

FINAL VERIFICATION REPORT FOR AGROCORTEX REDD PROJECT



RINA Services SpA

Project Title	Agrocortex REDD Project
Version	03.1Aa
Report ID	2017BQ21MD

Report Title	Final Verification Report
Client	Agrocortex Madeiras do Acre Agroflorestal Ltda.
Pages	51
Date of Issue	16-May-2018
Prepared By	RINA SERVICES SPA
Contact	Via Corsica 12 – 26124 GENOVA (Italy) , +39 0106021711 rita.valoroso@rina.org www.rina.org
Approved By	Laura SEVERINO (Authorized officer signing for the DOE) 
Work Carried Out By	Lead Assessor, Verifier and Technical Expert: Talita C. BECK

Summary:

RINA Services S.p.A. (RINA), commissioned by Agro cortex Madeiras do Acre Agroflorestal Ltda, verified the greenhouse gas emission reductions reported for the project activity “Agro cortex REDD Project” in Brazil, with regards to relevant requirements for VCS rules.

The objective of the verification is to have an independent review ex post determination of the monitored reductions in GHG emission reductions, Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 3 Requirements and applying standard auditing techniques. The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification

The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS requirements in order to be certified.

This is the first verification assessment of Agro cortex REDD Project for the Monitoring Period of 01/07/2014 to 31/12/2016. RINA has simultaneously carried out the Validation and Verification for this project and will issue separate Validation and Verification Reports at the same time.

The GHG emission reductions were calculated on the basis of the approved methodology VCS VM0015 Methodology for Avoided Unplanned Deforestation v1.1 of 03/12/2012 and the monitoring plan included in the validated VCS PD v5 of 12/03/2018.

In conclusion, it is RINA’s opinion that the project activity “Agro cortex REDD Project” in Brazil, meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology VCS VM0015 Methodology for Avoided Unplanned Deforestation v1.1 of 03/12/2012. The monitoring system is in place and the emission reductions are calculated without material misstatement. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/07/2014 to 31/12/2016 amount to 727,178 tCO₂e and that tradable VCU are 617,953tCO₂e.

Abbreviations

AFOLU	Agriculture, Forestry and Other Land Use
APU	Annual Productive Unit
AUD	Avoided Unplanned Deforestation
AUTEX	Authorisation for the Exploration of Sustainable Forest Management Plan (from the Portuguese Autorização para Exploração de Plano de Manejo Florestal Sustentado)
CAR	Corrective Action Request
CENSIPAM	(Management and Operational Centre of the Amazon Protection System, from the Portuguese Centro Gestor e Operacional do Sistema de Proteção da Amazônia)
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon dioxide equivalent
GHG	Greenhouse Gas
I	Interview
IBAMA	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute for the Environment and for the Renewable Natural Resources)
IMC	Institute of Climate Change of the State of Acre (from the Portuguese Instituto de Mudanças Climáticas)
INPE	Instituto Nacional de Pesquisas Espaciais (National Institute for Space Research)
IPCC	Intergovernmental Panel on Climate Change
ISA Carbono	Carbon Environmental Services Incentives (from the Portuguese Incentivos aos Serviços Ambientais - Carbono)
LKB	Leakage Belt
MQVRT	Measuring, quantification, verification, registry and transparency
NTFPs	Non-Timber Forest Products
PA	Project Area
PD	Project Description
PP	Project Proponent
REDD	Reduced Emissions from Deforestation and Degradation
RR	Reference Region
SFMP	Sustainable Forest Management Plan
SISA	System of Environmental Services Incentives (from the Portuguese Sistema de Incentivos aos Serviços Ambientais)
VCS	Verified Carbon Standard
VCUs	Voluntary Carbon Units

Table of Contents

1	Introduction	6
1.1	Objective	6
1.2	Scope and Criteria	6
1.3	Level of Assurance	7
1.4	Summary Description of the Project	7
2	Verification Process	8
2.1	Method and Criteria	8
2.2	Document Review	8
2.3	Interviews	10
2.4	Site Inspections	12
2.5	Resolution of Findings	12
2.6	Eligibility for Validation Activities	13
3	Validation Findings	13
3.1	Participation under Other GHG Programs	13
3.2	Methodology Deviations	13
3.3	Project Description Deviations	13
3.4	Grouped Project	13
4	Verification Findings	13
4.1	Project Implementation Status	13
4.2	Accuracy of GHG Emission Reduction and Removal Calculations	14
4.3	Quality of Evidence to Determine GHG Emission Reductions and Removals (Parameters available at validation and parameters monitored)	22
4.4	Non-Permanence Risk Analysis	40
5	Safeguards	40
5.1	No Net Harm	40
5.2	Local Stakeholder Consultation	42
6	Verification Conclusion	43
APPENDIX 1	Findings Form	44

1 INTRODUCTION

1.1 Objective

RINA has been commissioned by “Agrocortex Madeiras do Acre Agroflorestal Ltda” to perform an independent verification of its VCS project, “Agrocortex REDD Project”, for the reported GHG emission reductions for the monitoring period between 01/07/2014 to 31/12/2016. The VCS projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs/VCUs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

The project is assessed against the requirements of VCS version 3 and related rules and guidance. RINA has, based on the recommendations in the latest version of CDM Validation and Verification Manual, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions, with reasonable level of assurance.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for VCS and CDM validation and verification.

The verification team and the technical reviewers consist of the following personnel.

Role	Last Name	First Name	Country
Lead Assessor, Technical Expert and Verifier	C. Beck	Talita	Brazil
Technical reviewer	Principe Branco Saettoni	Geisa Maria	Brazil
Technical reviewer – 14.1	Menon	Rekha	India

1.4 Summary Description of the Project

The primary objective of the Agrocorrex REDD Project is to avoid the unplanned deforestation (AUD) of the 186,219.06 ha project area, consisting of 100% Amazon rainforest. The project area is located within a private property named "Fazenda Seringal Novo Macapá" (validated coordinates presented in Appendix I of the Monitoring Report /1/), which is situated in the municipalities of Manoel Urbano, Pauini and Boca do Acre, in the States of Acre and Amazonas, South-western Amazon.

The project proponent is Agrocorrex Madeiras do Acre Agroflorestal Ltda. The proponent manages the aforementioned forest area in order to extract timber for commercialisation under a SFMP. Agrocorrex started the sustainable forest management operations in June/2014 /4/, which defines the project start date because the activity resulted in a type of land use which will reduce GHG emissions.

Project Participant(s)	Agrocorrex Madeiras do Acre Agroflorestal Ltda.
Project Title	Agrocorrex REDD Project
Location of the project	Fazenda Seringal Novo Macapá Municipalities: Manoel Urbano, Pauini and Boca do Acre, States of Acre and Amazonas.
Methodology(ies)	VM0015 Methodology for Avoided Unplanned Deforestation v1.1 of 03/12/2012
Sectoral Scope(s)	14

Project's crediting period	from 01-July-2014 until 30-June-2044
----------------------------	--------------------------------------

2 VERIFICATION PROCESS

This is the first verification assessment of Agrocorrex REDD Project for the Monitoring Period of 01/07/2014 to 31/12/2016. The Project is being verified by RINA who also carried out the Validation. RINA will issue simultaneously but separate Validation /04/ and Verification Reports.

2.1 Method and Criteria

Verification was conducted using RINA's procedures in line with the requirements specified in the VCS Requirements, (i.e. VCS Program Guide v3.7 /8/, VCS Validation and Verification Manual v3.2 /9/ and AFOLU Requirements v3.6 /7/). The GHG emission reductions are on the basis of the approved baseline and monitoring methodology VCS VM0015 Methodology for Avoided Unplanned Deforestation v1.1 of 03/12/2012 /6/.

The verification consisted of the following three phases

- Document review;
- On-site assessment including Interviews, Site Inspections;
- Site assessment by Satellite Image and GIS;
- Resolution of any material discrepancy and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.2 Document Review

The monitoring report (MR) version 3 of 14/03/2018 and previous versions /01/, the emission reduction calculations spreadsheet version 3 of 14/03/2018 and previous versions /02/, were assessed against documents referenced below as part of the verification. All documents are cited throughout the report.

Below is a list of documents reviewed during verification:

/01/	Ecológica VCS Monitoring Report Agrocorrex REED Project version 01 of 31/07/2017 Ecológica VCS Monitoring Report Agrocorrex REED Project version 01.1 of 20/08/2017 Ecológica VCS Monitoring Report Agrocorrex REED Project version 01.2 of 31/10/2017 Ecológica VCS Monitoring Report Agrocorrex REED Project version 02 of 11/12/2017 Ecológica VCS Monitoring Report Agrocorrex REED Project version 03 of 14/03/2018
/02/	Ecológica VCS MR Calculation Agrocorrex_period 01_01 07 14_31 12 2016 v 01 of 31/07/2017

