ASSESSMENT REPORT
FOR
VCS PROPOSED METHODOLOGY:
"IMPLEMENTATION OF REDD ACTIVITIES IN LANDSCAPES AFFECTED BY MOSAIC DEFORESTATION AND DEGRADATION"

Document Prepared By:
Carbon Check (India) Private Ltd.

Methodology Title	Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation	
Version	Version 06.1.	
Methodology Category	Methodology	
	Methodology Revision	
	Module	
	Tool	
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Report Title	Assessment Report For VCS Proposed Methodology: "Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation"
Report Version	02
Client	**Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH** B-5/2, Third Floor, Safdarjung Enclave,

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Summary:

• *A brief description of the assessment and the methodology*:

This proposed methodology is developed for accounting reduced GHG emissions from mosaic unplanned deforestation and forest degradation and enhanced GHG sequestration from afforestation, reforestation and re-vegetation activities. Unplanned mosaic deforestation and associated forest degradation are usually often caused by local agents that possess unique socio-economic characteristics that, under supportive environment created by appropriate policies and measures, can also help reversal of the situation in a cost effective manner. It is designed to allow the project developer to conduct monitoring, reporting and verification with the help of local community, which should not only help in reducing operational costs of REDD+ projects but also ensure continuous community involvement, which is critical to the success of REDD+. The methodology allows scaling up during the lifetime of a project (within the constraints of objective similarity with the reference areas) and can be applied for stand-alone ARR projects as well as combined REDD+ and ARR activities.

• *The purpose and scope of the assessment*

The objective is to validate the proposed VCS AFOLU REDD+ methodology, which is one of the critical elements of the VCS MAP, Ver. 3.5 requiring assessment and validation of the proposed Methodologies by two different and independent Validation/Verification Bodies (VVBs). The objective of validation is to ensure adherence to the VCS quality guidelines and best industry practices by the proposed methodology.

The scope includes the first validation/assessment of the proposed VCS AFOLU REDD methodology in line with latest (at the time of assessment) VCS requirements. In the beginning of the project validation, CCIPL had prepared a validation work plan as per CCIPL procedure. This work plan describes how the methodology validation will be carried out including a work schedule, the framework, information collection and analysis and reporting.

• *The method and criteria used for the assessment*

The proposed methodology was examined threadbare to confirm whether it is consistent with the guidance provided by the VCS Program, including Section 3 (project level requirements) and Section 4

(methodologies) of the VCS Standard v 3.4. Specifically, the examination was centred around the following:

- **Applicability conditions:** Assessment of whether the proposed methodology's applicability conditions are appropriate, adequate and in compliance with the VCS rules.
- **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 GHGs included.
- **Procedure for determining the baseline scenario:** Assessment of whether the approach for determining the baseline scenario is appropriate, adequate and in compliance with the VCS rules.
- **Procedure for demonstrating additionality:** Assessment of whether the approach/tools for determining whether the project is additional are appropriate, adequate and in compliance with the VCS rules.
- **Baseline emissions:** Assessment of whether the approach for calculating baseline emissions is appropriate, adequate and in compliance with the VCS rules.
- **Project emissions:** Assessment of whether the approach for calculating project emissions is appropriate, adequate and in compliance with the VCS rules.
- **Leakage:** Assessment of whether the approach for calculating leakage is appropriate, adequate and in compliance with the VCS rules.
- **Quantification of net GHG emission reductions and/or removals:** Assessment of whether the approach for calculating the net GHG benefit of the project is appropriate, adequate and in compliance with the VCS rules.
- **Monitoring:** Assessment of whether the monitoring approach is appropriate, adequate and in compliance with the VCS rules.
- **Data and parameters:** Assessment of whether the specification for monitored and not monitored data and parameters is appropriate, adequate and in compliance with the VCS rules.
- **Adherence to the project principles of the VCS Program:** Assessment of whether the methodology adheres to the VCS Program principles set out in the VCS Standard.
- **Relationship to approved or pending methodologies:** Assessment of whether any existing methodology could reasonably be revised to serve the same purpose as the proposed methodology, determined in accordance with Section 5.2 of the VCS Methodology Approval process.
- **Public Review:** As provided under the double approval process, the proposed methodology was posted for public comment prior to the first assessment and all the comments received were duly addressed and reported here.

Besides the thirteen criteria noted above the following project level principles, based upon ISO 14064-2:2006, from Section 2.4 of the VCS Standard, were also considered in evaluating the methodology against the checklist criteria:

- **Relevance:** Select the GHG sources, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of the intended user.
- **Completeness:** Include all relevant GHG emissions and removals. Include all relevant information to support criteria and procedures.
- **Consistency:** Enable meaningful comparisons in GHG-related information.
- **Accuracy:** Reduce bias and uncertainties as far as is practical.
- **Transparency:** Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence; and
- **Conservativeness:** Use conservative assumptions, values and procedures to ensure that GHG emission reductions or removal enhancements are not overestimated

Standard criteria: Criteria from the following documents has been used to assess this methodology:

- Verified Carbon Standard Program Guide, v3.5;
- Verified Carbon Standard, v3.4;

- Verified Carbon Standard Agriculture, Forestry and Other Land Use (AFOLU) Requirements, v3.4;
- Verified Carbon Standard AFOLU Non-Permanence Risk Tool, v3.2;
- Verified Carbon Standard Methodology Approval Process, v3.5;
- Verified Carbon Standard Program Updates (please see VCS website for the latest updates); and as applicable,
- The VCS approved methodology/modules used by the project.

- *The number of findings raised during the assessment*

A total of 31 CARs and 05 CLs had been raised for the assessment of the project activity and have been resolved. The main findings were raised on following aspects of the methodology:
- Applicability Criteria
- Project Boundary (Carbon Pools)
- Baseline emission, project emission and leakage emission quantification
- Structure and clarity of the methodology

- *Any uncertainties associated with the assessment*

CCIPL confirms that no uncertainty is associated with the assessment.

- *Summary of the assessment conclusion (include the version number of the final version of the methodology)*

The methodology underwent numerous revisions in responses to the findings raised. During the process, the assessment team held several meetings and teleconferences with the methodology developer, which resulted in the version 4.0 (and later on version 06.1 after the 2nd DOE assessment) of the methodology. The revised methodology and additional clarification provided by the methodology developer was found to fully address the findings raised.

ABBREVIATION

AFOLU	Agriculture, Forestry and Other Land Use
AGB	Above Ground Biomass
AM	Approved Methodology
ANR	Assisted Natural Regeneration
APDD	Avoided Planned Deforestation and Forest Degradation
ARR	Afforestation Reforestation and Revegetation
AUDD	Avoiding Unplanned Deforestation and/or Degradation
BE	Baseline Emissions
BGB	Below Ground Biomass
CAR	Corrective Action Request
CC	Cross Check
CCIPL	Carbon Check (India) Private Limited
CL	Clarification Request
CO$_2$	Carbon dioxide
DBH	Diameter at Breast Height
DoFC	Drivers of Forest Change
EF	Emission Factor
FAO	Food and Agriculture Organization of the United Nations
GHG	Green House Gas
GOFC-GOLD	Global Observation of Forest and Land Cover Dynamics
GWP	Global Warming Potential
Ha	Hectare
IPCC	Intergovernmental Panel on Climate Change
JNR	Jurisdictional Nested REDD
LULC	Land Use Land Cover
MF	Methodology Framework
NTFP	Non Timber Forest Produce
PA	Project Area
PD	Project Document
PRA	Participatory Rural Appraisal
QA	Quality Assurance
QC	Quality Control
REDD	Reducing Emission from Deforestation and Forest Degradation of Forest Land
RR	Reference Region
RS	Remote Sensing
SOC	Soil Organic Carbon
tCO2e	Metric Tons of Carbon Dioxide Equivalents
tdm	Total Dry Matter
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Units

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1   INTRODUCTION

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has commissioned the VVB, Carbon Check (India) Private Ltd. to perform assessment of VCS Proposed Methodology: "Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation". Validation is one of the critical elements of the MAP. As per VCS MAP, Ver. 3.5 requirement, two different and independent Validation/Verification Bodies (VVBs) must assess and validate the proposed methodology. This report summarises the findings of the validation of the project, performed on the basis of the VCS Program Guide (v3.5, dated 08/10/2013) /B01-a/, VCS Standard (v3.5, dated 25/03/2015) /B01-b/, Program Definitions (v3.5, dated 08/10/2013) /B01-c/, Registration & Issuance Process (v3.6, dated 25/03/2015) /B01-d/ and in line with the VCS Validation and Verification Manual (v 3.1, dated 08/10/2013) /B01-f/. Validation. This report contains the findings and resolutions from the validation of the methodology.

1.1   Objective

Carbon Check (India) Private Ltd. is one of the VVB's accredited by VCSA. The objective is to validate the proposed VCS AFOLU REDD+ methodology. Validation is one of the critical elements of the MAP. As per VCS MAP, Ver. 3.5 requirement, two different and independent Validation/Verification Bodies (VVBs) must assess and validate the proposed methodology. The objective of validation is to provide an independent assessment of the methodology and shall adhere to the best quality guidelines and industry practices to ensure that all VCS requirements are being met by the proposed methodology.

1.2   Summary Description of the Methodology

This proposed methodology is developed for accounting reduced GHG emissions from mosaic unplanned deforestation and forest degradation and enhanced GHG sequestration from afforestation, reforestation and re-vegetation activities. Unplanned mosaic deforestation and associated forest degradation are usually often caused by local agents that possess unique socio-economic characteristics that, under supportive environment created by appropriate policies and measures, can also help reversal of the situation in a cost effective manner. It is designed to allow the project developer to conduct monitoring, reporting and verification with the help of local community, which should not only help in reducing operational costs of REDD+ projects but also ensure continuous community involvement, which is critical to the success of REDD+. The methodology allows scaling up during the lifetime of a project (within the constraints of objective similarity with the reference areas) and can be applied only for combined REDD+ and ARR activities.

2   ASSESSMENT APPROACH

2.1   Method and Criteria

The scope includes the first validation/assessment of the proposed VCS AFOLU REDD methodology in line with latest (at the time of assessment) VCS requirements. In the beginning of the project validation, CCIPL had prepared a validation work plan as per CCIPL procedure. This work plan describes how the methodology validation will be carried out including a work schedule, the framework, information collection and analysis and reporting.

The assessment of a new methodology evaluates whether or not the methodology has been prepared consistent with the guidance provided by the VCS Program, including Section 3 (project level requirements) and Section 4 (methodologies) of the VCS Standard v 3.4.

