



**Verified Carbon
Standard**

VCS JOINT VALIDATION & VERIFICATION REPORT



Document Prepared by RINA Services S.p.A.

Project Title	Yellow Ipê Grouped REDD Project
Report Title	Validation report of Yellow Ipê Grouped REDD Project
Version	02Aa
Report ID	20BQ44MD
Verification Period	01-March-2020 to 31-December-2020
Client	Ecológica Assessoria Ltda
Pages	144
Date of Issue	16/09/2021
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Summary:

RINA has performed a validation of the project activity “Yellow Ipê Grouped REDD Project” in Brazil to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. The validation was performed on the basis of VCS requirements for VCS projects, as well as criteria given to provide for consistent project operations, monitoring and reporting. In addition, RINA has performed the verification of the emission reductions reported for the “Yellow Ipê Grouped REDD Project” for the period 01 March 2020 to 31 December 2020, to review and determine whether the monitored reductions in GHG emissions have occurred as a result of the project activity.

The validation and verification were conducted by means of document review, follow-up interviews and remote assessment, and the resolution of outstanding issues (32 CARs and 10 CLs in total). The review of the VCS joint project description & monitoring report and the subsequent follow-up interviews and remote site assessment have provided RINA with sufficient evidence to determine the fulfilment of stated criteria.

The project is a grouped project that avoid unplanned deforestation. The project has applied the VCS methodology VM0015 “Methodology for Avoided Unplanned Deforestation”, version 1.1.

In summary, it is RINA’s opinion that the project activity “Yellow Ipê Grouped REDD Project” as described in the VCS PD&MR, dated 07 July 2021, meets all relevant VCS requirements for VCS projects and correctly applies the VCS methodology VM0015 “Methodology for Avoided Unplanned Deforestation”, version 1.1. In addition, the GHG emission reductions reported for the project in the VCS joint project description & monitoring report (version 04) of 07 July 2021 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the VCS methodology VM0015 “Methodology for Avoided Unplanned Deforestation”, version 1.1.

Hence, RINA recommends the registration of the project as a VCS grouped project and confirms that the ex-ante emission reductions estimated along the 30 years of the Project’s crediting period are on average

540,179tCO₂e per year, and the emission reductions during the monitoring period of 01 March 2020 to 31 December 2020 amount to 20,436 tonnes CO₂ equivalent with tradable VCUs coming to a total of 16,772tCO₂e.

RINA does not assume any responsibility towards the issuance and utilization of the VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration.

The verification of reported emission reductions is based on the information made available to RINA and the engagement conditions detailed in this report. RINA cannot be held liable by a party for decisions made or not made based on this report.

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1 INTRODUCTION

1.1 Objective

Ecológica Assessoria Ltda has contracted RINA Services S.p.A. (hereinafter referred to as RINA) to validate the project titled “Yellow Ipê Grouped REDD Project” (hereinafter referred to as the project) in the state of Amazonas, Brazil.

The purpose of a validation is to have an independent third party assessment of the project design. In particular, the project's baseline, monitoring plan, and compliance with relevant VCS criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all VCS projects and is necessary to provide assurance to stakeholders of the quality of the project and its intended generation of the Verified Carbon Units (VCUs).

Verification is the periodic independent review and ex-post determination by an accredited verification body of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined verification period.

A verification statement is the written assurance by a verification body that, during a specific period in time, a project activity achieved the emission reductions as verified.

The objective of this verification was to verify and provide a verification statement of emission reductions reported for the “Yellow Ipê Grouped REDD Project” for the period 01 March 2020 to 31 December 2020.

1.2 Scope and Criteria

The validation scope is defined as an independent and objective review of the VCS project document & monitoring report (VCS PD&MR). The VCS PD&MR is reviewed against the criteria stated in the VCS Version 4.0, and the relevant documents and policy announcements made by the VCSA.

The project activity falls under sector scope 14 – Agriculture, Forestry and Other Uses of Land (AFOLU).

In accordance with section 5.3.1 of the VCS Standard version 4.0, the criteria for validation include:

- VCS Standard version 4.0;
- VCS Validation and Verification Manual version 3.2;
- VCS Program Guide version 4.0;

- VCS AFOLU Additionality Tool version 3.0;
- VCS AFOLU Non-Permanence Risk Tool version 4.0.

These are the most recent versions of the relevant VCS guidance documents at the time of issuance of this report.

The scope of verification 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 emissions reduction data is free from material misstatement.
- To verify that reported GHG emissions data is sufficiently supported by evidence.
- To verify that the stakeholder consultation carried out is relevant and there are mechanisms for on-going communication.

The VCS PD&MR is reviewed against the criteria stated in the VCS Version 4.0, and the relevant documents and policy announcements made by the VCSA, and the criteria stated in the VCS methodology VM0015 “Methodology for Avoided Unplanned Deforestation”, version 1.1 of 03 December 2012.

The validation does not include project consulting. However, requests for clarifications and/or corrective actions may have provided input for improvement of the project design.

The verification shall ensure that reported emission reductions are complete and accurate in order to be verified.

1.3 Level of Assurance

RINA provides reasonable assurance that the “Yellow Ipê Grouped REDD Project” meets VCS criteria. To ensure complete transparency, any clarification or corrective actions raised have been included in the Appendix 2. The validation and verification express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.

In addition, RINA applies materiality threshold of 5 per cent with respect to omission or misstatement concerning reported quantities as per VCS Standard.

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 verification.

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

Role	Last Name	First Name	Country
Lead Assessor/ Technical Expert 14.1	C. BECK	Talita	External Auditor - Rina Brazil
Validator/Verifier	LEIROZ	Andrea	External Auditor - Rina Brazil
Technical Reviewer	P.B. SAETTONI	Geisa Maria	RINA Brazil
Technical Expert 14.1	LIMA	Gustavo	RINA Brazil

1.4 Summary Description of the Project

The “Yellow Ipê Grouped REDD Project” located in the Northern region of Brazil, is a Grouped Project, that avoid unplanned deforestation (AUD) of a region within the municipalities of Novo Aripuanã and Borba, in the state of Amazonas. The first Project activity instance has 86,091.66 ha of project area, which is within two private properties in the municipality of Novo Aripuanã. The Project starting date is February 12th 2020 and the first crediting period starts on 1st of March 2020. The total ex-ante estimated ER during the 30-year period of the Project Activity was estimated to be 16,205,376tCO₂e, an average of 540,179 tCO₂e per year in the 30-year period /2/. The ex-ante estimated ERs for the period of 1st of March 2020 to 31st December 2020 was 23,877tCO₂e /2/ and the actual verified ERs for that period was 20,436 tCO₂e /3/.

As described in the VCS PD&MR, besides the ecological and carbon benefits of the project, a proportion of the carbon credits generated will be dedicated to improving social and environmental conditions for the local community around the project area specifically contributing to environmental education and other social activities. The contribution to sustainability is being monitored applying the SOCIALCARBON® Standard, which is based in six key indicators: Biodiversity; Natural; Financial; Human; Social and Carbon Resources.

2 VALIDATION AND VERIFICATION PROCESS

2.1 Method and Criteria

The validation and verification consisted of the following three phases in accordance with the approved methodology, the VCS Standard version 4.0 and other relevant VCS requirements:

- A desk review of the project documents.
- Follow-up interviews with project stakeholders and remote site inspection.
- The resolution of outstanding issues and the issuance of the validation and verification report and opinion.

The following sections outline each step in more detail.

2.2 Document Review

The VCS PD&MR submitted by Ecológica Assessoria and additional background documents related to the project design and baseline, i.e., VCS Project Description Template, Approved VCS methodology, Validation and Verification Requirements, scientific literature and country law were reviewed.

The following tables list the documentation that was reviewed during the verification.

Documents provided by the project participant related directly to the VCS and climate portions of the project.

/1/	Ecológica Assessoria Ltda: VCS Joint Project Description and Monitoring Report “JOINT VCS PD Yellow Ipe Grouped REDD Project_v01”, version 01 dated 01 December 2020; “JOINT VCS PD Yellow Ipe Grouped REDD Project_v02”, version 02 dated 15 April 2021; “JOINT VCS PD Yellow Ipe Grouped REDD Project_v03”, version 03 dated 24 June 2021; “JOINT VCS PD Yellow Ipe Grouped REDD Project_v04”, version 04 dated 07 July 2021;
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	“JOINT VCS PD Yellow Ipe Grouped REDD Project v04.1” dated 07 July 2021; “JOINT VCS PD Yellow Ipe Grouped REDD Project v04.2” dated 16 September 2021.
/2/	Ecológica Assessoria Ltda: Emission reductions calculation spreadsheet for the validation. VCS PD Calculation_Yellow IPE Grouped REDD Project_v01.xlsx VCS PD Calculation_Yellow IPE Grouped REDD Project_v02.xlsx VCS PD Calculation_Yellow IPE Grouped REDD Project_v03.xlsx VCS PD Calculation_Yellow IPE Grouped REDD Project_v04.xlsx
/3/	Ecológica Assessoria Ltda: Emission reductions calculation spreadsheet for the verification. VCS MR Calculation_Yellow IPE Grouped REDD Project_period 01_01 03 2020_31 08 2020_v01.xlsx VCS MR Calculation_Yellow IPE Grouped REDD Project_period 01_01 03 2020_31 12 2020_v02.xlsx VCS MR Calculation_Yellow IPE Grouped REDD Project_period 01_01 03 2020_31 12 2020_v03.xlsx VCS MR Calculation_Yellow IPE Grouped REDD Project_period 01_01 03 2020_31 12 2020_v04.xlsx
/4/	Ecológica Assessoria Ltda: Non-Permanence risk report for validation: “Yellow Ip_Buffer Report_v01.pdf”, version 01 of 05 November 2020, “Yellow Ipà_Buffer Report_v02.pdf”, version 02 of 14 April 2021, “Yellow Ipà_Buffer Report_v03.pdf”, version 03 of 26 May 2021, “Yellow Ipà_Buffer Report_v04.pdf”, version 04 of 12 July 2021 and Yellow Ipê_Buffer Report_v04.1.pdf, version 04.1 of 13 September 2021. Non-Permanence risk report for verification: “Yellow Ip_Buffer Report_MR1_v01.pdf”, Yellow Ipà_Buffer Report_MR1_v02.pdf, Yellow Ipà_Buffer Report_MR1_v03.pdf, Yellow Ipà_Buffer Report_MR1_v04.pdf

	and Yellow Ipê_Buffer Report_MR1_v04.1.pdf, version 04.1 of 13 September 2021. "Yellow Ip_VCS Risk Report Calculation Tool_v01.xls"
/5/	Contract signed between Ecológica Assessoria Ltda and Grupo Leão on 12 February 2020.
/6/	INCRA delivery receipt for the Rural Property Registration Certificate (from the Portuguese Certificado de Cadastro de Imóvel Rural - CCIR): FAZENDA GRUPO LEÃO - RECIBO DE ENTREGA CCIR - MATRICULA 1813.pdf FAZENDA GRUPO LEÃO - RECIBO DE ENTREGA CCIR - MATRÍCULA 1818.pdf
/7/	Enrolment number #1,818 Gleba 04 and #1,813 Gleba 02 dated 23 December 2020. FAZENDA GRUPO LEÃO - Matrícula 1813.pdf. FAZENDA GRUPO LEÃO - Matrícula 1818.pdf.
/8/	Project location: KML file. <u>AP_utm_wgs84_21s (project area).kml</u>
/9/	Shape files with property limits AREAS_SIRGAS.shp.
/10/	INCRA – Gleba 2 rural property number 951.030.138.916-8 map
/11/	INCRA – Gleba 4 rural property number 951.030.138.169-8 map
/12/	Shape file with Property Limits "LimitePropriedade_UTM_WGS_1984.shp" file
/13/	MAPBIOMASS tif file with accumulated deforested areas in the Reference Region till 2019 "RR_demacum_2019.tif" file.
/14/	Link: <u>Mapbiomas Brasil</u> ,last accessed 28/02/2021.
/15/	Shape file with Project Area limits "Antigo_AP_utm_wgs84_21s_dissolve.shp"

	(same as the one uploaded in the VCS website “AP_utm_wgs84_21s” just a different file name).
/16/	Uezu, A. and Shirai, H, (2020) Report 4 - Study for the determination of baseline and deforestation dynamics for the Grupo Leão REDD Project (from the Portuguese: Relatório 4 - Estudo para a determinação da linha de base e dinâmica de desmatamento do projeto Grupo Leão REDD).
/17/	Shape of the drainage network produced by the SRTM digital elevation model “bacia_4ord_2_dissolve.shp”.
/18/	Raster with distances from pixels of the RR to the main road file: Dist_ate_estrada.tif.
/19/	Raster distances on the road file: Dist_na_estrada.tif.
/20/	Raster with sum of distances file: Sum_dist.tif.
/21/	MAPBIOMASS Shape file with cumulative deforested areas in the Reference Region till 2019 “desmacum_2019_RR.shp” file.
/22/	SRTM link: earthexplorer.usgs.gov last accessed 11/12/2020
/23/	Source of base of maps for precipitation: worldclim.org/data/worldclim21.html last accessed 11/12/2020
/24/	IBGE (SIVAM): vegetação_SIVAM_edit_sem_agua_pastagem_v2.shp
/25/	Raster data downloaded from MapBiomass file: “MB_GrupoLeão_COVER_2009.tif” “MB_GrupoLeão_COVER_2010.tif” “MB_GrupoLeão_COVER_2011.tif” “MB_GrupoLeão_COVER_2013.tif” “MB_GrupoLeão_COVER_2014.tif” “MB_GrupoLeão_COVER_2015.tif” “MB_GrupoLeão_COVER_2016.tif”

	"MB_GrupoLeão_COVER_2017.tif" "MB_GrupoLeão_COVER_2018.tif"
/26/	Key codes for the values of pixels in Collection 4 of the MapBiomias (from the portuguese Códigos da Legenda para os Valores de Pixel na Coleção 4 do MapBiomias).
/27/	Remote local stakeholder consultation: Invitation letter; Invitation e-mail; Invitation receipt; Presentation - YellowIPE_LSC.pdf and YellowIPE_LSC_versão 2.pptx.pdf; Videoconference record - Yellow Ipê Stakeholders Consultation.m4a; Minute of the meeting held on 18/01/2021 - 18 01 2021 Ata Stakeholders Consultation_Yellow Ipê Grouped REDD Project.pdf.
/28/	Presential local stakeholder consultation: Local social diagnosis. Folder LSC - Yellow Ipà.pdf Relatorio de Viagem.pdf QUESTIONÁRIO DIAGNÓSTICO SOCIOECONOMICO - YELLOW IP".pdf Social-economic questionnaire for the 8 families that live within the project area: CARLIANE.pdf, CARLIEL.pdf, CELMO.pdf, JOÃO DIAS.pdf, MOACIR BATISTA, RAIMUNDO RODRIGUES.pdf, SEBASTIÃO RODRIGUES.pdf and VALDEMI PEREIRA.pdf. Videos and photos.
/29/	Investment analysis costs: Monitoring – e-mail from EAM Assessoria dated 02 February 2021. Boat purchase, equipment maintenance and monitoring costs – proposal issued by Casa do Pescador dated 11 January 2021.