	Ecológica VCS MR Calculation Agroctx_period 01_01 07 14_31 12 2016 v 01.1 of 20/08/2017 Ecológica VCS MR Calculation Agroctx_period 01_01 07 14_31 12 2016 v01.2 of 31/10/2017 Ecológica VCS MR Calculation Agroctx_period 01_01 07 14_31 12 2016_v02 of 11/12/2017 Ecológica VCS MR Calculation Agroctx_period 01_01 07 14_31 12 2016_v03 of 14/03/2018
/03/	Ecológica VCS Non-Permanence Risk Report Agroctx REDD Project MR 1 v1.2 of 31/10/2017 Ecológica VCS Non-Permanence Risk Report Agroctx REDD Project MR 1 v2 of 11/12/2017 Ecológica VCS Non-Permanence Risk Report Agroctx REDD Project MR 1 v3 of 14/03/2018
/04/	Rina VCS Validation Report of the Agroctx REDD Project v2 12/12/2017 Rina VCS Validation Report of the Agroctx REDD Project v3 15/03/2018
/05/	Agência Verde: Elaboração da Linha de Base e Simulação do Projeto REDD Agroctx: Relatório Final of 27/07/2017
/06/	VCS VM0015 Methodology for Avoided Unplanned Deforestation v1.1 of 03/12/2012
/07/	VCS AFOLU Requirements, v3.6 of 21/06/2017
/08/	VCS Program Guide – Requirement documents v3.7 of 21/06/2017;
/09/	VCS Validation and Verification Manual v3.2 of 19/10/2016
/10/	Agência Verde VCS PD Calculation_AGROCORTEX REDD Project_Vfinal_PA_RR_LB. .xlsx of 13/07/2017 (email from Agencia Verde to Ecológica date).
/11/	Agroctx Post Exploratory Report UPA 2 of 2015
/12/	Agroctx Post Exploratory Report UPA 3 and UPA 4 of 2016
/13/	SCR_Agroctx_Point_0
/14/	GERFLOR, 2010. Plano de Manejo Florestal Sustentado. Fazenda Seringal Novo Macapá;
/15/	IPCC 2006 Guidelines for National Greenhouse Gas Inventories, Volume 4, Agriculture, Forestry and Other Land Use https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol4.html last accessed 06/12/2017
/16/	CONAMA resolution no.406 of 02/02/2009 (from the portuguese Resolução nº. 406, de 02 de fevereiro de 2009). http://www.pontalflora.com.br/Res_406_02-02-2009.pdf last accessed 22/11/2017.
/17/	Ecológica – Manoel Urbano_Boca do Acre_Sena Madureira_historical deforestation.xlsx dated 11/12/2017
/18/	Ecológica VCS PD_Agroctx REDD Project_v4 of 07/12/2017 Ecológica VCS PD_Agroctx REDD Project_v5 of 12/03/2018
/19/	IBAMA 2014/2015/2016/2017 AUTEX – Authorisation for the Exploration of Sustainable Forest Management Plan (from the Portuguese Autorização para Exploração de Plano de Manejo Florestal Sustentado)
/20/	Private Partnership Instrument for Mixed Rural Agricultural, Agroindustrial and Extractive Exploitation (from the Portuguese Instrumento Particular de Parceria Rural Mista para exploração agrícola, agroindustrial e extrativista) dated 17/04/2014
/21/	GERFLOR, 2010/2012/2015/2016 POA – Anual Operational Plan (from the Portuguese Plano Operacional Anual);

/22/	Ars Agro cortex Local Stakeholders Consultation 06/2017
/23/	Law N. 2.308, of October 22nd 2010 of the State of Acre – “Creates the State System of Incentives to Environmental Services (from the Portuguese Sistema Estadual de Incentivos a Serviços Ambientais – SISA), the Programme of Incentives for Environmental Services (from the Portuguese Programa de Incentivos por Serviços Ambientais – ISA) Carbon and other Programmes and Environmental Services and Ecosystem Products of the State of Acre and other measures.”
/24/	Normative Instruction IMC No. 1 of 19/10/2015 Regulates item IV of art. 7 of the State Law No.2.308 of October 22nd 2010, disciplining the admission procedure for special and linked projects under the Incentive Program for Environmental Services - Carbon (ISA - Carbono), of the State System of Incentives to Environmental Services - SISA.
/25/	IMC – Jurisdictional Programme Description of Incentives to Environmental Services of Carbon of the State of Acre, Brasil (ISA Carbon Programme of Acre) of 13.08.2013 last accessed 04/05/2018.
/26/	IMC - Monitoring Report Jurisdictional Programme of Incentives to Carbon Environmental Services of the State of Acre – Brazil (ISA Carbon Programme) dated 12.12.2016 https://mer.markit.com/br-reg/services/processDocument/downloadDocumentById/103000000078986 last accessed 04/05/2018.

2.3 Interviews

The key personnel interviewed and the main topics of the interviews are summarized in the table below:

Date	Name and Role	Organization	Topic
19/06/2017	Ricardo Cezar Sitta – Director	Agrocortex	Wood Market
20/06/2017	Edson do Amaral – Flona do Macauã Environmental Analyst	ICMBio	Social and Environmental Sustainability, local stakeholder consultation.
21/06/2017	Ana Beatriz de Melo – Forest Certification Technician	Agrocortex	Relationship Agro cortex and local Community, Certification FSC, SFM area visit, alternative sources of income.
21/06/2017	Edgar Cutar Junior – Forest Operations	Agrocortex	SFMP, area of management and Inforest System
21/06/2017	Paulinho dos Santos – Cut and drag quality supervisor	Agrocortex	Cut and drag, Logging Damage Factor, FSC, SFM
21/06/2017	Janderson Cardona – field worker	Agrocortex	Field measurements, inventory and recording of harvested wood via app to Inforest

21/06/2017	Marcelo Haddad – Project Developer Consultant	Ecológica Assessoria Ltda.	Non-Permanence Risk Report
22/06/2017	Avila Dantas – Social Worker	Agrocortex	Relationship Agro cortex and local Community
22/06/2017	Antônio Raimundo Souza de Lima – Resident of Local Community (Oriental)	Domiciled at the area destined to local community next to the PA.	Relationship Agro cortex and local Community
02/08/2017	Marcelo Haddad – Project Developer Consultant	Ecológica Assessoria Ltda	MR, ER Calculations
02/08/2017	Marcos Preto – Executive Director	Agrocortex	Administration of the Project
03/08/2017	Eliane Maffi – GIS modelling consultant	Agencia Verde	Monitoring with Remote Sensing and GIS

2.4 Site Inspections

The site inspection of the forest management area was carried out between 19/06/2017 and 22/06/2017.

The onsite visit was performed in order to understand and evaluate the project area and the region of reference as well as the leakage belt area. In the project area unexplored as well as explored APUs were visited, methods of logging and inventorying of extracted wood checked, and interviews with field workers carried out to make sure SFM practices were in place as described in the PD /18/.

The visit to the SFM area coincided with the stakeholders consultation, a visit to the municipality of Manoel Urbano and a visit to communities in the leakage belt along the Purus River as well as the leakage belt management area. Thus, it was possible to assess the condition of the forest areas of the project, the socioeconomic dynamics of the reference region and the field monitoring implementation from data collection up to the Inforest Software.

The visit to the offices of Agro cortex in São Paulo were carried out between the 02/08/2017 and 03/08/2017. There the monitoring by remote sensing and GIS analysis were shown to the verification team.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues, which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements, which refer to CDM rules, have been met.

In this verification 3 CARs and 4CLs were identified. These and the resolution of these are included in Appendix 1 of this report.

Forward Action Requests

FAR1 For the next verifications calculate the carbon stock per hectare of the Project Area using the forest inventories carried out by Agro cortex, as a comparison with the data of the scientific literature.

2.6 Eligibility for Validation Activities

Rina has carried out the Validation activities of Agrocorrex REDD Project too. The VCS Validation Report of the Agrocorrex REDD Project by Rina /4/ will be issued to the client with this Verification Report.

3 VALIDATION FINDINGS

For the Validation Activities please see VCS Validation Report of the Agrocorrex REDD Project by Rina /4/ and also CAR3 and CL4 of this report in Appendix 1.

3.1 Participation under Other GHG Programs

Not applicable as per section 1.12.4 of the VCS PD of Agrocorrex REDD Project “This project has not been registered, and is not seeking registration under any other GHG Programs.”.

3.2 Methodology Deviations

The Project has no methodological deviations.

3.3 Project Description Deviations

There were no deviations from PD /18/.

3.4 Grouped Project

This project is not a grouped project. Hence, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The validation team observed no material discrepancies between project description in the PD /18/ and its implementation. The project area is located within a private property named “Fazenda Seringal Novo Macapá”, which is situated in the municipalities of Manoel Urbano, Pauini and Boca do Acre, in the States of Acre and Amazonas, South-western Amazon. The geographical coordinates of the project are in PD Appendix I /18/ and have been validated in the Validation process, as per Validation Report /4/, which has been carried out at the same time as the verification process.

The project activity is under sectoral scope 14 (Agriculture, Forestry, Land Use). In accordance with V-C-S requirements, stipulated in Approved VCS Methodology VM0015, version 1.1./6/ The project proponent is Agrocorrex Madeiras do Acre Agroflorestal Ltda. The project developers are Ecológica Assessoria Ltda. In consultation with T.A.O Consultoria Ambiental Ltda and Tamoios Tecnologia e Consultoria Ltda. – ME.

The proponent manages the aforementioned forest area in order to extract timber for commercialisation under a SFMP (sustainable forest management plan). Project start date is the 2nd of June 2014 /19/ when Agrocorrex obtained its first authorization from IBAMA (the Brazilian Environment Agency) to sustainably harvest the first annual productive unit (APU) since Agrocorrex Madeiras do Acre Agroflorestal Ltda. Became responsible for the SFMP operations and REDD with Batisflor Florestal Ltda /20/

In 2014 part of APU 2 was harvested, in 2015 the remnant of APU2 and APU3 were harvested and in 2016 APU4 was harvested.

The process of compiling data was observed. Parameters which are monitored in the field are measured with normal inventory equipment (tape measures and people with local knowledge of vegetation to identify species are employed by Agrocorrex) and data of each tree harvested is entered into an app. Data is automatically transferred to the Inforest System, accessible from the offices. These data is then used to produce report like the Post Harvest Reports /11//12/ to IBAMA where some of the data for this report is acquired from.