The scope of this assessment includes, as a minimum:

1. **Applicability conditions:** Assessment of whether the proposed methodology's applicability conditions are appropriate, adequate and in compliance with the VCS rules.
2. **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 GHGs included.
3. **Procedure for determining the baseline scenario:** Assessment of whether the approach for determining the baseline scenario is appropriate, adequate and in compliance with the VCS rules.
4. **Procedure for demonstrating additionality:** Assessment of whether the approach/tools for determining whether the project is additional are appropriate, adequate and in compliance with the VCS rules.
5. **Baseline emissions:** Assessment of whether the approach for calculating baseline emissions is appropriate, adequate and in compliance with the VCS rules.
6. **Project emissions:** Assessment of whether the approach for calculating project emissions is appropriate, adequate and in compliance with the VCS rules.
7. **Leakage:** Assessment of whether the approach for calculating leakage is appropriate, adequate and in compliance with the VCS rules.
8. **Quantification of net GHG emission reductions and/or removals:** Assessment of whether the approach for calculating the net GHG benefit of the project is appropriate, adequate and in compliance with the VCS rules.
9. **Monitoring:** Assessment of whether the monitoring approach is appropriate, adequate and in compliance with the VCS rules.
10. **Data and parameters:** Assessment of whether the specification for monitored and not monitored data and parameters is appropriate, adequate and in compliance with the VCS rules.
11. **Adherence to the project principles of the VCS Program:** Assessment of whether the methodology adheres to the VCS Program principles set out in the VCS Standard.
12. **Relationship to approved or pending methodologies:** Assessment of whether any existing methodology could reasonably be revised to serve the same purpose as the proposed methodology, determined in accordance with Section 5.2 of the VCS Methodology Approval process.
13. **Public Review:** Under the double approval process, new methodologies must be posted for public comment prior to the first assessment. Any comments made during this process will be reported here and addressed.

The methodology has been assessed against these thirteen criteria, in addition to those criteria required by the VCS Standard. Criteria one through twelve are outlined in the VCS Methodology Approval Process, and is an additional criteria required by the VCS Standard as part of the Double Approval Process. The following project level principles, based upon ISO 14064-2:2006, from Section 2.4 of the VCS Standard, shall be the principles considered in evaluating the methodology against the checklist criteria:

- **Relevance:** Select the GHG sources, GHG sinks, GHG reservoirs, data and methodologies appropriate to the needs of the intended user.
- **Completeness:** Include all relevant GHG emissions and removals. Include all relevant information to support criteria and procedures.
- **Consistency:** Enable meaningful comparisons in GHG-related information.
- **Accuracy:** Reduce bias and uncertainties as far as is practical.
- **Transparency:** Disclose sufficient and appropriate GHG-related information to allow intended users to make decisions with reasonable confidence; and
- **Conservativeness:** Use conservative assumptions, values and procedures to ensure that GHG emission reductions or removal enhancements are not overestimated

Standard criteria: Criteria from the following documents shall be used to assess this project:

- Verified Carbon Standard Program Guide, v3.5;
- Verified Carbon Standard, v3.4;
- Verified Carbon Standard Agriculture, Forestry and Other Land Use (AFOLU) Requirements, v3.4;

- Verified Carbon Standard AFOLU Non-Permanence Risk Tool, v3.2;
- Verified Carbon Standard Methodology Approval Process, v3.5;
- Verified Carbon Standard Program Updates (please see VCS website for the latest updates); and as applicable,
- The VCS approved methodology/modules used by the project.

2.2   Document Review

S. No.	List of pertinent documents
/01/	Methodology for Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation version 01, 15-March-2014
/02/	Methodology for Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation version 02,
/03/	Methodology for Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation version 03, dated 05/09/2015
/04/	Methodology for Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation version 04, dated 28/09/2015
/05/	Methodology for Implementation of REDD Activities in Landscapes Affected by Mosaic Deforestation and Degradation version 06.1, dated 13/10/2016

BACKGROUND DOCUMENTS

Ref no.	Reference Document
/B01/	VCS Requirements: a) Verified Carbon Standard Program Guide, v3.5; b) Verified Carbon Standard, v3.4; c) Verified Carbon Standard Agriculture, Forestry and Other Land Use (AFOLU) Requirements, v3.4; d) Verified Carbon Standard AFOLU Non-Permanence Risk Tool, v3.2; e) Verified Carbon Standard Methodology Approval Process, v3.5; f) Verified Carbon Standard Program Updates (please see VCS website for the latest updates); and as applicable, g) The VCS approved methodology/modules used by the project. h) VCS REDD JNR Requirements, Ver. 3.2 i) VCS Program Definitions, Ver. 3.5
/B02/	a) IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry b) GOFC-GOLD Sourcebook (FAO, 2013) A sourcebook of methods and procedures for monitoring and reporting anthropogenic greenhouse gas emissions and removals caused by deforestation, gains and losses of carbon stocks in forests remaining forests, and forestation. Report COP19, Ver. 2, 2013 c) Building Forest Carbon Projects - Carbon Stock Assessment Guidance, Inventory and Monitoring Procedures (Diaz, 2011).
/B03/	Websites referred 1. http://cdm.unfccc.int 2. http://www.v-c-s.org 3. http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/GPG_LULUCF_FULL.pdf 4. http://www.wmo.int/pages/prog/gcos/documents/Mitigation_GOFC-GOLD_REDD_Sourcebook.pdf 5. http://www.forest-trends.org/documents/files/doc_2862.pdf
/B04/	a) Tool for the demonstration and assessment of additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) project activities, VT0001, Ver. 3.0 b) Tool for testing significance of GHG emissions in A/R CDM project activities" Ver. 01

	c) Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities Ver. 4.1 d) Estimation of non-CO_2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity Ver. 4.0 e) Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities Ver. 1.1 f) Procedure to determine when accounting of the soil organic carbon pool may be conservatively neglected in CDM A/R project activities Ver. 1.0 g) Calculation of the number of sample plots for measurements within A/R CDM project activities Ver. 2.1[1] h) A/R Methodology Tool, Estimation of direct nitrous oxide emission from nitrogen fertilization. Ver. 1.0 i) A/R Methodology Tool, Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion, Ver. 2.0 j) A/R Methodology Tool, Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity, Ver. 2.0. k) AFOLU Guidance: Additional guidance for VCS Afforestation, Reforestation and Revegetation projects using CDM Afforestation/Reforestation Methodologies l) Estimation of emissions from activity shifting for avoided unplanned deforestation (LK-ASU), VMD0010 Ver. 1.0
/B05/	a) VM0006 Carbon Accounting for Mosaic and Landscape-scale REDD Projects Ver. 2.1 b) VM0009 Methodology for Avoided Ecosystem Conversion Ver. 3.0 c) A/R Small-scale Methodology: Afforestation and reforestation project activities implemented on lands other than wetlands, Ver. 03.0

2.3 Interviews

The following is a list of the people interviewed as part of the audit. The interviewees included those people directly, and in some cases indirectly, involved and/or affected by the project activities.

Date	Name	Organization
20/03/2015	Kick off meeting in GIZ office	Methodology developer
27/05/2015	Skype call held between the assessment team, Kundan Burnwal and IORA team	Methodology developer
17/07/2015	Skype call held between the assessment team, Kundan Burnwal and IORA team	Methodology developer
20/07/2015	Skype call held between the assessment team, Kundan Burnwal and IORA team	Methodology developer
11/08/2015	Meeting with GIZ and assessment team in GIZ office.	Methodology developer
13/08/2015	Skype call held between the assessment team, Kundan Burnwal and IORA team	Methodology developer
02/09/2015	Skype call held between the assessment team, Kundan Burnwal and IORA team	Methodology developer
21/09/2015	Skype call held between the assessment team, Kundan Burnwal and IORA team	Methodology developer

2.4 Assessment Team

Details of the personnel engaged in the individual fields of work, their periods of assignment and position held by the individual experts in the project.

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[1]https://cdm.unfccc.int/methodologies/ARmethodologies/tools/ar-am-tool-03-v2.1.0.pdf/history_view

Assessment Team			Role			
Full name	**Affiliation**	**Appointed for Sectoral Scopes (Technical Area)**	Team leader	Local Expert	Team Member (Technical Expert)	Technical Reviewer (technical expert)
Amit Anand	India	1.2,3.1,8.1,13.1 & 14.1	X	X		
Dr Anil Panolil Chirikandoth	India	14.1		X	X	
Dr Promode Kant	India	14.1		X	X	
Javier Vallejo Drehs	India	14.1				X
Vikash Kumar Singh	India	1.2,3.1,4.1,13.1,13.2				X

Mr. Amit Anand is the Chief Executive Officer (CEO) of Carbon Check (India) Pvt. Ltd. He has over 10 years of experience of working in Carbon Market in different capacities. During these 10 years he has worked as consultant for development of CDM Projects as well as a validator/verifier of similar projects. He has a degree in Environmental Sciences (graduation) from University of Delhi and a degree Environment Management (post-graduation) from Forest Research Institute, Dehradun. At present with he is involved in validation and verification of CDM project activities.

He is a qualified lead assessor and internal technical reviewer for offset projects under CDM, VCS, Gold Standard (GS) and Social Carbon. He has been actively involved in the validation, verification and internal technical review of more than 130 offset projects in CDM/VCS/GS. Amit is also a qualified Lead Auditor for ISO 14001:2004 (Environment Management System) and Social Carbon, a standard developed by the Ecologica Institute (first Brazilian NGO specialized in Climate Change) that certifies emission reduction projects for their contributions to sustainable development.

He has also shared his experience on international platforms such as International Workshop on Capacity Building Project for MRV of GHG Emission Reductions in Africa, Latin America, Central Asia, and Eastern Europe organized by Ministry of Environment, Japan – 13 to 14 February 2012.

Dr Anil Panolil Chirikandoth is an appointed assessor to provide his expertise in the capacity of Team Member and Technical Expert. Dr. Anil has twenty-three years of experience in the field of Forestry research and action. He holds a PhD in Forest Ecology and Management, a Master of Science in Ecology and a Bachelor's in Botany. Dr. Anil has experience in the field of Forest Carbon Offsets both in the regulatory and voluntary front, including project validation, development and methodology assessment. He has worked as a lead verifier for one of the DOE in validation of two VCS AFOLU methodologies. Dr. Anil has also worked as Technical expert with a DOE to validate CDM ARR and VCS AFOLU projects. Dr. Anil has participated for the US Forestry protocol training conducted by California Air Resource Board. He is a VCSA Approved AFOLU Expert.

