology that clarify and reasonable explain the necessities that existing studies needs to satisfy to be used. **CL CLOSED**
CL 08: There is any standard approach to the pre-processing part?	Page 23, step 2.4.1	The CL was solved with the GOFC-GOLD sourcebook on REDD which can be considered one of the most complete bibliography for this topic, and also provides good and simple application guidance for the pre-processing methods.	OK, the CL was clarified and solved using an acceptable study as a standard and reference to the pre-processing part. **CL CLOSED**
CL 09: Geometric corrections: Which kind of data can be use to make the geolocation of the images? Tier 1, Tier 2 or Tier 3? The same data will be used to all images of the temporal analysis?	Page 23, step 2.4.1, item A	It was not clear the relationship between the "Tiers" of IPCC with this item (geolocation). The methodology should not be too prescriptive on RS data analysis methods. What really matters is the accuracy of the outcome of the analysis, which the methodology requires to assess and report.	OK, the CL was clarified with the proponent's arguments and solved the auditor doubts. **CL CLOSED**
CL 10: Cloud and shadow removal: If the data described as additional sources is not available from the same time, the cloud and	Page 23, step 2.4.1, item B	Project proponents will have an interest to find data from different sources (e.g. radar data) to avoid any gap in the data set due to	OK, the CL was clarified with the proponent´s arguments and solved the auditor doubts. **CL CLOSED**

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shadow areas can be conservatively omitted in the time series analysis? Or can be used additional sources from different time to complete the missing information of the clouds and shadow areas? Please clarify this issue		cloud and shadow. However, if such gaps exist and are not removed, the methodology provides clear guidance on how to deal with them (section 2.4.1, page 38).	
CL 11: What kind of data is acceptable to the Post Processing step, which kind of accuracy is desirable to this step? It would be transparent if it is detailed explained the data sources used to help to stratify the area.	Page 24 and 25, step 2.4.3	Post-processing is used to stratify where spectral information is not sufficient to stratify. Variables to be used in post processing are to be selected by the project proponent according to local and scientific knowledge of how carbon stocks may change according to the selected variables. As long as these variables are transparently explicated, it will be possible to define the classes in exactly the same way in future monitoring of land-use and land-cover change (section 2.4.3, page 40).	OK, the methodology proponent with reasonable and feasible assumptions and arguments has clarified this CL. **CL CLOSED**
CL 12: There is any reference about the values of the minimum accuracy to the Forest Cover Benchmark Map and to the Land Use and Land Cover Map and also to the Land Use and Land Cover Change Map?	Page 26, step 2.5, second and third paragraph	The reference has been added in the revised methodology (see section 2.5, footnote #26, page 41).	OK, with the inclusion of the footnote #26 the CL was clarified and solved. **CL CLOSED**
CL 13: How is determined the sufficiency of sample points to access the map accuracy?	Page 25 and 26, step 2.5.	The revised methodology has assumed a minimum overall accuracy between 80% and 90%, based on Conglaton (1991) (footnote #27, page 41).	OK, with the inclusion of the footnote #27 the CL was clarified and solved. **CL CLOSED**

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CL 14: What happens in the map accuracy assessment when it is changed (increase or decrease) the pixel resolution? The "goodness of fit" will be changed? The maps will lose information and data?	Page 26, step 2.5	The pixel resolution should be maintained within a fixed baseline period to maintain consistency in the datasets used for *ex ante* and *ex post* assessments. If by the time of the subsequent fixed baseline periods there are new technologies which allow a more accurate assessment, with higher pixel resolution, then the maps should be updated. How to deal with changes in RS data sources and analysis methods is adequately discussed in the methodology (section 2.5, page 41).	OK, the methodology proponent clarified this CL using conclusive assumptions and arguments. **CL CLOSED**
CL 15: In the first paragraph is cited that the LU/LC-change analysis will be performed several times. When it will occur at the same time of the verifications?	Page 26 and 27, step 2.6	The revised methodology provides, as stated by the VCS, the periodicity of such process (footnote #29, page 42).	OK, with the inclusion of the footnote #29 the CL was clarified and solved. **CL CLOSED**
CL 16: In the case of shadow and cloud removal of the analysis when is it possible to make the methodological changes to add these extracted areas to update the baseline? In the verification period?	Page 27, step 2.6, item d	The revised methodology suggests this update may be done during the verification period.	OK, with the exclusion of this item in the revised methodology the CL was clarified and solved. **CL CLOSED**
CL 17: Why the leakage belt is not present in the objectives of the expected baseline deforestation?	Page 31, step 4, first paragraph.	In the revised methodology the leakage belt contains only forest land remaining forest land in the baseline case. In order to define the boundary of the leakage belt, it is necessary to analyze and model a deforestation pattern in	OK, in the revised methodology the leakage belts is well defined as forest land remaining forest land in the baseline case, in this way the leakage belt can´t be present in the objectives of the expected baseline deforestation. **CL CLOSED**

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		the reference region.	
CL 18: Wouldn't be a straightforward approach to improve the accuracy of the projections, stratify the reference region, project area and the leakage belt? As was done in the REDD-NM-001 page 30, step 4	Page 31, step 4.	The revised methodology clearly states that the reference region may be stratified. Since the project area and leakage belt are subsets of the reference region, certain strata of the reference region will be present in the project area and leakage belt.	OK, with the revisions in the new methodology this CL was clarified, especially because states clearly that the reference region needs to be stratified. **CL CLOSED**
CL 19: The competent authority is defined in the Nepstad Approach? It's important to give more details because this paper was not available to the public.	Page 32, step 4.1, first paragraph.	The CL is not applicable because the correct term is "Nested Approach" (see Pedroni, Streck and Porrua, 2008).	OK, the CL was clarified and closed it was a misunderstood of the auditor. **CL CLOSED**
CL 20: How is going to be used the constraints? It will be attribute different weights to the constraints? Please, give a detailed explanation.	Page 32, step 4.1.1, item 2	The revised methodology has addressed the constraints as in section 4.1.2 (page 49): represented in maps and analyzed in a GIS.	OK, the CL was clarified due to the revisions in the new methodology and with detailed clarifications in the address section of the constraint analysis. **CL CLOSED**
CL 21: Which criteria and thresholds can be used to map the suitability forested areas to be deforested?	Page 32, step 4.1.1, item 2	Each main crop or animal type of interest to the main deforestation agent groups can be grown within specific ecological conditions (soil, elevation, slope, rainfall). Thresholds defining "optimal", "average" and "sub-optimal" conditions shall be defined by the project proponent for each main crop/animal type, using a GIS, the areas can easily be mapped.	OK, the CL was clarified due the arguments and assumptions presented in the explanations of the methodology proponent. **CL CLOSED**

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CL 22: There is any reference of the value 100 times?	Page 32, step 4.1.1, item 2	It was used as basis the 100-year project lifetime under the VCS (page 49). .	OK, but how is defined this value? Please give the reference of this value in the methodology. **CL NOT CLOSED**
		This number does not have any scientific reference. It was based on parsimony, though. Since the project lifetime is maximum 100-years, using a value of 100 will ensures that projects will not overestimate the area still available for future deforestation	Ok, based in the assumptions presented by the methodology proponent the CL was clarified and solved. **CL CLOSED**
CL 23: Which kind of available sources are acceptable for this step?	Page 33, step 4.1.1, item 3	Potential sources of information could be: official government land zoning maps and reports, soil fertility studies, climate and temperature maps, timber potential reports, among others (page 48).	OK, the methodology proponent clarified this CL presenting potential sources with credible information's. **CL CLOSED**
CL 24: The average area is the mean between the Optimal and sub optimal area?	Page 33, step 4.1.1, item 3	The revised methodology has addressed this concept in a more appropriated way in order to avoid further misconceptions.	OK, with the changes in the revised methodology the average area is clearly and appropriate described. **CL CLOSED**
CL 25: How is going to be analyzed the different trends of the deforestation?	Page 34 and 35, step 4.1.2	The entire section has been redrafted to improve clarity on this issue.	OK, with the changes in this section the analysis of the different trends is clearly and the CL was clarified. **CL CLOSED**
CL 26: How can be classified the historical data as good?	Page 40 step 4.1.2.1, Approach "C", second paragraph.	The text has been revised and the expression "good historical data" has been removed in order to avoid misunderstanding.	OK, with the alterations in the revised methodology, especially taking off the expression "good historical data" the CL was clarified. **CL CLOSED**

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CL 27: Is it established any threshold to the goodness of the fit from the best model?	Page 40 step 4.1.2.1, Approach "C", fourth and fifth paragraph.	It was not found any proper reference on what constitutes a minimum acceptable threshold. It is important to bring up the discussed if this is not something that should be defined by the VCS.	There isn´t any scientific studies that can subsidies as a threshold reference values to the goodness of the fit from the best model? **CL NOT CLOSED**
		The revised methodology provides new references to scientific literature that could be used for testing the goodness of fit of a model. However, none of the cited papers proposes a threshold value to be used to judge if a model is good enough. The purpose of these tests is to compare different model outputs and to select the model with the best fit, rather than to provide a criterion to reject (or accept) a stand-alone model.	Ok, with the addition of new references and Clarifications the methodology user has more subsidies to this important step due that the proponent has clarified the CL. **CL CLOSED**
CL 28: The multiple correlation matrixes are appropriate to analysis the correlation between the variables? Also how is the threshold to consider that a variable is correlated with other?	Page 40 and 41 step 4.1.2.1, Approach "C", statistical considerations letter "a".	The section has been removed and a simple test (FOM) is used instead (section 4.2.3, page 62).	OK, with the changes in the methodology to simplify this issue the CL was clarified. **CL CLOSED**

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CL 29: Is it allowed to change the pixel resolution to analysis the goodness of the fit from the model?	Page 40 and 41 step 4.1.2.1, Approach "C", fifth paragraph	According to the revised methodology, any change may be made as long as MMU requirements are met. However, the FOM test is probably not too sensitive to changes in spatial resolution.	Where it´s explicit that the FOM test is probably not too sensitive to changes in spatial resolution in the revised methodology? It´s important to demonstrate in the methodology the limitation of the FOM test. **CL NOT CLOSED**
		In the second version of the revised methodology, the MMU has been set equal to the minimum threshold area for defining "forest". The possibility to manipulate the pixel resolution is therefore inexistent and for this reason the issue raised in CL 29 disappears.	Ok, the CL was solved because in the revised methodology the proponent changed the issue related to this CL. **CL CLOSED.**
CL 30: Is the multiple regressions the best approach of the modeling part? According with the **GOFC-GOLD, 2009, Reducing greenhouse gas emissions from deforestation and degradation in developing countries: a sourcebook of methods and procedures for monitoring, measuring and reporting, GOFC-GOLD Report version COP14-2, (GOFC-GOLD Project Office, Natural Resources Canada, Alberta, Canada)** the regression models cannot be used for wide ranging extrapolations in space and time.	Page 40 and 41 step 4.1.2.1, Approach "C", statistical considerations letter "b".	Both the revised methodology and the VCS have stated that the projections have to be revisited at least every 10 years in all cases. Considering the GOFC-GOLD statement, this methodology does not consider a 10-year period as a wide ranging temporal extrapolation. Moreover, if there is any wide ranging spatial extrapolation, this should be controlled by stratification in the methodology (section 4.1.3.1, page 56).	OK, the changes in the revised methodology has clarified this CL, especially doesn´t considering the 10 year period as a wide ranging temporal extrapolation. **CL CLOSED**
CL 31: Is not necessary to establish the variable weights before calculate the	Page 41 step 4.1.2.1, Approach	Existing modeling tools use different algorithms, some of which calculate the weights	OK, with the explanations of the methodology proponent the CL was clarified.