	Accountancy and taxes – e-mail dated 03 February 2021 from Alfacontabil. Forest conservation and social environmental activities - Budget Ecomaput_2013-2017.xlsx. Adicionalidade_GL.xlsx.
/30/	Investment analysis of the alternative scenario: Yellow Ipe_Project_Cashflow Buffer_PD_v02.xlsx, Yellow Ipe_Project_Cashflow Buffer_PD_v03.xlsx, Yellow Ipe_Project_Cashflow Buffer_PD_v04.xlsx and Yellow Ipe_Project_Cashflow Buffer_PD_v04.1.xlsx.
/31/	Original dwg files with GPS data from records made on field (files later transformed in shp and tif for calculation of property area) PLANTA GLEBA 02.dwg PLANTA GLEBA 04.dwg
/32/	Files with precipitation data: ap_precipitacao.tif rr01_precipitacao.tif
/33/	Files with declivity data: ap_decliv_graus.tif rr01_declive.tif
/34/	Files with altitude data: ap_dem_fill.tiff rr01_altitude.tif rr01_altitude_classes.tif
/35/	Files with vegetation data: Vegetation map (SIVAM) with clipping of the reference region without the project area:

	rr_ap_veg_sivam.shp Vegetation map (SIVAM) of the project area: ap_veg_sivam.shp Spreadsheet with the areas and percentage of phytophysiognomies in the cut of the reference region without the PA and the phytophysiognomies in the PA: fitofisionomias.xlsx.
/36/	Files with acumulated deforestation of the reference period: “DesmatAcum_2009.tif” “DesmatAcum_2010.tif” “DesmatAcum_2011.tif” “DesmatAcum_2012.tif” “DesmatAcum_2013.tif” “DesmatAcum_2014.tif” “DesmatAcum_2015.tif” “DesmatAcum_2016.tif” “DesmatAcum_2017.tif” “DesmatAcum_2018.tif” “DesmatAcum_2019.tif”.
/37/	IBGE shapes of the municipalities: dashboard_cities-static-layer
/38/	Spreadsheet with projected deforestation per phytophysiognomy: “Baseline_AP_FITO_pol.xls”, “Baseline_LB_FITO_pol.xls” “Baseline_RR_FITO_pol.xls”

/39/	Shape files with projected deforestation "pa_md12_01.shp" to "pa_md12_31.shp",
/40/	Raster files generated from the Dinamica Ego models for the 30 years of project "md12_01.tif" to "md12_31.tif"
/41/	File with Randomforest land classification of the RR Class_dez2020_GrupoLeao.tif
/42/	File with land classification raster format in UTM Class_dez2020_GrupoLeao_UTM.tif
/43/	File with land classification in UTM vectorised Class_dez2020_GrupoLeao_UTM_pol.shp
/44/	Vector file already validated and used to calculate area deforested in the first monitoring period DesmatAcum_2019_RR.shp
/45/	RR deforestation in 2020. Intersect_RR.shp
/46/	PA and LBA Monit_dez2020_AP.shp Monit_dez2020_LB.shp
/47/	Deforested areas in PA and LB Intersect_PA.shp Intersect_LB.shp
/48/	Deforested areas in 2020 for each phytophysiology in PA and LB. Intersect_PA_Fito.shp Intersect_LB_Fito.shp

/49/	Geosreferencing Contract 23/04/2018 between PP and Amazon – Topografia e Logística de Selva Ltda.
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Standards, methodologies, and other guidance by the VCSA and CCBA

/50/	Verified Carbon Standard: VCS Standard version 4.0 dated 19 September 2019.
/51/	Verified Carbon Standard: VCS Validation and Verification Manual, version 4.0 dated 19 September 2019.
/52/	Verified Carbon Standard: VCS Program Definitions version 4.0 dated 19 September 2019.
/53/	Verified Carbon Standard: VCS Guidance for Standardized Methods version 3.3 dated 08 October 2013.
/54/	Verified Carbon Standard: VCS Program Guide version 4.0 dated 19 September 2019.
/55/	Verified Carbon Standard: VCS Joint Validation & Verification Report Template, VCS version 4 dated 19 September 2019.
/56/	Verified Carbon Standard: VCS Joint Project Description & Monitoring Report Template, VCS version 4 dated 19 September 2019.
/57/	Verified Carbon Standard: VCS AFOLU Non-Permanent Risk Tool version 4.0 dated 19 September 2019.
/58/	Verified Carbon Standard: VCS Non-Permanent Risk Report Template version 4.0 dated 19 September 2019.
/59/	Verified Carbon Standard: VCS Methodology for Avoided Unplanned Deforestation – VM0015, version 1.1 dated 3 December 2012.
/60/	CDM: Guidelines on Assessment of Different Types of Changes from the Project Activity as Described in the registered PD.
/61/	Verified Carbon Standard: VCS Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities – VT0001, version 3.0 dated 01 February 2012.
/62/	UN's Sustainable Development Goals and targets available at: < https://sdgs.un.org/goals

/63/	Verra Registry: https://registry.terra.org/ .
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Documentation used by RINA to validate / cross-check the information provided by the project participant

/64/	VCS Listing Representation dated 29 October 2020. "VCS-Listing-Representation-Multiple-Representors-v4.1.pdf"
/65/	Brazilian Forest Code: Law no. 12.651, of 25 May 2012.
/66/	United Nations Framework Convention on Climate Change. Available at: http://www4.unfccc.int/submissions/INDC/Published%20Documents/Brazil/1/BRAZIL%20INDC%20english%20FINAL.pdf .
/67/	INCRA project called "Assentamento Manchete", in Tocantins State, of which the project document was published on 25 August 2008. http://iecologica.blogspot.com/2009/06/entre-os-meses-de-janeiro-e-maio-de.html .
/68/	Conservation, regeneration and agroforestry systems projects on the Ilha do Bananal, consisting of two phases from 1998-2003 and 2000 – 2002. Available at: http://www.ecologica.org.br/en/sequestro-de-carbono-na-ilha-do-bananal/ . Boyd et al. Exploring socioeconomic impacts of forest based mitigation projects: Lessons from Brazil and Bolivia. Environmental Science & Policy. Number 10 (2007). pp. 419 – 433.
/69/	Mr. Haddad's CV: Available at: http://buscatextual.cnpq.br/buscatextual/visualizacv.do?id=K4491762P1 .
/70/	"Ecomapuá Amazon REDD Project" in the State of Pará, Brazil. Available at: Ecomapuá Amazon REDD Project: https://registry.terra.org/app/projectDetail/VCS/1094 .
/71/	"Genesis Forest Project: Reducing Greenhouse Gas Emissions from Deforestation and Degradation" in the State of Tocantins, Brazil.

	Genesis Forest Project: http://www.climate-standards.org/2009/02/13/genesis-forest-project-reforestation-of-brazilian-savannah-native-species-in-the-state-of-tocantins-brazil/ .
/72/	“Agrocortex REDD Project” in the States of Amazonas and Acre, Brazil. Agrocortex REDD Project: https://registry.terra.org/app/projectDetail/VCS/1686 .
/73/	Development of Environmental and Socio-Economic Indicators for REDD projects to be used under the SOCIALCARBON Standard. Available at: http://www.socialcarbon.org/wp-content/uploads/2012/11/Template_Submission_of_Indicators-for-an-Amazon-REDD-Project_v1-1_08_11_20131.pdf .
/74/	Mr. Haddad participation in several activities in charge of the Governors Climate and Forests Task Force. Available at: http://www.ecologica.org.br/en/projeto-gcf-tocantins-a-forca-tarefa-dos-governos-para-clima-e-florestas/ .
/75/	Mr. Haddad’s master thesis: “An analysis of REDD+ mechanisms and their benefits in Brazil”, May 2013. Available at: http://carbonosustentavelbrasil.files.wordpress.com/2013/09/dissertac3a7c3a3o-marcelo-h-s-haddad.pdf .
/76/	World Bank Institute’s Worldwide Governance Indicators. Available at: http://info.worldbank.org/governance/wgi/Home/Reports .
/77/	Governors’ Climate and Forest Taskforce. Available at: https://www.gcftf.org/who-we-are/ .
/78/	Fire risk calculation methodology. Available at: http://queimadas.cptec.inpe.br/~rqueimadas/documentos/RiscoFogo_Sucinto.pdf .
/79/	Brazilian National Institute of Space Research - INPE. Fire risk map. Available at: https://queimadas.dgi.inpe.br/queimadas/risco-de-fogo-meteorologia .
/80/	Brazilian National Institute of Space Research – INPE.

	Available at: http://queimadas.dgi.inpe.br/queimadas/bdqueimadas# .
/81/	Meteorological Database for Research and Education. Available at: http://www.inmet.gov.br/portal/index.php?r=bdmep/bdmep .
/82/	Meteorological National Institute. Available at: http://www.inmet.gov.br/portal/index.php?r=home2/index .
/83/	National Weather Service (USA): weather categories determined using Saffir-Simpson Hurricane Wind Scale: http://www.nhc.noaa.gov/aboutsshws.php .
/84/	Espírito-Santo et al. (2010). Storm intensity and old-growth forest disturbances in the Amazon region, Geophysical Research Letter, Volume 37, L11403. Available at: http://onlinelibrary.wiley.com/doi/10.1029/2010GL043146/pdf .
/85/	Novo Aripuanã geological report. 2014's report available at http://rigeo.cprm.gov.br/jspui/handle/doc/19348 .
/86/	Brazilian's geological service. Available at: http://www.cprm.gov.br/ .
/87/	Ministérios das Cidades. Capacitação em Mapeamento e Gerenciamento de Risco. Available at: http://www.defesacivil.mg.gov.br/images/documentos/Defesa%20Civil/manuais/mapeamento/mapeamento-grafica.pdf .
/88/	IBGE Municipal Livestock Data Source; https://www.ibge.gov.br/estatisticas/economicas/agricultura-e-pecuaria/9107-producao-da-pecuaria-municipal.html?=&t=resultados .
/89/	Prodes dados de desmatamento para definição dos agentes www.dpi.inpe.br/prodesdigital/prodesmunicipal.php
/90/	Ministry of Agriculture – Nacional Agency of Land Transportation, Resolution No 5890 of 26/05/2020 (from the Portuguese Ministério da Agricultura – Agencia Nacional de Transportes Terrestres, Resolução N°5890 de 26/05/2020).
/91/	IDESAM (2015) The beef production chain in the Amazon (from the Portuguese A Cadeia Produtiva da Carne Bovina no Amazonas).

/92/	IBGE Municipal Extractivism and Forestry Data Source: cidades.ibge.gov.br/brasil/am/borba/pesquisa/16/0?ano=2008 cidades.ibge.gov.br/brasil/am/novo_aripuanã/pesquisa/16/0?ano=2008 Last accessed 11/12/2020.
/93/	KÖPPEN, W.; GEIGER, R. Klimate der Erde. Gotha: Verlag Justus Perthes. 1928. Available at: https://www.britannica.com/science/Koppen-climate-classification.
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2.3 Interviews

On 11, 15, 22, 23 December 2020 and 20th April 2021, the validation/verification team from RINA conducted the remote audit to the “Yellow Ipê Grouped REDD Project” and performed interviews with project proponents’ staff.

X	Date	Name	Organization	Role	Topic
/a/	11, 15, 22 and 23 December 2020 and 20 th of April 2021.	Marcelo Haddad	Ecológica Assessoria Ltda	Technical coordinator	PD, financial analysis, social and environmental sustainability, local stakeholder consultation, Carbon stock estimates, GHG ER calculations. Verification of actual implementation as per VCS PD&MR, records and storage of data, ER calculations, comparison between recorded data and calculation spreadsheets.

					Monitoring plan.
/b/	11, 22 and 23 December 2020	Lyara Amaral	Ecológica Assessoria Ltda	Technical analyst	PD, baseline scenario evidences, financial analysis, social and environmental sustainability, local stakeholder consultation. Verification of actual implementation as per VCS PD&MR, satellite data acquisition and processing, calibration data, records and storage of data, ER calculations, comparison between recorded data and calculation spreadsheets. Monitoring plan.
/c/	11, 22 and 23 December 2020	Yara Fernandes	Ecológica Assessoria Ltda	Technical analyst	PD, baseline scenario evidences, financial analysis, social and environmental sustainability, local stakeholder consultation. Verification of actual implementation as per VCS PD&MR, satellite data acquisition and

					processing, calibration data, records and storage of data, ER calculations, comparison between recorded data and calculation spreadsheets. Monitoring plan.
/d/	11 December 2020	Rafael Pedroza	Grupo Leão	Landowner	Ownership
/e/	11, 22 and 23 December 2020 and 20 th of April 2021.	Henrique Yugo	Uezu Planejamento Ambiental S/S Ltda	Technical analyst	Satellite data acquisition and processing, calibration, baseline development.
/f/	11, 22 and 23 December 2020 and 20 th of April 2021.	Alexandre Uezu	Uezu Planejamento Ambiental S/S Ltda	CEO	Satellite data acquisition and processing, calibration, baseline development
/g/	23 December 2020	Guilherme Prado	Ecológica Assessoria Ltda	Technical analyst	Financial analysis. Verification of actual implementation as per VCS PD&MR, satellite data acquisition and processing, records and storage of data, ER calculations, comparison between recorded data and

					calculation spreadsheets. Monitoring plan.
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2.4 Site Inspections

A complete desk review of the submitted VCS PD&MR (version 01) /1/ and supportive evidences have been checked by the Validation/Verification Team.

The auditing team could not visit the site due to COVID-19 pandemic and subsequent travel restrictions. The VVB could not postpone the site visit due the prevailing uncertainty in travel restrictions and the deadline for completion of the project as per the VCS standard requirements and signed contract between the VVB and the PP /133/. Additionally, it is noted that there is no mandatory VCS Program requirement that mentions that a site visit must be conducted (even for forestry projects). However, to make sure that the VVB complies with the clause 4.1.2 of VCS Standard Version 4.0, all the information provided in the joint PD & MR and ER spread sheets was verified during the desk-review phase. In addition, the VVB also checked the documents against credible sources and interviews with concerned stakeholders. The VVB carried out the audit by other means of standard auditing techniques, which included video conference calls, videos of the site, videos of the plantation, videos of measurements, pictures of measurements undertaken in each sample plot, pictures of measuring devices in place, raw data sheets and interviews via MS team. The same is as per the VCS- COVID travel guidance (<https://verra.org/covid-19-travel-guidance/>).

Thus, the auditing team has conducted a videoconference with PP on different topics as mentioned under section 2.3 of this report.

Validation/Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of validation/verification.