Remote sensing and GIS images are analysed by Agencia Verde and data is passed on to Ecológica for the calculation of Ers.

Therefore there were no material discrepancies between actual monitoring system and the monitoring system described in the PD/18/

A list of the parameters and how they have been verified are presented below.

Furthermore the validation team confirms that the sustainable development contributions of the project are as per described in section 1.13 of the PD/18/ and as validated by Rina /4/.

Overall the project has been implemented as described in the PD/18/.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

- **Baseline Carbon Stock Change**

The total baseline carbon stock change in the project area at year t is calculated as follows:

$$\Delta C_{BSLPA_t} = \Delta C_{abBSLPA_{icl,t}} + \Delta C_{bbBSLPA_{icl,t}}$$

Where,

ΔC_{BSLPA_t}	Total baseline carbon stock changes in the project area at year t; tCO ₂ e
$\Delta C_{abBSLPA_{icl,t}}$	Total baseline carbon stock change for the above-ground biomass pool in the project area for initial forest class at year t; tCO ₂ e
$\Delta C_{bbBSLPA_{icl,t}}$	Total baseline carbon stock change for the below-ground biomass pool in the project area for initial forest class at year t; tCO ₂ e

$$\Delta C_{abBSLPA_{icl,t}} = A_{BSLPA_{icl,t}} \times \Delta C_{ab_{icl}}$$

Where,

$\Delta CabBSLPA_{icl,t}$	Total baseline carbon stock change for the above-ground biomass pool in the project area for initial forest class at year t ; tCO ₂ e
$ABSLPA_{icl,t}$	Area of initial forest class icl deforested at time t within the project area in the baseline case; ha
ΔCab_{icl}	Average carbon stock change factor per hectare in the above-ground biomass carbon pool of initial forest class icl ; tCO ₂ e ha ⁻¹

$$\Delta CbbBSLPA_{icl,t} = ABSLPA_{icl,t} \times \Delta Cbb_{icl}$$

Where,

$\Delta CbbBSLPA_{icl,t}$	Total baseline carbon stock change for the below-ground biomass pool in the project area for initial forest class at year t ; tCO ₂ e
$ABSLPA_{icl,t}$	Area of initial forest class icl deforested at time t within the project area in the baseline case; ha
ΔCbb_{icl}	Average carbon stock change factor per hectare in the below-ground biomass carbon pool of category icl ; tCO ₂ e ha ⁻¹

The total average biomass stock per hectare (Mg ha⁻¹) was converted to tCO₂e using the following equations:

$$Cab_{icl} = ab \times CF \times 44 / 12$$

Where,

Cab_{icl}	Average carbon stock per hectare in the above-ground biomass carbon pool of initial forest class icl ; tCO ₂ e ha ⁻¹
ab	Average biomass stock per hectare in the above-ground biomass pool of initial forest class icl ; Mg ha ⁻¹
CF	Default value of carbon fraction in biomass
44/12	Ratio converting C to CO ₂ e

$$Cbb_{icl} = bb \times CF \times 44 / 12$$

Where,

Cbb_{icl}	Average carbon stock per hectare in the below-ground biomass carbon pool of initial forest class icl ; tCO ₂ e ha ⁻¹
bb	Average biomass stock per hectare in the below-ground biomass pool of initial forest class icl ; Mg ha ⁻¹

CF	Default value of carbon fraction in biomass
44/12	Ratio converting C to CO ₂ e

- Project Emissions:**

The calculation of the *ex post* net carbon stock change in the project area under the project scenario ($\Delta CPSPA_t$) is described as follows.

$$\Delta CPSPA_t = \Delta CPAdPA_t + \Delta CUDdPA_t - \Delta CPAiPA_t$$

Where,

$\Delta CPSPA_t$	Sum of <i>ex post</i> actual carbon stock changes in the project area at year <i>t</i> ; tCO ₂ e
$\Delta CPAdPA_t$	Total decrease in carbon stock due to all planned activities at year <i>t</i> in the project area; tCO ₂ e
$\Delta CUDdPA_t$	Total <i>ex post</i> actual carbon stock change due to unavoidable unplanned deforestation at year <i>t</i> in the project area; tCO ₂ e
$\Delta CPAiPA_t$	Total increase in carbon stock due to all planned activities at year <i>t</i> in the project area; tCO ₂ e

1) Planned Activities:

a) Planned Deforestation:

The carbon stock decrease, and therefore emissions, due to planned deforestation in the project area was calculated using the following equation:

$$\Delta CPDdPA_t = \sum_{icl=1}^{icl} (APDPA_{icl,t} \times \Delta Ct_{tot_{icl}})$$

Where,

$\Delta CPDdPA_t$	Total decrease in carbon stock due to planned deforestation at year <i>t</i> in the project area; tCO ₂ e
$APDPA_{icl,t}$	Areas of planned deforestation in forest class <i>icl</i> at year <i>t</i> in the project area; ha
$\Delta Ct_{tot_{icl}}$	Average carbon stock change of all accounted carbon pools in forest class <i>icl</i> at time <i>t</i> ; tCO ₂ e/ha

b) Planned logging activities

Emissions from planned logging activities in the project area were calculated using the following equation:

v3.4

$$\sum_{icl=1}^{icl}$$

$$\sum_{icl=1}^{icl}$$

15

$$\Delta CPLdPA_t = (APLPA_{icl,t} \times \Delta CLd_{icl,t}) - (APLPA_{icl,t}) \times \Delta Cwp_t$$

Where,

$\Delta CPLdPA_t$	Total decrease in carbon stock due to planned logging activities at year t in the project area; tCO ₂ e
$APLPA_{icl,t}$	Areas of planned logging activities in forest class icl at year t in the project area; ha
$\Delta CLd_{icl,t}$	Average carbon stock decrease due to logging activities in forest class icl at time t ; tCO ₂ e/ha
ΔCwp_t	Average carbon stock per hectare in the harvested wood products carbon pool at time t ; tCO ₂ e/ha

Where the average carbon stock decrease due to logging activities is calculated as follows:

$$\Delta CLd_{icl} = (HI_{icl,t} + LDF) \times D_m \times CF \times 44 / 12$$

Where,

$\Delta CLd_{icl,t}$	Average carbon stock decrease due to logging activities in forest class icl at time t ; tCO ₂ e/ha
$HI_{icl,t}$	Harvesting intensity of timber in forest class icl at year t in the project area due to planned logging activities (i.e., sustainable forest management plan); m ³ /ha
LDF	Logging damage factor; m ³ /ha
D_m	Mean wood density; g/cm ³
CF	Default value of carbon fraction in biomass; tC t-1 d.m.
44/12	Ratio of molecular weight of CO ₂ to carbon; dimensionless

Accounting for carbon stocks in wood products was carried out utilizing the Method 1 described in the applied Methodology: Direct Volume Extraction Estimation. This method was applied because timber harvest plans /21/ and post harvest reports /11//12/ specifying the harvest intensity per forest class in terms of volume extracted per hectare are available for the Project area.

Carbon stocks in wood products are divided in three fractions, as follows:

- Short-term wood products: wood products and waste that would decay within 3 years; all carbon shall be assumed to be lost immediately;

- Medium-term wood products: wood products that are retired between 3 and 100 years; for this group of wood products, a 20-year linear decay function shall be applied;
- Long-term wood products: wood products that are considered permanent (i.e. carbon is stored for 100 years or more); it may be assumed that no carbon is released.

2) Unplanned:

- a) Unplanned deforestation occurred in the southern border of the project area, corresponding to a total of 32.77 ha during the monitoring period. The carbon stock decrease due to unplanned deforestation in the project area was calculated using the following equation:

$$\Delta CUDdPA_t = \sum_{icl=1}^{icl} (AUDPA_{icl,t} \times \Delta Ct_{tot_{icl}})$$

Where,

$\Delta CPUDPA_t$	Total <i>ex post</i> actual carbon stock change due to unavoidable unplanned deforestation at year <i>t</i> in the project area; tCO ₂ e
$AUDPA_{icl,t}$	Areas of unplanned deforestation in forest class <i>icl</i> at year <i>t</i> in the project area; ha
$\Delta Ct_{tot_{icl}}$	Average carbon stock change of all accounted carbon pools in forest class <i>icl</i> at time <i>t</i> ; tCO ₂ e/ha

- b) Non-CO₂ emissions from forest fires were conservatively considered for all forest patches which had unplanned deforestation as follows:

$$EBBtot_{icl,t} = EBBN_2O_{icl,t} + EBBCH_{4icl,t}$$

Where,

$EBBtot_{icl,t}$	Total GHG emission from biomass burning in forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
$EBBN_2O_{icl,t}$	N ₂ O emission from biomass burning in forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
$EBBCH_{4icl,t}$	CH ₄ emission from biomass burning in forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha

$$EBBN_2O_{icl,t} = EBBCO_{2icl,t} * 12/44 * NCR * ER_{N_2O} * 44/28 * GWP_{N_2O}$$

Where,

$EBBCO_{2icl,t}$	Per hectare CO ₂ emission from biomass burning in slash and burn in forest class <i>icl</i> at year <i>t</i> ; tCO ₂ e/ha
NCR	Nitrogen to Carbon Ratio (IPCC default value = 0.01); dimensionless
ER_{N_2O}	Emission ratio for N ₂ O (IPCC default value = 0.007)