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expected deforestation?	"C", statistical considerations letter "b".	statistically. VCS verifiers will have to check all model assumptions, including any weight assigned to variables, and project proponents must justify the weights assigned to each variable, particularly if this is not done using statistical methods.	**CL CLOSED**
CL 32: Where in the REDD-NM-002 is defined the leakage belt?	Page 41, step 4.1.2.2, first paragraph.	There is a definition in Appendix 1 (page 118) and additional explanations are given in the Summary (page 6) and in Part 2 (section 1.1.3, page 25).	OK, with the reference to the term "leakage belt" the CL was clarified. **CL CLOSED**
CL 33: Is not important to analysis the cartographic scale and spatial data resolution for each variable before the modeling step?	Page 43, step 4.2.1, first paragraph.	The map data resolution or scale shall be the same of the rough data resolution on the dataset. At the end of the day, the result of model calibration and confirmation will tell if a spatial variable included in the model is contributing to model accuracy or not and this may not necessarily correlate to the scale or spatial resolution of the data (page 59).	OK, the CL was clarified with reasonable arguments of the methodology proponent. **CL CLOSED**
CL 34: Which kind of statistical analysis can be used to determine the weights of each Driver Map?	Page 44, step 4.2.2, third paragraph	The majority of the most updated modeling tools do calculate the weights statistically (the weights are the parameters multiplying the categorized variables). However, the modeler may decide to change certain weights, in case of, for instance, a model better fits with historical data.	OK, the methodology proponent showed very well that the modelling tools calculate the weights and the modeler will only change certain weights to a model better fits with historical data. **CL CLOSED**
CL 35: In this step is asked to multiply the	Page 48, step 5.2, option 2,	The data in table 8 mentioned is correct, but please note the	Ok, with the changes in the revised methodology the proponent

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annual deforestation area calculated in table 8… and report the resulting in the following table (which is table 8). Is it correct the data from the annual deforestation is from the table 8?	third calculation	revised methodology includes more tables and due to consecutive numbering the correct table is now Table 9.b (page 58).	solved and clarified the CL. **CL CLOSED**
CL 36: It is not necessary to explain how the proxy estimate is calculated as a percentage of the baseline deforestation?	Page 56, step 7.1.1, second paragraph.	Step 7.1.1 has been entirely redrafted and is now clearer and more detailed. The proxy estimate should be calculated based on project's management plan, considering basically three possible situations: - Planned deforestation that is actually planned by the project as part of its activities (conversion of areas for roads construction, fire management, buildings, small scale community farming, etc.); - Unexpected deforestation that may happen as result of the project not being able to completely stop deforestation predicted on the baseline. In this case, the project may choose to "ex-ante" establish a conservative buffer to avoid future discounts; and - Degradation (carbon stock decrease) due to planned harvest of timber, fuel-	OK, with the redraft of this section the proxy estimate is clearly based on reasonable assumptions and arguments solving the CL. **CL CLOSED**

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		wood and charcoal.	
CL 37: If occur a change in the carbon stocks due to a forest fire or any other event that may contribute to a carbon stocks decrease, this change cannot be accounted?	Page 56, step 7.1.2, third paragraph	*Ex ante* it is almost impossible to estimate the future occurrence of forest fires in the project area under the project scenario. The revised methodology simply assumes that any deforestation occurring under the project scenario will happen with the same proportions of area and biomass burned in the baseline case. *Ex post*, forest fires are subject to monitoring and emissions can be estimated more accurately (page 85).	OK, the arguments and explanations presented by the methodology proponent shows to be reasonable and explaining very well the CL. **CL CLOSED**
CL 38: When changes in the below ground biomass of the trees are going to be accounted? It's when the below ground biomass of trees is included in the carbon stocks calculation?	Page 57, step 7.1.2, second note	The methodology considers the below ground biomass within the carbon stock calculations. Please note that Table 3 (section 1.3, page 30) includes below-ground biomass regarding: "Below-ground biomass of trees is recommended, as it usually represents between 15% and 30% of the above-ground biomass."	OK, the methodology proponent demonstrated very well when and where the below ground biomass is considered, also showed that the table 3, page 30 has a regarding according to consider the below ground biomass. **CL CLOSED**
CL 39: How it will be accounted the changes in the carbon stocks of the forest class due to logging in the leakage belt?	Page 57, step 7.1.2, fourth note	The methodology does not allow claiming credits for avoided degradation. Therefore any carbon stock decrease in the leakage belt due to displacement of logging activities, fuel-wood collection and charcoal production (which is conservatively ignored in the baseline) must not be	OK, since the methodology doesn´t allows claiming credits due to avoided degradation in the project area and in the leakage belt the CL is not legal anymore. **CL CLOSED**

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		considered.	
CL 40: What kind of stand models this item determines to be done? Define these models with more details.	Page 58, step 7.1.2, item "c"	The revised methodology has suppressed the use of the term "stand model", which it was deleted from Appendix 1.	OK, with the exclusion of the term "stand model" the CL was clarified. **CL CLOSED**
CL 41: How is going to be converted the total change in volume from the logging (data from the project area) to the change in the living wood biomass (table 15)?	Page 58, step 7.1.2, table 15.	Methods to estimate carbon stock decrease due to logging and carbon stock increase after logging have been modified. Project proponents are required to measure the carbon stock after logging activities. Post harvest inventories are required on any case under a SFM scheme, so this requirement should not represent too much additional work.	OK, with the modifications in the revised methodology and additional explanations of the methodology proponent the CL was clarified. **CL CLOSED**
CL 42: It is not clear why this separation is necessary once carbon stock changes in the ambit of leakage can also be considered as GHG emissions. Please explain	8.3 Estimation of total leakage, pg 63	The separation is necessary in order to allow a more accurate monitoring *ex-post*. The emissions can be from changes in the carbon stocks (deforestation/degradation), but also from other sources, such as emissions from nitrogen fertilization or grazing animals. Thus, it is important to keep them separate in order to maintain the transparence in the emissions accounting and monitoring.	OK. The reason given for the separation is consistent. **CL CLOSED**
CL 43: It is not clear whether and how the "*Leakage prevention measures*" and "*Activity displacement*" columns of the table 18 must be correlated with the columns "*carbon stock changes*" and "*GHG emissions*"	8.3 Estimation of total leakage, Table 18. Ex ante	Tables have been modified to increase transparency to avoiding further misconceptions.	OK. The table 32 of section 8.3 is clearer and more transparent. **CL CLOSED**

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	estimated leakage, pg 63		
CL 44: It's not very clear which activities must be presented in the columns: "*activity displacement*", "*carbon stock change*" and "*GHG emissions*", once, apparently, some items can suit in any of the three columns (e.g. emissions from deforestation agents that would be expected to encroach into the project area as infrastructure develops), please clarify this.	8.3 Estimation of total leakage, Table 18. Ex ante estimated leakage, pg 63	The new tables provide the needed clarity, as there is a column for each activity.	OK. The table 32 of section 8.3 is clearer and more transparent. **CL CLOSED**
CL 45: Is important to state that the AR-AM0003 was replaced by the AR-ACM0001 where the information regarding daily biomass intake for animals was not addressed in this new ACM methodology. However the ACM0003 v.2 is still available for consults.	Appendix 2, table 5, footnote # 63, pg 65	The correction requested has been made.	OK. Once this was just an observation no changes were necessary to be made. **CL CLOSED**
CL 46: In this part, is proposed to calculate the percentage of the post facto baseline deforestation relative to the ex ante estimated baseline deforestation. Based on the percentage (<80%) is make a correction of the baseline error for the following five years multiply the ex ante calculated carbon baseline by the percentage value. It wouldn't be an upright approach recalculated the baseline with update data?	Page 65 and 66, Part 3, task 1, step 1.1	The requirement to modify *ex post* the validated baseline has been removed in the revised methodology. It seems this requirement was awkward and unnecessary as the baseline has to be revisited each 10 years, anyway.	OK, due to the exclusion of the requirement to modify ex post validated baseline the CL was clarified and solved. **CL CLOSED**
CL 47: What if the percentage calculated is between 80 %< P<100%?	Page 66, Part 3, task 1, step 1.1	As the methodology was redrafted, this issue is not applicable any more.	OK, due to the changes in the revised methodology the CL was clarified and solved **CL CLOSED**
CL 48: In the last item of this step is	Page 66, Part	As the methodology was	OK, due to the changes in the revised methodology the CL was