- By review of VCS PD&MR;
- By conducting interview with PP, to gather information about knowledge of project design, current situation via videoconference, and any required follow up actions. Cross-checked evaluation under the scope of all information and references provided in VCS PD&MR. Details of interviews and topics covered, as well as additional information, are presented in the above section “2.3 – Interviews”.

2.5 Resolution of Findings

The objective of this phase of the validation was to resolve any outstanding issues that needed be clarified prior to RINA's positive conclusion on the project design. In order to ensure transparency, a validation protocol was customized for the project. The protocol shows in a transparent manner the criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

It organizes, details and clarifies the requirements a VCS project is expected to meet.

It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The objective of this phase of the verification was to resolve any outstanding issues that needed be clarified prior to RINA's positive conclusion on the monitoring report and the project design.

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

The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions.

The VCS requirements have not been met.

There is a risk that emission reductions cannot be monitored or calculated.

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

32 CARs and 10 CLs were raised and have been adequately addressed by the project participant (refer to Appendix 2).

2.5.1 Forward Action Requests

A forward action request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity.

A forward action request (FAR) should be issued, where:

1. the actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
2. an adjustment of the MP is recommended.

No forward action requests (FAR) were identified.

3 VALIDATION FINDINGS

3.1 Project Details

3.1.1 Project type, technologies and measures implemented, and eligibility of the project

The project exists under sectoral scope 14 (AFOLU). As described in Appendix 1 of the VCS Standard /50/, the project falls under the category of Reduced Emissions from Deforestation and Degradation (REDD).

3.1.2 Project design, including eligibility criteria for grouped projects

The primary objective of Yellow Ipê Grouped REDD Project is to avoid the unplanned deforestation (AUD) of a region within the municipalities of Novo Aripuanã and Borba. As stated in the VCS PD&MR, the first project activity instance has a project area of 86,091.66 ha (area calculated using a WGS 1984 UTM Zone 21S coordinate system) /1//31/, consisting of 100% Amazon rainforest. The project area of the first project activity instance is located within two private properties located in the municipality of Novo Aripuanã in the state of Amazonas. The REDD project is expected to avoid 16,205,376 tCO₂e in emissions over the 30-year project lifetime (01 March 2020 to 28 February 2050). The project is under sectoral scope 14 (AFOLU). As described under section 4.2 of the VCS AFOLU Requirements, the project falls under the category of Reduced Emissions from Deforestation and Degradation (REDD).

As described in the VCS PD&MR, the main mitigation action of the project is to avoid unplanned deforestation through the expansion of monitoring of the area, mapping of deforestation, partnerships with education and research institutions and the insertion of the surrounding communities in the project activities, aiming to minimize invasions and illegal deforestation, offering alternative income, education and professional training.

According to the VCS Standard version 04 /50/, grouped projects shall include one or more sets of eligibility criteria for the inclusion of new project activity instances. At least one set of eligibility criteria for the inclusion of new project activity instances shall be provided for each combination of project activity and geographic area specified in the project description.

The project is eligible under the following criteria:

- 1) 1) Meet the applicability conditions set out in the methodology applied to the project.

As per VCS PD&MR /1/, each project activity instance shall follow methodology /59/ described in section 3.2 of the VCS PD&MR /1/.

As verified during the remote audit, project activity instance 1 follow all requirements set out in the methodology VM0015 /59/. Moreover, the project activity instance 1 meet the applicability conditions of the applicable tools /57//61/.

- 2) Use the technologies or measures specified in the project description.

As per VCS PD&MR /1/, each project activity instance shall use and apply the same technologies or measures specified in the project description.

The project activity instance1 applies the same technologies or measures specified in the project description, i.e., forest conservation by avoiding unplanned deforestation, without forest management in the project scenario.

- 3) Apply the technologies or measures in the same manner as specified in the project description.

The same as described in criterion 2.

- 4) Are subject to the baseline scenario determined in the project description for the specified project activity and geographic area.

Each project activity instance shall apply the baseline scenario described in section 3.4 of the VCS PD&MR /1/.

The baseline scenario for project activity instance 1 is forest is expected to be converted to non-forest by the agents of deforestation acting in the reference region, project area and leakage belt as described in section 3.4 of the VCS PD&MR /1/.

- 5) Have characteristics with respect to additionality that are consistent with the initial instances for the specified project activity and geographic area. For example, the new project activity instances have financial, technical and/or other parameters (such as the size/scale of the instances) consistent with the initial instances, or face the same investment, technological and/or other barriers as the initial instances.

Each project activity instance shall assess additionality as described in section 3.5 of the VCS PD&MR /1/.

The proposed project activity instance complies with the criteria for demonstrating additionality in Agriculture, Forestry and Other Land Use (AFOLU) tool VT0001 as described in section 3.5 of the VCS PD&MR /1/.

- 6) Occur within one of the designated geographic areas specified in the project description.

Each project activity instance must be located within the reference region described in section 3.4 of the VCS PD&MR /1/.

The reference region for project activity instance 1 is clearly described in section 3.4 of the VCS PD&MR /1/.

- 7) Comply with at least one complete set of eligibility criteria for the inclusion of new project activity instances.

Each project activity instance must comply with the set of eligibility criteria for the inclusion of new project activity instances as described in section 1.4 of the VCS PD&MR /1/.

The proposed project activity instance 1 complies with all eligibility criteria as described in section 1.4 of the VCS PD&MR /1/.

- 8) Be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body.

Each project activity instance must be included in the monitoring report with sufficient technical, financial, geographic and other relevant information to demonstrate compliance with the applicable set of eligibility criteria and enable sampling by the validation/verification body as described in section 1.4 of the VCS PD&MR /1/.

The proposed project activity instance 1 complies with this criterion as this is the first activity instance included during the validation.

- 9) Be validated at the time of verification against the applicable set of eligibility criteria.

Each project activity instance must be included in the monitoring report for the grouped project and the information should be validated during the verification.

The proposed project activity instance 1 complies with this criterion as this is the first activity instance included during the validation.

- 10) Have evidence of project ownership, in respect of each project activity instance, held by the project proponent from the respective start date of each project activity instance (i.e., the date upon which the project activity instance began reducing or removing GHG emissions).

Each project activity instance must provide evidence of project ownership and project start date as described in section 1.4 of the VCS PD&MR /1/.

The proposed project activity instance 1 complies with all eligibility criteria as described in sections 1.7 and 1.8 of the VCS PD&MR /1/.

- 11) Have a start date that is the same as or later than the grouped project start date.

Each project activity instance must have the same or later than the start date of the first activity instance included in the grouped project described in section 1.8 of the VCS PD&MR /1/.

The start date of the proposed project activity instance 1 is defined in section 1.8 of the VCS PD&MR /1/ according to the definition in the VCS Standard /50/.

- 12) Be eligible for crediting from the start date of the instance through the end of the project crediting period (only). Note that where a new project activity instance starts in a previous verification period, no credit may be claimed for GHG emission reductions or removals generated during a previous verification period and new instances are eligible for crediting from the start of the next verification period.

Each project activity instance shall be eligible for crediting from the start date of the project activity instance until the end of the project crediting period as described in section 1.4 of the VCS PD&MR /1/.

The start date and the crediting period of the proposed project activity instance 1 is defined in sections 1.8 and 1.9 of the VCS PD&MR, respectively /1/.

The project activity meets the eligibility criteria of the VCS Standard /50/.

3.1.3 Project proponent and other entities involved in the project

The project proponent is Ecológica Assessoria Ltda of host Party Brazil. The other entities involved in the project are Sustainable Carbon Projetos Ambientais Ltda, Grupo Leão and Uezu Planejamento Ambiental S/S Ltda of host Party Brazil.

The entity Sustainable Carbon Projetos Ambientais Ltda is responsible for carbon credits trader and registry manager. Grupo Leão is the project owner and Uezu Planejamento Ambiental S/S Ltda is responsible for the geographic information system.

The involvement of Ecológica Assessoria Ltda and Sustainable Carbon Projetos Ambientais Ltda was checked through the document VCS Listing Representation /64/ and of Grupo Leão was verified through the contract signed with Ecologica /5/.

The involvement of Uezu Planejamento Ambiental S/S Ltda was verified through the study of the baseline report **Error! Reference source not found..**

3.1.4 Ownership

Grupo Leão is the owner of the project “Yellow Ipê Grouped REDD Project” as verified through the documents /6/ /7/.

3.1.5 Project start date

According to the VCS Program Definitions, version 4.0 /52/, the project start date of an AFOLU project is “the date on which activities that led to the generation of GHG emission reductions or removals are implemented (e.g., preparing land for seeding, planting, changing agricultural or forestry practices, rewetting, restoring hydrological functions, or implementing management or protection plans).”.

The PP informed that, the project starting date is 12 February 2020, which corresponds to the date when the contract of the first project activity instance was signed between Grupo Leão and Ecológica Assessoria Ltda. The date was verified during the remote audit by checking the contract /5/.

The PP also explained that this can be considered the date of implementation of an activity that led to the generation of GHG emission reductions because the signing of the contract is the ultimate action which culminated from the georeferencing of the Gleba 2 property, which was carried out in 2018 /49/ and updated in October 2018 in the land title (matricula nº 1.813) dated 23 December 2020 /7/, and the georeferencing of the Gleba 4 property (matricula nº 1.818) which was updated in June 2019 in the respective land title dated 23 December 2020 /7/. These joint actions, culminating in the contract in 12/02/2020 /5/, allowed the responsibility for any deforestation that may happen in the PA and the start of the following conservation plans seen in the contract itself /5/. For this reason, the VVB considers the contract as acceptable as the starting date of the project and in line with VCS /50/.

3.1.6 Project crediting period

The crediting period starting date is 01 March 2020 and ends on 28 February 2050 (30 years). This version of the VCS PD&MR covers the first baseline period of the “Yellow Ipê Grouped REDD Project”, from 01 March 2020 to 28 February 2030.

This period is consistent with the requirements of section 3.8.1 of the VCS Standard.

3.1.7 Project scale and estimated GHG emission reductions or removals

The “Yellow Ipê Grouped REDD Project” is a large project (greater than 300,000 tonnes of CO_{2e} per year) according to the requirements of section 3.9.1 of the VCS Standard. The project is estimated to result in an average GHG emission reductions and removals equivalent to 540,179 tCO₂ per year /2/.

3.1.8 Project location

Yellow Ipê Grouped REDD Project is implemented within the geographical area of Amazonas state, municipalities of Novo Aripuanã and Borba. The project activity instance 1, which involves 2 properties, is located at the municipality of Novo Aripuanã as verified during the remote audit /9/ /10/ /11/.

The geographical coordinates shown in the shape file /9/ delimiting the 2 properties, Fazenda Grupo Leão Gleba 2 of 33,552.6 ha (or 33,595.76ha as measured using UTM coordinate system) and Fazenda Grupo Leão Gleba 4 of 57,122.9 ha (or 57,205.5ha as measure using UTM coordinate system), were crosschecked with the National Institute of Colonisation and Agrarian Reform (INCRA) maps /10/ /11/.

The validation of the geographic boundaries of the Project Area are clearly described in section 3.4.3 of this report. Section 1.12 of the PD correctly reports the limits of instance 1 properties with geographic coordinates and areas as verified from limits of the properties provided /8//10//11//15/.

3.1.9 Conditions prior to project initiation

The VCS PD&MR includes the description of the present and prior environmental conditions of the area planned to the proposed project activity, including a concise description of climate, geology, topography, soils, socio-economic conditions and biodiversity and vegetation cover, in conformance with the VCS Standard.

RINA was able to verify the cartographic bases and all references mentioned /104/ - /119/ and concluded that the information included in the VCS PD&MR are correct.

3.1.10 Project compliance with applicable laws, statutes and other regulatory frameworks

The law applicable to this project is the Forest Code /65/, which states that 80% of farms located in the Amazon biome must have a Legal Reserve (RL), and a permanent preservation area (APP). According to information provided by the bidders, the area of the Yellow Ipê Grouped REDD Project meets these regulations. However, this legislation has not been fully realized in the country due to lack of government oversight, which brings a significant loss of forest cover and deforestation threats, which can be observed in the region reference of the Yellow Ipê Grouped REDD Project.

The project also complies with the decree No. 10,088 /120/, since a small area of the reference region overlaps with the indigenous.

Each project activity instance shall follow the applicable laws.

3.1.11 Participation under other GHG programs:

The project is not registered or is seeking registration under any other GHG programs.

The project does not participate in any other GHG program and, therefore, was not rejected by other GHG program.

3.1.12 Other forms of credit:

The project will be not used for compliance with an emissions trading program or to meet binding limits on GHG emissions.

The program does not receive another form of GHG-related environmental credit.

3.1.13 Additional information relevant to the project, including:

- Leakage management for AFOLU projects

The leakage management plan and maps of the leakage management area are mentioned in section 3.4 of the VCS PD&MR /1/.

- Commercially sensitive information

As described in the VCS PD&MR /1/, none of the information provided to the VVB was withheld from the public version of the report.

- Sustainable development contributions

The primary objective of Yellow Ipê Grouped REDD Project is to avoid the unplanned deforestation (AUD) of the project area, consisting of 100% Amazon rainforest.

These measures contribute to several nationally stated sustainable development priorities, such as the following objectives and targets from the Brazilian Government related to the Sustainable Development Goals:

- SDG 1: No poverty;
- SDG 4: Quality education;
- SDG 8: Decent work and economic growth;
- SDG 12: Ensure sustainable production and consumption patterns;
- SDG 13: Take urgent action to combat climate change and its impacts;
- SDG 15: To protect, restore and promote the sustainable use of terrestrial ecosystems, to manage forests sustainably, to combat desertification, to halt and reverse land degradation, and to halt the loss of biodiversity.

Reducing deforestation and promoting sustainable development in the Amazon is also a key component to Brazil's Nationally Determined Contribution (NDC) under the Paris Agreement. According to the Brazilian Government Ministry for the Environment (in Portuguese, Ministério do Meio Ambiente), the implementation of REDD+ activities are an important component to meet the Country's contribution under the United Nations Framework Convention on Climate Change while preserving natural forest resources /66/.

The following components of the Brazilian commitments under the Convention are reinforced by the development of the Yellow Ipê Grouped REDD Project:

- Strengthening and enforcing the implementation of the Forest Code, at federal, state and municipal levels;
- Strengthening policies and measures with a view to achieve, in the Brazilian Amazon, zero illegal deforestation by 2030 and compensate for greenhouse gas emissions from legal suppression of vegetation by 2030;
- Enhancing sustainable native forest management systems, through georeferencing and tracking systems applicable to native forest management, with a view to curb illegal and unsustainable practices.

In addition, implementation of REDD and SOCIALCARBON mechanisms promotes, beyond the project's ecological and carbon benefits, a proportion of the carbon credits generated will be dedicated to improving the social and environmental conditions in the project region, specifically contributing to improving deforestation control, and developing environmental education and other social activities.

3.2 Participation under Other GHG Programs

As the project has not been registered under any other GHG program, this section is not applicable.