GWP_{N₂O} Global Warming Potential for N₂O¹

$$EBBCH_{4icl,t} = EBBCO_{2icl,t} * 12/44 * ER_{CH_4} * 16/12 * GWP_{CH_4}$$

Where,

EBBCO_{2icl,t} Per hectare CO₂ emission from biomass burning in slash and burn in forest class *icl* at year *t*; tCO₂e/ha

ER_{CH₄} Emission ratio for CH₄ (IPCC default value = 0.012)

GWP_{CH₄} Global Warming Potential for CH₄²

$$EBBCO_{2icl,t} = F_{burnt_{icl}} * \sum_{p=1}^P (C_{picl,t} * P_{burnt_{p,icl}} * CE_{p,icl})$$

Where,

EBBCO_{2icl,t} Per hectare CO₂ emission from biomass burning in the forest class *icl* at year *t*; tCO₂e/ha

F_{burnt_{icl}} Proportion of forest area burned during the historical reference period in the forest class *icl*; %

C_{picl,t} Average carbon stock per hectare in the carbon pool *p* burnt in the forest class *icl* at year *t*; tCO₂e/ha

P_{burnt_{p,icl}} Average proportion of mass burnt in the carbon pool *p* in the forest class *icl*; % (conservatively assumed as 100%)

CE_{p,icl} Average combustion efficiency of the carbon pool *p* in the forest class *icl*; dimensionless (IPCC default of 0.5 was used)

p Carbon pool that could burn, in the project case, above-ground biomass

3) Increase in carbon stock due to all planned activities

Carbon stock increase following planned logging activities in the project area, which is calculated as follows:

$$\Delta CPLiPA_t : \sum_{icl=1}^{icl} (APLPA_{icl,t} \times \Delta Cli_{icl,t})$$

Where,

$\Delta CPLiPt$ Total increase in carbon stock due to planned logging activities at year t in the project area; tCO_2e

$APLPAicl,t$ Areas of planned logging activities in forest class icl at year t in the project area; ha

$\Delta CLiicl,t$ Average carbon stock increase due to sustainable logging activities in forest class icl at time t ; tCO_2e/ha

- **Leakage**

According to the applied methodology VM0015 v1.1 /6/, and the validation report /4/ two sources of leakage are considered: a) decrease in carbon stocks and increase in GHG emissions associated with leakage prevention measures; and b) decrease in carbon stocks and increase in GHG emissions associated with activity displacement leakage.

With regards to a) decrease in carbon stocks and increase in GHG emissions associated with leakage prevention measures, this was considered 0 because the only leakage prevention measures to be adopted by the project will be educational and NTFP which will probably cause some fossil fuel emissions only and these, is stated in the applied methodology, is always insignificant in the case of leakage.

With regards to b) decrease in carbon stocks and increase in GHG emissions associated with activity displacement leakage, the PP provided in the MR /1/ an analysis (Figure 12 of the Monitoring Report version 2) carried out with data from Agencia Verde Report /5/. The graph in fig 12 shows a decrease in the rate of deforestation in the area at close proximity to PA (LMA) and increase in Manoel Urbano and Sena Madureira.

Furthermore the analysis in the spreadsheet 'Manoel Urbano_Boca do Acre_Sena Madureira_historical deforestation' /17/ with data from INPE (source of data in that same spreadsheet, show an increase in deforestation in the last two years in Manoel Urbano and Sena Madureira.

According to the applied methodology /6/ if sufficient evidence to demonstrate that the deforestation in the leakage area is not attributable to deforestation agents that are linked to the project area, the deforestation in the leakage area can be excluded from the calculations as it can be considered as not being leakage. The two analysis together are strong evidence to demonstrate that deforestation is not attributable to agents that are linked to the project area but rather more likely to originate from urbanisation pressure from the two towns in the extremity of the leakage belt.

- **Summary of net GHG emission reductions or removals.**

According to the applied methodology VM0015 v1.1 /6/, and the validation report /4/, the emission reductions are the baseline and leakage emissions subtracting project emissions and is calculated as follows:

$$\Delta REDD_t = (\Delta CBSLPAt + EBBBSLPAt) - (\Delta CPSPAt + EBBPSPAt) - (\Delta CLKt + ELKt)$$

Where:

$\Delta REDD_t$ Ex post estimated net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t; tCO₂e

$\Delta CBSLPAt$ Sum of baseline carbon stock changes in the project area at year t; tCO₂e

$EBBBSLPAt$ Sum of baseline emissions from biomass burning in the project area at year t; tCO₂e

$\Delta CPSPAt$ Sum of ex post estimated actual carbon stock changes in the project area at year t; tCO₂e

Note: If $\Delta CPSPAt$ represents a net increase in carbon stocks, a negative sign before the absolute value of $\Delta CPSPAt$ shall be used. If $\Delta CPSPAt$ represents a net decrease, the positive sign shall be used.

$EBBPSPAt$ Sum of actual emissions from biomass burning in the project area at year t; tCO₂e

$\Delta CLKt$ Sum of ex post estimated leakage net carbon stock changes at year t; tCO₂e

Note: If the cumulative sum of $\Delta CLKt$ within a fixed baseline period is > 0, $\Delta CLKt$ shall be set to zero.

$ELKt$ Sum of ex post estimated leakage emissions at year t; tCO₂e

t 1, 2, 3 ... T, a year of the proposed project crediting period; dimensionless.

Regarding the number of Verified Carbon Units (VCUs) to be generated through the proposed AUD project activity per year were calculated as follows:

$$VCUt = \Delta REDD_t - VBCT$$

$$VBCT = (\Delta CBSLPAt - \Delta CPSPAt) \times RFt$$

Where:

$VCUt$ Number of Verified Carbon Units that can be traded at time t; tCO₂e

Note: If $VCUt < 0$ no credits (VCUs) will be awarded to the proponents of the AUD project activity.

ΔREDD_t Ex post estimated net anthropogenic greenhouse gas emission reduction attributable to the AUD project activity at year t ; tCO₂e

VBC_t Number of Buffer Credits deposited in the VCS Buffer at time t ; tCO₂e

$\Delta\text{CBSLPAt}$ Sum of baseline carbon stock changes in the project area at year t ; tCO₂e

ΔCPSPAt Sum of ex post carbon stock changes in the project area at year t ; tCO₂e ha⁻¹

RF_t Risk factor used to calculate VCS buffer credits; %

t 1, 2, 3 ... T , a year of the proposed project crediting period; dimensionless.

The RF_t was estimated using the most recent version of the VCS-approved AFOLU Non-Permanence Risk Tool and the resulting value of RF_t for the present REDD project was 15%.

It is the opinion of the validation team that GHG emission reductions have been correctly quantified in accordance with the project description and applied methodology.

The parameters in the formulae above have been verified in the section below.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

Below how the parameters used in formulae above have been verified:

- Parameters Available at Validation and Data Fixed Ex-ante**

Parameter (see PD for descriptions)	Source of data	Reported value	Assessment/Observation
CF	IPCC	0.5	/4/
ab_{icl}	Local literature and methodology	Various (see PD)	
bb_{icl}	Local literature and methodology	Various (see PD)	
C_{totfcl}	Local literature	46.93	
D_m	Local literature	0.583	
D_i	National/Local Data and SFMP	High density 0.76 Low density 0.57	
EI	SFMP/FSC certificate and site visit	95%	
DLF	SFMP/FSC certificate and site visit	5%	
EBBBSLPAt	This is omitted	0	
CBSLLK	This is omitted	0	

- Parameters and Data Monitored**

DATA/PARAMETER	ACPAicl,t
Data Unit	Hectare (ha)
Description	Annual area of initial forest classes icl within the Project Area affected by catastrophic events at year t
Source of data to be used	- Remote sensing data and GIS, - Agrocortex management team and other field data.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Each time a catastrophic event occurs
Type of monitoring equipment and its accuracy	This is monitored via remote sensing and GIS. Accuracy as per Agencia Verde Report /5/: KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8
How were the values in the monitoring report verified and cross-checked?	The value in the monitoring report is 0 (zero) and this has been crosschecked with the Report of the Agencia Verde /5/ which, as well as validation data and maps, also brought data and maps of the first monitoring period and areas deforested for 2014, 2015 and 2016. The shape, size and pattern of deforestation observed in maps suggest man made unplanned deforestation and was accounted as such.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A all 3 years had maps of areas deforested and showed no deforestation due to catastrophic events.

DATA/PARAMETER	AUFPAicl,t			
Data Unit	ha			
Description	Annual area of initial forest classes icl within the Project Area affected by forest fires at year t			
Source of data to be used	Remote sensing data and GIS			
Value data for the monitoring period	Year	Open Tropical Rainforest with bamboo	Open Tropical Rainforest with palm trees	Open Alluvial Rainforest with palm trees
	2014	3.83	0.00	0.00

	<table><tr><td>2015</td><td>1.78</td><td>0.00</td><td>0.00</td></tr><tr><td>2016</td><td>27.16</td><td>0.00</td><td>0.00</td></tr><tr><td>Total</td><td>32.77</td><td>0.00</td><td>0.00</td></tr></table>	2015	1.78	0.00	0.00	2016	27.16	0.00	0.00	Total	32.77	0.00	0.00
2015	1.78	0.00	0.00										
2016	27.16	0.00	0.00										
Total	32.77	0.00	0.00										
Measuring and reporting frequency; recording procedure	Annually.												
Type of monitoring equipment and its accuracy	This is monitored via remote sensing and GIS. Accuracy as per Agencia Verde Report /5/: KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8												
How were the values in the monitoring report verified and cross-checked?	Agencia Verde Report /5/ which, as well as validation data and maps, also brought data and maps of the first monitoring period and areas deforested for 2014, 2015 and 2016.												
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	The areas were monitored and conservatively considered to have been 100% deforested by forest fires.												