Dr Promode Kant is an assessor to provide his expertise in the capacity of Team member and Technical Expert. Dr. Promode Kant has more than 35 years of experience in the field of Forestry management and research at various levels in the government and academics. He holds a PhD in Forest Ecology & Environment (Climate Change -Development of a model framework of policies for forest carbon management in India under the Kyoto Protocol), a Master of Science in Forestry. Dr. Promode Kant has experience in the field of Forest Carbon Offsets both in the regulatory and voluntary front, including project validation, development and methodology assessment. He led the team of the registered CDM project "Small Scale Cooperative Afforestation CDM Pilot Project Activity on Private Lands Affected by Shifting Sand Dunes in Sirsa, Haryana". Dr. Promode Kant have attended scores of International and national conferences on climate change, forestry policy and law, REDD, environmental pollution, tribal issues, IPR etc in most of which he has also presented papers.

Mr Fco. Javier Vallejo Drehs is an appointed Technical Reviewer for Technical Area 1.1, 1.2, 13.1, and 14.1. He holds a Master of Advance Studies Forestry Industry and Economy, Master in Eco auditing and Environmental Business and Master in Business Administration (MBA) and Forestry Engineering, specialisation in Industries Qualification with honours. He is having more than 7 years of experience in the field of forestry, he has also worked in Climate Change Unit as CDM and JI Quality Manager in Lloyd's Register Quality Assurance-Coventry-United Kingdom and also as a CDM Area Manager and expert in LULUCF Company Headquarter in Bilbao, which is a Consulting company, specialised in Climate Change projects.

Vikash Kumar Singh is the Executive Director of Carbon Check (India) Pvt. Ltd. He has over 08 years of experience of working in Carbon Market in different capacities. During these 08 years he has worked as consultant for development of CDM Projects as well as a validator/verifier of similar projects. He has a degree in Environmental Sciences (graduation) from Magadh University, Gaya (India) and a degree Environment Management (post-graduation) from Vikram Unviersity, Ujjain (India). At present with he is involved in validation and verification of CDM project activities.
He is a qualified lead assessor and internal technical reviewer for offset projects validations and verifications under CDM, VCS, Gold Standard (GS), Social Carbon and actively been involved in the validation and verification or internal technical review of more than 200 offset projects. He had also received accreditation from the California Air Resources Board (ARB) under Executive Order H2-13-174 as a GHG offset lead verifier for carbon offsets projects and is a specialist for the livestock protocol.

He has expertise and knowledge of GHG validation and verification, accreditation, management, policy development, ISO 14064, ISO 14065, Corporate Sustainability (GRI and AA 1000), SA 8000, knowledge of Environment Management System (ISO 14001), Quality Management System (ISO 9001), waste water treatment plant operation and design.

CCIPL has used an AFOLU expert in the assessment. This is in accordance with Chapter 9 of VCS MAP, Version 3.5.

2.5   Resolution of Findings

This section summarises the findings from the validation of the project activity. In this section the findings from the document review, site visit, assessments and interviews are provided.

Material discrepancies identified in the course of the verification are addressed either as CARs, CLs.

Corrective action requests (CAR) are issued, where:
  i. Mistakes have been made with a direct influence on project results requiring adjustments of the methodology;
  ii. Applicable methodological specific requirements have not been met.

A **Clarification request (CL)** may be used where additional information is needed to fully clarify an issue or where information is not transparent enough to establish whether a requirement is met.

A total of 31 CARs and 05 CLs had been raised for the assessment of the project activity and have been resolved. The main findings were raised on following aspects of the methodology:

- Applicability Criteria
- Project Boundary (Carbon Pools)
- Baseline emission, project emission and leakage emission quantification
- Structure and clarity of the methodology

3   ASSESSMENT FINDINGS

CAR ID	01	Section	Baseline
Description of CAR			
The proposed methodology should address setting out criteria and procedures establishing the baseline scenario to identify where deforestation and degradation would likely occur using spatial analysis and projections.			
Methodology Developer's 1st Response			
Criteria and procedures as per Section 4.4.7(2) c of the VCS AFOLU Requirements v3.4 only deforestation caused due to mosaic configuration has been detailed			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Section 4.4.7.(2)(a) requires spatial analysis and projections with set out criteria and procedures for AUDD mosaic configuration types. Exception is provided in section 4.4.7.(2)(c)(i) with no requirement for spatial projection but with a condition not to exceed a forest patch of size 1000 ha. Also require presence of anthropogenically cleared land with the set of requirements as described in the section.			
Methodology Developer's 2nd response			
The methodology has now been revised and the same has been addressed in Section 5.1 of the methodology			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	02	Section	Project Boundary
Description of CAR			
Different spatial probabilities of the reference region and project area in Figures 1, 2 and 3 should address to provide deforestation occurred during the historical reference period, projected deforestation on currently forested land, currently forested and no forest regions with reference to the project area, leakage management areas and leakage belt.			
Methodology Developer's 1st response			
An updated figure has been added to the proposed VCS AFOLU methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
The updated figure is still not in place.			
Methodology Developer's 2nd response			
The methodology has now been revised and updated figures has now been added in Section 5.1 of the methodology			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	03	Section	Baseline scenario and emission
Description of CAR			
This version of methodology lacks clarity in its user-friendly implementation. A detailed stepwise approach towards dealing with each and every section is warranted. A clear understanding of the agents and drivers of conversion with a well-defined baseline type characterizes baseline emissions to be applied for the project area. The leakage areas and management zones can then be designed for its effectiveness and efficiency.			
Methodology Developer's 1st response			

The Methodology defines appropriate procedures and criteria of the components as required by VCS standard, VCS AFOLU Requirements and VCS Methodology Template. However revisions have been made to make the methodology more user friendly. Each section is reworked so that stepwise approach is clear to a user.

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

Stepwise procedures and criteria are still not in place. Baseline scenario, definitions, assumptions, procedures and criteria for each driver or activity needs to be explained (also refers to section 8.8 of methodology)

Methodology Developer's 2nd response

The criteria and procedure of applying baseline scenarios and other assumptions has now been updated throughout the revised methodology.

Documentation provided by Methodology Developer

Revised Methodology

DOE 3rd assessment

Required correction has been done in the methodology. Finding has been closed.

CAR ID	04	Section	Applicability conditions, baseline scenario and additionality

Description of CAR

The proposed methodology should address and include all sets of requirements pertaining to the ARR category including establishment of criteria and procedures, applicability conditions, eligibility, etc., with reference to the baseline scenario and additionality.

Methodology Developer's 1st response

A separate section is now added that establishes applicability conditions and eligibility for ARR components.

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

ARR component of this methodology will comply with all the applicability, eligibility conditions and requirements of CDM AR-AMS 0007 (CDM small scale approved methodology). Finding has been closed.

CAR ID	05	Section	Carbon Pools

Description of CAR

ARR with harvesting case scenario needs to address the procedure of availing long-term average GHG benefit as per VCS requirement.

Methodology Developer's 1st response

Details of the component which describes ARR with harvesting has been revised. It now details the procedure for availing long-term average GHG benefit as per VCS requirement.

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

Availing long-term average GHG benefit still not addressed.

Methodology Developer 2nd response

The methodology has now been revised and procedures of availing long term GHG benefits has now been added in Section 8.5 of the methodology.

Documentation provided by Methodology Developer

Revised Methodology

DOE 3rd assessment

Required correction has been done in the methodology. Finding has been closed.

CAR ID	06	Section	Project Boundary, carbon pool

Description of CAR

Address to include above ground non-tree biomass in selected carbon pools (section 5.3), as per VCS AFOLU requirement.

Methodology Developer 1st response

The carbon pool has now been incorporated in table, section 3 of the revised methodology as per the VCS Requirement V3.4.

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

AGB (non tree) as selected carbon pool is included.
This CAR is closed.

CAR ID	07	Section	Project Boundary, carbon pools

Description of CAR

Carbon pools to be considered in methodologies as in Table 2 of section 4 of AFOLU requirements addresses three situations with annual crop, pasture grass and perennial tree crop as the land cover in the baseline scenario. The inclusion or exclusion of pool should be discussed establishing criteria and procedures in the context of baseline situation as per the scope of this methodology.

Methodology Developer's 1st response

The carbon pool has now been incorporated in Table 2, section 3 of the revised methodology as per the VCS Requirement V3.4

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

The carbon pools are now incorporated. But still lacks clarity regarding establishing criteria and procedures in the context of explaining baseline scenario conditions.

Methodology Developer's 2nd response

The criteria and procedure of using carbon pools in the baseline scenario has now been included in section 5.3 of the revised methodology.

Documentation provided by Methodology Developer

Revised Methodology

DOE 3rd assessment

Required correction has been done in the methodology. Finding has been closed.

CAR ID	08	Section	Project Boundary, carbon pools

Description of CAR

Inclusion of below ground biomass in REDD AUDD situation is optional as per VCS AFOLU requirement. This methodology identifies BGB as a major carbon pool and has included. VCS requires the methodology to establish criteria and procedures to set out when a project proponent shall or may include the pool.

Methodology Developer 1st response	**Date:** DD/MM/YYYY

The justification of considering BGB as an important carbon pool is included in Table 2 of Section 5.3. BGB contains around 10% of carbon content in all carbon pools, and hence is considered to be significant.

Documentation provided by Methodology Developer

DOE 2nd assessment	**Date:** DD/MM/YYYY

Criteria and procedures are still not in place.

Methodology Developer 2nd response	**Date:** DD/MM/YYYY

criteria and procedure of including BGB has now been provided in section 5.3 of the revised methodology

Documentation provided by Methodology Developer

DOE 3rd assessment	**Date:** DD/MM/YYYY

Required correction has been done in the methodology. Finding has been closed.

CAR ID	09	Section	Project Boundary, carbon pools
Description of CAR			
As justification for inclusion of wood product (see 4.3.16, page 34 of section 4 of AFOLU requirements). The quantity of live biomass going into wood products shall be quantified if above de minimis (as set out in section 4.3.3) or may be conservatively excluded (as set out in section 4.3.4)			
Methodology Developer's 1st response			
The justification of non-inclusion of wood products as carbon pool in the REDD project category has now been included in table of Section 5.3 of the revised methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Justification for inclusion is now included. Methodological guidance on quantification of live biomass going into wood products lacks clarity.			
Methodology Developer's 2nd response			
The guidance on when and how to quantify wood products has now been provided in Section 5.3 of the revised methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	10	Section	Baseline scenario
Description of CAR			
In one of the three situations listed as per the VCS, with annual crop as the land cover in the baseline scenario, inclusion of soil organic carbon is optional, which would then require justification for inclusion with establishment of criteria and procedures. The methodology in page 43 mention Soil Organic matter sampling. If soil organic matter pool and sampling is envisaged, should include details on justification of inclusion with establishment of criteria and procedures. Also see 4.3.17 page 34 of Section 4 of AFOLU requirements.			
Methodology Developer's 1st response			
Details regarding SOC have been corrected. The scenarios, which have to be added as per the VCS, are now added in the proposed methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Methodology still allows to include soil organic matter for a baseline scenario which would require to address sampling and assessment procedures. Criteria and procedures are still not in place.			
Methodology Developer's 2nd response			
Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities for calculating SOC in the baseline scenario has now been provided in section 5.3 of the methodology			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	11	Section	GHG reduction quantification
Description of CAR			
Methodology should be equipped to extract information on the dynamics of NTFP extraction leading to deforestation and degradation. An experimental design to capture the intensity of impact of harvest along with the NTFP type/category to understand the degree of degradation and/or deforestation needs to be addressed. (Unsustainable harvesting methods like over harvesting, destructive harvesting and/or early			

harvesting methods leads to degradation and destruction of the resource base. Competition among households, dependent on these resources for subsistence, harvesting from a limited resource base leads to further degradation and deforestation. Low market price tends people to extract more to meet their daily needs. The product part of interest like roots, bark, stem, whole plant, etc., extracted reveals the extent of damage like felling trees for easy extraction of roots and/or bark, or cutting down vines for easy harvest, or introducing fires, or continuous over-extraction of resins and gums).