3.3 Safeguards

3.3.1 No Net Harm

The potential negative environmental and socio-economic impacts identified by the project proponent as well the positive ones have been identified in the SOCIALCARBON certification and are shown in the table below.

Activity	Aspect	Impact	Effect		Comments/Observation
			Beneficial	Adverse	
REDD: Carbon credit project	Conservation of Amazon Rainforest	Greenhouse gas emissions reductions	X		Monitored by the Carbon resource: • Project performance. Monitored by the Natural resource: • Efficiency of project in countering agents of deforestation/ degradation.
REDD: Carbon credit project	Conservation of Amazon Rainforest	Monitoring and supervision to avoid deforestation of	X		Monitored by the Biodiversity resource: • Biodiversity conservation.

		forest within the project area.			Monitored by the Natural resource: Monitoring Methods.
REDD: Carbon credit project	Conservation of Amazon Rainforest	Conflict management with communities in the project area, due to banning of timber product extraction.		X	Monitored by the Carbon resource: Stakeholder consultation and support for the project.
REDD: Carbon credit project	Empowerment	Increased independence of the communities in the project area.	X		Monitored by the Social resource: - Associations and cooperatives; - Alternative income sources; - Extent of alternative income generation sources and further programs. Monitored by the Human resource: - Community education and training. Monitored by the financial resource: - Employment opportunities. Monitored by the natural resources:

					• Tree nursery and maintenance of planted trees. Monitored by biodiversity resource: • Non timber forest products (NTFPs).
REDD: Carbon credit project	Application of the Social Carbon methodology	Encouragement and investment in research on social, economic and environmental aspects in the project region.	X		Monitored by the Social resource: • Social research. Monitored by the Human resource: • Health; • Leisure, culture and sport; • Equipment and infrastructure. Monitored by the Financial resource: • Securing of funds; • Carbon credit investments. Monitored by the Biodiversity resource: • Biodiversity research.
REDD: Carbon credit project	Uncertainties relating to standing forest in the future.	Non permanence of carbon: Time which carbon will remain stocked in live			Monitored by the Carbon resource: • Buffer reduction.

		biomass, without being emitted into the atmosphere. Due to the uncertainties related to what will happen to the forest in future, there is a risk of non- permanence of forest carbon.			
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For more details refer to the pending Socialcarbon report.

3.3.2 Local Stakeholder Consultation

The local stakeholder consultation will be divided in two steps: an online meeting and a local consultation with community within and near the project activity instance area.

Due to Corona virus pandemic /121/, two remote conferences were held on 07 December 2020 and 18 January 2021 /27/. For these meetings, the stakeholders located at urban areas, mostly government agencies were invited by email except the Municipality of Novo Aripuanã that was invited by letter to attend the meetings. In addition, the VVB team was also invited by e-mail to the meetings. The invitation letter and e-mail explain briefly the project. The link for the remote conferences were sent by e-mail for each stakeholder. The list of invites is found in section 2.2 of the VCS PD&MR.

The presential local consultation was held on 13 April 2021 in Vila Nova Amazônia /28/. During the meeting a simplified presentation about the project was presented. The participants were informed that the period for requesting information and comments about the Yellow Ipê Grouped REDD Project would open for 30 days from the presentation date, and it can be done by phone or e-mail, both of which provided in the presentation and explanatory letters.

3.3.3 Environmental Impact

As discussed in the VCS PD&MR /1/, the proposed project is the avoidance of unplanned deforestation. Thus, the project will lead to positive impacts like improvement of soil conditions, preservation of air quality and of ground water quality, water cycle renewal, biodiversity preservation

and GHG emission reduction. In addition, the project will also bring a net positive environmental impact to the local communities.

3.3.4 Public Comments

The project submitted documents for public comments at the VCS pipeline projects database in November 2020 /63/. This project was up for public comments from 27 November 2020 to 27 December 2020 and no comments were received.

3.3.5 AFOLU-Specific Safeguards

Local Stakeholder Identification and Background.

The processes used to identify local stakeholders likely impacted by the project were research and visits in the project region. The list of the impacted stakeholders was provided in section 2.2 of the VCS PD&MR /1/.

As per the local social diagnosis /28/, there are riverside communities directly affected by the project. The social, economic and cultural diversity within local stakeholder groups and the differences and interactions between the stakeholder groups, the expected changes in well-being and other stakeholder characteristics under the baseline scenario, including changes to ecosystem services identified as important to local stakeholders will be monitored by SOCIALCARBON indicators at each verification.

PP identified eight families living within the project area. These riverside families have no land ownership or conflicts with owner of the property that is Grupo Leão.

A description of the social, economic and cultural diversity within local stakeholder groups and the differences and interactions between the stakeholder groups were described in the VCS PD&MR /1/. In addition, it is also stated that no changes were identified among the stakeholders involved with the project. However, in case of any changes this will be informed.

The expected changes in well-being and other stakeholder characteristics under the baseline scenario, including changes to ecosystem services identified as important to local stakeholders were also included in section 2.5 of the VCS PD&MR /1/.

The location of communities inside the project area and reference region were described in section 2.5 of the VCS PD&MR /1/. The communities have free access to the project area.

Risks to Local Stakeholders.

The auditing team verified that information regarding to risks to local stakeholders due to project implementation and how the project will mitigate such risks were included in the VCS PD&MR /1/. The risks were confirmed by interview during the remote audit /a/ - /g/.

Respect for Local Stakeholder Resources

Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including plans to ensure the project will not impact local stakeholders' property rights without the free, prior and informed consent is described in the VCS PD&MR /1/.

The project owner intends to formally hire the local community, offering technical training (as well as training for worker health and safety), in addition to providing education for children and women, through partnerships with educational institutions. Also, the project proponent seeks ways to generate other sources of income for this population, both by hiring work and encouraging studies, and by valuing the artisanal work done by the community.

Aside that, the company plans to facilitate the community's access to health and education by building a community centre that will feature educational activities and health campaigns. Moreover, it is planned to finance the improvement of boats, speeding up the community's transportation, as well as providing more comfort and efficiency.

Communication and Consultation

Processes to ensure ongoing communication and consultation, including a grievance redress procedure to resolve any conflicts that may arise between the project proponent and local stakeholders are described in the VCS PD&MR /1/.

The project will take all appropriate measures to communicate and consult with local stakeholders in an ongoing process for the life of the project. The project intends to carry out an average of at least one local stakeholders consultations per year (to be held on site after the end of the pandemic), which will be monitored by SOCIALCARBON certification.

Grievance redress and conflict management procedures, as well as benefit sharing mechanisms, will be discussed with communities through stakeholders consultations. Furthermore, a permanent communication channel with local stakeholders was created in order to receive any comments or suggestions regarding the present REDD project. All comments received will be responded, and grievances will be resolved in a suitable timeframe whenever possible, taking into account culturally appropriate conflict resolution methods.

Details regarding to the implementation on how the appropriate measures to communicate and consult with local stakeholders are described in the VCS PD&MR /1/. In addition, as described in the VCS PD&MR, a permanent communication channel with local stakeholders was created in order to receive any comments or suggestions.

3.4 Application of Methodology

3.4.1 Title and Reference

The project has applied the VCS methodology entitled “Methodology for Avoided Unplanned Deforestation” (VM0015), version 1.1 /59/.

VCS VT0001 “Tool for the demonstration and assessment of additionality in VCS Agriculture, Forest and Other Land Use (AFOLU) Project Activities” version 3.0 of 01 February 2014 /61/.

AFOLU Non-Permanence Risk Tool v4.0, published on 19-September-2019 /57/.

3.4.2 Applicability

The project applies the VCS methodology VM0015 – “Methodology for Avoided Unplanned Deforestation” /59/. Each project activity instance included in the grouped project will have to follow the applicability conditions under the methodology and applied tools.

The methodology VM0015 has no geographic restrictions and is applicable globally under the following conditions:

Applicability condition	Description of how the project meets these criteria
a) Baseline activities may include planned or unplanned logging for timber, fuel-wood collection, charcoal production, agricultural and grazing activities as long as the category is unplanned deforestation according to the most recent VCS AFOLU requirements.	The baseline activities, as discussed in section 3.4.4 of this report, includes unplanned deforestation motivated by logging for timber collection and subsequent cattle ranching.
b) Project activities may include one or a combination of the eligible categories defined in the description of the scope of the methodology (table 1 and figure 2).	PD v4.1 /1/ correctly states that the activity options of the grouped project fall within category A, “Avoided Deforestation without Logging” or B, “Avoided Deforestation with Logging in the Project Case”. The audit team confirms that the instance being validated now falls under option A.
c) The project area can include different types of forest, such as, but not limited to, old-growth forest, degraded forest, secondary forests, planted forests and agro-forestry systems meeting the definition of “forest”.	The project instance area comprises different types of forests: alluvial dense rainforest, submontane dense ombrophilous forest, and lowland dense ombrophilous forest /24//119/.
d) At project commencement, the project area shall include only land qualifying as “forest” for	The audit team can confirm that this condition has been met. As described in the VCS PD /1/, the project instance area consisted of 100%

a minimum of 10 years prior to the project start date.	tropical rainforest in 2009 – 10 years prior to project start date – all of which conformed to the Brazilian definition of forest. This was ascertained using satellite images, as described in the section Project Location of the present VCS PD /1/, Google Earth images and limits of the project /8/ /15/.
e) The project area can include forested wetlands (such as bottomland forests, floodplain forests, mangrove forests) as long as they do not grow on peat. Peat shall be defined as organic soils with at least 65% organic matter and a minimum thickness of 50 cm. If the project area includes a forested wetlands growing on peat (e.g., peat swamp forests), this methodology is not applicable.	Figure 5 of the PD /1/ shows a map from INPE / Embrapa /99/ with the soils in the region which shows that the project is inserted in a region of tropical red earth.

The methodological tool “Tool for the demonstration and assessment of additionality in VCS Agriculture, Forest and Other Land Use (AFOLU) Project Activities” is used in order to demonstrate the additionality of the project activity instance.

3.4.3 Project Boundary

Spatial Boundaries

Project Area (PA):

The validation of the project property boundaries has been described in section 3.1.8 of this report. The Project Area (PA) boundary was constructed by taking the validated property boundary shape file /12/ and cutting off the areas classified by MAPBIOMAS as hydrography and deforested areas until 2019 /13//14//21/. The resulting PA shape file was shown to the VVB during the audit /15/ and is shown in section 3.3 of the PD, and is the same as the one uploaded in the VCS website (AP_utm_wgs84_21s).

The total area for the PA is 86,091.66ha (using WGS 1984 UTM coordinate system).

Reference Region (RR):

The RR was delimited by, first of all, delimiting the 4th order hydrographic basins within an area of more than 10 million hectares around the PA, from the drainage network produced by the SRTM digital elevation model /16//17//22/. For each one of these basins the average values of altitude, taken from SRTM /22/, slope, calculated with the “Slope” tool of the ArcGis, and precipitation, from

WorldClim /23/, were determined. The percentages of different types of vegetation, obtained from Project SIVAM /24//119/ too.

Based on the averages of slope, precipitation and elevation, as well as percentage areas of vegetation types, basins within this 10 million ha, that presented values most similar to the project area, were included in the delimitation of the RR. The selection of the final basins within the range asked by the methodology were carried out using ArcMap tools. The basins were selected until an area of 1,440,404.91ha was reached as per consultant's report /16/ and PD section 3.4 /1/. This is 17 times the PA of 86,091.66 ha. The VM0015 suggests that, as a "rule of thumb", the RR should come to 20 times the project area for projects below 100,00 ha. This precision was therefore deemed acceptable by the VVB. The VVB checked during the audit and can confirm that the average rainfall of 2289.7mm /32/ and slope of 4.26° /33/ in the PA are correctly reported in the PD v4.1. The VVB also confirms that the PP took out 9,5% of the pixels of the RR without the PA, and the average slope for the rest of the RR came to 3,97 degrees. This value + or - 10% gives a range of 3,57° and 4,37°. The average slope for the PA is within this range and therefore complies with the VM0015 /59/.

Furthermore, the VVB checked that the average precipitation of the rest of the RR is 2309.46mm /32/ and thus the average of the PA falls within + or – 10% of the RR which would come to a range of 2078.5mm and 2540.4mm.

With regards to altitude, section 3.4 of the PD v4.1 states that the altitude of the PA ranges from 13 to 138m. The exact minimum and maximum values of the altitude ranges in the PA were checked during the audit and are in the file "ap_dem_fill.tiff" /34/ sent by the PP. The map in figure 19 of the PD v4.1 also shows that the ranges of the RR are between 0 and 184. This was also checked during the audit. Also during the audit, the PP did a count of total number of pixels in the RR and total number of pixels between 13 and 138m in the RR. The ratio between the latter and the former counts came to 99%. This means that the range found in the PA is found in 99% of the RR which is what is stated in page 74 of the PD v4.1.

The audit team crosschecked the vegetation map downloaded from INPE webpage /119/, with clipping of the reference region without the project area, with the spreadsheet with the areas and percentage calculation of phytophysognomies in the cut of the reference region without the PA and the phytophysognomies in the PA /35/. The audit team confirms that the phytophysognomies covering the PA make up 89,1% of the area of the RR and 90,6% of the area covered by vegetation in the RR (i.e. when water bodies are discounted from RR area).

The audit team then confirmed that all 4 landscape configuration and ecological conditions were required by the VM0015 were met in the development of the RR.

The audit team also confirms that socio-economic and cultural conditions as well as agents and drivers of deforestation conditions required by VM0015 are met. The validation of these 2 requirements were carried out whilst validating the baseline scenario and thus are discussed in detail in section 3.4.4 of this report, Step 3 of the applied methodology.

Furthermore, despite the RR containing reserves inside it, the legal status of the land of the Project Activity (private) happens elsewhere in the region as shown in the map presented in figure 6 of the PD /1/, and the PP sent evidence that even in protected areas deforestation has increase in the past years /127/. The VVB accepted the evidence and also concludes that the inclusion of the protected areas in the RR would in fact make estimates of baseline emissions conservative.

Leakage Belt:

The opportunity cost analysis was chosen for the determination of the leakage belt area utilizing equation (1) of the applied methodology.

The VVB validated that the variables used in the formulae were credible and verifiable. The distances from each pixel in the RR to the nearest town where cattle can be commercialised were calculated using 2 tools of the ArcMap (Euclidean Distance to estimate distances till the road – which generated the raster map “Dist_na_estrada.tif” /19/, and Coast Distance to estimate distance on the road to the main nearest town – which generated the raster map “Dist_ate_estrada.tif” /18/). The distances were summed up by the software R and a raster map of the added distances was generated (file “sum_dist.tif” /20/) and is shown in figure 23 of the PD v4.1.

To produce the map of costs of transportation (fig. 24 of the PD v4.1), the last part of the formula 1 of the methodology ($TDv \cdot TCv$) was entered in the “Raster Calculator” of the ArcMap. The file raster of distances estimated /20/ was transformed to a file of values, transformed to Km, and the costs of transportation of R\$2,6941/Km plus the cost of upload and download of the goods of R\$316,03 /90/ for 72 cattle heads transportation weighing approximately 13 arrobas each live animal (or 390Kg approximately) /91/.