DATA/PARAMETER	ABSLLKicl,t (ex-post)				
Data Unit	ha				
Description	Annual area of deforestation of initial forest classes icl within the leakage belt at year t				
Source of data to be used	Remote sensing and GIS.				
Value data for the monitoring period	Year	Open Tropical Rainforest with bamboo	Open Tropical Rainforest with palm trees	Open Alluvial Rainforest with palm trees	Secondary vegetation
	2014	676.05	12.45	1,909.94	608,78
	2015	523.77	13.13	1,133.12	148,27
	2016	1,167.04	21,24	1,218.97	240,82
	Total	2,366.86	46.82	4,262.03	997.87
Measuring and reporting frequency; recording procedure	Annually				
Type of monitoring equipment and its accuracy	This is monitored via remote sensing and GIS. Accuracy as per Agencia Verde Report /5/:				

	KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8
How were the values in the monitoring report verified and cross-checked?	The values were verified by checking areas of the above classes in the Agencia Verde Report for the years above /5/ and the spreadsheets with values sent by them to Ecológica /10/.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	ABSLPAicl,t (ex-post)				
Data Unit	ha				
Description	Annual area of deforestation of initial forest classes icl in the project area at year t				
Source of data to be used	Remote sensing, GIS.				
Value data for the monitoring period	Year	Open Tropical Rainforest with bamboo	Open Tropical Rainforest with palm trees	Open Alluvial Rainforest with palm trees	
	2014	86.20	0.00	0.00	
	2015	226.61	0.00	0.00	
	2016	160.12	0.00	0.91	
	Total	472.94	0.00	0.91	
Measuring and reporting frequency; recording procedure	Annually				
Type of monitoring equipment and its accuracy	Remote sensing and GIS Accuracy as per Agencia Verde Report /5/: KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8				
How were the values in the monitoring report verified and cross-checked?	Verified against Agencia Verde Report Maps of deforested areas in the project area /5/ excel spreadsheets sent from Agencia Verde to Ecológica with areas of the forest classes in each year /10/ and Post Exploratory Reports from Agro cortex to IBAMA (the National Environment Agency) with executed road areas and patios /11//12/.				

If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A
---	-----

DATA/PARAMETER	ABSLRRicl,t (ex-post)					
Data Unit	ha					
Description	Annual area of deforestation of initial forest classes icl in the reference region at year t					
Source of data to be used	Remote sensing and GIS.					
Value data for the monitoring period	Year	Open Tropical Rainforest with bamboo	Open Tropical Rainforest with palm trees	Open Alluvial Rainforest with palm trees	Dense Tropical Rainforest	Secondary vegetation
	2014	6,511.39	728.78	1,270.86	0.00	2,703.65
	2015	4,585.49	520.43	1,305.29	0.00	325.56
	2016	3,845.46	601.07	1,450.32	0.00	359.64
	Total	14,942.34	1,850.28	4,026.47	0.00	3,388.85
Measuring and reporting frequency; recording procedure	Annually					
Type of monitoring equipment and its accuracy	Remote sensing and GIS Accuracy as per Agencia Verde Report /5/: KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8					
How were the values in the monitoring report verified and cross-checked?	The values were verified by checking areas of the above classes in the Agencia Verde Report for the years above /5/ and the spreadsheets with values sent by them to Ecológica /10/.					
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has	N/A					

a request for deviation been approved?	
--	--

DATA/PARAMETER	APDPAicl,t				
Data Unit	ha				
Description	Areas of planned deforestation in forest class icl at year t in the project area				
Source of data to be used	- Annual operational plan; - Annual post-harvesting report; - Remote sensing and GIS.				
Value data for the monitoring period	Year	Open Tropical Rainforest with bamboo	Open Tropical Rainforest with palm trees	Open Alluvial Rainforest with palm trees	
	2014	82.37	0.00	0.00	
	2015	224.83	0.00	0.00	
	2016	132.86	0.00	0.91	
	Total	440.16	0.00	0.91	
Measuring and reporting frequency; recording procedure	Annually				
Type of monitoring equipment and its accuracy	- Remote sensing and GIS - Agro cortex Management team, based on the Sustainable Forest Management Plan for Fazenda Seringal Novo Macapá reports to the government				
How were the values in the monitoring report verified and cross-checked?	Post Exploratory Reports from Agro cortex to IBAMA (the National Environment Agency) with executed road areas and patios /11//12/.				
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A				

DATA/PARAMETER	APLPA _{icl,t}
Data Unit	ha
Description	Areas of planned logging activities in forest class icl at year t in the project area
Source of data to be used	Annual post-harvesting report to IBAMA;

Value data for the monitoring period	Year	Open Tropical Rainforest with bamboo	Open Tropical Rainforest with palm trees	Open Alluvial Rainforest with palm trees
	2014	4.391,72	0.00	0.00
	2015	7.328,75	0.00	0.00
	2016	4.807,26	0.00	0.00
	Total	16,527.73	0.00	0.00
Measuring and reporting frequency; recording procedure	Annually			
Type of monitoring equipment and its accuracy	Internal audit of the SFMP.			
How were the values in the monitoring report verified and cross-checked?	Post Exploratory Reports from Agrocorrex to IBAMA (the National Environment Agency) with executed road areas and patios /11//12/.			
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A			

DATA/PARAMETER	APFPAicl,t
Data Unit	ha
Description	Areas of planned fuel-wood collection and charcoal production activities in forest class icl at year t in the project area
Source of data to be used	- Annual operational plan; - Annual post-harvesting report; - Remote sensing and GIS; - Other SFMP documents.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	- Planned interventions proposed by Agrocorrex REDD Project
How were the values in the monitoring report verified and cross-checked?	Post Exploratory Reports from Agrocorrex to IBAMA (the National Environment Agency) with executed road areas and patios /11//12/.

If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A
---	-----

DATA/PARAMETER	$\Delta\text{CPAdPat}$										
Data Unit	tCO ₂ e										
Description	Total decrease in carbon stock due to all planned activities at year t in the project area										
Source of data to be used	Calculated										
Value data for the monitoring period	<table> <tr> <th>Year</th><th>$\Delta\text{CPAdPat}$ (tCO₂e)</th></tr> <tr> <td>2014</td><td>78,570.55</td></tr> <tr> <td>2015</td><td>239,880.79</td></tr> <tr> <td>2016</td><td>205,516.13</td></tr> <tr> <td>Total</td><td>523,967.47</td></tr> </table>	Year	$\Delta\text{CPAdPat}$ (tCO ₂ e)	2014	78,570.55	2015	239,880.79	2016	205,516.13	Total	523,967.47
Year	$\Delta\text{CPAdPat}$ (tCO ₂ e)										
2014	78,570.55										
2015	239,880.79										
2016	205,516.13										
Total	523,967.47										
Measuring and reporting frequency; recording procedure	Annually										
Type of monitoring equipment and its accuracy	Calculated										
How were the values in the monitoring report verified and cross-checked?	Calculated from previous monitored parameters verified in this report. Calculations were checked in Ers spreadsheet /2/.										
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A[										

DATA/PARAMETER	$\Delta\text{CPAiPat}$
Data Unit	tCO ₂ e
Description	Total increase in carbon stock due to all planned activities

	at year t in the project area	
Source of data to be used	Calculated	
Value data for the monitoring period	Year	$\Delta CPAiPA_t$ (tCO₂e)
	2014	0,00
	2015	4.036,86
	2016	10.773,42
	Total	14.810,28
Measuring and reporting frequency; recording procedure	Annually	
Type of monitoring equipment and its accuracy	Calculated	
How were the values in the monitoring report verified and cross-checked?	Calculated from previous monitored parameters verified in this report. Calculations were checked in Ers spreadsheet /2/.	
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A	

DATA/PARAMETER	$\Delta CADLK_t$	
Data Unit	tCO ₂ e	
Description	Total decrease in carbon stocks due to displaced deforestation at year t	
Source of data to be used	Remote sensing and GIS.	
Value data for the monitoring period	Year	$\Delta CADLK_t$ (tCO₂e)
	2014	0.00
	2015	0.00
	2016	0.00
	Total	0.00

	CL2
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	Remote sensing and GIS
How were the values in the monitoring report verified and cross-checked?	Agencia Verde Report/5/.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	ΔCPSLKt
Data Unit	tCO ₂ e
Description	Annual carbon stock change in leakage management areas in the project case at year t
Source of data to be used	- Activities report related to leakage prevention measures proposed by Agro cortex REDD Project; - SOCIALCARBON Reports; - Field assessment; - Remote sensing and GIS
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	- Field measurements and assessments; - Remote sensing and GIS
How were the values in the monitoring report verified and cross-checked?	Agro cortex reported no activities in the Social Carbon Report /13/ in the LMA for 2014, 2015 and 2016 which would impact on carbon stocks.