Methodology Developer's 1st response

To assess deforestation and degradation the methodology has provided details for Remote Sensing data analysis and socio-economic analysis (Sections 8.5 and 8.6). However, providing detailed procedures or model of harvesting fuelwood and NTFPs is not envisaged per the VCS AFOLU Requirements v3.4, and especially since not giving a specific approach gives the project developer the freedom to apply robust scientific methods that are applicable to the specific location and NTFP/fuelwood which is targeted in REDD projects that shall be developed using this methodology. The proposed methodology provides flexibility for the project developer to capture the details as per the scientific techniques or peer reviewed and published papers. The same is now clearly stated in the methodology.

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

1. Step wise procedures with a field based experimental design is still not provided which would demand the project developer to select and use a scientifically robust field based experimental design and document local project situation to effectively enable project activity validation/verification.
2. Address and equip sampling plot based design and surveys for ground truthing (with varying levels of NWFP extraction) to demonstrate accuracy levels (FFC pixel regressed co-located field data with geo co-ordinate references of the sample plot) which should be made available for validation/verification.

Methodology Developer 2nd response

NTFP C&P now provided

Documentation provided by Methodology Developer

Revised Methodology

DOE 3rd assessment

Required correction has been done in the methodology. Finding has been closed.

CAR ID	12	**Section**	GHG reduction quantification
Description of CAR			

Setting out criteria and procedures for identification of where deforestation would likely occur using spatial analysis and projections, needs to be addressed

Methodology Developer's 1st response

Repetition of CAR 1

Documentation provided by Methodology Developer

Revised Methodology

DOE 2nd assessment

This CAR is closed.

CAR ID	13	**Section**	GHG reduction quantification
Description of CAR			

Conventional 'bottom up' inventory based method to estimate GHG emissions from fire, requires to address methodological guidance to arrive at the fuel loading units and burning efficiency in stratified vegetation types with reference to the process of fire, low severity surface fires vs high severity crown fires, annual recurrent fires with increased frequency and intensity. International sources (as indicated in the methodology as option) need to be used with caution as tropical forest/developing country/high population density/high forest dependence forest fire scenario, would be different.

Methodology Developer's 1st response

The proposed methodology has referred FAO GOFC-GOLD for monitoring anthropogenic GHG emissions and removals associated with REDD+ projects. This sourcebook provides internationally accepted peer reviewed procedures to assess anthropogenic emissions. Appropriate way of quantifying emission from anthropogenic forest fire is detailed in Section 8.8 in a clear and precise manner to ensure that the project meets the conditions.

Documentation provided by Methodology Developer
Revised Methodology

DOE 2nd assessment

1. Equation 2.6.2 in GOFC-GOLD source book or Equation 2.6.2 of IPCC guideline also account for non-CO_2 emissions due to fire accompanied by land use change. Equation 6 of this methodology estimate C fire as annual carbon loss. Criteria and procedures for land use conversion related non-CO_2 emissions needs justification for inclusion/exclusion.
2. Fuel loading per unit area should be corrected as tons/ha instead of g/m^2.
3. Inclusion and exclusion of GHG gases for biomass burning due to fire in Table 8 needs adequate justification.

Methodology Developer's 2nd response

1. Added now.
2. The units are the same as in GOFC-GOLD.
3. Relevant justification has been provided in table 8 based on our discussion with the Validation team.

Documentation provided by Methodology Developer
Revised Methodology

DOE 3rd assessment

Required correction has been done in the methodology; finding has been closed.

CAR ID	14	Section	N/A
Description of CAR			

Lack of an effective field based monitoring system along with field techniques for sampling and employing topo sheets and cadastral map overlays with the aerial imageries would result in gaps of information to understand the social cultural dynamics linked to degradation and deforestation

Methodology Developer's 1st response

The socio-economic analysis mandated by the methodology has now been revised to include wider aspects to ensure better intensity.

Documentation provided by Methodology Developer
Revised Methodology

DOE 2nd assessment

Step wise procedures with a field based experimental design is still not provided which would demand the project developer to select and use a scientifically robust field based experimental design and document local project situation to effectively enable project activity validation/verification.

Methodology Developer's 2nd response

The section has been revised

Documentation provided by Methodology Developer
Revised Methodology

DOE 3rd assessment

Required correction has been done in the methodology; finding has been closed.

CAR ID	15	Section	N/A
Description of CAR			

The pattern of carbon loss in belowground biomass pool shall be modelled based upon a 10 year linear decay function as per VCS.

Methodology Developer's 1st response

The proposed methodology is taking a conservative approach. BGB are considered to be lost if and when AGB is lost. However now an option is provided to the project developer to consider a 10 year linear decay function as per VCS. The criteria and procedures are detailed in the revised methodology.

Documentation provided by Methodology Developer

Revised Methodology	
DOE 2nd assessment	
This CAR is closed.	

CAR ID	16	**Section no.**	N/A
Description of CAR			
Address to detect positive leakage.			
Methodology Developer 1st response			
As per VCS AFOLU Requirements, V3.4, there are no such requirements to provide estimation of positive leakage. Therefore, procedures for the estimation positive leakage are not provided. In fact, Section 4.6.7 of the VCS AFOLU Requirements v3.4 says, "Projects shall not account for positive leakage (i.e., where GHG emissions decrease or removals increase outside the project area due to project activities". The methodology now has revised the section and clearly states that positive leakage is not to be accounted.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	17	**Section**	N/A
Description of CAR			
Address establishing criteria and procedures for estimation of baseline emissions.			
Methodology Developer's 1st response			
Section 8.1 of the revised methodology appropriately addresses the procedures of quantifying emissions from selected carbon pools for both the project category. The justification of inclusion and exclusion of the carbon pools is written in precise manner in Section 5.3 of the proposed methodology to ensure proper baseline estimation of GHGs.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Section 8.1 describes "This part has been divided into two sections…….". Sections and details are missing. Criteria and procedures are still not in place.			
Methodology Developer's 2nd response			
The section has been revised.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology; finding has been closed.			

CAR ID	18	**Section no.**	N/A
Description of CAR			
Equation for calculating baseline emission is missing.			
Methodology Developer's 1st response			
The methodology has been revised and the equation is now provided in section 8.8			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
The equation is still missing.			
Methodology Developer 2nd response			
The equation has now been provided in section 8.8 of the revised methodology. The approach is based on full field analysis where change in carbon from time t_0 to t_1 gives the total change in the stock. Here driver based analysis is conducted for back calculation. The approach is based on activity data and is not based on driver data which makes it redundant to be represented again in the methodology. However reference to the GOFC GOLD Sourcebook has been made in the aforementioned section for forest fires so that the Project developer can refer to the equations mentioned there.			

Documentation provided by Methodology Developer
Revised Methodology
DOE 3rd assessment
Required correction has been done in the methodology. Finding has been closed.

CAR ID	19	**Section**	N/A
Description of CAR			
Equation for calculating leakage is missing.			
Methodology Developer's 1st response			
The methodology has been revised and the equation is now provided in section 8.9			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
This CAR is closed.			

CAR ID	20	**Section**	N/A
Description of CAR			
Equation for calculating project sequestration is missing.			
Methodology Developer's 1st response			
Equations and detailed steps for calculating project sequestration is now provided in the methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
The equation is still missing.			
Methodology Developer 2nd response			
The equation has now been added in section 8.11 of the methodology			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology; finding has been closed.			

CAR ID	21	**Section**	N/A
Description of CAR			
Equation for baseline emissions due to ARR activity is missing.			
Methodology Developer's 1st response			
An equation for baseline emissions due to ARR activity is now provided in the revised methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
The equation is still missing.			
Methodology Developer 2nd response			
The equation has now been added in section 8.13 of the methodology			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	22	**Section**	N/A
Description of CAR			
Address establishing criteria and procedures for estimation of project sequestration.			
Methodology Developer 1st response			
Criteria and procedure is established for estimation of project sequestration.			
Documentation provided by Methodology Developer			

Revised Methodology	
DOE 2nd assessment	
Criteria and procedures of CDM AR-AMS 0007 (CDM small scale approved methodology) will apply. **This CAR is closed.**	

CAR ID	23	Section	N/A
Description of CAR			
Address numbering of equations using captions to specify the equation number and enable cross-referencing. Parameters and variables should be consistently applied throughout the equations in the methodology.			
Methodology Developer 1st response			
Numbering of equations using captions to specify the equation number and enable cross-referencing has been addressed in the revised methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
This CAR is closed.			

CAR ID	24	Section	N/A
Description of CAR			
Address the requirement of procedures and templates for validation of calibration of algorithms and ground truthing where the fine resolution data products could be employed. This would serve as check points to ensure transparency, accuracy, precision, conservativeness and consistency.			
Methodology Developer 1st response			
The LULC classification accuracy can be achieved using fine resolution maps or with GPS points, as the ultimate accuracy assessment would be point based analysis. In the proposed methodology procedure for accessing accuracy is clearly explained under section 8.5 where it describe about the number of point needed as per LULC classes for classified map accuracy assessment.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
This requires more detailing, preferably under a separate heading. A brief step wise documentation of how a Error/confusion matrix is developed, how the accuracy indices are derived and any template or format that could be made available at validation/ verification. Direct field observations or visually interpreted locations from RS images are required for calibration of the stratification procedures and validation of the calibration and classification accuracy should be made available for validation/verification with acquisition date, type of data and location of co-ordinates.			
Methodology Developer 2nd response			
Revised explanation on full field analysis with a detailed step-by-step is now provided.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology. Finding has been closed.			