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proposed to revisit the deforestation model and make all necessary adjustments to reassess the baseline deforestation, but in the previous item (see CL 41) is proposed to adjust the baseline only by multiplying the ex ante estimative by the factor of the relative percentage. In this part it's not clear which is the adequate approach to revisit the baseline?	3, task 1, step 1.1	redrafted, this issue is not applicable any more.	clarified and solved **CL CLOSED**
CL 49: It's not clear how the data collection is necessary to estimate carbon stock changes due to leakage prevention measures.	Page 66, Part 3, task 1, step 1.2.1	The revised methodology clearly explains if the carbon stock changes in leakage management area are a significant decrease they must be measured *ex post*. Methods are those explained in Appendix 3 (page 129).	OK, due to the changes in the revised methodology the proponent demonstrated clearly that all detailed methods are present in the Appendix 3, then the CL was clarified and solved **CL CLOSED**
CL 50: In which section is located the *ex ante* assessment of the leakage prevention measures?	Page 68, Part 3, task 1, step 1.2.3, Non CO_2 emissions, second item	In the revised methodology, the *ex ante* assessment of leakage due to leakage prevention measures is described in section 8.1 (page 88).	OK, due to the reference of the term the CL was solved and clarified. **CL CLOSED**
CL 51: The methodology must clarify what exactly is supposed to be considered in the term: "*project scenario*" regarding ex-post calculation, once, according to the step 9 "*Ex ante net anthropogenic GHG emission reductions*" and equation 18, in the same step of the methodology, there's no reference to this term.	1.4 Ex post net anthropogenic GHG emission reductions, pg 69	Equation 25 in the revised methodology gives clear explanations on "*ex ante*" and "*ex post*".	OK. The new approach presented in step 9 of the methodology version 2, provides enough explanation for the ex-ante and the ex-post calculation. **CL CLOSED**

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CL 52: Considering that species specific data for BEF and R are not commonly available in most of tropical countries, and considering the large number of species in tropical biomes, is that possible to specify if the methodology would also accept BEF and R value (manly R value), for specific biomes or specific forest physiognomies?	Appendix 3, section b.2, item 3, pg 98	The revised methodology has changed the requested modification in Appendix 3.	This response does not address the CL 52 questioning, once does not state in the text of the methodology if, in the absence of species specific values for BEF or R, more generic values will be accepted. (E.g. values for specific biomes or physiognomy) **CL NOT CLOSED**
		In order to improve clarity, the following text has been added: "These parameters can be determined by either developing a local regression equation or selecting from national inventory, Annex 3A.1 Table 3A.1.10 of GPG LULUCF, or from published sources for specific biomes or forest physiognomies"	OK, the using of more generic values for BEF and R has been clarified. **CL CLOSED**
CL 53: Is the "plot area" term representing the area of the sample? please clarify this in order to avoid misunderstand to the plot area where the tree are measured (this concern is due to the fact that most of the samplings for non-tree components use to be taken in the same plot where the trees where measured)	Appendix 3, section "*Non-tree component (Cl,AB,non-tree and Cl,BB,non-tree)*" item "e", pg 100	The revised methodology considers as "plot area" the area of the sample.	OK. The plot area refers to the area of the sample used for above-ground non-tree biomass measurement. **CL CLOSED**
CL 54: Please provide the version of the AR-AM0004 used for the elaboration of the appendix 4.	Appendix 4, pg 107	The revised methodology has replaced Appendix 4 old content to methods to estimate emissions from enteric fermentation and manure management. Thus, this CL is not applicable.	OK. In the version 2 of the methodology, the AR-AM0004 has been replaced by a new approach for calculating leakage due to displacement of pre-existing activities. Also in the version 2 of the methodology the content of appendix 4 has been replaced by *"methods to estimate emissions from enteric fermentation and manure management"*. Thus, the CL 54 is no more applicable. **CL CLOSED**

ASSESSMENT REPORT

CL 55: It is not clear in which situations a given REDD project submitted under the REDD-NM-002 v.1 can lead to displacement of agriculture or grazing activities, once the methodology is only applicable to forest areas as stated in applicability conditions item "e": *At project commencement, all lands within the project area meet the criteria for definition as forest*	Appendix 6, items 1.1 and 1.2, pg 117	At project commencement all land within the project area must meet the criteria for definition of forest. However, during the crediting period most of the project area will be deforested in the baseline case to establish cropland and grassland. By protecting the forest, the project activity will displace these activities elsewhere.	OK. The baseline displacement activity approach is clear **CL CLOSED**

APPENDIX A OF THE FINAL BVC ASSESSMENT REPORT OF THE

METHODOLOGY FOR ESTIMATING REDUCTIONS OF GREENHOUSE GASES EMISSIONS FROM FRONTIER DEFORESTATION (RED-NM-002 / VERSION 01.3)

(CURRENTLY NAMED: Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation version 01.1)

under
Voluntary Carbon Standard 2007.1 (VCS 2007.1)

REPORT NO. BRAZIL-BR.1029573

BUREAU VERITAS CERTIFICATION

Date of first issue: 21/06/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: The World Bank Group	Client ref.: Brazil– BR.1029573

Summary:

Bureau Veritas Certification has made the first assessment for validation of the new methodology “Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation” (RED-NM-002 / Version 01.3) 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 appendix refers to the revision of the Bureau Veritas Certification team to the merging between the FAS methodology: "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2” and the World Bank methodology: "Methodology for Estimating Reductions of GHG Emissions from Mosaic Deforestation’ v0.13", resulting in a new methodology named: "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v.01.1", object of this assessment.

This new merged methodology document has preserved the same technical structure and methodological steps of the FAS methodology: "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2”, however with an expanded scope to address also the mosaic configuration. Due that, this appendix was prepared as a continuation of the FAS methodology assessment, but now addressing the new merged methodology "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v.01.1".

This is the fifth Bureau Veritas output since the first FAS methodology assessment. This document presents the results of the methodology analysis and the BVC AFOLU team opinion regarding the "Mosaic landscape configuration" approach, added to the “Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2”, in attention to The World Bank Group requirement.

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. This appendix refers to the revision of the new methodological elements added to a previously validated methodology and was prepared based in the same version already validated by the second validator (Rainforest Alliance). BV as the first validator, presents here its final conclusion regarding the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1"

In this fifth assessment, the Bureau Veritas Certification concludes that the new methodology, after been submitted to the above mentioned modifications, remains consistent and applicable. The inclusion of the Mosaic Deforestation approach, at the same time that has increased the scope and applicability of the original methodology, has maintained the technical conformance.

Based on this, it is the Bureau Veritas Certification opinion that the **"**Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1", dated 11 May 2011, can be unconditional recommended for approval under VCS 2007.1

Report No.:	Subject Group:
BRAZIL-BR.1029573	VCS

Project title:
"Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1"

Work carried out by:
Mr. Diego Serrano and
Mr. Bruno Matta

Work verified by:
Mr. Diego Serrano and Ricardo Fontenele

Date of this revision:	Rev. No.:	Number of pages:
21/06/2011	01	10

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1. Introduction

Fundação Amazonia Sustentável (FAS) has commissioned Bureau Veritas Certification to perform an assessment of the proposed “Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation” (RED-NM-002)”, work out by FAS.

These assessment was conducted and is described in details in the "Final Assessment Report of Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation (RED-NM-002 / Version 01.3)", issued in 24th May 2010 and in the "Annex B of the Final BVC Assessment Report of the Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation[1] (RED-NM-002 / Version 01.3)" issued in 2nd May 2011.

The whole process description of the second and final BVC assessment of the FAS “Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2” is described in Annex B, and refers to the BVC methodology revision after the adjustments required during the second validation. Annex B addresses the ultimate BVC revision of the final version of the FAS frontier methodology.

This document (appendix A), refers to an additional round of assessment required by Word Bank and FAS, to analyze and validate the inclusion of a new methodological approach (mosaic forest landscape configuration) to the previous validated methodology that was, by the time of double approval process, restricted to Frontier deforestation configuration.

The inclusion of the mosaic configuration in the previously validated FAS methodology, has resulted in a new methodology: "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v.01.1", that is now object of this assessment

This new methodology can also be understood as a merging between two Avoid Unplanned Deforestation (AUD) methodologies, the FAS methodology: "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2” and the World Bank: "Methodology for Estimating Reductions of GHG Emissions from Mosaic Deforestation’ v0.13". The merged methodology remains identical to the previously validated FAS frontier methodology, except for the inclusion of some elements of the mosaic configuration (please refer to section 5, below). Due that, this assessment was prepared as an extension (appendix) of the BVC assessment report of the FAS methodology, where the output is the BVC AFOLU team conclusion regarding the technical adherence of the new merged methodology: "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v.01.1".

[1] Currently named: Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2

Considering that all the aspects regarding VCS double approval procedures, IPCC criteria, VCS AFOLU technical procedures and technical adherence as a whole, have been already assessed and validated during the double approval process of the FAS methodology and, once the merged methodology is identical to the previously validated FAS methodology, except for the mosaic configuration elements, this appendix was designed to assess and guarantee the conformity of the mosaic configuration concept under the same methodological framework developed for frontier configuration. The assessment is described in section 5 of this document, while the conclusion of the analysis is described in section 6.

This methodology revision was based in the same methodology version (*"Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1"* dated 11 May 2011[2]*),* already approved by the second validator (Rainforest Alliance).

2. VCS considerations regarding the both land forest landscape configuration addressed in the new merged methodology

i) The frontier deforestation and/or degradation pattern can result from the expansion of roads and other infrastructure into forest lands. Roads and other infrastructure can improve forest access and lead to increased encroachment by human populations, such as subsistence farming and fuelwood gathering on previously inaccessible forest lands.

ii) The mosaic deforestation and/or degradation pattern can result when human populations and associated agricultural activities and infrastructure are spread out across the forest landscape. In a mosaic configuration most areas of the forest landscape are accessible to human populations.
Mosaic deforestation and/or degradation typically occur: where population pressure and local land use practices produce a patchwork of cleared lands, degraded forests, secondary forests of various ages, and mature forests; where the forests are accessible; and where the agents of deforestation and/or degradation are present within the region containing the area to be protected.

3. List of documents checked during the assessment

The table below refers to the documentation checked during the preparation of this Appendix that is part of the BVC methodology assessment report of 24th May 2010.

"REDD unplanned methodology 14jun2011-VS.docx".
"55473686.docx"
Rainforest Alliance report: "Methodology Assessment Report for: Fundação Amazonas Sustentável

[2] Please refer to RA report: "Methodology Assessment Report for: Fundação Amazonas Sustentável and World Bank's Methodology for Estimating Reductions of GHG Emissions from Deforestation Version: 01.1, dated 11 May 2011"

and World Bank's Methodology for Estimating Reductions of GHG Emissions from Deforestation Version: 01.1, dated 11 May 2011"

4. 2nd validator considerations

The second validator, Rainforest Alliance, has concluded in its final methodology assessment report (Methodology Assessment Report for: Fundação Amazonas Sustentável and World Bank's Methodology for Estimating Reductions of GHG Emissions from Deforestation Version: 01.1, dated 11 May 2011), the following considerations:

"This additional assessment is to determine if the expansion of scope of the FAS Methodology to include mosaic configurations using the World Bank approach has been executed in a manner that maintains conformance".