If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A
---	-----

DATA/PARAMETER	ΔCUDdPA_t												
Data Unit	tCO ₂ e												
Description	Total actual carbon stock change due to unavaoided unplanned deforestation at year <i>t</i> in the project area												
Source of data to be used	- Remote sensing and GIS - Supervisor reports.												
Value data for the monitoring period	<table><tr><th>Year</th><th>ΔCUDdPA_t (tCO₂e)</th></tr><tr><td>2014</td><td>2,389.23</td></tr><tr><td>2015</td><td>1,108.87</td></tr><tr><td>2016</td><td>16,931.69</td></tr><tr><td>Total</td><td>20,429.79</td></tr></table>	Year	ΔCUDdPA_t (tCO ₂ e)	2014	2,389.23	2015	1,108.87	2016	16,931.69	Total	20,429.79		
Year	ΔCUDdPA_t (tCO ₂ e)												
2014	2,389.23												
2015	1,108.87												
2016	16,931.69												
Total	20,429.79												
Measuring and reporting frequency; recording procedure	Annually												
Type of monitoring equipment and its accuracy	- Remote sensing and GIS Accuracy as per Agencia Verde Report /5/: KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8 - Supervisor reports.												
How were the values in the monitoring report verified and cross-checked?	Agencia verde report maps /5/ and carbon density calculated in the area validated /4/.												
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A												

DATA/PARAMETER	EBBPSPAt										
Data Unit	tCO ₂ e										
Description	Sum of (or total) actual non-CO ₂ emissions from forest fire at year t in the project area										
Source of data to be used	- Remote sensing data and GIS - Supervisor reports.										
Value data for the monitoring period	<table> <tr> <th>Year</th><th>EBBPSPA_t (tCO₂e)</th></tr> <tr> <td>2014</td><td>176.89</td></tr> <tr> <td>2015</td><td>465.00</td></tr> <tr> <td>2016</td><td>330.43</td></tr> <tr> <td>Total</td><td>972.32</td></tr> </table>	Year	EBBPSPA _t (tCO ₂ e)	2014	176.89	2015	465.00	2016	330.43	Total	972.32
Year	EBBPSPA _t (tCO ₂ e)										
2014	176.89										
2015	465.00										
2016	330.43										
Total	972.32										
Measuring and reporting frequency; recording procedure	Annually										
Type of monitoring equipment and its accuracy	- Remote sensing data and GIS Accuracy as per Agencia Verde Report /5/: KIA 2014: 0.9 KIA 2015: 0.9 KIA 2016: 0.8 - Supervisor reports.										
How were the values in the monitoring report verified and cross-checked?	Agencia verde report maps /5/										
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	The areas were monitored and conservatively considered to have been 100% deforested by forest fires.										

DATA/PARAMETER	EgLKt
Data Unit	tCO ₂ e
Description	Emissions from grazing animals in leakage management areas at year t.
Source of data to be used	- Activities report related to leakage prevention measures proposed by Agro cortex REDD Project; - SOCIALCARBON Reports; - Field assessment; - Remote sensing data and GIS.

Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	- SOCIALCARBON Reports; - Field assessment;
How were the values in the monitoring report verified and cross-checked?	The values were verified from the Social Carbon Report and site visit. There was no introduction of grazing animals in the leakage management area by the project activity.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	EADLK _t
Data Unit	tCO ₂ e
Description	Total <i>ex post</i> increase in GHG emissions due to displaced forest fires at year <i>t</i> .
Source of data to be used	Remote sensing data and GIS.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	Remote sensing and GIS
How were the values in the monitoring report verified and cross-checked?	Agencia Verde Report/5/.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	HI _{icl,t}
Data Unit	m ³ /ha
Description	Harvesting intensity of timber in forest class <i>icl</i> at year <i>t</i> in

	the project area due to planned logging activities (i.e., sustainable forest management plan).		
Source of data to be used	Sustainable forest management activity reports, such as the annual operational plan and the annual post-harvesting report.		
Value data for the monitoring period	Year	Hiicl,t (m³/ha)	
	2014	3.44	
	2015	7.41	
	2016	13.30	
	Total	8.07	
Measuring and reporting frequency; recording procedure	Annually		
Type of monitoring equipment and its accuracy	This data is taken from post exploratory reports (or post harvesting reports) /11//12/ sent to IBAMA, so it is an official source. Each harvested log is measured by Agro cortex with the type of equipment used for normal forest inventory (tape measures etc) and data stored in an app and sent to Inforest Software. The process is checked by IBAMA and the FSC.		
How were the values in the monitoring report verified and cross-checked?	This data is taken from post exploratory reports (or post harvesting reports) /11//12/ sent to IBAMA.		
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A		

DATA/PARAMETER	Logging damage factor (LDF)
Data Unit	m³/m³ of harvested timber
Description	The logging damage factor (LDF) is a representation of the quantity of emissions that will ultimately arise per unit of extracted timber (m³). These emissions arise from the non-commercial portion of the felled trees (the branched and stump) and trees incidentally killed during felling.
Source of data to be used	SFMP related documentation, such as forestry inventory, harvesting management plans and post-harvest assessment reports.

Value data for the monitoring period	1 for all years
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	The same equipment applied in the forest inventory.
How were the values in the monitoring report verified and cross-checked?	SFMP /14/
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	LTF _w
Data Unit	%
Description	Fraction of wood products that are considered permanent (i.e. carbon is stored for 100 years or more).
Source of data to be used	Sustainable forest management activity reports, such as the annual operational plan and the annual post-harvesting report. Financial reports may also be utilized to calculate this parameter.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	This data is taken from post exploratory reports (or post harvesting reports) /11//12/ sent to IBAMA, so it is an official source. Each harvested log is measured by Agro cortex with the type of equipment used for normal forest inventory (tape measures, identification of trees etc) and data stored in an app and sent to Inforest Software. The process is checked by IBAMA and the FSC..
How were the values in the monitoring report verified and cross-checked?	Post harvest reports /11//12/.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for	N/A

deviation been approved?	
--------------------------	--

DATA/PARAMETER	MTF _w
Data Unit	%
Description	Fraction of wood products that are retired between 3 and 100 years.
Source of data to be used	Sustainable forest management activity reports, such as the annual operational plan and the annual post-harvesting report. Financial reports may also be utilized to calculate this parameter.
Value data for the monitoring period	69
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	This data is taken from post exploratory reports (or post harvesting reports) /11//12/ sent to IBAMA, so it is an official source. Each harvested log is measured by Agrocortex with the type of equipment used for normal forest inventory (tape measures, identification of trees etc) and data stored in an app and sent to Inforest Software. The process is checked by IBAMA and the FSC..
How were the values in the monitoring report verified and cross-checked?	Post harvest reports /11//12/.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	STF _w
Data Unit	%
Description	Fraction of wood products and waste that will be emitted to the atmosphere within 3 years.
Source of data to be used	Sustainable forest management activity reports, such as the annual operational plan and the annual post-harvesting report. Financial reports may also be utilized to calculate this parameter.
Value data for the monitoring period	31
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and	This data is taken from post exploratory reports (or post

its accuracy	harvesting reports) /11//12/ sent to IBAMA, so it is an official source. Each harvested log is measured by Agro cortex with the type of equipment used for normal forest inventory (tape measures, identification of trees etc) and data stored in an app and sent to Inforest Software. The process is checked by IBAMA and the FSC.
How were the values in the monitoring report verified and cross-checked?	Post harvest reports /11//12/.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	MAI _{icl}
Data Unit	m ³ /ha/year
Description	Mean annual increment at each forest class due to natural regeneration of managed forests following planned sustainable logging activities
Source of data to be used	- Field measurements in sample plots; - BRASIL. Conselho Nacional do Meio Ambiente (CONAMA). Resolution 406, dated 02/02/2009. Diário Oficial [da] República Federativa do Brasil, Brasília, DF, 06 fev. 2009. This Resolution establishes technical parameters to be adopted in the preparation, presentation, technical evaluation and execution of a Sustainable Forest Management Plan – SFMP for logging purposes, for native forests and their succession forms in the Amazon biome.
Value data for the monitoring period	0.86
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	The same equipment applied in the forest inventory. The process is checked by IBAMA.
How were the values in the monitoring report verified and cross-checked?	/14//16/
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption	N/A

theoretically possible been applied or has a request for deviation been approved?	
---	--

DATA/PARAMETER	RF_t
Data Unit	%
Description	Risk factor used to calculate VCS buffer credits
Source of data to be used	- VCS Non-Permanence Risk Report_Agrocortex REDD Project, - Remote sensing data and GIS, - Supervisor information Literature data.
Value data for the monitoring period	15
Measuring and reporting frequency; recording procedure	Annually
Type of monitoring equipment and its accuracy	The RF_t was estimated using the most recent version of the VCS-approved AFOLU Non-Permanence Risk Tool and the resulting value of RF_t for the present REDD project was 15%.
How were the values in the monitoring report verified and cross-checked?	
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A

DATA/PARAMETER	VEXw,j,icl,t			
Data Unit	m³			
Description	Volume of timber for product class <i>w</i> , of species <i>j</i> , extracted from within forest class <i>icl</i> at time <i>t</i>			
Source of data to be used	Sustainable forest management activity reports, such as the annual operational plan and the annual post-harvesting report. Financial reports may also be utilized to calculate this parameter.			
Value data for the monitoring period	VEXw,j,icl,t (m³)			
	Timber commercial Groups	2014	2015	2016

	High density woods and Mahogany	4.558,51	14.587,57	12.728,61
	White woods	610,65	4.395,81	9.650,80
	Total	5.169,17	18.983,38	22.379,41
Measuring and reporting frequency; recording procedure	Annually			
Type of monitoring equipment and its accuracy	Same as equipment used for forest inventory. Each harvested log is measured by Agro cortex with the type of equipment used for normal forest inventory (tape measures, identification of trees by local personnel etc) and data stored in an app and sent to Inforest Software. The process is checked by IBAMA and the FSC.			
How were the values in the monitoring report verified and cross-checked?	Post Harvesting Reports /11//12/ and SFMP /14/.			
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	N/A			

It is the opinion of the validation team that the data monitored was sufficient, of appropriate quality to determine the GHG reductions and removals.