CAR ID	25	Section	N/A
Description of CAR			
Address when the project proponent should quantify GHG emissions in wood product pool. Table 5.3 indicates, "if it is demonstrated that timber extraction is not being diverted to wood products on a large scale, this pool may be excluded from baseline estimations". The term "large scale" is vague. VCS AFOLU requirements in 4.5.16 explain "procedures for quantifying GHG emissions/removals in long-lived wood products (e.g., wood products lasting longer than five years) may reference published scientific peer-reviewed literature (such as Skog et al. 2004).			

Methodology Developer 1st response
The issue has been addressed in section 5.3, Table 2 of the revised methodology. The justification for exclusion of the wood products is given as per section 4.3.3 of the VCS AFOLU Requirements, v3.4.
Documentation provided by Methodology Developer
Revised Methodology
DOE 2nd assessment
This CAR is closed.

CAR ID	26	**Section**	N/A
Description of CAR			
Justification and comments provided in Table 2 and 3 need to be edited as it is not correct and convincing.			
Methodology Developer 1st response			
The same has been revised and edited.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
For e.g. as in the case of VM0006 (provided in Table 3) the methodology uses only <30 m RS data for historical analysis. Recent (<5 year) high resolution (<5m) RS data is only required for a part of the reference region at a time. The justification provided is not correct.			
Methodology Developer 2nd response			
The differences between VM0006 and the proposed methodology have now been revised in Table 3.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology; finding has been closed.			

CAR ID	27	**Section**	N/A
Description of CAR			
Criteria for comparison of socio-economic factors in both the PA and RR provided in Table 7 should be more exhaustive but at the same time effective and efficient.			
Methodology Developer 1st response			
This comparison is now written in a precise manner to direct projects developer to select proper PA and RR.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Dependent on the resolution of CAR 1 and 2 for better understanding and clarity.			
Methodology Developer 2nd response			
Criteria for comparison of socio-economic factors in both the PA and RR has now been revised in Table 7 of the revised methodology			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3rd assessment			
Required correction has been done in the methodology; finding has been closed.			

CAR ID	28	**Section**	N/A
Description of CAR			
The criteria of distance between the RR for a PA can be anywhere in a State as stated in Table 7 needs to be justified with reference to the acting agents and drivers.			
Methodology Developer 1st response			

As, the methodologies also have a criteria that types of prevalent drivers shall be same in both the RR and PA. The RR should be in the same State where the PA, reason being that the drivers can also act as per the State driven policies and management practices. Hence, in order to get a comparable situation between RR and PA, RR and PA preferably should not have two completely different governing regimes.

Documentation provided by Methodology Developer
Revised Methodology
DOE 2nd assessment
Dependent on the resolution of CAR 1 and 2 for better understanding and clarity.
Methodology Developer 2nd response
CAR 1 and 2 has now been addressed in the revised methodology
Documentation provided by Methodology Developer
Revised Methodology
DOE 3rd assessment
Required correction has been done in the methodology; finding has been closed.

CAR ID	29	**Section**	N/A
Description of CAR			
Data and parameter available at validation (9.1) and data and parameters monitored (9.2) is incomplete. The equation numbers could be referenced. QA and QC procedures to be applied requires mention along with the remaining gaps.			
Methodology Developer 1st response			
The QA/QC procedure has now been incorporated in all the parameters taken to be			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
This CAR is closed.			

CAR ID	30	**Section**	N/A
Description of CAR			
Section 9.2, page 62 mentions land use change modelling for area of stratum to follow the procedures described in section 6.1. The section is missing in this version of document.			
Methodology Developer 1st response			
Necessary corrections have been incorporated to correct the errors.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
This CAR is closed.			

CL ID	01	**Section**	N/A
Description of CAR			
Distinguishing forest fires in the field, whether human induced or not, and accounting only human induced fire, lack clarity of methodological guidance.			
Methodology Developer 1st response			
The same component has been added in socio-economic survey modelling.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2nd assessment			
Should address to include a sample survey template used to derive or conclude the cause of fire from the residents of the region which needs to be presented for validation/verification.			
Methodology Developer 2nd response			
The methodology has been revised to incorporate emissions due to fire. There has been simplification of the formulae applied, and hence the need to give detailed equations here no longer exists. However appropriate references to GOLD GEFC has been made.			
Documentation provided by Methodology Developer			

Revised Methodology	
DOE 3rd assessment	
Required correction has been done in the methodology; finding has been closed.	

CL ID	02	**Section**	N/A

Description of CL
Invasion by alien or exotic species can reduce natural forest regrowth in an opened up canopy of a degraded forest, which could lead to further degradation. With prolific multiplication, these species can affect the carbon stocks. Imageries to detect such a change is questionable unless the invasions cause a significant change in the canopy characteristics.
Methodology Developer 1st response
It is possible to detect changes using fractional downscaling which is being applied in this methodology.
Documentation provided by Methodology Developer
Revised Methodology
DOE 2nd assessment
Address and equip sampling plot based design and surveys for ground truthing to demonstrate accuracy levels (FFC pixel regressed co-located field data with geo co-ordinate reference of the sample plot) should be made available for validation/verification.
Methodology Developer 2nd response
Sampling plot design has been provided in section 8.5. the approach has been revised, changes in carbon is not driver specific; as is clear from the fractional cover downscaling.
Documentation provided by Methodology Developer
Revised Methodology
DOE 3rd assessment
Required correction has been done in the methodology; finding has been closed.

CL ID	03	**Section**	N/A

Description of CL
Fuel wood extraction or other local uses of wood coupled with grazing prevents regeneration affecting carbon stocks. Imageries to detect such a change is questionable unless the rate of degradation is intense to cause a significant change in the canopy characteristics.
Methodology Developer 1st response
It is possible to detect changes using fractional downscaling, which is being applied in this methodology.
Documentation provided by Methodology Developer
DOE 2nd assessment
Address and equip sampling plot based design and surveys for ground truthing to demonstrate accuracy levels (FFC pixel regressed co-located field data with geo co-ordinate reference of the sample plot) should be made available for validation/verification.
Methodology Developer 2nd response
Sampling plot design has been provided in section 8.5. the approach has been revised, changes in carbon is not driver specific; as is clear from the fractional cover downscaling.
Documentation provided by Methodology Developer
Revised Methodology
DOE 3rd assessment
Required correction has been done in the methodology; finding has been closed.

CL ID	04	**Section**	N/A

Description of CL
Detection of carbon stock change due to illegal felling of wood for NWFP and extraction of wood for household uses using imageries is questionable unless the rate of degradation is intense to cause a significant change in the canopy characteristics
Methodology Developer 1st response
It is possible to detect changes using fractional downscaling, which is being applied in this methodology.

Documentation provided by Methodology Developer
Revised Methodology
DOE 2ⁿᵈ assessment
Address and equip sampling plot based design and surveys for ground truthing to demonstrate accuracy levels (FFC pixel regressed co-located field data with geo co-ordinate reference of the sample plot) which should be made available for validation/verification.
Methodology Developer 2ⁿᵈ response
Sampling plot design has been provided in section 8.5. the approach has been revised, changes in carbon is not driver specific; as is clear from the fractional cover downscaling.
Documentation provided by Methodology Developer
Revised Methodology
DOE 3ʳᵈ assessment
Required correction has been done in the methodology; finding has been closed.

CL ID	05	**Section**	N/A
Description of CL			
Lack of procedure to assess the scarcity of forest land that is accessible to deforestation and degradation agents.			
Methodology Developer 1st response			
Procedure to assess forest scarcity is now added in the revised methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 2ⁿᵈ assessment			
There is a theoretical definition now added. Is there a way to assess scarcity of forest land that is accessible to deforestation and degradation agents and if yes, how to assess?			
Methodology Developer 2ⁿᵈ response			
The method to assess forest scarcity has now been addressed in section 8.5 of the revised methodology.			
Documentation provided by Methodology Developer			
Revised Methodology			
DOE 3ʳᵈ assessment			
Required correction has been done in the methodology; finding has been closed.			

3.1   Relationship to Approved or Pending Methodologies

The methodology under heading "Relationship to Approved or Pending Methodologies" provides a complete list of all similar methodologies (approved or pending) under the VCS or an approved GHG program that could be potentially related to the current proposed methodology.

Based on the components included, presence or absence of baseline calculations on deforestation, forest degradation and ARR, the current methodology appropriately highlights the methodologies among the listed chosen for comparison with the current methodology.

The justifications provided by the methodology developer are convincing and includes explanation on how none of the identified methodologies could have reasonably been revised to meet the objective of the new methodology.

Hence, in the opinions of assessment team none of the similar methodologies could have reasonably been revised to meet the objective of the new methodology.

3.2   Stakeholder Comments

Sl. No.	Comment	PP Response	Assessment by CCIPL
1.	Data/ Parameter is *CFTree*	Revisions have been	The comment raised by

	And the equation is CTree, t = 44/12 * B Tree, t * CF Tree CTree need to be defined in the equation.	applied to the methodology to ensure that parameters are clearly reflected in the equations in question. Appropriate definitions are now added to add clarity.	the stakeholder has been addressed in the revised methodology; checked and confirmed by the assessment team.
2.	Emission factor unit should be t CO$_2$e per hectare or depending on any defined parameter, as the data unit provides the detail of emission in tonnes and not the emission factor related to leakage. Emission factor is expressed as number of pounds (or kilograms) of particulate/gas per ton (or metric ton) of the material or fuel or defined parameter.	The parameter has to be calculated per hectare and the same has been corrected in the methodology now.	The comment raised by the stakeholder has been addressed in the revised methodology; checked and confirmed by the assessment team.

3.3   Structure and Clarity of Methodology

Assessment team confirms that the methodology is written in a clear, logical, concise and precise manner. Assessment Team further confirms the following:

- The developer has followed the instructions in the methodology template and ensured that the methodology's various criteria and procedures are documented in the appropriate sections of the template.
- The terminology used in the methodology is consistent with that used in the VCS Program, and GHG accounting generally.
- The key words have been used appropriately and consistently to denote firm requirements, (non-mandatory) recommendations and permissible or allowable options, respectively.
- The criteria and procedures are written in a manner that can be understood and applied readily and consistently by project proponents.
- Whether the criteria and procedures are written in a manner that allows projects to be unambiguously audited against them.