The next step was to input the rest of the data needed to complete equation 1 of the methodology into the “Raster Calculator” to generate the potential profitability map (or opportunity cost map) shown in figure 25 of the PD v4.1. The VVB checked that the consultants, who developed the baseline, inserted the values and formulae in the “Raster Calculator”. The sale price per arroba (approximately 0,03t) was R\$80,00 /91/ so that 1t came in the formula came to approximately R\$2,666.66. The cost of production per head (also 13 arrobas or 0,39t) was checked to be R\$906,00 /63/, so that the cost came to R\$2323,00/t in the formula checked is correct.

Taking into account the probability of profitability shown in figure 25 of the PD v4.1 and a radius of 10Km around the project area, the consultants determined the area of the leakage belt shown in figure 26 of the PD v4.1 /1/. This is because it was assumed that this 10Km radius would reflect leakage due to the actions of the project near the project area.

Leakage Management Areas:

The leakage management area was defined as the area of the community Vila Nova Amazon, figure 27 of the PD v4.1 /1/, settled on the border of the north property of Grupo Leão. This is not a forested area and it is thus in accordance with the methodology /59/. With the addition of new instances, new leakage management area may be added.

Temporal Boundaries

The start and end years of the historical reference period are 2009 and 2019 which complies with the requirements of the methodology /59/.

Carbon Pools

The findings of the audit team with respect to the carbon pools included in the project boundary are as follows.

Carbon pools	Included / Excluded in the PD	Justification / Explanation of choice in the PD	Validation Conclusion
Above-ground	Tree: included	Included by the methodology. Carbon stock change in this pool is always significant.	In accordance with methodology.
	Non-tree: excluded	No existence of perennial crops as final class.	Audit team confirms. For details see section 3.4.4 (validation of the baseline) of this report.
Below-ground	Included	This pool was included since stock change in this pool is significant.	In accordance with methodology.
Dead wood	Excluded	Excluded for simplification. This exclusion is conservative.	The VVB confirms that the exclusion is conservative.
Harvested wood products	Excluded	Not significant for this instance. Future instances may include if SFM is a project activity.	In accordance with the methodology.
Litter	Excluded	According to VCS Methodology Requirements, 4.0. the pool can be excluded when its exclusion does not lead to a significant over-estimation of the net anthropogenic GHG emission reductions of the AUD Project Activity.	The exclusion of litter is conservative as the baseline validated is cattle ranching. For more details of the validation of the baseline see section 3.4.4. of this report.
Soil organic carbon	Excluded	Recommended when forests are converted to cropland. Not to be measured in conversions to pasture grasses and perennial	The validation team confirms baseline identified is cattle ranching. For details see section 3.4.4 of this report.

		crop according to VCS Methodology Requirements, 4.0	
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Sources of GHG Emissions

The findings of the audit team with respect to the GHG sources included in the project boundary are as follows.

Sources		Gas	Included / Excluded	Justification / Explanation of choice
Baseline	Biomass burning	CO ₂	Excluded	Excluded as recommended by the applied methodology. Counted as carbon stock change.
		CH ₄	Included	Included as non-CO ₂ emissions from biomass burning in the baseline scenario, according to the methodology.
		N ₂ O	Included	Included as non-CO ₂ emissions from biomass burning in the baseline scenario, according to the methodology.
	Livestock emissions	CO ₂	Excluded	Not a significant source according to methodology.
		CH ₄	Excluded	Excluded. There will be no livestock introduced in leakage management areas, see below.
		N ₂ O	Excluded	Excluded. There will be no livestock introduced in leakage management areas, see below.
Project	Biomass burning	CO ₂	Excluded	No biomass burning increase is predicted to occur in the project scenario compared to the baseline case. Therefore, considered insignificant.

		CH ₄	Included	Included as non-CO ₂ emissions from biomass burning in the project scenario, according to the methodology.
		N ₂ O	Included	Included as non-CO ₂ emissions from biomass burning in the project scenario, according to the methodology.
	Livestock emissions	CO ₂	Excluded	Not a significant source as no livestock or agriculture increase is predicted to occur in the project scenario compared to the baseline case.
		CH ₄	Excluded	No livestock or agriculture increase is predicted to occur in the project scenario compared to the baseline case. Therefore, considered insignificant.
		N ₂ O	Excluded	As above.

3.4.4 Baseline Scenario

The baseline scenario (continuation of land use activities prior to the Project scenario) was developed by the PP following instructions from methodology VM0015. The VVB findings with respect to the implementation of Steps 1 – 5 of Part 2 of the methodology VM0015 are as follows.

Step 1 (spatial boundaries, temporal boundaries and pools):

The validation of the delimitation of the Project Area was explained in section 3.4.3 Project Boundary.

Step 2: Analysis of historical land-use and land-cover change

In order to determine land use and land cover (LU/LC) change prior to project initiation, remote sensing, GIS, Dinamic Ego and R analysis were carried out.

During the audit, the consultants of the PP informed that the raster images with land use classes used to determine land use change during the reference period were downloaded from MapBiomass /14/. The consultants also informed that collection 4.1 of raster images from MapBiomass was used together with MapBiomass land use classification /26/. The PP showed the VVB the downloaded files during the audit and they went up to 2018 /25/.

The MapBiomass dataset uses 30-meter resolution Landsat imagery, scene 230/64 was used to cover the RR of the project /16/, and thus complies with the resolution requirements of the methodology. Furthermore, the VVB confirms that MapBiomass is a multi-institutional initiative of the Greenhouse Gases Emissions Estimation System promoted by the Climate Observatory, and a re-known deforestation watchdog of all biomes in Brazil.

For the year of 2019, the PP also used 30-meter Landsat 8 image covering the RR, with less than 1% cloud cover, and classified it using Google Earth Engine. The audit team observed the PP carrying out the classification of the 2019 image. The method consists in creating a training layer, using samples of grouped pixels with certain pattern of spectral answer to forest, non-forest or hydrology (visually determined) and then using the Random Forest algorithm (the same used by MapBiomass) to extrapolate this training layer to the rest of the image.

The audit team then checked the values of deforestation per year, calculated from the MapBiomass and Google Earth Engine classification /36/, against the values presented in table 18 of the PDv4 /1/ and confirmed the values are correct.

To validate the accuracy of the maps used the PPs constructed a confusion matrix. A total of 300 random points were randomly created with ArcGIS and drawn over the reference region, 100 in each of the classes (forest, hydrography and deforestation). As a reference, high resolution Landsat images were used, in which the land use was visually determined at the points drawn. The VVB has

checked some of the points during audit and also the percentage accuracy reported in table 20 of the PD /1/ and they were all above 80% accuracy /16/.

Step 3: Analysis of agents, drivers and underlying causes of deforestation and their likely future development.

Section 3.4 of the project description contains a thorough presentation of the information required by Step 3 of the methodology. The audit team has confirmed that all of the information required by the methodology is presented therein. In addition, the information that is presented with respect to agents, drivers and events leading to deforestation is consistent with the experiential knowledge of the audit team regarding the project area.

It is very important, at this point, to remember that the reference period is stipulated by the applied methodology to be no longer than 10-15 years in the past and the end date as close as possible to the project start date, in this case 12th February 2020.

Identification of agents of deforestation: PP identified that the main agents of deforestation during the reference period, between 2009 and 2019, are logging for timber collection and subsequent cattle ranching.

The municipality of Novo Aripuãna constitutes 80% of the RR /37/. The trend of substitution of non-timber forest products, as the largest contributor to the value of annual production in Novo Aripuanã, for timber logging has been demonstrated in figure 39 of the PDv4 /1/. The coinciding trends of increase of cattle herd and deforestation has also been demonstrated figure 37 of the PD v4. This seems good evidence of deforestation attributable to cattle industry in the municipality. The values of production were checked during the audit against the values in the Institute of Brazilian Geography and Statistics (IBGE) website /88/92/ and the values of deforestation against the PRODES site /89/.

For the municipality of Borba, which covers the other 20% of the RR, the data of 2019 shows that a similar trend to Novo Aripuãna might be developing after years of improvement, fact that is now in the public domain to be the situation in the region.

Figures 35 and 36 of the PD /1/, show that, when the municipalities are considered together, cattle is the main land use after forest and thus the likely baseline scenario. An analysis of all graphs in the analysis of agents, drivers and underlying causes of deforestation suggest that cattle ranching is the main agent together with logging.

Identification of deforestation drivers: PP identified five drivers of deforestation, population growth in the region /124/, prices of timber and cattle /125/, access to forests – rivers and highways /126/ and slope. The audit team confirms assumptions.

Step 4: Projection of future deforestation

With the data of the land use change /25/, obtained according to explanation in step 3 deforestation rates for each year were calculated and a regression curve found and fed into R. The deforestation

rates measured in the reference region revealed a clear trend of increase of the deforestation rate along the years and thus the selected baseline approach is the time function approach. The equation validated that describes the increase is

$$y = -0.840497 + 0.000418 * t$$

The rates of deforestation for the future were calculated in R using the equations above calculated with the past data (shown in table 18 of the PD).

To find out where deforestation would occur the factor maps were prepared with ArcGis from road, conservation units, settlements, rivers, urban areas, altitude and slope maps. The source of each of these maps are in table 24 of the PD v4.1 /1/ and were checked by the audit team.

With these base maps they were able to generate scores with the program Dinamica Ego, the weight of evidence coefficient of each of the maps compared to land use change. The weights of evidence are shown in tables 25 to 30 of the PD v4.1 /1/. The ones which seemed to better correlate with deforested areas were then used in a similarity index test which compared projections of deforestation maps with the real map of deforestation of 2019. The results of the similarity index using different factor maps are in table 31 of the PD and showed that the best model was the number 12 which had an average similarity of 0.454.

Once the comparison with the similarity index was carried out, the audit was presented with the similarity analysis of the growing windows, which results are presented in page 124 of the PD v4.1. In this the projection for 2019 of the chosen model (number 12) was compared to the real values of deforestation for 2019 images. According to PDv4.1, the value of acceptance for this test is 50%, this was crosschecked with the reference cited in the PD, Barni 2009 /128/. Also, according to PD v4.1 this value of 50% was reached at a 7x7 window. This is a statistical test run by the Dinamica Ego and it is therefore in conformity with page 54 of the methodology VM0015.

The risk map chosen and the equation were fed into Dinamica Ego. These then generate the future maps of deforestation for the years of 2020 to 2021 in the RR showed in figure 61 of the PD v4.1 /1/.

Step 5: Identification of forest classes in the areas that will be deforested under the baseline scenario and post deforestation land use classes.

The audit team checked the projected deforested areas in each of the forest classes as follows: the areas projected to be deforested in the spreadsheet calculation "VCS PD Calculation_Yellow IPE Grouped REDD Project_v03.xls" /2/ came from the areas in the 3 spreadsheets "Baseline_AP_FITO_pol", "Baseline_LB_FITO_pol" and "Baseline_RR_FITO_pol" /38/. The areas in these files in turn were crosschecked with the areas clipped using a sample from the shape files "pa_md12_01.shp" to "pa_md12_31.shp" /39/, which in turn come from the raster files generated from the Dinamica Ego models for the 30 years of project ("md12_01.tif" to "md12_31.tif" /40/), and

shapes with phytophysionomies from SIVAM /24//119/. The VVB confirms that the areas projected to be deforested presented in tables 32, 33 and 34 of the PD /1/ are correctly reported.

As see in step 3 the post deforestation land use class in the baseline is likely to be pastureland.

The baseline scenario was found to be well justified and it is credible for the region.

3.4.5 Additionality

As required by the methodology, VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, version 3.0 /61/ has been correctly used to demonstrate additionality. In addition, sufficient information has been provided so that a reader can reproduce the analysis and obtain the same results. The VVB's specific comments regarding the demonstration of additionality are as follows.

Step 1. Identification of alternative land use scenarios to the proposed VCS AFOLU project activity

As per Sub-step 1a, the land use scenarios identified in section 3.5 of the VCS PD&MR include those scenarios required by VT0001. The audit team can confirm that all identified land use scenarios are credible. PP chose four scenarios: i) timber production; ii) cattle rising; iii) continuation of pre-project land use and iv) the project activity on the land within the project boundary performed without being registered as the VCS AFOLU project.

Sub-step 1b of the VCS AFOLU Tool states that all scenarios must be consistent with laws and regulations, and that if one of them is not, that it must be shown that this land use scenario is a result of systematic lack of enforcement of applicable laws and regulations.

Scenarios i), ii) and iv) are in accordance with mandatory laws and regulations. Scenario iii), the continuation of the land use scenario prior to the project activity was validated in section 3.3.4 of this report as the baseline (or business as usual).

Sub-step 1c of the VCS AFOLU Tool states that the baseline methodology that would use the TOOL shall provide for a stepwise approach justifying the selection and determination of the most plausible baseline scenario. The VCS methodology VM0015 does give a stepwise approach for the selection of the baseline scenario. This approach, as already mentioned above, was validated in section 3.3.4 of this report and indicates that the baseline is scenario iii) continuation of pre-project activity.

Step 2. Investment analysis

The PP considered the fact that the Project is a conservation Project with no other sources of income besides carbon revenues, a simple cost analysis was applied to prove additionality. The audit team agrees that simple cost analysis was appropriately selected since the project activity does not generate financial or economic benefits other than VCS related income.

The PP has provided the annual expenditures those that had been planned and that incurred in actuals. All input data were cross checked against evidence provided /29/.

STEP 3. Barrier analysis

Not applicable.

STEP 4. Common practice analysis

As reported in section 3.5 of the VCS PD&MR /1/, the practice of conservation of privately-owned forest areas in the Amazonas State as a whole, is extremely rare. Conservation activities are usually made in public areas, such as Conservation Units, federal and state protected areas.

Considering the geographic area of the proposed project, VVB team confirmed in the Verra Registry /63/, that there are 22 REDD projects registered in Brazil, but three of them located in the State of Amazonas. The audit team agrees that the essential distinctions between the three projects documented in the VCS PD&MR are sufficient to confirm the additionality of the proposed project activity.

3.4.6 Quantification of GHG Emission Reductions and Removals

Step 6 of the VM0015 Estimation of baseline carbon stocks changes

All carbon stocks for the different phytophysognomies found in the PA, Dense Alluvial Tropical Rainforest, Dense Submontane Tropical Rainforest and Dense Lowland Tropical Rainforest, were estimated from biomass field estimates by Higuchi 2015 /129/. As explained in section 4.1 of the PD, this study reports all Terra Firme Forests as being equivalent to Dense Ombrophilous Forests with a value of above ground biomass of 327.40 tdm/ha + or – 20.31 tdm/ha at a 90% CI.

The values for the below ground were calculated using the root to shoot ratio of the VM0015. The Total biomass for these dense forests came to 405.98 tdm/ha. This value was then compared with the values reported for of the 3rd National Communication of Brazil to the UNFCCC /132/ and found to be relatively conservative.