4.4 Non-Permanence Risk Analysis

All evidences used for the Non-Permanence Risk Analysis of these first monitoring period /3/ were the same used to in the Non-Permanence Risk Analysis of the Validation Report /4/. Because Validation and the first Verification were carried out at the same time, there is no need to repeat information but refer the reader to the validation report as/for evidence to the Non-Permanence Risk Analysis of these first monitoring period.

The validation team confirms that the buffer is of 15% of the total Ers.

5 SAFEGUARDS

5.1 No Net Harm

The potential negative environmental and socio-economic impacts identified by the project proponent as well as the positive ones have been identified in the Social Carbon Report and are

shown in the table below. All mitigation actions to such impacts are discussed in the Social Carbon Report /13/

Table 1 Major social, economical, and environmental impacts of the emission reduction project. The relevant environmental impacts, which are specifically related to the emission reductions, are described at the VCS PD /18/, in the section of Environmental Impacts.

Activity	Aspect	Impact	Effect		Comments/ Observation
			Beneficial	Adverse	
Sustainable forest management	Frighten animals	Hunting shortage		X	- Biodiversity resource: Biodiversity monitoring; Impact on remaining flora
Sustainable forest management	Vehicle transport	Air Pollution, Noise and soil erosion		X	- Human resource: Conflict management
Sustainable forest management	Land demarcation processes	Land tenure	X		- Natural resource: Land tenure
Sustainable forest management	Presence of company/workers on local communities	Conflicts between company/workers and local communities		X	- Human resource: Conflict management; Public health - Carbon resource: Stakeholder consultation
REDD carbon project	Conservation of Amazon Rainforest	Avoided deforestation	X		- Carbon resource: Project performance; Buffer reduction
REDD carbon project	Empowerment	Increase independence of communities in the project area.	X		- Social resource: Associations and cooperatives; Women inclusion - Human resource: Community education and training - Financial resource: Alternative income sources Biodiversity resource: Non timber forest products (NTFPs)
REDD carbon	Application	Encouragement	X		- Social resource:

project	n of the Social Carbon methodology	ent, monitoring and investment on social, economic and environmental aspects in the project region.			Women inclusion; Expansion of community activities - Financial resource: Secure funds; Carbon credit Investments - Natural resource: Social and Environmental Investments; Control and Quality monitoring
---------	---	---	--	--	---

5.2 Local Stakeholder Consultation

The local stakeholder consultation was held on 20/06/2017 in the Agro cortex industrial complex located in Manoel Urbano, State of Acre. Rina participated of the consultation which was in the form of a meeting. All questions from stakeholders were answered there in the meeting itself.

The list of invites are found on section 2.4.2 of the MR. The ARs for them have been checked by the validation team /22/. The validation team confirms that PPs answered all questions appropriately.

6 VERIFICATION CONCLUSION

RINA Service S.p.A (RINA) has performed verification of the emission reductions reported for the project activity “Agrocortex REDD Project” in Brazil, for the VCS monitoring period from 01/07/2014 to 31/12/2016, with regard to the relevant requirements for VCS rules.

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the VCS requirements and procedures and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- The project has been implemented and operated as per the registered VCS PD;
- The monitoring plan in the registered VCS-PD is as per the applied baseline and monitoring methodology.
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS requirements.

It is RINA's opinion that the GHG emission reduction stated in the VCS monitoring report version 03 of 14/03/2018 for the “Agrocortex REDD Project” in Brazil for the period 01/07/2014 to 31/12/2016 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the baseline and monitoring methodology VCS VM0015 Methodology for Avoided Unplanned Deforestation v1.1 of 03/12/2012 /6/.

Hence, RINA is able to certify that the total emission reductions from the project during the monitoring period 01/07/2014 to 31/12/2016 amount to 727,178 tCO₂e and that tradable VCUs are 617,953tCO₂e.

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions (tCO ₂ e)	Project emissions (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2014 (01/07/2014 to 31/12/2014)	129,539	40,657	0,00	88,883
Year 2015	543,312	237,418	0,00	305,895
Year 2016	544,405	212,005	0,00	332,400
Total	1,217,257	490,079	0,00	727,178

APPENDIX 1: FINDINGS

Corrective action and/ or clarification requests	Response by project participants	Verification Conclusion
CAR 1 Monitoring report states parameter $AUFPA_{icl,t}$ is monitored “Each time a significant forest fire occurs” methodology VM0015 /6/ requires this to be monitored annually. $\Delta CPAdPat$ and $\Delta CPAiPat$ in meth VM0015 /6/ states the source as calculated. The same should be shown in PD and MR.	No forest fire was used by Agrocortex for carrying out planned deforestation or timber harvesting activities. However, there were around 33 ha of unplanned deforestation within the project area during the monitored period, which conversion of forest to non-forest could have involved fires. The effect of fire on carbon emissions is counted in the estimation of carbon stock changes in the parameter $\Delta CUDdPA_t$; therefore CO_2 emissions from forest fires were ignored to avoid double counting. However, non-CO_2 emissions (CH_4 and N_2O) from forest fires must be counted in the project scenario, when they are significant. It was conservatively assumed that all unplanned deforestation within the project area involved fire and all above ground biomass was burnt. Therefore, non-CO_2 emissions from forest fires were quantified and deducted from emission reductions. Thus, the parameters $AUFPA_{icl,t}$ and $EBBPSPA_t$ were corrected in the Monitoring Report and calculation spreadsheet. In addition, the frequency of monitoring/recording of parameter $AUFPA_{icl,t}$ was corrected to annually in the MR.	PP has corrected parameter $AUFPA_{icl,t}$ to state parameter should be monitored annually in MR v2 /1/. $\Delta CPAdPat$ and $\Delta CPAiPat$ were also corrected. CAR1 is closed.

Corrective action and/ or clarification requests	Response by project participants	Verification Conclusion
CAR2 Insert in the Ers spreadsheets the calculation and results of $VEX_{w,j,icl,t}$ so that the VVB can check values and audit trail.	The results of the parameter $VEX_{w,j,icl,t}$ were inserted in the calculation spreadsheet.	Calculation of the final values of the parameter were inserted in the Ers calculation spreadsheets. The source of values were checked against Post Harvesting Reports /11/12/ and SFMP /14/. CAR2 is closed.
CAR 3 Please revise MR to reflect changes due to VCS findings of the validation. More specifically the baseline changes to do with uncertainty.	The uncertainty assessment was described in the MR v03, Section 4.1 – Baseline Emissions. Carbon stock values were obtained from Salimon <i>et al.</i> (2011), which presents uncertainties as one standard deviation of the mean. Thus, confidence interval of this method was around 68.27%. This was converted to a confidence interval of 90%, according to the applied methodology. Therefore, carbon stocks per hectare existing in the project area and leakage belt were adjusted for uncertainties at confidence interval of 90%, and final carbon stock values now considers discounts for uncertainties. All values were revised in the MR and calculation spreadsheet.	The VVB checked that the changes in carbon stocks due to uncertainties are now reflected in the MR v03. CAR3 is closed.
CL 1 How can the PP demonstrate that the unplanned patches observed in the satellite images of 2014, 20015 and 2016 to have been deforested inside of the project area /5/ were not a result of fire confirming the value assigned for $AUFPA_{icl,t}$?	It was conservatively assumed that all unplanned deforestation within the project area during the current monitoring period involved fire and all above ground biomass was burnt. Thus, the parameters $AUFPA_{icl,t}$ and $EBBPSPA_t$ were corrected in the Monitoring Report and calculation spreadsheet.	PP conservatively assumed all unplanned deforestation within the PA during the current monitoring period were caused by fire. Parameter $AUFPA_{icl,t}$ and consequently $EBBPSPA_t$ were corrected in the MR v2 /1/. CL1 is closed.

Corrective action and/ or clarification requests	Response by project participants	Verification Conclusion
CL2 The evidence provided in the MR v1.2 by the PP is not sufficient to demonstrate to the VVB that the deforestation in Manoel Urbano area is not completely attributable to deforestation agents that are linked to the project area as required by meth in order not to consider it as leakage as determined by the applied methodology /6/. Perhaps present data which show that rate of deforestation in LMA reduced compared to historical levels and that the one near Manoel Urbano increased as stated in MR v01.2 page 16 /1/ as it is not possible to see from maps in MR or Agencia Verde Report /5/ that this is the case.	The leakage belt (LK) was divided into three quadrants for the analysis of deforestation. According to the GIS analysis, the two quadrants located at the LK extremities presented an increase in the deforestation rate during the monitoring period, while the central region near the LMA showed a decrease in the deforestation rate over the monitoring period. Furthermore, more information was included about the deforestation rate increase in the two closest municipalities from the project area, according to Brazilian Governmental data. In addition, a graphic was inserted in the MR showing that the deforestation rate within the central quadrant near the LMA and project area showed a decrease during the monitoring period, while an increase rate was observed in other quadrants. Therefore, observing the deforestation patterns in those 3 quadrants of the Leakage Belt, the GIS analysis led to the conclusion that the increase in deforestation in the Leakage Belt extremities was not associated with the initiation of the REDD project.	PP provided extra analysis (Figure 12 of the Monitoring Report version 2) carried out with data from Agencia Verde Report /5/. The graph in fig 12 shows a decrease in the rate of deforestation in the area at close proximity to PA (LMA) and increase in Manoel Urbano. Furthermore the analysis in the spreadsheet 'Manoel Urbano_Boca do Acre_Sena Madureira_historical deforestation' /17/ with data from INPE show an increase in deforestation in the last two years in Manoel Urbano and Sena Madureira. These two analysis together are strong evidence to demonstrate that deforestation is not attributed to agents that are linked to the project area. CL2 is closed.
CL3 Please check the circular formula used in cel J23 of the table 8_expost tab of the Ers spreadsheet.	The circular formula in Table 8_ex post was corrected in the calculation spreadsheet.	Ok circular formula corrected in ER spreadsheets v2 /2/. CL3 is closed.
CL4 After the VCS findings, during validation, Agro cortex placed the following statement in the PD version 5:	A small part of the project area ($\pm 3\%$) is located within the State of Acre, where there is a proprietary and voluntary nested REDD+ program named SISA-Carbon	The VVB checked once again the Law 2308 of 2010 /23/ and confirms that the ISA Carbon Program is not fully regulated as already stated in the PD,