"Based on an evaluation of the proponent's new methodology as related to the defined assessment scope and criteria, which assessed the credibility of all data, rationale, assumptions, justifications and documentation provided by the methodology proponent; the Rainforest Alliance new methodology assessment team finds that the proponent has Demonstrated unqualified compliance/conformance with the standard"

5. Evaluation of methodology after the merging of mosaic and frontier configuration:

The inclusion of the mosaic configuration approach did not lead to significant changes to the technical framework of the previously validated avoid unplanned deforestation (AUD) frontier methodology.

The most relevant adjustment is restricted to the scope and applicability of the methodology, that now addresses not just the frontier configuration, but also the Mosaic configuration in terms of forest landscape.

The inclusion of this new configuration has lead to the following modifications compared to the previously approved AUD methodology:

- Inclusion of the Mosaic configuration in the section "Scope of the methodology" (part 1), as follow:

  "This methodology is for estimating and monitoring GHG emissions of project activities that avoid unplanned deforestation (AUD). The forest landscape configuration can be mosaic, frontier or a transition between the two".

- Inclusion of a graphic representation of the Mosaic configuration in the methodology summary.

- Definition of a different threshold for the Figure of Merit (FOM) for Mosaic configuration (80%), while the minimum FOM value for frontier configuration remains 50%.

The BVC assessment, has considered:

1) Determining if the new methodology approach (mosaic forest landscape configuration) was correctly addressed in the methodology framework as a whole, assessing its technical adherence to the previously validated methodology structure.
2) Re-assessing that the recent revision of the methodology meets all the criteria and requirements of the VCS 2007.1 as well as the VCS AFOLU guidance.
3) Discussion with methodology developer for clarifications and explanations of changes;

6. BVC conclusions regarding the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1"

It is the BVC opinion that the expansion of the methodology scope to include also the mosaic forest landscape configuration, did not affect the methodology procedures and technical steps regarding baseline, leakage and project emission calculation, neither the project boundary definition, monitoring procedures or additionality assessment.

The BVC team did not identify any technical conflict between the methodological steps of the previously approved methodology (frontier configuration) and the new approach (mosaic configuration). In other words, the technical structure initially designed for frontier configuration does not present any restriction to be applied also to mosaic configuration.

Also, once both forest landscape configurations refers to unplanned deforestation, the validator understands that there's no technical restriction to merge the two configurations in the same Avoid Unplanned Deforestation (AUD) methodology.

The above mentioned conclusion was taken based in the reassessment of the Part 1 (Scope, applicability conditions and additionality), the 9 "ex-ante" steps of part 2 (Methodology steps for validation) and the 2 tasks of Part 3 (Methodology for verification and re-validation of the baseline), against the mosaic configuration approach.

In this fifth assessment, it is Bureau Veritas Certification's opinion that despite of the expansion in the scope, the technical consistence and reliability of the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1" dated 11 May 2011 was maintained and it is in accordance to the VCS 2007.1 and the VCS guidance for AFOLU, requirements.

So that it is the Bureau Veritas Certification opinion that the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1 is in compliance with the VCS standard requirements and can be unconditional recommended for approval under VCS 2007.1.

Finally, in order to meet the VCS Double Approval Process v1.1 requirement, BVC here states that the methodology version approved by Bureau Veritas Certification ("Methodology for Estimating Reductions of GHG Emissions from Unplanned Deforestation v. 01.1, dated 11 May 2011), is the same version approved by second validator, Rainforest Alliance, as per its Report: "Methodology Assessment Report for: Fundação Amazonas Sustentável and World Bank's Methodology for Estimating Reductions of GHG Emissions from Deforestation Version: 01.1, dated 11 May 2011".

ANNEX B OF THE FINAL BVC ASSESSMENT REPORT OF THE

METHODOLOGY FOR ESTIMATING REDUCTIONS OF GREENHOUSE GASES EMISSIONS FROM FRONTIER DEFORESTATION (RED-NM-002 / VERSION 01.3)

(CURRENTLY NAMED: Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2)

under
Voluntary Carbon Standard 2007.1
(VCS 2007.1)

REPORT NO. BRAZIL-5166/2009

BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
11/04/2011	Bureau Veritas Certification Holding SAS
Client:	Client ref.:
Fundação Amazônia Sustentável - FAS	Brasil – 5166/2009

Summary:

Bureau Veritas Certification has made the first assessment for validation of the new methodology "Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation" (RED-NM-002 / Version 01.3) 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 annex refers to the revision of the Bureau Veritas Certification team to the issues raised by the second validator in the Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation (RED-NM-002 / Version 01.3), currently named "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2".

This is the fourth Bureau Veritas output of the evaluation process where the responses to the Clarification and Corrective Actions Requests (CL and CAR) raised by both validators has been 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. This annex refers to the revision of the final version of the methodology after this been submitted to the second validator.

In this fourth assessment, it is Bureau Veritas Certification's opinion that the new methodology, after to be submitted for the second validator, remains technically solid and applicable. The changes required by the second validator have clarified some ambiguous issues and improved some technical approaches. The clarifications as well as the corrective actions raised during the first and second assessment were all solved by the methodology proponent, so that it is the Bureau Veritas Certification opinion that the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2", dated 10 March 2011, can be unconditional recommended for approval under VCS 2007.1

Report No.:	Subject Group:
BRAZIL-5166/2009	VCS
Project title:	

"Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2"		
Work carried out by: Mr. Diego Serrano and Mr. Bruno Matta		
Work verified by: Mr. Diego Serrano and Ricardo Fontenele		
Date of this revision: 11/04/2011	Rev. No.: 02	Number of pages: 28

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BVC conclusions regardig the final version of the FAS methodology ....**Erro!**

Indicador não definido.

Introduction

Fundação Amazonia Sustentável (FAS) has commissioned Bureau Veritas Certification to perform an assessment of the proposed "Methodology for Estimating Reductions of Greenhouse Gases Emissions from Frontier Deforestation" (RED-NM-002)", work out by FAS.

According to the VCS procedures a new methodology has to be submitted to a double approval process.

Also according to step 4.5.4 of the VCS Program Normative Document: Double Approval Process v1.1; both validators, the first and second must issue an assessment statement based on the same version of the methodology element. Thus Bureau Veritas Certification has undertaken a process to update their initial assessment in response to the revisions to the methodology conducted during the second assessment. This update assessment was conducted based in the version 2, version 2.1 and version 02.2 of the methodology currently named: Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation, as approved by the second validator.

This assessment report Annex (Annex B) refers to the BVC final revision of the last version of the FAS methodology. This was done in order to analyze the changes generated by the second validation process carried out by Rainforest Alliance. This annex was performed on the basis of IPCC criteria, criteria proposed to provide consistent Voluntary Carbon Standard 2007.1 as well as applicable technical knowledge and documentation.

The preliminary assessments for examination of new baseline and monitoring methodology were prepared based on the following documents: "RED Frontier Methodology 28nov08_Under_Revision.pdf"; "REDD frontier methodology v2_19abr2010.doc"; "REDD frontier methodology revised_v2 04-LP_VS-clean.doc"; "REDD frontier methodology 2nd validation draft merged - 14fev11.docx"; "REDD frontier methodology 21Jan11-clean.rar".

The preliminary approved version refered to the version 2.1: "REDD frontier methodology 28Feb11-CLEAN.pdf", however a newest version of the methodology had to be reassessed by both validators due to a change required by the methodology proponent (please refer to CAR 05 in table below). Finally the ultimate methodology analysis was done based on the methodology version 02.2.

The BVC final methodology version update assessment, has considered:

1) A complete revision of each of the CARs and/or Clarifications raised by RA, in order to accept these and agree to them;
2) Determining if the responses of the methodology developer were logical, complete, and well-defended within the methodology and if these changes are in accordance to the VCS basic requirements;
3) Assessing that the most recent revision of the methodology meets all the criteria and requirements of the VCS 2007.1 as well as the VCS AFOLU guidances, as did by BVC in the previously version of the methodology.
4) Discussion with methodology developer for clarifications and explanations of changes;
5) Discussion with second validator, RA, to coordinate finalization of the Double Approval Process;
6) Recommend further clarifications or require new Corrective Action Requests.

List of Documents Checked During the Assessment

The table below refers to the documentation checked during the preparation of this Annex that is part of the BVC methodology assessment report of 24th May 2010.

REDD frontier methodology revised_v2 04-LP_VS-clean Word2003
FAS Methodology Assessment VCS 08 FEB 2011 Draft Final
REDD frontier methodology 2nd validation draft merged - 14fev11
REDD frontier methodology 21Jan11-clean
REDD frontier methodology 28Feb11-track changes
REDD frontier methodology 28Feb11-CLEAN.docx
REDD frontier methodology 28Feb11-CLEAN.pdf
pontius_etal_2011_aag (Annals of the Association of American Geographers 101(1): 45-62)
pontius_etal_2008_ars (Annals of Regional Science 42: 11-37)
pontius_etal_2007_aag (Annals of the Association of American Geographers 97(4): 677-695)
Justification - FOM issue_10Mar11
REDD frontier methodology 10Mar11-track changes
REDD frontier methodology 10Mar11-CLEAN.docx
REDD frontier methodology 10Mar11-CLEAN.pdf

Review of 2nd Validator Report

The second validator, Rainforest Alliance, has concluded in its final methodology assessment report (FAS Methodology Assessment VCS 08 FEB 2011 Draft Final) that:

"The FAS methodology was comprehensively revised in order to address the previous corrective action requests. As a result of these changes, all but 1 CAR was addressed. The one remaining CAR (13/10) was open because the methodology does not include clear guidance about the minimum reference region required. The Methodology developers made a small

change, deleting an ambiguous footnote and closed this CAR. Therefore no CARs remain open and the methodology is found to be in compliance with the VCS standard".

Based on this, the second validator stated:

"Based on an evaluation of the proponent's new methodology as related to the defined assessment scope and criteria, which assessed the credibility of all data, rationale, assumptions, justifications and documentation provided by the methodology proponent; the Rainforest Alliance new methodology assessment team finds that the proponent has Demonstrated unqualified compliance/conformance with the standard"

The table below summarizes the findings raised by Rainforest Alliance during the second methodology assessment and the respectively BVC considerations.