With regards to the leakage belt the values were the same but they had a 4th type of phytophysognomy Pioneer formations with fluvial influence. This phytophysognomy biomass was estimated from NOGUEIRA, et al. 2015 /130/. The VVB confirms that the value for this is 19.68 tdm/ha + or – 3.89 tdm/ha at 90%CI. However, because DLF was estimated to be 0% from previous projects and no leakage prevention measures proposed by the present project include decrease in carbon stocks due to activities implemented in the leakage management area the leakage projected in the leakage emissions estimated ex ante are zero.

The resulting carbon stocks were then obtained by multiplying this by the carbon fraction of the biomass (50%) and carbon to CO₂ conversion factor (3.6667) from IPCC according to applied methodology /59/.

The post deforestation was estimated from FEARNSIDE 1996 /131/ to be 12.8 tC/ha. The audit team confirms this value is correct and conservative.

The VVB then confirms that the results of the carbon stocks in tables 43, 44 and 45 of the PD v4.1 are correctly reported. The result to this calculations are also reported together with other parameters used in the calculation of the ERs in section 3.4.8 below.

After calculation of carbon stocks, which came to the average number of 744.29 tCO₂/ ha for the tropical dense forests and 43.30 tCO₂e for the pioneer formations, these values were then used to calculate baseline emissions with the projected deforestation for the PA and Leakage Belt already seen in the tables 33 and 34 of the PD /1/ and also in the ERs spreadsheets /2/. The VVB checked all calculations. The carbon stock change factors for the forest zones were applied as per page 159 of the PD v4.1 /1/ and this is in accordance with the VM0015 methodology.

For post forest zones both below and above ground assumed that 100% of the longterm average carbon stock were regenerated in 10 years starting 1 year after deforestation happened. The total net carbon change in the baseline scenario, after regeneration is taken into consideration, are shown in tables 53 to 54 of the PDv4.1 /1/.

Baseline non-CO₂ emissions from forest fires were also checked and confirmed to be calculated according to VM0015. The results for these are shown in table 56 of the PD v4.1 /1/.

Step 7 of the VM0015 Ex ante estimation of carbon stock changes in the Project Scenario

The instance being validated does not include planned deforestation and planned logging activities within the project area, however the PP has estimated project emissions using an effectiveness index (EI) as per VM0015 methodology. The effectiveness index was validated at 96% looking at past projects which were developed by Ecologica. The VVB crosschecked a sample of the values in tab 27 of the PD calculation spreadsheet v4 /2/ against the values in the spreadsheets of the projects there listed and confirmed that the Project Emissions were in general 4% of the estimated baseline emissions in the past. The percentage was then applied to the estimated baseline emissions in order to estimate ex-post project emissions.

The same percentage was applied to the ex-ante baseline non-CO₂ emissions in order to estimate actual ex post non-CO₂ emissions from forest fires in the project area. The results of both estimated ex-post project emissions and non-CO₂ emissions from forest fires in the project area are presented in tables 59 of the PD v4.1 /1/.

The PP anticipates 0% leakage emissions, that is, it is expected that emissions from displacement leakage do not surpass projected baseline scenario leakage. This assumption has been checked from past verifications of other Ecologica projects to be correct. Also, the PP foresees no implementation of cattle ranching or agriculture intensification in the leakage management areas.

Step 9 of VM0015 Ex ante calculation of net anthropogenic GHG emission reductions.

Table 64 of the PD v4.1 /1/ show the GHG emission reductions summary with the validated baseline and estimated ex ante project emissions. It also shows the buffer emissions which were calculated using the 19% non-permanence risk validated in section 3.5 of this report. All of the calculations

have been checked and found to be correct. All relevant formulae and assumptions are written in the PD v4.1. Below are the results of the total ERs for the 30 year period.

	Estimated baseline emissions (tCO ₂ e)	Estimated project emissions (tCO ₂ e)	Estimated leakage emissions (tCO ₂ e)	Estimated net GHG emission reductions (tCO ₂ e)	Ex ante buffer credits (tCO ₂ e)	Ex ante tratable VCUs (tCO ₂ e)
Total	16.899.988	694.613	0	16.205.376	2.924.111	13.281.249
Average	563.333	23.154	0	540.179	97.470	442.708

3.4.7 Methodology Deviations

No methodology deviations were observed.

3.4.8 Monitoring Plan

The monitoring plan is described in details in sections 5.1 to 5.3 of the VCS PD, where the parameters available at the validation, the parameters that will be monitored, recording frequency and QA/QC procedures are deemed reasonable and appropriate.

Data and parameters available at validation and fixed for the baseline period:

Data / Parameter	ab _{icl}		
Data unit	Mg/ha		
Description	Biomass stock per hectare in the above-ground biomass of initial forest class icl in Mg/ha.		
Source of data	Literature		
Value applied	Above-ground biomass ab _{icl} (Mg/ha)		
	Vegetation	Project Area	Leakage Belt
	Dense Alluvial Tropical Rainforest	327,40	327,40
	Dense Submontane Tropical Rainforest	327,40	327,40
	Dense Lowland Tropical Rainforest	327,40	327,40

	Open Alluvial Tropical Rainforest	-	-
	Open Submontane Tropical Rainforest	-	-
	Pioneer formations with fluvial influence	-	23,58
Justification of choice of data or description of measurement methods and procedures applied	The above-ground biomass values of the studies below represent an accurate estimation of the biomass in the region.		
Purpose of Data	Calculation of: • Baseline • Project Emissions • Leakage Emissions		
Assessment	Dense Alluvial, Submontane and Lowland Tropical Rainforest: HIGUCHI, Francisco Gasparetto. Dinâmica de volume e biomassa da floresta de terra firme do Amazonas. 2015. 201 f. Tese (Doutorado) - Curso de Engenharia Florestal, Setor de Ciências Agrárias, Universidade Federal do Paraná, Curitiba, 2015 /129/. Pioneer formations with fluvial influence: NOGUEIRA, E.M., Yanai, A. M.; Fonseca, F.O.; Fearnside, P.M. 2015. Carbon stock loss from deforestation through 2013 in Brazilian Amazonia. Global Change Biology 21: 1271-1292 /130/. Uncertainty was taken due account as per VM0015. Further details of assessment in section 3.4.6 of this report.		

Data / Parameter	bbicl
Data unit	Mg/ha
Description	Average biomass stock per hectare in the below-ground biomass of initial forest class icl in Mg/ha.

Source of data	Calculated according to VM0015 v1.1		
Value applied	Below-ground biomass <i>bb_{icl}</i> (Mg/ha)		
	Vegetation	Project Area	Leakage Belt
	Dense Alluvial Tropical Rainforest	78,58	78,58
	Dense Submontane Tropical Rainforest	78,58	78,58
	Dense Lowland Tropical Rainforest	78,58	78,58
	Open Alluvial Tropical Rainforest	-	-
	Open Submontane Tropical Rainforest	-	-
	Pioneer formations with fluvial influence	-	4,72
Justification of choice of data or description of measurement methods and procedures applied	Required by VM0015 v1.1		
Purpose of Data	• Calculation of baseline emissions • Calculation of project emissions • Calculation of leakage		
Assessment	The VVB checked calculations and confirms in accordance with VM0015 v1.1.		
Data / Parameter	Ctot _{fcl}		

Data unit	tCO ₂ e/ha
Description	Average carbon stock per hectare in anthropic areas in equilibrium of post-deforestation class fcl in tCO ₂ e/ha
Source of data	Literature
Value applied	46.93
Justification of choice of data or description of measurement methods and procedures applied	Fearnside (1996) is one of the most recognized studies for the Brazilian Amazon about long term carbon stocks in deforested areas.
Purpose of Data	• Calculation of baseline emissions
Assessment	FEARNSIDE, Philip M. Amazonian deforestation and global warming: carbon stocks in vegetation replacing Brazil's Amazon forest. Forest Ecology And Management, Manaus, v. 80, p.21-34, 1996 /131/. The audit team confirms the value is correct and conservative.

Data / Parameter	EI
Data unit	%
Description	Ex ante estimated effectiveness index
Source of data	Other Ecologica Assessoria Ltda Projects
Value applied	96%
Justification of choice of data or description of measurement methods and procedures applied	Due to the proposed project activities for the local economy and employment generation, the Effectiveness index was conservatively assumed as 95.94%
Purpose of Data	• Calculation of baseline emissions
Assessment	This percentage was calculated based on verified reports of similar REDD projects, as presented in table included at tab 'Table 27' of the PD calculation spreadsheet. A comparison of the real deforestation of 4 similar verified projects developed by Ecologica Assessoria Ltda, and the baseline projections

	previously estimated for each of these projects was carried out. The result came to 4.06% which was used as the expected deforestation in the project area due to unavoidable unplanned deforestation. For more details see section 3.4.6 of this report.
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Data / Parameter	CF
Data unit	tC/tdm
Description	Default value of carbon fraction in biomass
Source of data	Values from the literature, e.g. IPCC 2003. Good practice guidance for land use, land-use change and forestry. Kanagawa: IGES, 2003. Available at: < http://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf.html >.
Value applied	0.5
Justification of choice of data or description of measurement methods and procedures applied	Estimated from literature. A default value was used to be more conservative.
Purpose of Data	• Determination of baseline scenario • Calculation of baseline emissions • Calculation of project emissions • Calculation of leakage
Assessment	Assessed against IPCC 2003.

Data / Parameter	DLF
Data unit	%
Description	Displacement leakage factor
Source of data	Other Ecologica Assessoria Ltda Projects
Value applied	0%
Justification of choice of data or	DLF was adopted as 0% based on previous REDD projects developed by Ecologica Assessoria Ltda, where no leakage

description of measurement methods and procedures applied	due to displaced deforestation occurred during all the verified monitoring periods.
Purpose of Data	• Determination of baseline scenario • Calculation of baseline emissions • Calculation of project emissions • Calculation of leakage
Assessment	0% as previous experience from Ecológica with other similar carbon projects (Ecomapuá Amazon REDD Project and Agro cortex REDD Project) shows that none had leakage related to displacement activities. The VVB confirms that in the first verification of Agro cortex leakage was shown to be zero. This is actually conservative.

Data / Parameter	$\Delta CBSLLK_t$
Data unit	t CO ₂ e
Description	Annual carbon stock changes in leakage management areas in the baseline case at year t
Source of data	• Planned interventions proposed by the project proponent.
Value applied	0
Justification of choice of data or description of measurement methods and procedures applied	Leakage prevention activities generating a decrease in carbon stocks should be estimated <i>ex ante</i> and accounted. The leakage prevention measures proposed by the present project do not include decrease in carbon stocks due to activities implemented in the leakage management area.
Purpose of Data	• Determination of baseline scenario • Calculation of baseline emissions • Calculation of project emissions • Calculation of leakage
Assessment	PD v4.1 /1/ states that leakage prevention measures proposed by the project activity do not include decrease in carbon stocks due to activities implemented in the leakage management area.

Monitored parameters:

Data / Parameter	ACPA _t
Data unit	ha
Description	Annual area within the Project Area affected by catastrophic events at year t.
Source of data	- Remote sensing data and GIS, - Supervisor reports.
Description of measurement methods and procedures to be applied	- INMET88 - Periodic reports from area supervisor - INPE89
Frequency of monitoring/recording	Each time a catastrophic event occurs
Value applied	0
Monitoring equipment	Remote sensing and GIS
QA/QC procedures to be applied	Best practices in remote sensing and GIS. Furthermore, the following sources will be also monitored to confirm the data obtained from remote sensing and GIS: - INMET - INPE Periodic reports from area supervisor
Purpose of data	This parameter is used to calculate project emissions in the project scenario. Provides an ex post estimation of the area affected by catastrophic events within the project area
Calculation method	Remote sensing and GIS
Comments	This monitoring frequency is in accordance with VM0015 v1.1.

Data / Parameter	ABSLLKt
Data unit	ha
Description	Annual area of deforestation within the leakage belt at year t.
Source of data	Remote sensing and GIS
Description of measurement methods and procedures to be applied	Deforestation in the leakage belt area may be considered activity displacement leakage. Activity data for the leakage belt area will be determined using the same methods applied to monitoring deforestation activity data in the project area.
Frequency of monitoring/recording	Annually
Value applied	847.59 (Annual average projected in the leakage belt during the 1 st , 2 nd , 3 rd baseline periods)
Monitoring equipment	Remote sensing and GIS
QA/QC procedures to be applied	Procedures according to VM0015's Map Accuracy Assessment that states that the minimum classification accuracy of each class or category in the Land-Use and Land-Cover Map and Land-Use and Land-Cover Change Map, respectively, should be 80%.
Purpose of data	This parameter is used to calculate leakage emissions in the project scenario. Provides the <i>ex post</i> value of the deforested area within the leakage belt.
Calculation method	Analysis of satellite images and maps.
Comments	The average applied is the average of the values validated in table 34 of the PD v.4.1 /1/ against evidences /2//24//38//39//40//119/ and extensively discussed in section 3.4.4 of this report.

Data / Parameter	ABSLPA _t
Data unit	Ha
Description	Annual area of deforestation in the project area at year t

Source of data	Remote sensing and GIS
Description of measurement methods and procedures to be applied	Forest cover change due to deforestation will be monitored through periodic assessment of classified satellite imagery covering the project area.
Frequency of monitoring/recording	Annually
Value applied	824.80 (Annual average projected in the project area during the 1 st , 2 nd , 3 rd baseline periods)
Monitoring equipment	Remote sensing and GIS
QA/QC procedures to be applied	Procedures according to VM0015's Map Accuracy Assessment that states that the minimum classification accuracy of each class or category in the Land-Use and Land-Cover Map and Land-Use and Land-Cover Change Map, respectively, should be 80%.
Purpose of data	This parameter will be used to calculate baseline emissions and project emissions in the project scenario. Provides the <i>ex ante</i> and <i>ex post</i> values of the deforested area per forest class within the project area.
Calculation method	Analysis of satellite images and maps.
Comments	The average applied is the average of the values validated in table 33 of the PD v.4.1 /1/ against evidences /2//24//38//39//40//119/ and extensively discussed in section 3.4.4 of this report.

3.5 Non-Permanence Risk Analysis

The validation and verification team assessed each of the risks and scores given by PP against the AFOLU non-permanence risk tool and the below was found:

- 1) Project Management: -2 score is correct
 - a) Risk factor does not apply as the project area's vegetation is 100% native with no planting occurring as seen during the remote audit in the satellite images and classification. Not applicable correctly applied.

Less than 50% of the carbon stocks are fragile to encroachment by outside actors and, therefore, need active protection. As stated in the report /4/, the main deforestation agents are timber harvesting, livestock and the illegal road that crosses the project area at its northwestern border, which is the most likely area to be invaded. These agents affect less than 50% of stocks as it can be seen in deforestation projection, where 27,228.38 hectares would be deforested in 30 years, representing 31.6% /39/ of total project area. Score 0 correctly applied.