In the context of structure and clarity of the methodology, following findings have been raised and satisfactorily closed during the course of assessment:

CAR ID	31	**Section no.**	Throughout methodology
Description of CAR			

1. Page 7: Cost effective – Option to use the outcomes of earlier existing PRAs to reduce cost may not be allowed as the PRAs often rely on subjective assessments that reduce reliability.
2. Page 12: Table 3 – In the analysis of similarity with Methodology VM0006 it has been stated that the use of LISS imageries in the proposed methodology enables cost reduction and thereby distinguishes it from VM0006. But this at best is a minor differentiation because minor revision in VM0006 would permit the use of LISS imageries also. The other reason cited is that the relationship between RR and PA allows easy migration into jurisdictional approach. But VM0006 too does not suffer from any disability when used in jurisdictional approach and therefore this differentiation is a not significant. Unless valid reasons are cited there would appear to be no material difference between VM0006 and the proposed Methodology.
3. Page 20: In the first line it is stated that the "proposed methodology is developed for accounting reduced GHG emissions" only whereas it also accounts for sequestration of CO$_2$. This may be corrected.

4. Page 21: Remove existing PRAs from the permitted sources of secondary data as these can be highly unreliable.
5. Page 23: Project Area - it may be useful to replace 'non-forest areas' with 'deforested and non-forested areas' here to indicate that this is also applicable for lands that were deforested only recently. This is important because even after deforestation the lands continue to remain forest lands legally and the current expression can cause confusion.
6. Page 26: Para 5.1 Project area – explain the logic behind stating that "area under ARR cannot be more than 90% of the total project area". Why this Methodology cannot be applied if the ARR is as much as the REDD area. Or even bigger?
7. Page 26: Table 7: Forest types - Deforestation and degradation is less a factor of forest types and more that of socio-economic factors and physical location. As far as forest types go a general similarity between RR and PA should suffice and for this peer reviewd papers, forest management plans, or expert opinion should be enough.
8. Page 27: Social factors - One more feature of cattle population should also be added here since grazing pressure is often the biggest driver of degradation and none of the other two factors mentioned can capture this factor within.
9. Page 29: Para 5.3 Carbon Pools – Dead wood - it is not a good idea to exclude dead wood. Sometimes storms destroy a good number of trees and ignoring a large quantity like that could give misleading results.
10. Page 33: Table 8- Biomass burning from unplanned fires – CO_2 – Not correct to state that are already included in the changes of carbon pools. A good part of this burning would come from litter and deadwood. But the litter is ignored and the deadwood can also be ignored in baseline estimation. So this claim that emissions of CO_2 are already included in changes in carbon pools is not correct.
11. Page 34: Table 8 - Fossil fuel used during harvesting – It would be better to use the words "Fossil fuel used during operations"
12. Page 34: Para 5.5 – mention the specific VCS Standard and VCS AFOLU Guideline and section numbers
13. Page 36: Additionality – since there is only one step do not call it Step 1
14. Page 39: Approach – Too many details here. Details may be placed as a footnote, if necessary. Here the reason for this approach may be described in one or two sentences.
15. Page 41-42: Assessing forest transition – the detailed theory has no use here. Only operational details may be placed here.
16. Page 43: Para 8.6 – Too many details here. Edit drastically keeping only operational aspects.
17. Page 48-49: para 8.7.1 - Too many details here. Edit drastically keeping only operational aspects.
18. Page 52-53: Equations 8, 9, 10 are essentially the same used for emissions from forest lands used for non-forestry purposes like agriculture, mining, quarrying, encroachment etc. These are best clubbed together with an explanation as to the situations where it is to be used.
19. Page 56: Leakage belt analysis - Define leakage belt in exact terms. Its size? Width? How does it relate to leakage area and leakage management zone? Also the requirement that the leakage belt has to be monitored throughout the project period has cost consequences which must be kept in mind.

Methodology Developer 1st response

1. The comment has been addressed and the changes are made in page 6 and 20 of the revised methodology.
2. The differences between VM0006 and the proposed methodology has now been revised in Table 3.
3. The correction have been made in the revised methodology.
4. The issue has now been addressed in the revised methodology
5. The required change have been made in page no. 24 of the revised methodology
6. The criteria has now been removed in the revised methodology. There is no cap in selection of project area for REDD or ARR in a project. The methodology is now applicable even for a stand alone ARR project
7. The comment has now been addressed and the criteria of comparison between RR and PA has now been revised in table 7 of the revised methodology.
8. NA
9. As per VCS AFOLU Requirement v3.4, dead wood carbon pool is optional. PP has to consider the

pool if it is above de minimis.	

10. Language changed for more clarity
11. The necessary changes have been made in Table 8 of the revised methodology
12. The necessary changes have been made in section 5.5 of the revised methodology
13. The necessary changes have been made in section 7 of the revised methodology
14. Revisions made
15. The method to assess forest scarcity has now been addressed in section 8.5 of the revised methodology
16. The necessary changes have been made in section 8.6 of the revised methodology
17. The necessary changes have been made in section 8.7.1 of the revised methodology
18. The correction have been made in the revised methodology
19. Leakage belt is not necessary and so has been removed altogether

Documentation provided by Methodology Developer
Revised Methodology
DOE 2nd assessment
This CAR is closed.

3.4 Definitions

CCIPL confirms that all key terms are defined clearly and appropriately in the methodology under and are consistently used in the methodology. Assessment team confirms the definitions provided in the methodology as appropriate and inline with VCS AFOLU requirements. Furthermore, the terms and definitions are listed in alphabetical order, and terms already defined under the VCS have not be repeated in the methodology. Assessment team based on review of the methodology further confirms that the Definitions section also include a list of the key acronyms used in the methodology.

3.5 Applicability Conditions

Following applicability conditions have been identified in the methodology and the assessment of the appropriateness of the same is detailed in table below:

Sl. No.	Applicability Criteria	Assessment
1.	The project activities include AUDD [2] or a combination of AUDD and ARR.	As per the applicability criteria the methodology is applicable to either AUDD (REDD) or a combination of AUDD (REDD) and ARR project activities. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, the VCS project description it is possible to provide the plan in order to confirm whether the project applied REDD or REDD and ARR. Hence, it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the

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[2] AUDD activities will be referred to as REDD activities for the remainder of the methodology.

		applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
2.	The methodology is not applicable to project activities that include Avoiding Planned Deforestation and/or Degradation (APDD).	As per the applicability criteria, the methodology is applicable to only AUDD activities and not APDD activities under REDD. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, the VCS project description it is possible to provide the plan in order to confirm whether the project applied REDD and if yes, whether only AUDD activities are considered or not hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
3.	This methodology cannot be applied on Wetlands and peat lands.	As per the applicability criteria, the methodology cannot be applied on Wetlands and peat lands. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, in the VCS project description it is possible to provide the plan in order to confirm whether the no wetland and peat lands in the project area and hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which

		in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
4.	The methodology is not applicable to project activities that include Avoided Conversion of Grasslands and Shrublands (ACoGS)	As per the applicability criteria, the methodology is not applicable to ACoGS activities. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, in the VCS project description it is possible to provide a description of the project area and hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
5.	The project area must be proved to be forest lands for at least 10 years prior to start date of any REDD activities.	As per the applicability criteria, project area shall be proved to be a forest land for at least 10 years prior to the start date of any REDD component activities. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, in the VCS project description it is possible to provide the description of the REDD component in plan in order to confirm that REDD areas as a forest land for at least 10 years prior to the REDD component start date; hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.

6.	The project area must **not** be a forest land for at least 10 years prior to the start date of the ARR activities and does not convert native ecosystems.	As per the applicability criteria, ARR areas shall **not** be a forest land for at least 10 years prior to the start date of the ARR activity and doesn't convert native ecosystems. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, in the VCS project description it is possible to provide description of ARR areas on order to confirm the applicability criteria hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
7.	Biofuel crop production is allowed in ARR activities..	As per the applicability criteria, the methodology is applicable to Biofuel crop production in ARR component. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, the VCS project description it is possible to provide description of Biofuel crop production in order to confirm the compliance of this applicability and hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
8.	The ARR component must **not**	As per the applicability criteria, the ARR component shall

	be in lands where agriculture is being displaced by more than 50% of the area by forestry activities.	not be undertaken on lands where agriculture is being displaced over more than 50% of the area by forestry activities. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, in the VCS project description it is possible to provide the description of ARR component (in order to confirm that no ARR component in lands where agriculture is being displaced by more than 50% of the area by forestry activities); hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.
9.	The methodology is not applicable to project activities that only include Afforestation, Reforestation and Revegetation (ARR)	As per the applicability criteria, the methodology is not applicable to only ARR activities i.e., standalone ARR activities. This condition is written in a sufficiently clear and precise manner, and transparently provides an instruction for such determination of whether a project activity meets with the condition or not. Furthermore, in the VCS project description it is possible to provide a description of the project area and hence it can be confirmed that adherence of this applicability condition can be demonstrated at the time of project validation, noting that projects should not be able to fall out of line with applicability conditions. Furthermore the assessment team based on review of core element of the methodology can confirm that the proposed applicability criteria is appropriate for the project activities targeted by the methodology and the quantification procedures set out within the methodology, and provide an overall conclusion regarding the specification of the applicability conditions. By adhering to the applicability of the methodology (which in turns ensure adherence of the core element and objective of the projects) ensures the environmental integrity and also the practical considerations.

3.6 Project Boundary

The VCS Standard requires that the methodology establish criteria and procedures for describing the project boundary and identifying and selecting optional carbon pools, i.e. sources, sinks, and reservoirs relevant to the baseline and project scenarios. Procedures are included in the methodology to quantify emissions for all carbon pools and sources included within the project boundary. The methodology accounts for aboveground and belowground biomass and also provide optional for other pools as per AFOLU Requirements section 4.3.3.

The methodology addresses the establishment of spatial, temporal, and pools/sources boundaries to meet VCS AFOLU Requirements for AFOLU project categories and applicable to REDD or REDD and ARR project scenarios.

The general spatial boundaries, which illustrates about project area (REDD area and ARR area), reference region and leakage accounting area in this methodology were assessed for conformance to the VCS rules and found to be sufficiently detailed for project scenarios and in compliance with AFOLU Requirements. Similarly, temporal boundaries (project activity start date and crediting period start date for both REDD and ARR component) were reviewed within the context of VCS rules and found to detailed and sufficient. Pools/sources of gaseous emissions accounted for are in compliance with AFOLU Requirements sections 4.3.3, 4.3.4 and the following table presents a brief review of all considered carbon pools and the assessment findings.

Sl. No.	REDD Baseline Scope	Carbon Pools	Included (Yes / No/ Optional)	Justification / Explanation	Assessment
1.	**Unplanned deforestation/ degradation (AUDD) with annual crop as the land cover in the baseline scenario**	Aboveground tree biomass	Yes	Carbon stock will increase, hence one of the major carbon pool	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Aboveground non-tree Biomass	Optional	May be conservatively excluded.	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Below ground biomass	Optional	May be conservatively exclude	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Dead wood	Optional	May be conservatively exclude	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Litter	No	Excluded as per the VCS AFOLU Requirements	This pool is appropriately excluded and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Wood products	Shall	Major carbon pool affected by the project activities and hence shall be included.	This pool is appropriately included as shall and is consistent with Table 2 of AFOLU Requirements section 4.3.1.