CAR numbers	2nd validator findings	Evidence to close CAR	BVC considerations
01/10	It is not clear if the project can influence peat areas and whether or not (and how) these emissions would need to be accounted for.	Applicability condition "f" ("h" in the previous version of the methodology) has been modified and now uses the same language as the approved methodology VM0003 to exclude peatland areas. This was found to be an improvement and addresses CAR 01/10.	The version 2 of the methodology has restricted its application under peat swamp forest. It's worthy in order to avoid mistakes regarding the applicability conditions of the FAS methodology
02/10	Step 2.4 involves documenting the land-use change data from the reference region and project area. Given that by definition there can have been no deforestation in this area, and the project does not seek to claim credits from avoided degradation in the baseline, it is unclear why an assessment of the historical changes in the project area is necessary. Step 2.2 requires the proponent to "identify and describe the land-use and land-cover (LU/LC) classes present in the reference region" only. However, as the project area may not be part of the reference region, it is not clear why this is not	CAR 02/10 has been addressed by specifying that "In the case of the project area, LU/LC-change analysis is required to exclude any area with forests that are less than 10 years old at the project start date" (page 53). Moreover, text and Figure 1 have been added to clarify that the project area is a subset of the reference region (page 8)	Ok, It was clarified and clearly with the figure 1 addition in the page 8.

	necessary.		
03/10	The methodology's framework for the selection of the method to project the baseline rate of deforestation into the future appears to lead to choices that may not be conservative. When deforestation rates are decreasing but the reason for the trend is unknown, a historical average can be used. This was found to be a non-conservative choice.	A number of modifications to the methodology have been made to address CAR 03/10: □□The authors decided to delete the discount factor in absence of literature supporting it, and, where no conclusive evidence emerges from the analysis of agents and drivers explaining the different historical deforestation rates, they now require repeating step 3 until finding conclusive evidence. □□Where the evidence found in Step 3 on the most likely future deforestation trend within the reference region and project area is inconclusive and the trend is decreasing or about constant, the methodology now requires Step 3 to be repeated until conclusive evidence is found, and mentions that otherwise it is not be possible to continue with the next steps of the methodology. Moreover, it states that "if the trend is increasing and the evidence is inconclusive, the deforestation rate to be used in the projections will be the average historical rate (see step 4.1.1)". In addition, new equations (4a to 6c) were formulated in Section 4.1.3.1 to calculate the historical average (approach 'a') rate of deforestation based on the historical rate of deforestation in the three classes of land (optimal, average and sub-optimal) historically. The new equations correctly use a method derived from Puyravaud (2003). Equation 11, to calculate the rate of deforestation during the 'sub-optimal' period of approach 'b' was also changed, after it was discovered that the original equation did not produce the C-61 Methodology Assessment Report VCS 03 09 2009 10 deforestation pattern that was intended. This change was found to be acceptable, as the curve that results is one that is more likely to occur in reality (smoother). Figure 4 was also added to the section on approach 'b'. This improves the clarity of the section.	Ok, with the modifications this baseline Approach turns more conservative.
04/10	The methodology only considers biophysical and	CAR 04/10 has been addressed by the inclusion of new text stating that "socio-	Ok, with the inclusion of a new text in section

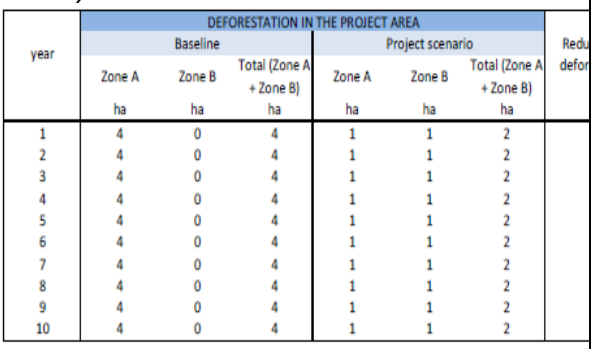
	infrastructure constraints to the spatial extent of deforestation. Not considering other constraints (socio-economic) means the baseline may not be conservative.	economic constraints (mobility, land-use rights, areas with presence of conflicts and crime, etc)" must also be considered in section 4.1.2.	4.1.2 the methodology includes all possible variables to assess the forest land scarcity turning the meth robust.
05/10	If the projected trend of deforestation is decreasing then no constraint analysis is required by the methodology.	This CAR has been addressed by requiring cases where deforestation is found to be decreasing to carry out the analysis of constraints to the further expansion of deforestation in section 4.1.2.	Ok, it´s important the analyses of the constraints to the deforestation expansion especially in the case that the baseline is decreasing to be transparent in all part of the process.
06/10	The methodology reduces the rate of deforestation in areas that are not optimal for deforestation by specific amounts without justifying why these amounts are suitable. To clarify, the factors the auditors are referring to are the 0.5 and 0.25 values used in equations 4 and 5 respectively.	The Methodology Developer provided the following explanation, "The factors 0.5 and 0.25 in equations 4 and 5, respectively, are based on the conservative assumption that deforestation will be reduced by half of the historical average once all "optimal" areas will be deforested and by one quarter once all "optimal" and "average" areas will have been deforested. In reality deforestation will happen at the same time in "optimal", "average" and "sub-optimal" areas at the same time and in different and unpredictable proportions. There is no objective justification for these numbers (50% and 25%). However, it can be assumed that in very few cases "Toptimal" or "Toptimal + Taverage" will be a longer period of time than the fixed baseline period. Thus, in most cases, these factors will not have any impact on the numbers of VCUs actually issued to the project because the baseline will have to be revisited before these factors will have an impact on the projected baseline." The defense provided was found to be reasonable.	OK, the methodology proponent provides reasonable arguments to this CAR.
07/10	Public comments received have indicated weaknesses in the statistical approach to baseline modeling. These need to be addressed by the methodology. The	The methodology now includes text reading "The model must demonstrably comply with statistical good practice, and evidence C-61 Methodology Assessment Report VCS 03 09 2009 12 that such requirement has been met shall be provided to VCS verifiers	Ok, as these statistics methods to validate modeling approaches are always improving is a fine option to include the text mentioned in

	methodology suggests statistical tests that are not appropriate for the range of models and regressions that could be used. In addition, 'method 2 – modeling in section 5.2, does not have any requirements for testing of the models accuracy.	at the time of validation" with regard to approach 'b' and 'c'. Moreover, the text "The results of the analysis must produce a statistically significant model with a p< and an adjusted r2 of 0. 50. Seek assistance from an expert statistician as necessary", in approach "c" has been deleted.	this CAR.
08/10	On page 61, Section 4.2.1 the methodology requires "Specifically, from at least five examples observed in the reference region or from literature sources appropriate to the reference region, estimate the length of secondary roads constructed per km of official roads constructed, or the length of secondary roads constructed per industrial facility/settlement, or per square kilometer within a certain type of land use (such as private land, forestry concessions, protected areas) during an historical time period". Given that the feasibility and length of roads depends to a good extent on the geographic conditions in the area where they are built, the audit team considers that such conditions shall be considered while projecting the number, location and length of secondary roads.	The methodology now includes provisions to consider geographic and socio-economic conditions unfavorable for infrastructure developments whilst projecting unplanned infrastructure development (page 79), thus addressing CAR 08/10. However, it was found by the audit team that not enough guidance is included in this section on how to determine the location of secondary roads – i.e. the fact that an area is suitable for such a road does not mean than in all suitable areas roads will need to be constructed, therefore it would be necessary to identify road patterns in the project region, Likewise, provisions to make the selection of possible paths conservative (i.e. to avoid presuming that all roads will be built near or across forested areas thus causing baseline deforestation) are lacking (New OBS 19/11).	Ok, now the meth considers the geographic and socio-economic conditions for infrastructure developments due that the analysis is more restrictive avoiding any doubts in this analysis.
09/10	Step 4.2.4 requires that deforestation is assigned to the pixels with the highest risk rating within the reference region. In order to calculate the deforestation in the project area, "the	The methodology has been modified to specify that the reference region "must be larger than the project area and include the project area" (page 35). With this and the inclusion of Figure 1 and the mention on page 8 that "The project area, leakage belt and leakage management areas are	Ok, Due the fact that the CAR 2/10 was solved with the inclusion of the figure 1 (page 8), CAR 9/10 is unnecessary. Notwithstanding it was

	annual maps of baseline deforestation for the reference region must be overlaid with a map layer corresponding only to the project area." This appears to assume that the project area is included in the reference region. However, on page 24, section 1.1.1 does not make the inclusion of the project area in the reference region mandatory (use of should language). The spatial linkage between project area and reference region must be explicit. This is because in this methodology deforestation is allocated to the most attractive areas for deforestation, so the calculated baseline deforestation rate in the project area will be strongly determined by the relative attractiveness of areas in the reference region. If the reference region is not spatially linked, this could introduce bias that has no basis in the reality of the likely deforestation pattern.	subsets of the reference region"	addressed and closed in the version 2 of the methodology
10/10	The methodology complies with this requirement by asking project participants to update the baseline with a periodicity not less than 5 years or more than 10 years, however the language used to reflect whether or not this is mandatory is not consistent. Page 113 states, "the baseline should be revisited every 5 to 10 years" which implies it is optional, whilst in Appendix 1, in the definition of, "fixed baseline	The methodology has been revised thoroughly in order to make clear that the reassessment of the baseline deforestation is mandatory	Ok, with the changes in the new methodology the proponent has clarified that the baseline reassessment is mandatory.