- b) The validation team checked all the evidence cited in the VCS non-permanence risk report version 01 and also interviewed personnel working in the project and confirms any area of required experience is covered by at least one individual with at least 5 years experience in the area /67/-/75/. Score 0 correctly applied.
 - c) The validation team checked during remote audit that management team, responsible for reporting and responding to any events, such as unpermitted deforestation, degradation or unauthorized resource use, is located more than a day of travel from the Project site. Score 2 correctly applied.
 - d) Management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting (eg, individuals who have successfully managed projects through validation, verification and issuance of GHG credits) under the VCS Program or other approved GHG programs /67/-/75/. This evidence is listed in item c) of the non- permanence risk report and has been checked by the validation and verification team. Score - 2 correctly applied.
 - e) RINA checked the adaptative management plan /123/. In addition, Social Carbon is in place and requires continuous monitoring and improvement. Score - 2 correctly applied.
- 2) Financial Viability: 4 score correctly given.
- a) Not applicable.
 - b) Not applicable.
 - c) Not applicable.
 - d) Validation team checked in the financial analysis “Yellow Ipe_Project_Cashflow Buffer_PD_v04” /30/ that breakeven would be reached in less than 4 years. Score 0 correctly applied.
 - e) Not applicable.
 - f) Not applicable.
 - g) Not applicable.
 - h) Score given 0. RINA checked the agreement between Ecológica Assessoria Ltda and Grupo Leão /5/ and confirmed that project participants have secured more than 80% of funding

needed to cover the total cash out due the project reached the breakeven in 2023 according to the provided cashflow.

- i) Project does not have any available callable financial resources to cover at least 50% of total cash out before project reaches breakeven. Score – 0 correctly given.
- 3) Opportunity cost: 0 score given.
 - a) Score 0.
 - b) Score 0.
 - c) Score 0.
 - d) Score 0. PP considered NPV from the most profitable alternative land use activity as between 20% more than and up to 20% less than from project activity as checked in the financial analysis “Yellow Ipe_Project_Cashflow Buffer_PD_v04.1” /30/.
 - e) Score 0.
 - f) Score 0.
 - g) Score 0 correctly given since project proponent is not a non-profit organization.
 - h) Score 0 correctly give since the project does not have any legal agreement or requirement to continue the management practice.
 - i) Score 0 correctly give since the project does not have any legal agreement or requirement to continue the management practice.

Project Longevity: 18 score correctly applied as the project does not have any legal agreement or requirement to continue the management practice.

- 4) Land Tenure: 0 score given as per evidences /6/ /7/. Ownership and resource access/use rights are held by Grupo Leão. It was verified that there are 8 families living in the leakage management area and within the project area /28/. However, there are no disputes over land tenure or ownership and no disputes over access/use rights.

Community Engagement: - 5 score as per evidences /28/.

- 5) Political Risk: 0 score correctly applied according to evidence provided by PP at Yellow Ipê VCS non-permanence risk report itself, in the appropriate section /76//77/. Independent calculation of the governance score for Brazil is -0.18, which includes 2015 through 2019. The project area is located in the State of Amazonas and the state/jurisdiction participate in the Governors’ Climate and Forest Taskforce.
- 6) Natural Risk – Fire: It was communicated to the audit team that 24 fire outbreaks were identified within the project’s region during the period from 2013 to 2019 /78/. However, these fire outbreaks were considered low risk as evidenced by INPE sources report /79/. Higher fire risks

are located over 2 km distant from the project area /80/. No high risk was detected from 2014 to 2019 however, there are occurrence of fires in the region due to deforestation. For the verification risk assessment, it is stated in the report that there were 35,627 and 3 heat sources within the project's reference region and within the project area respectively. However, these fire outbreaks were considered low risk as evidenced by INPE sources report /79/. Higher fire risks are located over 20 km distant from the project area /80/. No high risk was detected however, there are occurrence of fires in the region due to deforestation. Score 2 correctly applied.

- 7) Natural Risk – Pest and Disease outbreaks: It was communicated to the audit team and confirmed based on professional experience that there was no record of any pest and disease outbreak in the project area since the area is covered by 100% Amazon Rainforest, i.e., “natural forests” /122/ Score 0 correctly applied.
- 8) Natural Risk – Extreme Weather: The VVB team has confirmed through a review of the reference indicated in the risk report /81/-/84/, that the frequency of recurrence of large blowdowns in the region of the project area is very low.
- 9) Natural Risk – Geological Risk: The VVB team has confirmed through a review of the reference indicated in the risk report /85/-/87/, that there are no geological events damaging the project site. Score 0 correctly applied.
- 10) Natural Risk – Other Natural Risk: No other sources of natural risk were identified in interview or literature sources. Score 0 correctly applied.

The overall non-permanence risk rating that was determined for the project, using below Table is 19.

Risk Category	Rating
a) Internal Risk	16
b) External Risk	0
c) Natural Risk	3
Overall Risk Rating (a + b + c)	19

In summary, the overall risk rating that was determined for the project, in accordance with the VCS Non-Permanence Risk Tool, is 19%. The audit team has concluded that the above risk rating is in conformance with the VCS rules.

4 VERIFICATION FINDINGS

4.1 Accuracy of GHG Emission Reduction and Removal Calculations

• Baseline Carbon Stock Change:

The methods and formulae used to calculate total net carbon stock changes in the baseline scenario in the project area in the year of 2020 was already checked and reported in section 3.4.6 of this report. Therefore, the verification of these values were simply a crosscheck of the values reported in the MR ER spreadsheet /3/ with the values in tables 64 and 65 of the validated PD v4.1 /1/. The actual values verified are presented in the table with the ex-ante parameters of section 4.2 of this report, below.

• Project Emissions:

The calculation of the ex post net carbon stock change in the project area under the project scenario is as follows.

1) Unplanned:

a) The carbon stock decrease due to unplanned deforestation in the project area was calculated using the following equation:

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

Where,

$\Delta CUDdPA_t$ Total ex post actual carbon stock changes due to unavoidable unplanned deforestation in the project area at year t; tCO₂e

$AUDPA_{icl, t}$ Area of unplanned deforestation in forest class icl at year t in the project area; ha

$\Delta Ctot_{icl}$ Average carbon stock change of all accounted carbon pools in forest class icl at time t; tCO₂e/ha

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

Both unplanned deforestation areas (referred to as **$ABSLPA_{icl,t}$** in section 6.1 of the MR /1/) in each of the phytophysiognomies and the parameters ab, bb, CF and CO₂ to C ratio, used to calculate the carbon stock lost in that area (Ctot icl) for the year of 2020 are reported in section 4.2 below. The former in “Parameters and Data Monitored” and the latter in “Parameters Available at Validation and Fixed Ex-ante”.

As only the first year of the project monitoring period is being assessed, no regeneration is being taken into account. This is in accordance with the applied methodology VM0015. The calculation

for the value of ΔCUDdPA_t was verified in the ERs spreadsheets /3/ and the following values confirmed:

Project year t	Total carbon stock decrease due to unavoided unplanned deforestation	
	annual	cumulative
	ΔCUDdPA_t	ΔCUDdPA
	tCO ₂ e	tCO ₂ e
2020	5.114,14	5.114,14

b) Non-CO₂ emissions from forest fires used the following equation:

$$\text{EBBPSPA}_t = \text{ABSLPA}_{\text{icl},t} * \text{EBBtot}_{\text{icl},t}$$

Where,

EBBPSPA_t Total actual non-CO₂ emissions from forest fire at year t in the project area;
tCO₂e/ha

$\text{ABSLPA}_{\text{icl},t}$ Annual area of deforestation of initial forest classes icl in the project area at
year t ; ha

$\text{EBBtot}_{\text{icl},t}$ Total GHG emission from biomass burning in forest class icl at year t ;
tCO₂e/ha

The calculation for the value of EBBPSPA_t was verified in the ERs spreadsheets /3/ and the following values confirmed:

Project year t	Total ex post estimated actual non-CO ₂ emissions from forest fires in the Project area	
	EBBPSPA_t	EBBPSPA
	annual	cumulative
	tCO ₂ e	tCO ₂ e
2020	243,40	243,40

2) Planned Activities:

As per PD v.4.1 /1/ there is no deforestation planned activities for this instance.

- **Leakage**

As there was no leakage prevention activities in the first year of the Project Activity, the formula used to calculate Leakage was:

$$\Delta C_{\text{totBSLLK}t} = \sum_{icl=1}^{icl} (\text{AUDL}_{\text{B}icl,t} \times \Delta C_{\text{tot}icl,t})$$

Where:

$\Delta C_{\text{totBSLLK}t}$: Total net carbon stock changes due to unavoidable unplanned deforestation in the area of the Leakage Belt during in year t of monitoring period;

$\text{AUDL}_{\text{B}icl,t}$: Area of unplanned deforestation in the initial forest class icl in year t of the monitoring period in the Leakage Belt;

$\Delta C_{\text{tot}icl,t}$: Average carbon stock change of all accounted carbon pools in forest class icl at time t ; $\text{tCO}_2\text{e/ha}$;

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

As there is only one year being assessed, no regeneration is being taken into account. This is in accordance with the applied methodology VM0015. The calculation for the value of $\Delta C_{\text{totBSLLK}t}$ was verified in the ERs spreadsheets /3/ and the following value confirmed:

Total net carbon stock change in the leakage belt	
$\Delta C_{\text{totBSLLK}t}$	$\Delta C_{\text{totBSLLK}}$
annual	cumulative
tCO_2e	tCO_2e
18.131	18.131

As the results of this formula returned ex post net carbon stock change of the leakage belt area smaller than the projected ex ante net carbon stock change of the leakage belt area (see parameter Projected Net ΔC_{BSLLK} for 2020 in table of section 4.2 of this report), no leakage emissions were

considered in the calculations. This is in accordance with the applied methodology VCS VM0015 Methodology for Avoided Unplanned Deforestation v1.1.

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

According to the applied methodology VM0015 v1.1 and the Joint PD and MR /1/, the emissions reductions are calculated subtracting project and leakage emissions from baseline emissions. As seen above, leakage projections in the baseline was greater than actual emissions due to deforestation in the leakage area and thus no leakage due to displacement to the leakage area needs to be accounted for. Since no leakage prevention measures were adopted yet, no leakage at all needs to be considered as per VM0015. The reduced emissions were therefore calculated as follows:

$$\Delta\text{REDD}_t = \Delta\text{CBSLPA}_t - \Delta\text{CPSPA}_t$$

Where:

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

ΔCBSLPA_t Sum of baseline carbon stock changes in the project area at year t; tCO₂e

ΔCPSPA_t Sum of ex post actual carbon stock changes in the project area at year t; tCO₂e

Below is the summary of the calculations of the emission reductions taking into account the fact that the monitoring period was of 10 months in 2020.

Project year	Baseline carbon stock changes		Baseline GHG emissions from biomass burning		Ex post project carbon stock changes		Ex post project GHG emissions from biomass burning		Ex post net anthropogenic GHG emission reductions	
	annual ΔCBSLPA_t tCO ₂ e	cumulative ΔCBSLPA tCO ₂ e	annual EBBBSLPA _t tCO ₂ e	cumulative EBBBSLPA tCO ₂ e	annual ΔCPSPA_t tCO ₂ e	cumulative ΔCPSPA tCO ₂ e	annual EBBPSPA _t tCO ₂ e	cumulative EBBPSPA tCO ₂ e	annual ΔREDD_t tCO ₂ e	cumulative ΔREDD tCO ₂ e
2020 (01/03/2020 to 31/12/2020)	23.544	23.544	1.357	1.357	4.262	4.262	203	203	20.436	20.436

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

4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

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

Parameter	Source of data	Reported value	Verified value	Assessment/ Observation
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(see PD for descriptions)				
Baseline emissions - 01/03/2020 to 31/12/2020 (tCO₂)	Calculations in PD ER spreadsheets /2/	24,901	24,901	MR ER spreadsheets /3/ and Tables 64 and 65 of the PD v4.1 /1/
Projected Net ΔCBSLLK for 2020 (tCO₂)	Calculations in PD ER spreadsheets /2/	186,639	186,639	MR ER spreadsheets /3/ and Calculations in ER spreadsheet of the PD v4.1 /2/
ba, icl	Section 5.1 of the PD v4.1 /1/	Dense Tropical Rainforest	327.40	Already validated in Sections 3.4.6 and 3.4.8 of this report.
		Pioneer formations with fluvial influence	23.58	
bb, icl		Dense Alluvial Tropical Rainforest	78.58	
		Pioneer formations with fluvial influence	4.72	
CF		0.5	0.5	
CO₂ to carbon ratio	PD v4.1 /1/	44/12	44/12	
EBB_{tot,icl,t} (tCO₂e)	PD ER spreadsheet /2/	35,42	35,42	MR ER spreadsheets /3/ and Calculations in ER spreadsheet of the PD v4.1 /2/

Parameters and Data Monitored

Data/Parameter	ACPA _t
Data Unit	Hectare (ha)
Description	Annual area within the Project Area affected by catastrophic events at year t.
Source of data	- Remote sensing data and GIS, - Supervisor reports.

Value data for the monitoring period	0
Frequency of monitoring/recording	Each time a catastrophic event occurs
Monitoring equipment and its accuracy	- Remote sensing data and GIS, - Supervisor reports.
QA/QC procedures to be applied	The PP built a confusion matrix to evaluate the accuracy of the classification of satellite images for 2020. The accuracy calculated was over 90% /16/.
Purpose of Data	Calculation of project emissions
How were the values in the monitoring report verified and cross-checked ?	There was no evidence of catastrophic events in satellite images in the PA during 2020 /45//46//47/. The areas detected by satellite images to be deforested in the PA in 2020 was 6.87ha, which does not suggest catastrophic event, and emissions were all accounted as unplanned deforestation in the PA.

Data/Parameter	ABSLPA_{icl,t}					
Data Unit	Hectare (ha)					
Description	Annual area of deforestation in the project area at year t					
Source of data	Remote sensing and GIS					
Value data for the monitoring period	Year	Stratum i in the project area (ha)			Total (ha)	
		ABSLPA 1 Dense Alluvial Tropical Rainforest	ABSLPA 2 Dense Submontane Tropical Rainforest	ABSLPA 3 Dense Lowland Tropical Rainforest	annual ABSLPA _t	cumulative ABSLPA
		2020	2.10	3.69	1.08	6.87
Frequency of monitoring/recording	Annual					
Monitoring equipment and its accuracy	Images of remote sensing of digital processing program, geographic information system.					

QA/QC procedures to be applied	The PP built a confusion matrix to evaluate the accuracy of the classification of satellite images for 2020. The accuracy calculated was over 90% /16/.
Purpose of Data	Calculation of project emissions
How were the values in the monitoring report verified and cross-checked ?	Rina checked the steps of calculation through the land classification carried out in Google Earth Engine to calculations of the areas deforested in the different phytophysionomies in 2020 in the PA /43/ to /48/ /24/. Rina confirms the areas above are correct and are correctly reported in section 6.1 of the Joint PD and MR v4.1 /1/.