		Soil Organic carbon	Optional	May be conservatively excluded.	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
2.	**Unplanned deforestation/ degradation (AUDD) with pasture grass as the land cover in the baseline scenario**	Aboveground tree biomass	Yes	Carbon stock will increase, hence one of the major carbon pool	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Aboveground non-tree Biomass	Optional	May be conservatively excluded	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Below ground biomass	Optional	May be conservatively	This pool has been included in the project boundary in accordance with section 4.3.7 of AFOLU Requirements.
		Dead wood	Optional	May be conservatively excluded.	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Litter	No	Excluded as per the VCS AFOLU Requirements	This pool is appropriately excluded and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Wood products	Shall	Major carbon pool affected by the project activities and hence shall be included.	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Soil Organic carbon	No	Excluded as per the VCS AFOLU Requirements	This pool is appropriately excluded and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
3.	**Unplanned deforestation/ degradation (APD or AUDD) with perennial tree crop as the land cover in the baseline scenario**	Aboveground tree biomass	Yes	Carbon stock will increase, hence one of the major carbon pool	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Aboveground non-tree Biomass	Yes	May be conservatively excluded.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Below ground biomass	Optional	May be conservatively excluded.	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements

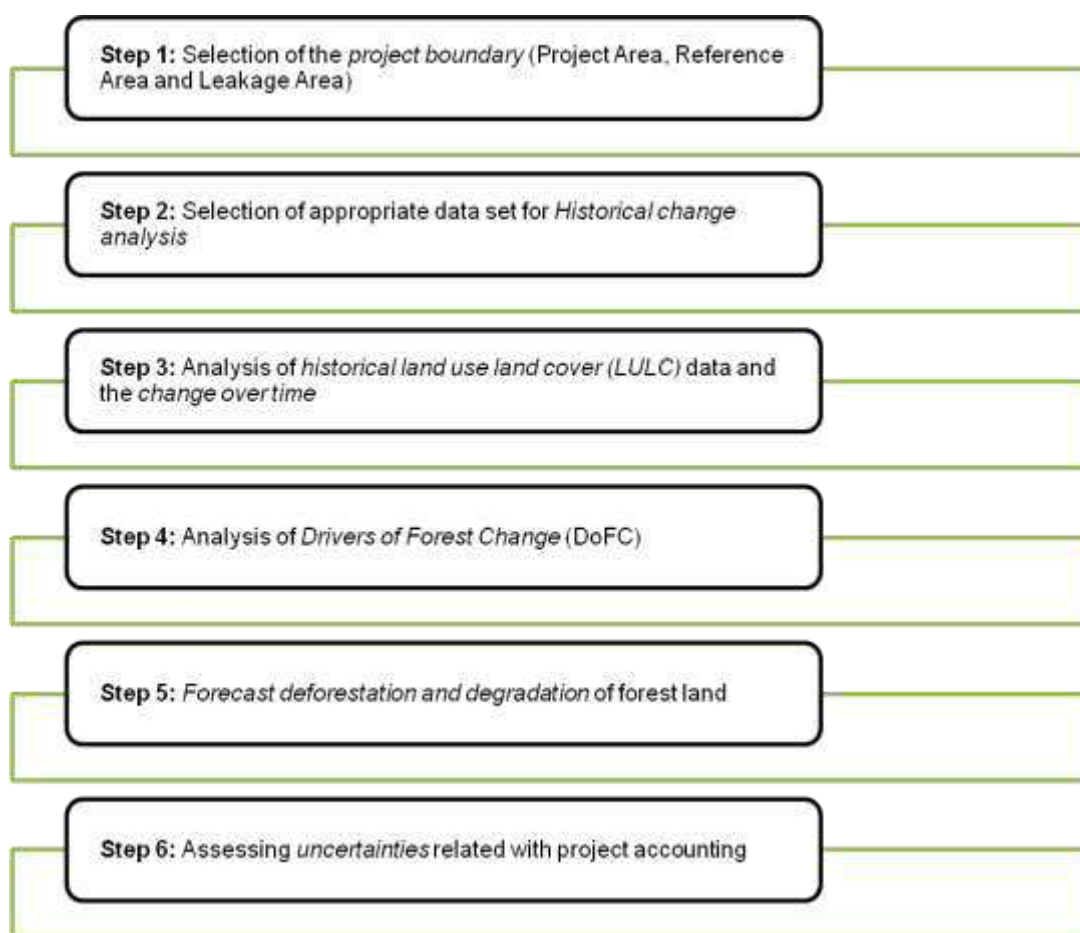|				section 4.3.1.
		Dead wood	Optional	May be conservatively excluded	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Litter	No	Excluded as per the VCS AFOLU Requirements	This pool is appropriately excluded and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Wood products	Shall	Major carbon pool affected by the project activities and hence shall be included.	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
		Soil organic carbon	No	Excluded as per the VCS AFOLU Requirements	This pool is appropriately excluded and is consistent with Table 2 of AFOLU Requirements section 4.3.1.

Sl. No.	ARR Carbon Pools	Included Yes or No	Justification/Explanation	Assessment
1.	Aboveground woody biomass	Yes	One of the major carbon pools.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
2.	Aboveground non-woody biomass	Optional	May be conservatively excluded.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
3.	Below ground biomass	Yes	One of the major carbon pools.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
4.	Dead wood	Optional	May be conservatively excluded.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
5.	Litter	Optional	May be conservatively excluded.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
6.	Wood products	Optional	May be conservatively excluded	This pool is appropriately included as optional and is consistent with Table 2 of AFOLU Requirements section 4.3.1.
7.	Soil Organic Carbon	Optional	May be conservatively excluded,.	This pool is appropriately included and is consistent with Table 2 of AFOLU Requirements section 4.3.1.

3.7   Baseline Scenario

The assessment team evaluated the methods to determine the baseline scenario and whether they are appropriate, adequate, and in compliance with VCS rules and AFOLU Requirements for REDD and ARR (AUDD) project activities. Procedures and assumptions for determination of the baseline scenario are developed using the associated module, where the baseline is determined based on historic and /or continued land use and land cover and associated carbon stocks in all selected carbon pools and the changes in these carbon stocks in all selected carbon pools within the project boundary. This is applicable for REDD as well as ARR component of the projects. Furthermore, assessment team noted that In instances where a jurisdictional baseline has been developed, and a published Reference Emission Levels exist, these values may be considered.

Methodology developers indicated in section 5.1 of methodology that the baseline scenario determination shall be done by a step-by-step explanation of how baseline scenario is determined is given below in table below.

Step 1: Selection of the *project boundary* (Project Area, Reference Area and Leakage Area)

Step 2: Selection of appropriate data set for *Historical change analysis*

Step 3: Analysis of *historical land use land cover (LULC)* data and the *change over time*

Step 4: Analysis of *Drivers of Forest Change (DoFC)*

Step 5: *Forecast deforestation and degradation* of forest land

Step 6: Assessing *uncertainties* related with project accounting

Procedure to determine baseline scenario and emissions

3.8   Additionality

The methodology satisfies VCS rules for providing a procedure to demonstrate additionality by requiring projects by applying the latest version of the VCS tool VT0001 – "Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities". The procedures for demonstrating additionality are appropriate, adequate and conform to VCS rules and

VCS Standard section 4.6.2.

3.9   Quantification of GHG Emission Reductions and Removals

3.9.1   Baseline Emissions

The procedures for calculating baseline emissions are performed. Major findings related to the assessment of quantification methods for baseline and project emissions are presented:

As per section 4.5.1 of the AFOLU Requirements, the individual calculations are reasonable and follow the logic explained in the methodology.

As per section 4.5.2 of the AFOLU Requirements, the methodology uses sound procedures from IPCC 2006 to quantify GHG emissions.   Parameters and equations to calculate baseline and project emissions were checked and found to be appropriate and without apparent errors. Section 8.2 of the methodology describes the criteria and procedures, including relevant equations, for the quantification of GHG emissions and/or removals for the selected GHG sources, sinks and/or reservoirs for the project. The assessment team found that the procedures for calculating baseline cover all GHG sources, sinks and reservoirs and are adequate and in compliance with VCS rules.

3.9.2   Project Emissions

Following emission source and tools are used to calculate PE:

Parameters	Tool to be used
Fossil fuel combustion (PE_{ff})	CDM: "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" (Version 2.0)
Woody biomass removal for fire prevention activities (PE_{wbf})	CDM: "Estimation of non-CO_2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" (Version 4.0)
Woody biomass removal during assisted natural regeneration (ANR) activities (PE_{wbanr})	CDM: "Estimation of non-CO_2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" (Version 4.0)[3]
Increased use of fertilizer (PE_f)	CDM: Estimation of direct nitrous oxide emission from nitrogen fertilization" (Version 1.0)
Biomass burning/ Fire from natural disturbance/ Forest fire used for harvesting/ site preparation (PE_{bb})	CDM: "Estimation of non-CO_2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity" (Version 4.0)
Unplanned timber harvesting (PE_{uthy})	N/A[4]
Harvesting included in ARR ($PE_{wbharry}$)	N/A[5]

The procedures for calculating project emissions are performed. Major findings related to the assessment of quantification methods for project emissions are presented:

As per section 4.5.2 of the AFOLU Requirements, the methodology uses sound procedures from IPCC 2006 to quantify GHG emissions.   Parameters and equations to calculate project emissions were checked and found to be appropriate and without apparent errors. Section 8.2 of the methodology

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[3] This tool will only be used in situations where woody biomass during assisted natural regeneration is removed by burning. Furthermore, Carbon losses due to other activities for ANR are expected to be temporary in nature, and hence need not be accounted for. In case it is permanent, the same will be reflected at the time of monitoring as changes in carbon stock in the carbon pools.
[4] Calculated using the approach provided in section 8.1.3.1 of the proposed methodology
[5] The calculation shall be in line with the Section 4.5.5 of the latest version of VCS AFOLU Requirements and the AFOLU Guidance: Example for Calculating the Long-Term Average Carbon Stock for ARR Projects with Harvesting.

describes the criteria and procedures, including relevant equations, for the quantification of GHG emissions and/or removals for the selected GHG sources, sinks and/or reservoirs for the project. The assessment team found that the procedures for calculating project cover all GHG sources, sinks and reservoirs and are adequate and in compliance with VCS rules.