	period" it is clear that it is mandatory. In addition, Task 2.2.1 states that the baseline must be re-assessed, "at the end of each crediting period" and the crediting period will by definition be longer than 10 years.		
11/10	Tables 3 and 4 contain exclusions and inclusions that are not consistent with the VCS Tool for Methodological Issues.	This CAR has been addressed by modifying the text to comply with the latest VCS AFOLU program update	Ok, this updates appears before of the BV validation, in this case the modification makes the methodology updated according to the VCS rules.
12/10	It is understood by the auditors that the developers wish to prepare their methodology for future REDD policies and programs, by including provisions for the use of sub-national and national derived data. However, the modalities of linking project and (sub-) national baselines, monitoring and leakage, etc. have not been defined by the VCS yet. As such, the methodology must ensure full guidance for project specific steps and, following this, any provisions or placeholders for using (sub-)national data can be presented only if these are preceded by appropriate language stating that these are only to be used if there is approved VCS guidance on the subject.	Full guidance on setting project specific baselines is now provided. The current version of the methodology has introduced the idea of "jurisdictional programs" in order to reflect the upcoming work on this issue under the VCS, instead of making reference to "subnational activities" as in its previous version. Moreover, there is now text on page 33 stating that "If sub-national or national baselines exist, that meet VCS specific guidance on applicability of existing baselines, such baselines must be used".	The new approach regarding pre-existing national baselines, monitoring, reporting, verification, and leakage, etc, presented in the version 2 of the methodology anticipates the VCS intention to develop new standards for regional baselines and jurisdictional programs. it is BVC opinion that this new approach anticipates future misunderstood regarding the using of pre-existing baselines. Also, due the fact that the discussions regarding sub-national baselines has been raised it´s a fine option to reference the VCS decisions about "jurisdictional programs" and Nested Approach than to be restrictive.
13/10	In the methodology, deforestation that occurs historically in the reference region is used to create a	The multiple issues associated to CAR 13/10 have been addressed in the new version of the methodology as follows: • The text requiring that the likelihood of	Ok, with a detailed description of the analysis of the deforestation patterns

	model of the future in the project area. The reference region can be defined as somewhere the “drivers and patterns of deforestation” are “similar to those existing or expected to exist within the project area”. (Section 1.1.1) However, since the project area, by definition, (100% forest) has no deforestation at the start of the project, it is not clear how it can have existing deforestation drivers and patterns. In addition, insufficient guidance is provided regarding the required size of the reference region and the steps to take when the circumstances are due to change during the project. Finally, the minimum size of the reference region (the project area) was not thought to be feasible. On page 23, the methodology establishes three main criteria relevant to demonstrate that the conditions determining the likelihood of deforestation within the project area are similar, or expected to become similar, to those found within the reference region yet the influence of infrastructure is not one of them. Given the importance of infrastructure establishment, it is not sufficiently explained why this does not appear as an explicit criterion for the demonstration of similar predisposing conditions between the reference region and the project area.	deforestation be “similar” in the reference region and the project area on page 24 (now 35) has been deleted. • The methodology now contains the following sentence providing more guidance on how to simulate chronosequences: “The boundary of such strata may be static (fixed during a fixed baseline period) or dynamic2 (changing every year), depending on the modeling approaches used”. Infrastructure drivers now appear as a specific sub-criterion for the demonstration of similar predisposing conditions between the reference region and the project area. (page 35).	especially to the infrastructure divers turns the methodology clearly, trustfully and transparent.
14/10	Section 1.1.2 (page 28) describes the project	The Methodology Developers provided the following additional	BVC auditors agree with the methodology

	boundaries, and establishes that “the project area must include areas projected to be deforested in the baseline case and may include some other areas that are not threatened according to the first baseline assessment. Such areas will not generate carbon credits, but they may be included if the project proponent considers that future baseline assessments, which have to be carried out at least every 10 years, are likely to indicate that a future deforestation threat will exist, also the demonstration is not possible at the time of validation. In our opinion, this provision could lead to a case where “intra-project” leakage (deforestation agents originally found in the threatened patches of forest of the project area moving to the non-threatened patches) could appear, which could inflate future baseline revisions. The methodology should provide guidance on how this situation should be avoided and/or accounted for by project developers.	explanation: “Any “intra-project” leakage would have to be reported as project emission during the verifications. If deforestation is shifted from one place (Zone A) to another place (Zone B) within the project area (Zone A + Zone B) there will be no credits to claim; at the level of the project polygon baseline deforestation and project deforestation will be the same. If deforestation is greatly reduced in Zone A and slightly increased in Zone B (= “intra-project” leakage) but the overall result is a deforestation reduction within the project area, the project will get credits for the reduction achieved in total (see table below).  DEFORESTATION IN THE PROJECT AREA Baseline / Project scenario / Redu defor year | Zone A ha | Zone B ha | Total (Zone A + Zone B) ha | Zone A ha | Zone B ha | Total (Zone A + Zone B) ha 1 4 0 4 1 1 2 2 4 0 4 1 1 2 3 4 0 4 1 1 2 4 4 0 4 1 1 2 5 4 0 4 1 1 2 6 4 0 4 1 1 2 7 4 0 4 1 1 2 8 4 0 4 1 1 2 9 4 0 4 1 1 2 10 4 0 4 1 1 2 We do not see that the baseline of the subsequent fixed baseline period will be inflated if due to the project activity some of the C-61 Methodology Assessment Report VCS 03 09 2009 17 baseline deforestation is displaced inside the project area from Zone A to Zone B: such displaced deforestation is still baseline deforestation and there is no incentive for the project proponent to have more deforestation in Zone B. Therefore, if during the subsequent fixed baseline period the baseline deforestation that was displaced from Zone A to Zone B is effectively reduced, the project proponent shall deserve credits for it. Based on the above explanation, we decided to keep our proposed text because spatial models cannot be 100% accurate, which is also acknowledged by the auditor (see CAR 45).” (Response to CARs and OBS.doc.) This defense was found to be acceptable by the auditors	proponent opinion that intra-project leakage is not supposed to overestimate the future baseline once the credits will be generated based in the deforestation reduction achieved within the project area as a whole. The methodology proponent has provided reasonable arguments to this CAR.

15/10	Section 1.1.2 (page 28) states that “Following VCS 2007.1 (2008 p.16-17), new discrete units of land (referred to as “new project area”) may be integrated into an existing project area if included in the monitoring report for the first verification.” However page 17 of the VCS AFOLU guidance contains provisions that must be met in order for this to occur. Of these provisions, ‘B’, “Assure that if the area is eventually smaller than intended, there are provisions that increased emissions attributable to the project activity in the areas that at verification have not come under control of project shall be considered as leakage. This requires the selection of the appropriate methodology beforehand for the eventuality that this may happen”; requires that the methodology is compatible with the provision. The methodology does not explain how this provision would be met.	The methodology now states that “If at the first verification the project area is eventually smaller than intended at the validation date, the area left out must be included in the leakage belt area.” (Section 1.1.2).	With this modification in the methodology the approach turned conservative.
16/10	The method used to determine the leakage belt does not consider that the opportunity cost of deforestation can change over time or that a mobility analysis will be necessary before defining a realistic area based on opportunity cost. Also, the criteria used to define the leakage belt limit it only to those areas with similar conditions to those found in the project area.	The first issue contained in CAR 16/10 regarding the use of a mobility analysis in Option I (opportunity cost assessment) has been addressed, now the methodology states that in option I “The final boundary of the leakage belt shall encompass the areas resulting from applying both, Option I and Option II” (option II being the mobility analysis). However, it is not clear why these two procedures are presented as ‘options’. (OBS 18/10). The second issue under CAR 16/10 regarding the suitability of leakage belt areas whilst assessing the mobility of deforestation agents has now been fixed by including the text, “The overall	The new methodology now states the necessity to use both methodological approaches to establish the leakage belt turning trustfully and detailed because of the possible mobility of the actors due to the opportunity costs. In the second part of this CAR the methodology proponent reinforces that the same criteria used to

		suitability of the land for the activities of deforestation agents shall be considered and the selection of criteria must be consistent with criteria used to assess deforestation constraints in Step 4.1.2" and deleting the previous criteria.	analysis the deforestation constraints to establish the project and reference area needs to be used to establish the leakage belt. However, **CAR 01:** BVC understands that the first issue of the CAR16/10 raised by RA, (applying both, Option I and Option II) was not addressed in the version 2 of the methodology. No reference to the application of both options were find in the text of the methodology
17/10	In section 6.1, the requirement or timing for when the use field measurements is mandatory (versus purely optional or recommended best practice) was found to be unclear. The use of accurate and conservative carbon stock data is important in setting baselines and thus there must not be ambiguity around what constitutes the lower limit of adequate data for the estimation of carbon stocks.	In response to CAR 17/10 the Methodology Developer stated, "We believe that the methodology is sufficiently clear as it states: "Assess and, where appropriate, use existing data. It is likely that some existing data could be used to quantify the carbon stocks of C-61 Methodology Assessment Report VCS 03 09 2009 19 one or more classes. These data could be derived from a forest inventory or perhaps from scientific studies. Analyze these data and use them if the following criteria are fulfilled (2008): • The data are less than 10 years old; • The data are derived from multiple measurement plots; • All species above a minimum diameter are included in the inventories; • The minimum diameter for trees included is 30 cm or less at breast height (DBH); • Data are sampled from good coverage of the classes over which they will be extrapolated." If the project proponent decides to use literature data, the methodology provides the following guidance: "Literature estimates: • The use of carbon stock estimates in similar ecosystems derived from local	The issue regarding "adequately accurate and conservative data" was also raised by BVC team during the first assessment. The approach presented in the previous version (and maintained in the version 2 of the methodology) had already satisfied the BVC auditors.

		studies, literature and IPCC defaults is permitted , provided the accuracy and conservativeness of the estimates are demonstrated. For instance, when defaults are used, the lowest value of the range given in the literature source (or the value reduced by 30%) should be used for the forest classes, and the highest value (or the value augmented by 30%) for non-forest classes." This text makes it clear that literature estimates can be used, but that there will be a 30% penalty in using them." The Audit team accept this defense	
18/10	The methodology does not give sufficient guidance on how allometric equations should be tested or what should be done in cases where the equation is found to be erroneous and non conservative.	CAR 18/10 has been addressed by including additional guidance on how to determine the size of the samples to be considered and requiring a full allometric model to be developed if the trees sampled fail to have biomasses within the allowed tolerances of error.	Ok, The explanation improvement regarding allometric models and the statistically significance is worthy in order to avoid arbitrary conclusions regarding the sampling allowed tolerance
19/10	Equation 25 in Section 9.2 provides a detailed equation to calculate the ex ante estimate of GHG reductions due to the project using terms referred to in previous equations. However, it was unclear whether absolute values had to be used to make the equations work and some of the parameters in the equation appear nowhere else in the methodology (e.g. EBSLt).	CAR 19/10 has been addressed by adding a note below Equation 23 specifying that "The absolute values of □CBSLPAt shall be used in equation 23" and that "If □CPSPAt represents a net increase in carbon stocks, a negative sign before the absolute value of □CPSPAt shall be used. If □CPSPAt represents a net decrease, the positive sign shall be used". The flow of data has also been revised.	Ok, The sign explanation for the using the "Sum of ex ante estimated actual carbon stock changes in the project area at year t" is valid to avoid mistake by the time of using the equation 23
20/10	The FAS methodology provides the calculation steps to estimate ex-ante the number of VCUs that will be issued to the project (equations 26-27). However the language used in the equations and supporting text does not conform with the VCS language with respect to the issuance of carbon credits and VCUs. For example, the parameter VCUBt is stated as being, "Number of voluntary	Equations 24 and 25 (previously equations 26-27) and the surrounding text has been changed to be in line with VCS language. Table 34 was also updated to be consistent with the equations that populate it.	It does not figure a critical CAR, notwithstanding the change in the methodology is valid in order to avoid misunderstandings.