Corrective action and/ or clarification requests	Response by project participants	Verification Conclusion
"It is important to emphasize that the adhesion to the jurisdictional program of the State of Acre is voluntary and when not carried out by the private projects, it should be considered by the State for the purposes of the environmental accounting of its system in order to avoid double counting[1]. [1] According to ISA Carbon Program of Acre. Available at: <https://mer.markit.com/br-reg/public/project.jsp?project_id=10300000005599>. The deduction of GHG emission reductions that were generated by private REDD projects within the State can be seen in Table 2 of (ACRE) Monitoring Report (01 Aug 2014-31 Jul 2015), available at: <https://mer.markit.com/br-reg/services/processDocument/downloadDocumentById/103000000078986>. Last visited on 12-March-2018." In the light of the above statement, please clarify how will Agro cortex make sure there will be no double counting of the credits claimed under VCS. That is, how can the PP guarantee that the ERs claimed under the VCS are accounted by the Jurisdictional Program as being under the 10% allocated to private projects from 01-July-2014 to 31-December-2016.	Program, which is not validated by the VCS or other Carbon Standard. The SISA-Carbon Program does not provide any determination, rule, limitation or specification about the execution of REDD projects in the territory of the State of Acre, by private initiative or by the State of Acre itself. Furthermore, the SISA-Carbon Program does not have, under any circumstances, the obligation of private REDD projects to adhere to the SISA-Carbon Program. The SISA-Carbon Program depends on regulations for legal applications on how to account for State GHG emission reductions. The adhesion to the jurisdictional program of the State of Acre is voluntary and when not carried out by the private projects, it should be considered by the State for the purposes of the environmental accounting of its system in order to avoid double counting. This is an duty for the State of Acre and not for private projects. It is important to mention that Agro cortex sent a letter to the IMC of Acre in 2017, which previously informed the State about the execution of the present project, also mentioning that the project is available to cooperate with the SISA Carbon Program and its objectives, and, if the jurisdictional program is validated by the VCS, may, if it is possible and pertinent, adhere to it. According to the 2nd Monitoring Report of the SISA-Carbon Program	although the law states that one of its objectives is to promote the institutionalisation of a state REDD+ system, which will sit on nationally and internationally recognised concepts and which will assure MQVRT, credibility and rastreability. The VVB also checked the Jurisdictional Program Description /25/and the Second Monitoring Report issued for the Jurisdictional REDD+ in 12.12.2016, prepared by the IMC /26/ and it is clear from these documents that private REDD+ projects are acknowledge by the State since, from 2011, it allocates 10% of each years estimates of emission reductions in the State of Acre to private projects and another 10% for uncertainties. After discounting these estimates the state of Acre comes to the emission reductions which are used as a measure of performance to subsidise state programs and for the state carbon market. However as stated by the PP in the answer to this CL this has not been properly regulated yet. Private REDD+ projects can adhere to the Jurisdictional REDD+ program but the VVB saw no mention of obligation in neither the 2308 law nor the Normative Instruction. Furthermore page 19 of the Second Monitoring Report does state that 'When Acre implements an effective registration of private projects in the future, there will be a specific allocation of emission

Corrective action and/ or clarification requests	Response by project participants	Verification Conclusion
	(https://mer.markit.com/br-reg/services/processDocument/downloadDocumentById/103000000078986), Section 6 in page 19, the SISA-Carbon Program acknowledges that there are private projects within Acre's territory; however they have not been nested into the Program yet. As mentioned before, the Program does not have a legal force, thus the adhesion of private initiatives into the Program is voluntary. As the Program does not have any accounting, nesting or registration procedures regulated by Law, the SISA-Carbon Program considers a reserve for private projects of 10% as of 2011. When Acre implements an effective registration of private projects in the future, there will be a specific allocation of emission reductions generated by private projects in each year, based on the integration with the State reference level, as detailed in the page 19 of the 2nd MR of the SISA_Carbon Program. Therefore, the Program will estimate a reserve for private projects of 10% until the State integration system is created. In addition to that, the SISA-Carbon Program also reserves another 10% as buffer, and an additional $\pm 5\%$ due to uncertainties. These discounts help avoiding double counting with other private projects, such as Agrocortex VCS Project, even though the SISA-Carbon Program was not validated under VCS or other carbon standard,	reductions generated by private projects in each year, based on the integration with the State reference level'. In summary, considering that: 1) the State of Acre has not fully regulated its Carbon Programme and Jurisdictional system yet, particularly with regards on how to nest private projects; 2) Law 2308 of 2010 /23/ states that one of its objectives is to promote the institutionalisation of a state REDD+ system, which will sit on nationally and internationally recognised concepts; 3) private REDD+ can adhere to the Jurisdictional REDD+ programme but the VVB saw no mention of obligation in neither the 2308 law nor the Normative Instruction. 4) Agrocortex has not joined the Jurisdictional Program but opted for the VCS; 5) the State of Acre discounts 20% of its estimates of emission reductions (10% for private projects and 10% for technical uncertainties when

Corrective action and/ or clarification requests	Response by project participants	Verification Conclusion
		aligning with the National Plans); 6) only 3% of the Agrocorrex Project Area is located in Acre; The VVB understands that there is no risk of double counting emission reductions issued from 01-July-2014 to 31-December-2016 under VCS with the SISA-Carbano program. CL4 is now closed.
FAR1 For the next verifications calculate the carbon stock per hectare of the Project Area using the forest inventories carried out by Agrocorrex, as a comparison with the data of the scientific literature.		



CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES*

Si attesta che il sig./sig.ra:
 We declare that Mr/Mrs/Ms:

Tallita Carvalho Beck

è qualificato come:
 is qualified as:

TEC, VAL, VER, TL
 LOCAL EXPERT

per le seguenti aree tecniche:
 for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
13.1	Solid waste and wastewater	13
14.1	Forestry	14

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	First issue with new template (this certificate is linked to CDM qualification)
1	14/06/2017	Update qualification in TA 14.1 and Local expert

Responsabile di schema
 Scheme Leader
 Laura Severino

*SCHEMI VOLONTARI/VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert; VAL: Validator; VER: Verifier; TL: Team leader; FIN EXP: Financial Expert; ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/recognized by
 RINA Services S.p.A. is accredited/recognized by

UNFCCC	quali Entity Operative Designated (DOE), per condurre la Validazione e la Verifica di Progetti CDM as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects
VCSA	per condurre la Validazione e la Verifica di Progetti VCS to carry out Validation and Verification of VCS Projects
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS to carry out Validation and Verification of GS Projects
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SCS to carry out Validation and Verification of SCS Reports
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR to carry out Validation and Verification of ACR projects
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB to carry out Validation and Verification of co-benefit CCB projects



CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES*

Si attesta che il sig./sig.ra:
 We declare that Mr/Mrs/Ms:

Giulia Maria Principe Branco Sestoni

è qualificato come:
 is qualified as:

TEC, VAL, VER, TL, ITRP

per le seguenti aree tecniche:
 for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORIAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
1.3.1	Solid waste and wastewater	13

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2015	First issue with new template (this certificate is linked to CDM qualification)

Responsabile di schema
 Scheme Leader
 Rita Valeroso

*SCHEMI VOLONTARI/VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, CCR Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert, VAL: Validator, VER: Verifier, TL: Team leader, FNR: Project, ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditata/recognized by
 RINA Services S.p.A. is accredited/recognized by

UNPCCC	isole UNPCCC Operative Designate (OCDE), per condurre la Validazione e la Verifica di Progetti CDM as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects
VCSA	per condurre la Validazione e la Verifica di Progetti VCS to carry out Validation and Verification of VCS Projects
CCR Foundation	per condurre la Validazione e la Verifica di Progetti CCR to carry out Validation and Verification of CCR Projects
European Institute	per condurre la Validazione e la Verifica di Progetti ECR to carry out Validation and Verification of ECR Projects
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR to carry out Validation and Verification of ACR projects
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti con benefit CCB to carry out Validation and Verification of benefit CCB projects



CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES*

Si attesta che il sig./sig.ra:
 We declare that Mr/Mrs/Ms:

Rekha Menon

è qualificato come:
 is qualified as:

TEC, VAL, VER, TL, ITRP

per le seguenti aree tecniche:
 for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Electricity distribution	2
13.1	Solid waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	First issue with new template (this certificate is linked to CDM qualification)

Responsabile di schema
 Scheme Leader
 Rita Valoroso

*SCHEMI VOLONTARI/ VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert; VAL: Validator; VER: Verifier; TL: Team leader; FIN EXP: Financial Expert; ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/riconosciuto da
 RINA Services S.p.A. is accredited/recognized by

UNFCCC	quali Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects
VCSA	per condurre la Validazione e la Verifica di Progetti VCS to carry out Validation and Verification of VCS Projects
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS to carry out Validation and Verification of GS Projects
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SCS to carry out Validation and Verification of SCS Reports
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR to carry out Validation and Verification of ACR projects
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB to carry out Validation and Verification of co-benefit CCB projects