3.9.3   Leakage

Leakage is defined in the methodology and the methodology directs the project developer to address leakage by minimizing leakage risks through robust design of a project activity implementation to tackle the DoFCs and the inclusion of leakage inducing activities and then discount the remaining leakage due to the project activity from the net carbon gain. This shall follow the VCS Requirement Version 3.4, Section 4.6.16 says "The potential for leakage shall be identified and the project shall address (and describe in the project description) the socio-economic factors that drive deforestation and/or degradation. Leakage shall be calculated by monitoring forested areas surrounding the project and other forested areas within the country susceptible to leakage from project activities". Emission from leakage if below de minimis (i.e., insignificant) does not need to be accounted. The significance of leakage may be determined using the CDM A/R methodological tool "Tool for testing significance of GHG Emissions in A/R CDM Project Activities, Ver. 01".Leakage occurring outside the host country need not to be accounted.

Activity shift leakage (ALEt) and Market leakage (CLEt) have been categorized under the methodology under leakage and assessment team confirms that the methodology is in compliance with the AFOLU Requirements section 4.6.1 for REDD and ARR project categories.

3.9.4   Net GHG Emission Reductions and Removals

Any uncertainties associated with the quantification of net GHG emission reductions and removals are addressed appropriately. The methodology calls for quantifying net GHG emissions reductions and removals by subtracting project emissions from baseline emissions.

The methodology is in compliance with VCS Standard, section 4.7.3 by ensuring that project's GHG emission reductions or removals cannot be quantified as negative.

Uncertainty is addressed in the methodology using a 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 4, AFOLU, Chapter 5, Section 5.3. The assessment team concludes that methods for calculation of emission reductions and removals are appropriately developed for the intended purpose and adequate and in compliance with the VCS Standard, section 4.7.1.

3.10   Monitoring

The methodology establishes criteria for monitoring by requiring project proponents which involves measuring and recording the emissions and emissions reduced, including carbon sequestered in the project area and any emissions due to leakage in the in the leakage area.

The methodology notes appropriately that data and parameters for
   (i)   Land use change by deforestation
   (ii) Forest degradation
   (iii) Selected carbon pools
   (iv) Biomass increase due to ANR
   (v)   Leakage area
   (vi) Project emission
   (vii) Loss event

Methodology data and parameters available at validation:

Sl. No.	Parameters	Symbol	Assessment
1.	Biomass expansion factor for conversion of stem biomass to above ground tree biomass for tree species j	$BEF_{2,j}$	This data/parameter was appropriately chosen because it pertains to estimates of emissions reductions for Project emission and project sequestration for above ground tree biomass.
2.	Carbon fraction of dry matter for species of type j	CF_{Tree}	This data/parameter was appropriately chosen because it pertains to estimates of emissions reductions Project emission and project sequestration. This parameter is required to convert the dry biomass into carbon weight.
3.	Density overbark of tree stem for tree species j	D_j	This data/parameter was appropriately chosen because it pertains to estimates of emissions reductions Project emission and project sequestration. This parameter is required to calculate biomass of trees. These equations may vary as per species.
4.	Stem volume of trees of species j in sample plot p of stratum i at time t calculated using a volume table or volume equation or allometric equations. In case a field analysis such as fractional downscaling has been conducted, this data need not be recorded.	$V_{TREE,j,p,i,t}$	This data/parameter was appropriately chosen because it pertains to estimates of emissions reductions Project emission and project sequestration.
5.	Root-shoot ratio appropriate for biomass stock, for species j	R_j	This data/parameter was appropriately chosen because it pertains to estimates of emissions reductions Project emission and project sequestration. This parameter is required to determine the biomass stock of each species.
6.	Land area on which REDD activities are planned under the project scenario for year t and in stratum i	$areaREDD,Project\ scenario(t,i)$	This data/parameter was appropriately chosen because it pertains to estimates land area on which REDD activities are planned under the project scenario.

7.	Land area on which ARR activities are planned under the project scenario for year t and in stratum i	*areaARR, project scenario (t,i)*	This data/parameter was appropriately chosen because it pertains to Land area on which ARR activities are planned under the project scenario.
8.	Land area on which leakage is expected for year t and in stratum i	*areaLeakage, project scenario (t,i)*	This data/parameter was appropriately chosen because it pertains to Land area on which leakage is expected.
9.	Emission factor of forest fires	*EF – fire*	This data/parameter was appropriately chosen because it pertains to estimates Project emission. This parameter is required to calculate project emission due to forest fire.
10.	Burning efficiency	*Be*	This data/parameter was appropriately chosen because it pertains to estimates Project emission. This parameter is required to calculate project emission due to forest fire.

Methodology data and parameters monitored:

Sl. No.	Parameters	Symbol	Assessment
1.	Actual net GHG removals by sinks, in year t. Here only REDD activities are being considered and only sinks based on REDD is to be recorded	$\Delta C_{actual\text{-}REDD}$	This data/parameter was appropriately chosen because it pertains to estimates actual net GHG removals by sinks for REDD activities. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
2.	Actual net GHG removals by sinks, in year t. Here only ARR activities are being considered and only sinks based on ARR is to be recorded	$\Delta C_{actual\text{-}ARR}$	This data/parameter was appropriately chosen because it pertains to estimates actual net GHG removals by sinks for ARR activities. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
3.	Diameter at breast height of tree	*DBH*	This data/parameter was appropriately chosen because it pertains to

			estimates / calculate carbon stock. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
4.	Height of the tree	H	This data/parameter was appropriately chosen because it pertains to measure carbon sink. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
5.	Number of Baseline Trees for the ARR component	$B_{Trees\text{-}ARR}$	This data/parameter was appropriately chosen because it pertains to monitor carbon sink. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
6.	Area of stratum i	$\Delta areaREDD, baseline\ scenario(t,i)$	This data/parameter was appropriately chosen because it pertains to monitor area of stratum under REDD activities in order to calculate the baseline emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
7.	Area of biomass removed by prescribed burning within ARR stratum i during year t	$areafire\ Biomass\ Loss,ARR(t,i)$	This data/parameter was appropriately chosen because it pertains to monitor area of biomass removed by prescribed burning within ARR stratum. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
8.	Land on which REDD activities are planned under the project scenario for year t and in stratum i	$area\ REDD,\ project\ scenario\ (t,i)$	This data/parameter was appropriately chosen because it pertains to monitor Land on which REDD activities are planned under the project scenario.

			A QA/QC procedure required by methodology developers ensures accuracy is maintained.
9.	Land on which ARR activities are planned under the project scenario for year t and in stratum i	*area ARR, project scenario (t,i)*	This data/parameter was appropriately chosen because it pertains to monitor Land on which ARR activities are planned under the project scenario. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
10.	Amount of fuelwood collected from forests in a year	*Fuelwood$_{forest}$*	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
11.	Amount of fuelwood collected from agriculture land in a year	*Fuelwood$_{agri}$*	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
12.	Total amount of fuelwood collected from all sources in a year	*FW$_{total}$*	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
13.	Amount of fuelwood used in identified activities	*Fuelwood$_{use}$*	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
14.	Mode of transporting fuelwood	*FW$_{transport}$*	This data/parameter was appropriately chosen because it pertains to calculate project emissions

			and leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
15.	Fuelwood carried by each type of transportation in tonnes per trip	$FW_{transport\_tonnage}$	This data/parameter was appropriately chosen because it pertains to calculate project emissions and leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
16.	Total number of trips made in a year	$FW_{transport\_trips}$	This data/parameter was appropriately chosen because it pertains to calculate project emissions and leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
17.	Forest area under fire	$Axfire$	This data/parameter was appropriately chosen because it pertains to calculate project emissions and leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
18.	The cause of forest fire: Major categories being human induced or fire due to natural causes (*Fire type*)	*Fire type*	This data/parameter was appropriately chosen because it pertains to calculate project emissions and leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
19.	Hectares undergoing transition i within the project area	$\Delta area_{project\ areaEAH,project\ scenerio}(t,i)$	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.

20.	Hectares within the leakage belt or leakage management zone for year t	$\Delta area_{leakage\ area,p}$	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
21.	Area of transition from LULC class or forest stratum 1 to 2 from time 1 to 2 during the historical reference period	$\Delta area_{historical}(CS_1 \rightarrow CS_2, t_1 \rightarrow t_2)$	This data/parameter was appropriately chosen because it pertains to calculate baseline emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
22.	Forest cover change for the transition from class or stratum 1 to 2	$ForCov(CS_1 \rightarrow CS_2)$	This data/parameter was appropriately chosen because it pertains to calculate baseline emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
23.	Total area of LULC class or forest stratum 1 at time 1	$(area_{historical}(CS_1, t_1)$	This data/parameter was appropriately chosen because it pertains to calculate project emissions and leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
24.	Size of strata i within the project area with harvest activities during year t under the project scenario	$area_{projectareawithharvest,projectscenario}(t, i)$	This data/parameter was appropriately chosen because it pertains to calculate project emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
25.	Annual volume of non-timber forest product extracted	*NTFP harvest rate*	This data/parameter was appropriately chosen because it pertains to calculate project emissions and leakage emissions. A QA/QC procedure required

			by methodology developers ensures accuracy is maintained.
26.	Annual volume of fuel wood gathering for commercial sale	$FW_{commercial}$	This data/parameter was appropriately chosen because it pertains to calculate baseline emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.
27.	Emission factor related to leakage	EF_{forest}	This data/parameter was appropriately chosen because it pertains to calculate leakage emissions. A QA/QC procedure required by methodology developers ensures accuracy is maintained.

4   ASSESSMENT CONCLUSION

CCIPL completed the first assessment of the new methodology. The assessment team confirms that the methodology adhere to the criteria established for this assessment and are documented and complete. CCIPL approved the methodology and concludes without any qualifications or limiting conditions that the methodology documentation meets the requirements of the: VCS Program Guide v3.5, VCS Standard v3.4, VCS AFOLU Requirements v3.4, and the VCS Methodology Approval Process v3.5. Therefore, CCIPL recommends that VCSA approve the new methodology as prepared by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

5   REPORT RECONCILIATION

This methodology validation report has been revised to make it consistent with the revised methodology (version 06.1) and the second assessment report.

6   EVIDENCE OF FULFILMENT OF VVB ELIGIBILITY REQUIREMENTS

CCIPL holds accreditation to perform validation for projects under sectorial scopes 14 (agriculture, forestry, other land use) under the CDM and VCS accreditation. CCIPL, therefore, is eligible under the VCS Program to perform assessments for the methodology validation, which falls under the sectorial scope 14. Beside that CCIPL has VCS approved AFOLU expert in the assessment team.

7   SIGNATURE

Signed for and on behalf of:

Name of entity: *Carbon Check (India) Private Ltd.*

Signature:

Name of signatory: *Vikash Kumar Singh*

Date: *12/05/2017*