	carbon units to be withheld in the VCS Buffer…", yet the VCS does not withhold VCUs in the buffer, rather it deposits "non-tradable AFOLU carbon credits". VCUs are always tradable when issued.		
21/10	The FAS methodology does not provide the steps for quantifying the emissions from leakage for all the activities it identifies as being potentially subject to leakage. There is a provision for leakage management areas not having to count leakage if deforestation was projected in the baseline. This was found not to be acceptable, since there could be further leakage from these areas that is not counted and there are no VCS provisions for doing such accounting.	The issues relating to the exclusion of emissions from the leakage management area in the first ten years has been addressed by deleting the text quoted above. It is now clear where leakage management zones are located with respect to the reference region, leakage belt and project area, however it is still unclear if their size is fixed or can change.	**CL 01:** based in the "evidence to close CAR" considerations presented by RA in the CAR 21/10, It is not clear to the BVC team, if the CAR 21/10 was really "closed" or remains opened, despite of to be registered as closed in the RA assessment report
22/10	The methodology does not consider the potential for market leakage.	The revised methodology still does not contain any deductions for market leakage. The auditors acknowledge that for REDD projects the VCS guidance states that only illegal logging need be considered, and only if it is being counted in the baseline. The developer's defense of the market leakage omission is that logging is not counted in the baseline. This is shown in the graphs in the scope section of the methodology. Whilst baseline activities could still include logging (one of the applicability conditions on page 20 states that "Baseline activities may include planned or unplanned logging for timber, fuel-wood collection, charcoal production, agricultural and grazing activities as long as the category is unplanned frontier deforestation according to the most recent VCS AFOLU guidelines" no credits are claimed for their avoidance.	Ok, It had been addressed in the first assessment (please refer to CAR 10 – BVC report). BVC auditors had already closed this CAR after the methodology proponent submitted additional explanation.
23/10	The FAS methodology presents a novel method for the calculation of activity shifting leakage. The auditors consider the	CAR 23/10 has been addressed by deleting the approach described above for activity shifting leakage calculation.	Time-discount approach for leakage calculation has been excluded from the version 2 of the

	approach worthy of serious consideration. However, there are a number of issues which must be resolved. Firstly, this method has no precedent in the VCS standard and appears to be in contradiction with the way VCS credits are generated. This is because the VCS standard issues ex-post verified emissions reductions, yet this method is based on the emissions reductions not occurring until a later date (after verification). Secondly, the assumptions made in the selection of the discount rate used are also not defended. If this method is to be pursued, it may be necessary for the methodology developer to seek VCS advice.		methodology, despite of being a conservative approach, according to the BVC opinion. Notwithstanding the leakage calculation approach as a whole remains consistent and trustworthy
24/10	When developers are monitoring land-use and land-cover changes they are instructed to use techniques such as those from Part 1, step 2.4. This is acceptable; however, step 2.4 does not include an accuracy assessment which would be required (as in step 2.5).	CAR 24/10 has been addressed by including the following text on page 136: "Methods used to monitor LU/LC change categories and to assess accuracy must be similar to those explained in part I, step 2.4 and part I, step 2.5, respectively."	OK, since step 2.5 gives a detailed description of the accuracy assessment the second part of the methodology (monitoring) will have the same criteria's of the first part (validation). However, **CAR 02:** The reference provided in the last paragraph of the section 1.1.2 of the part 3 of the methodology version 2 does not meet the methodology content, once step 2.4 and 2.5 are included in part 2 of the methodology version 2 and not part 1 as presented.

25/10	Due to a lack of clarity around the definitions of (and thresholds between) deforestation and degradation, the methodology was found to potentially allow crediting for degradation that would not be subsequently tracked for project scenario emissions or leakage accounting purposes.	CAR 25/10 has been addressed by adding a requirement to calculate the carbon stock loss at the time of deforestation taking into account any degradation that was projected to occur up to that date (see new text Step 5). Guidance on how to do this is provided in Step 2.2. In addition the graphs in the scope section have been revised to reflect the fact that only avoided deforestation and not degradation will be credited. Table 35 has remained the same. However, this is now acceptable due to the changes made to address CAR 25/10 earlier in the methodology	Ok, since others methodological changes had been made before this CAR was addressed and solved.
26/10	The methodology allows losses due to natural disturbances to be excluded from emissions accounting using the assumption that the event would have happened in the baseline (Part 3, Task 2, Section 1.1.4). In addition, it is stated in the methodology that losses from forest fire do not need to be included if forest fires are not included in the baselines. The VCS has provided clarification directly to the Rainforest Alliance that until further guidance is produced, all losses are to be treated equally, and any loss to carbon stocks in the project area must be accounted for in the carbon accounting.	Changes have been made to sections 1.1.3 and 1.1.4. The methodology now requires all loses (whatever the location within the project area, and whatever the cause) to be quantified and accounted for.	Ok, since VCS states that in absence of a specific guidance to this issue all changes in the carbon stock have to be treated equally.
27/10	The methodology requires that all deforestation occurring in the leakage belt is accounted for as leakage (Section 1.2.2). This is because the leakage belt was previously defined as forested areas modeled to remain forest at the end of the crediting period according to the baseline projections (Part 1, 1.1.3). This approach was found to	The leakage belt is no longer assumed to be constituted of forests remaining at the end of the crediting period, instead, a baseline is estimated for such areas and leakage emissions are assumed to be those monitored above such baseline levels. The option of not carrying out spatial modeling has been deleted, as well as the option to estimate emissions and removals for each year of the fixed baseline period only (section 4.1.3.3). The accuracy of spatial modeling within the leakage belt is no longer a concern because it is the total	Ok, since the new methodology states that the leakage belt will be monitored during the verification period the CAR has been solved as well any ambiguous approach.

	suffer from two main problems. First, it assumes that the spatial modeling of deforestation is accurate, whereas deforestation will not occur exactly where predicted. The result of this is that a situation where a project that successfully mitigated leakage, but had poor spatial mapping of deforestation in the baseline, could suffer significant leakage deductions. Second, the methodology has an option to estimate emissions and removals for each year of the fixed baseline period only (section 4.1.3.3), which means that the location of deforestation would not be estimated up to the end of the crediting period. This would mean that the leakage belt, which is defined as forest projected to remain as forest at the end of the crediting period, could not be defined.	deforestation that occurs within the leakage belt that is monitored, and its exact location does not affect the calculations (Part 3, Section 1.2.2). A new table has been provided (Table 36) for recording ex post leakage data.	
28/10	It is not explicitly stated that when re-assessing the baseline, credits cannot be earned from areas that have already generated credits through their protection in the first period. This could happen, if Part 2 was followed exactly again.	CAR28/10 has been addressed by inserting the following note “A map showing Cumulative Areas Credited within the project area shall be updated and presented to VCS verifiers at each verification event. The cumulative area cannot generate additional VCUs in future periods” (page 146). This CAR was further addressed by including text in section 2.2.2 of Part 3 reading “All areas credited for avoided deforestation in past fixed baseline periods must be excluded from the revisited asbeline projections as these areas cannot be credited again. To perform this exclusion use the map of “cumulative areas credited” that was updated in all previous verification events”.	Ok, with the inclusion of the note in page 146, the methodology proponent avoids any possible double counting credits problems.
29/10	The section on uncertainty	The methodology states in section 6.1.1 that	Ok, the BVC team

	was very limited in scope and did not cover the most significant and possible ways that uncertainty is introduced into the methodology.	"Carbon stock estimates are subject to uncertainty assessment as indicated in appendix 2, Box 2. If the uncertainty of the total average carbon stock (Ctotcl) of a class cl is less than 10% of the average value, the average carbon stock value can be used. If the uncertainty is higher than 10%, the lower boundary of the 90% confidence interval must be considered in the calculations if the class is an initial forest class in the project area or a final non-forest class in the leakage belt, and the higher boundary of the 90% confidence interval if the class is an initial forest class in the leakage belt or a final non-forest class in the project area." This modification was found acceptable by the audit team	agrees that the complementary guidance provided, in addition to box 2 of the appendix 2, corroborates to reduce uncertainties in the carbon stock estimations.
30/10	The methodology contains numerous typographical errors and inconsistencies	The typos and inconsistencies have been addressed.	OK
31/10	The Developers have not responded in a fully transparent manner, or with specific reference to language revised within the current methodology, on the public comments regarding the definition of legal boundaries and also concerning the handling of statistical tests or validation of models and regressions used.	The Methodology Developer has submitted responses to all of the public comments received. These are summarized in Table 1 of this report (RA assessment report). All comments were adequately addressed.	The public comments were also assessed by BVC and forwarded to FAS and addressed in the methodology, when applicable, by the time of the first assessment. The same procedure is supposed to been applied by RA during the second assessment.

Evaluation of methodology Changes in Response to Second Validator Assessment and the Bureau Veritas Certification Findings on the updated methodology revision:

Due to the fact that some alterations made in the methodology to address the second validators CARs, BVC has undertaken an assessment of the alterations in order to check its accordance to the VCS rules, tools and AFOLU guidances, as well its own technical consistence. The more significant changes were done in the Baseline approach, project boundaries, emissions, leakage and monitoring, as follow:

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 (VCS 2007.1, S6.5.1).

"Geographical area: Project participants need to clearly define the spatial boundaries of a project so as to facilitate accurate measuring, monitoring, accounting, and verifying of the project's emissions reductions/removals. The area of implementation for the VCS AFOLU project may be smaller than the entire project area to allow for effective leakage management". (VCS Guidance for AFOLU projects).

The newest version of the methodology has excluded the peat swamp forest from the scope, has included an illustrative figure to clarify the project spatial domains, has reviewed how to define the leakage belt area and has excluded the N2O from the project emission in order to align with the recent VCS Program Update of May 24th, 2010. Finally the current version of the methodology has introduced the idea of "jurisdictional programs" in order to reflect the upcoming work on this issue under the VCS, instead of making reference to "subnational activities".

Despite of the changes, it is the BVC opinion that the version 2 of the methodology fulfills all the aspects according to project boundaries that VCS requires in the Guidance for AFOLU projects, however the BVC has opened a new corrective action (please refer to **CAR 01** of this report)

Baseline approach: Assessment of whether the approach for determining the project baseline is appropriate and adequate, as per the VCS 2007.1, Section 6.5.1.

No significant changes were done in the main structure of the baseline section, notwithstanding some important changes were done in order to improved and benefited the methodology, giving clearly approaches in a transparent way turning the methodology stronger and robust, in this way giving a trustfully and credibility and also respecting the VCS rules, tools and guidance's.

The main ones are: to conduct additional assessments under step 3, until find conclusive evidence for the "Analysis of agents, drivers and underlying causes of deforestation and their likely future development"; To project the annual areas of baseline deforestation, not just in the project area, but also in the leakage belt and Socio-economic constraints were included in the Analysis of constraints to the further expansion of the deforestation.

BVC did not address any news CARs to the new methodology version in this scope.

Emissions: Some improvements have been done regarding the baseline and project emissions. The methodology has included additional guidance for sampling and has improved the procedures regarding the allowed tolerance error for tree measurement.

No additional CAR has been raised by the BVC team for this section

Leakage: Important modifications in the leakage section has been made since the last BVC methodology assessment, the main ones were regarding the exclusion of the time-discount leakage approach, the improvement of the ex-post leakage monitoring section and the issues relating to the exclusion of emissions from the leakage management area in the first ten years has been deleted.

In response to the CAR 21/10 raised by Rainforest Alliance the BVC team has opened a new clarification (please refer to **CL 01** of this report).

Monitoring: Assessment of whether the monitoring approach is appropriate and adequate. (VCS 2007.1, S6.5.1).

"Monitoring net emissions reductions and GHG removals for all **AFOLU** projects. To be eligible under the VCS, AFOLU projects must have robust and credible monitoring protocols as defined in the approved methodologies. Monitoring and ex-post quantification of the project scenario (including off-site climate impacts) must follow the applicable guidance available in approved A/R CDM methodologies and/or IPCC documents". (VCS Guidance for AFOLU projects).

Some significant changes were done in the monitoring section. The most important are: The methodology now requires all loses (whatever the location within the project area, and whatever the cause) to be quantified and accounted for. (statement added in order to address impacts of natural disturbances and other catastrophic events); The leakage belt is no longer assumed to be constituted of forests remaining at the end of the crediting period, instead, a baseline is estimated for such areas and leakage emissions are assumed to be those monitored above such baseline levels; New procedures regarding the uncertainties assessment were add to this new version of the methodology. Finally all areas credited for avoided deforestation in past fixed baseline periods must be excluded from the revisited baseline projections as these areas cannot be credited again. This last adjustment was found fine by the BVC team in order to avoid double counting.

The latest version of the methodology attends all requires to the VCS Guidance for AFOLU projects, especially related to the monitoring assessment. Notwithstanding the BVC team has opened a new corrective action in this section (please refer to **CAR 02** of this report).

Finally, few more issues were found in the version 2 of the methodology that still have to be addressed before BVC team be able to recommend the new methodology to validation under the VCS standard. Please refer to **CAR 03**, **CAR 04** and **CL 02** of this report.

Note: by the end of the double approval validation process the methodology proponent has required a new change in the text of the methodology, this change has required a new methodology revision and considerations by the Bureau Veritas team and also by Rainforest Alliance. The historic of this revision process is presented in the **CAR 05**, in the table below.

New findings	Methodology proponent and/or second validator responses	Final BVC conclusion
CAR 01: BVC understands that the first issue of the CAR16/10 raised by RA, (applying both, Option I and Option II) was not addressed in the version 2 of the methodology. No reference to the application of both options were find in the text of the methodology	RA/FAS response (28th February, 2011) This CAR has been reassessed by the second validator, RA, as follow: *"The first issue contained in CAR 16/10 regarding the use of a mobility analysis in Option I (opportunity cost assessment) has been addressed, the methodology no longer requires an assessment of mobility as part of option I. The second issue under CAR 16/10 regarding the suitability of leakage belt areas whilst assessing the mobility of deforestation agents has now been fixed by including the text, "The overall suitability of the land for the activities of deforestation agents shall be considered and the selection of criteria must be consistent with criteria used to assess deforestation constraints in Step 4.1.2" and deleting the previous"*	Ok. As explained by Rainforest Alliance during the conference call between FAS, RA and BVC, the text of the CAR 16/10 needed to be reviewed. **CAR 01 is closed**
CAR 02: The reference provided in the last paragraph of the section 1.1.2 of the part 3 of the methodology version 2 does not meet the methodology content, once step 2.4 and 2.5 are included in part 2 of the methodology version 2 and not part 1 as presented. (pg 49)	The revised methodology has addressed these typo – Step 2.4 and Step 2.5 belong to part 2.	Ok. **CAR 02 is closed**
CAR 03: some footnotes are missing in the version 2 of the methodology (e.g.: footnote 2, pg 04; 51, table 22 - section 7.1.3, etc…)	Discuss later. This might be caused by *track-changes* correction. Please check PDF final version.	Ok, the footnotes have been corrected **CAR 03 is closed**
CAR 04: No values for the parameters of table 26 were presented.	Please provide further explanation on this CAR.	Ok, as explained by the methodology proponent the table 26 of the methodology does not provide parameters. This must be define by the project proponent and

		validated by the time of the PDD validation. **CAR 04 is closed**
CAR 05 historic: After the closure of the validation report by BVC the methodology proponent has required changes in the threshold for the selection of the most accurate deforestation map. The original text is presented in page 79 (version 02.1), as follow: *"The minimum threshold for the best fit as measured by the Figure of Merit (FOM) must be 80%. Where this minimum standard is not met the project shall be considered ineligible."* In march 10th the methodology was changed based on new evidences of Dr. Pontius about the FOM value and according him the FOM threshold more realistic is 50%, shown in the new methodology (**version 02.2**) the following text: *The minimum threshold for the best fit as measured by the Figure of Merit (FOM) must be more than 50%, which means there is more correctly simulated change than error. Where this minimum standard is not met, the project proposers must explain why.* **CAR 05:** This important change in the methodology opened this CAR especially because the old version used to have the same value of a VCS approved methodology (**VM0007).** Also it is important to state that the value proposed by the VM0007 was based in 7 different cases studies so it´s plausible to be reached. In this way, it would be a good practice to have another specialist technical opinion.	First Methodology proponent response: According to VM007 (BL-UP, version 1.0, Model calibration and confirmation, p.19) (http://www.v-cs.org/docs/VMD0007%20BLUP%20Unplanned%20baseline.pdf): "The minimum threshold for the best fit as measured by the Figure of Merit (FOM) must be 40% for frontier configuration, 80% for mosaic configuration, and 60% for transition configuration (...)". Thus, as the previous 80%-threshold was unrealistic and considering VM007, we propose to establish a 50%-threshold for Frontier Deforestation (see Methodology v 02.2[1]). Second Methodology proponent response: Firstly, BVC's rejoinder was not fully clear regarding Brown's citation. If the aforementioned citation was that cited in the VM0007, we believe Pontius et al. (2011, 2008, and 2007) (already cited at footnote 43 in the methodology v02.2) shows more updated results. Thus we do not see the need to either include Brown's citation or Pontius' – as this	First BVC consideration: Ok, due that is important to insert Sandra Brown citation in the new methodology version together with Dr. Pontius reference**. CAR IS NOT CLOSED** Final BVC considerations: Ok, due the proponent conclusive arguments especially comparing the Pontius and Brown citations the CAR can be closed. The proponent showed clearly that Pontius citation has update results comparing with Brown, also Brown citation may be less conservative in the FOM threshold in the frontier configuration. **CAR 05 is Closed**
CL 01: based in the "evidence to close CAR" considerations presented by RA in the CAR 21/10, It is not clear to the	RA/FAS response (28th February, 2011)	Ok. As explained by Rainforest Alliance during the conference call between

BVC team, if the CAR 21/10 was really "closed" or remains opened, despite of to be registered as closed in the RA assessment report	This CAR has been reassessed by the second validator, RA, as follow: *"The issues relating to the exclusion of emissions from the leakage management area in the first ten years has been addressed by deleting the clause which allowed this. The methodology has been updated such that it is now clear where leakage management zones are located with respect to the reference region, leakage belt and project area".* The text *"however it is still unclear if their size is fixed or can change"* has been removed by the second validator.	FAS, RA and BVC, the text of the CAR 21/10 needed to be reviewed. **CL 01 is closed**
CL 02: considering that planned infrastructure, settlements and industries can be considered important drivers of unplanned deforestation, it is not clear why these elements were excluded from section 3.2.b of the methodology version 2.	The methodology says "access to forest", "proximity to existing or industrial facilities", and "proximity to existing settlements", which we believe they include such deforestation drivers mentioned by BVC: "planned infrastructure", "industries", and "settlements", respectively.	Ok, As explained by the methodology proponent and stated in the methodology document: planned infrastructure (e.g. roads, industrial facilities, settlements) can be considered in the Preparation of *"factor maps*" since "*credible and verifiable information on the planned construction of different segments*" be provided, otherwise "*If such evidence is not available exclude the planned infrastructure from the factors considered in the analysis*" **CL 02 is closed**

BVC conclusions regarding the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation" - version 02.2

In this fourth assessment, it is Bureau Veritas Certification's opinion that the new methodology version 02.2 has suffered some changes and improvements, however its technical consistence and reliability was maintained, being in accordance to the VCS 2007.1 and the VCS guidance for AFOLU, requirements.

Also the changes and adjustments required by the second validator have clarified some ambiguous issues and improved some technical approaches. The clarifications as well as the corrective actions raised during the first and second assessment were solved by the methodology proponent, so that it is the Bureau Veritas Certification opinion that the "Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2" dated 10 March 2011 is in compliance with the VCS standard requirements and can be unconditional recommended for approval under VCS 2007.1.

Finally, in order to meet the VCS Double Approval Process v1.1 requirement, BVC here states that the methodology version approved by Bureau Veritas Certification (Methodology for Estimating Reductions of GHG Emissions from Unplanned Frontier Deforestation version 02.2), is the same version approved by second validator, Rainforest Alliance, as per its Consolidated Final Report of April 2011.