Data/Parameter	ABSLLK_{icl,t}						
Data Unit	Hectare (ha)						
Description	Annual area of deforestation within the leakage belt at year t.						
Source of data	Remote sensing and GIS						
Value data for the monitoring period	Year	ABSLL K₁ Dense Alluvial Tropical Rainforest	ABSLL K₂ Dense Submontan e Tropical Rainforest	ABSLL K₃ Dense Lowland Tropical Rainforest	ABSLL K₄ Pioneer formations with fluvial influence	annual ABSLLK_t	cumulativ e ABSLLK
	2020	14.65	7.47	7.06	4.42	33.60	33.60
Frequency of monitoring/recording	Annual						
Monitoring equipment and its accuracy	Images of remote sensing of digital processing program, geographic information system.						
QA/QC procedures to be applied	The PP built a confusion matrix to evaluate the accuracy of the classification of satellite images for 2020. The accuracy calculated was over 90% /16/.						
Purpose of Data	Calculation of leakage emissions						
How were the values in the monitoring report verified and cross-checked ?	Rina checked the steps of calculation through the land classification carried out in Google Earth Engine to calculations of the areas deforested in the different phytophysionomies in 2020 in the LB /43/ to /48/ /24/. Rina confirms the areas above are correct and are correctly reported in section 6.1. of the Joint PD and MR v4.1 /1/.						

The VVB considers that evidence used to determine GHG emissions reduction are sufficient and appropriate.

5 VALIDATION AND VERIFICATION CONCLUSION

RINA has performed the validation and the verification of the Grouped project “Yellow Ipê Grouped REDD Project” and has verified that the project is in compliance with the Verified Carbon Standard version 04 and VCS Validation and Verification Manual version 3.2. The project is located in Brazil and covers 4,204 hectares.

The validation and verification process was performed on the basis of all issues and criteria of VCS. The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation and verification.

The verification assessment covered the monitoring period from 01 March 2020 to 31 December 2020 and verified that calculated emission reductions and/or removals were achieved during the monitoring period with a reasonable level of assurance.

RINA is able to issue a positive verification opinion for the 16,722 tonnes CO₂e as reported in the VCS project document & monitoring report for the reporting period from 01 March 2020 to 31 December 2020.

Verification period: From 01-03-2020 to 31-12-2020

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)	Buffer pool allocation	VCUs eligible for issuance
2020						
(from 01/03/2020 to 31/12/2020)	24.901	4.465	0	20,436	3,664	16,772
Total	24.901	4.465	0	20,436	3,664	16,772

APPENDIX 1: ABBREVIATIONS

Abbreviations	Full texts
AFLOU	Agriculture Forestry and Other Land Use
AUD	Avoided Unplanned Deforestation
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER(s)	Certified Emission Reduction(s)
CL	Clarification Request
CR	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DOE	Designated Operational Entity
FAR	Forward Action Request
FSC	Forest Stewardship Council
GHG(s)	Greenhouse gas(es)
LU/LC	Land-Use/Land-Cover
MR	Monitoring Report
PD	Project Description
PP(s)	Project Proponent(s)
REDD	Reducing Emissions Deforestation and Degradation
Ref.	Document Reference
RINA	RINA Services Spa
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCU	Verified Carbon Unit
VER	Voluntary Emission Reductions
VVB	Validation and Validation Board
VVS	Validation and Validation Standard

APPENDIX 2: LIST OF FINDINGS

Table 1: CARs from this validation/verification

Corrective action requests	Response by project participants	Validation/Verification conclusion
CAR1 The project area of the first project activity instance is not according to evidence provided during the remote audit nor to the area shown in the report given by the consultants responsible for the development of the baseline. Please provide shapefile with the correct area, the one that has been used in the baseline scenario development, and make sure all information uses the same area. Please also provide the shape file with the exact area discounted from the Property Area which was the areas of water and non-forest.	The area used in the baseline scenario is 90.801,29 ha, resulting in 86,097.67 ha as project area after the exclusion of non-forest classes. There is a difference between the values of the project area in the property documentation and the database used for the mapping because of the projection utilized. For the mapping, the SIRGAS 2000 UTM Zone 21S projection was used to calculate the flat area. For the georeferencing of SIGEF, the GCS SIRGAS 2000 projection was used, which considers the curvature of the Earth. Difference between mapping area and SIGEF area is 3.58 ha. Further explanation is in section 1.12 of the PD. The data related to the project area are in the forwarded folder 'Limite_da_AP'. The file 'Limite_da_propriedade.shp' represents the property's limits extracted based on the dwg files from folder "Georreferenciamento". These files indicate an area of 57124,59 ha for Gleba 4, calculated on Geodetic reference system SIRGAS 2000 projection. On the same system, the shapefile format has an area of 57122,86 ha. For Gleba 2, the area for the dwg format is 33554,49 ha while for the shapefile, it is 33552,60 ha.	Still not clear what is the source of the baseline map with the property area of 90.801,29ha, why it differs from the maps of the SIGEF in and the shapes in the file "Limite_da_Propriedade.shp" in approximately 120 ha. This CAR is open.

The table below indicates the classification of the areas that were removed from the property boundary to delimit the project area according to SIVAM for phytophysionomies and MapBiomass for classification of land use. The file for these areas is the shapefile 'ÁreasRetiradasDaPropriedadeClasses_diss.shp'.

The following areas were calculated in geodetic coordinates GCS SIRGAS 2000, as shown in the SIGEF documents. Some areas classified as forest and forest physiognomies were removed because they are not contiguous with the rest of the project area.

Fitofisionomias (SIVAM)	Classificação 2019 (MapBiomass)	Área (ha)
Floresta Ombrófila Densa Aluvial Dossel uniforme	Desmatament o	22.31
Floresta Ombrófila Densa Submontana Dossel emergente	Desmatament o	60.38
Floresta Ombrófila Densa Terras Baixas Dossel emergente	Desmatament o	4.91
Formações Pioneiras com influência fluvial e /	Desmatament o	70.54

		ou lacustre-arbustiva sem palmeiras				
		Massa d'água	Desmatamento	0.64		
		Floresta Ombrófila Densa Aluvial Dossel uniforme	Floresta	7.14		
		Floresta Ombrófila Densa Submontana Dossel emergente	Floresta	4.17		
		Formações Pioneiras com influência fluvial e / ou lacustre-arbustiva sem palmeiras	Floresta	3156.68		
		Massa d'água	Floresta	396.93		
		Floresta Ombrófila Densa Aluvial Dossel uniforme	Hidrografia	308.00		
		Floresta Ombrófila Densa Submontana Dossel emergente	Hidrografia	9.06		
		Floresta Ombrófila Densa Terras Baixas Dossel emergente	Hidrografia	37.15		

	<table><tr><td>Formações Pioneiras com influência fluvial e / ou lacustre-arbustiva sem palmeiras</td><td>Hidrografia</td><td>54.48</td></tr><tr><td>Massa d'água</td><td>Hidrografia</td><td>570.53</td></tr></table>	Formações Pioneiras com influência fluvial e / ou lacustre-arbustiva sem palmeiras	Hidrografia	54.48	Massa d'água	Hidrografia	570.53	
Formações Pioneiras com influência fluvial e / ou lacustre-arbustiva sem palmeiras	Hidrografia	54.48						
Massa d'água	Hidrografia	570.53						
CAR 1 (cont.) Still not clear what is the source of the baseline map with the property area of 90.801,29ha, why it differs from the maps of the SIGEF in and the shapes in the file “Limite_da_Propriedade.shp” in approximately 120 ha.	There was a correction in the property area in the PD, that is actually 90,801.24 ha. This is the same area of the shapefiles sent to the audit team during the 1st round. As all the other areas and measurements of the PD, this value was calculated in planimetric coordinates WGS 1984 UTM Zone 21S. This difference in values is justified by the projection selected to perform the area calculation. Converting to GCS SIRGAS2000 geodetic coordinates, the property boundary would have 90,675.46 ha, which would be a difference of 3.63 ha from the 90,679.09 ha of the SIGEF. It is important to note that data in SIGEF is measured in GCS SIRGAS2000. Therefore, this mentioned difference of 122.15 ha would be between the calculated value of the property's shp in planimetric coordinates WGS 1984 UTM Zone 21S with the value of SIGEF calculated in geodetic coordinates GCS SIRGAS2000.	In a video conference the VVB observed the PP transform the original dwg files (PLANTA GLEBA 02.dwg and PLANTA GLEBA 04.dwg /31/), of the records made on field with GPS, into shape files and to measure the area of the property using WGS 1984 UTM and geodesic coordinates (GCS SIRGAS2000). The VVB confirms that the property area in UTM measurements comes to 90,801.24ha and in geodesic it comes to 90,675.46 ha explaining the difference of 125.78ha. The INCRA documentation has the property area total as 90,679.08. The INCRA documents are also in						

		geodesic coordinates (SIRGAS2000), the difference of 3.62ha must be a difference of rounding up values of the software used to calculate the total area by INCRA and the PP's consultants. Therefore, in geodesic the project area was calculated as: $90,675.46 - 4,702.92 = 85,972.54\text{ha}$ In UTM the project area was calculated as $90,801.24 - 4,709.58 = 86,091.66$ CAR 1 is closed.
CAR 2 PP is requested to provide, in section 1.11 of the VCS PD&MR, the mitigation actions to be implemented by the project.	A brief description of the mitigation actions to be implemented by the project were added to section 1.11, and are detailed throughout the PDD, specially in sections 1.17 and 3.4.	Section 1.11 of the VCS PD&MR was revised and the mitigation actions to be implemented by the project were described. However, PP is requested to provide more information regarding the conservation plan, how the surrounding communities will be inserted in the project activities and how the project will offer alternative income. This CAR is open.

CAR 2 (cont.) Section 1.11 of the VCS PD&MR was revised and the mitigation actions to be implemented by the project were described. However, PP is requested to provide more information regarding the conservation plan, how the surrounding communities will be inserted in the project activities and how the project will offer alternative income.	The area's conservation plan involves increasing monitoring via satellite, overflight and/or in person, with monitoring posts in the area, as well as socio-environmental education and inclusion of the community as the main way to mitigate illegal actions in the area. This plan will be based on monitoring parameters, in addition to being verified through the SocialCarbon Report. The SocialCarbon methodology guides continuous improvement in the local community through prospects (at least one per resource, totaling 6 improvement actions), in which the project owner commits to implement them until the next monitoring period. The prospects listed in Point 0 are: Social Resource: - The project proponent plans to hire the community members (<i>ribeirinhos</i>) as collaborators and support their education. In addition, a community center will be built, providing basic infrastructure for the community. - The project proponent intends to promote the community's artisanal products and finance the studies of <i>ribeirinhos</i> women who have no schooling. - The project proponent proposes to create a community center to promote educational and cultural activities. Human Resource:	PP provided additional information regarding the conservation plan, how the surrounding communities will be inserted in the project activities and how the project will offer alternative income. This CAR is closed.
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	- Partner with educational institutions to promote education / professional training for the most marginalized part of the riverside community (<i>ribeirinhos</i>). - Continue with the partnership with UFAC in order to expand knowledge about the Amazon fauna. - The project proponent intends to partner with public health agencies or technical organizations to speak about health and safety at work. In addition, the proponent plans to build a community center that aims to facilitate the community's first aid. Financial Resource - The project proponent intends to promote the community's artisanal products and finance the studies of riverside women who have no schooling. - The project proponent intends to create formal jobs for <i>ribeirinhos</i> in the project. Natural Resource: - In addition to high-resolution GIS, the project proponent intends to use guards and place guard towers or supervision center in the project area. Biodiversity Resource: -The project proponent intends to implement the identification of the local fauna in partnership with a university. Carbon Resource:	
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	- The project proponent plans to organize consultations with stakeholders periodically, taking steps to include all stakeholders in the consultation. To ensure the evolution of the socio-environmental scenario in the region, the SocialCarbon Standard requires that at least 50% of the actions suggested in Point 0 are implemented, under the risk of losing the Standard. The monitoring period for SocialCarbon shall be the same as the monitoring period for the Carbon Accounting Standard (VCS). The listed prospects were not included in the PD as their monitoring is carried out together with the monitoring report, and may undergo changes that shall be justified at each verification, which should be updated at each point/monitoring period, in order to reflect the region's sustainable development goals. The Social Carbon Report is included as file "Yellow Ipe Draft 2\SCR_Yellow IPE_Point0_v02.pdf".	
CAR 3 Further clarification should be provided in order to demonstrate that the project activity instance and new project activity instances comply with the set of eligibility criteria provided in the VCS Standard.	Table 1 details the eligibility criteria for both grouped project and first instance, according to the VCS Standard definitions.	It is stated in the criteria 2 and 3 that all project activity instances should apply the same measure specified in the project description i.e., forest conservation by avoiding unplanned deforestation, without forest management in project scenario. Thus, PP is requested to clarify how it is possible to have different approaches for additionality (forest conservation by avoiding unplanned

		deforestation, with and without forest management in project scenario). It is stated in the criteria 6 that the reference region is described in section 1.12 of the VCS PD&MR. However, as per CAR 5 this information should not be described in this section. This CAR is open.
CAR 3 (cont.) It is stated in the criteria 2 and 3 that all project activity instances should apply the same measure specified in the project description i.e., forest conservation by avoiding unplanned deforestation, without forest management in project scenario. Thus, PP is requested to clarify how it is possible to have different approaches for additionality (forest conservation by avoiding unplanned deforestation, with and without forest management in project scenario). It is stated in the criteria 6 that the reference region is described in section 1.12 of the VCS PD&MR. However, as	The sentence was corrected to include the type of project with management plan, which is included as a possible project activity in the Grouped Project. Additionality shall be assessed according to each type of project activity, as mentioned in section 3.5 and in item 5 of table 1. In additionality assessment, each instance shall determine the appropriate analysis method, whether to apply simple cost, investment comparison or benchmark analysis, according to STEP 2 of VCS VT001 v 3.0 tool. 1) Instances may or may not include Sustainable Forest Management Plan. 2) In case the project activity does not involve Sustainable Forest Management Plan: - The instance should have financial, technical and scale consistent with the described in the VCS PD, facing similar	PP revised the information included in the criteria 2 and 3 and the possible scenarios are same reported for additionality. The information in criteria 6 was correctly revised. This CAR is closed.

per CAR 5 this information should not be described in this section.	investments, technological and/or other barriers as the initial instance. If the VCS AFOLU project generates no financial or economic benefits other than VCS related income, the simple cost analysis (Option I) shall be applied. - A new AFOLU non-permanence risk analysis shall be provided. 3) In case the project activity includes a Sustainable Forest Management Plan: - A new additionality analysis shall be provided. In this case, the investment comparison analysis (Option II) or the benchmark analysis (Option III) of the Tool VCS VT001 v 3.0 shall be used. - In addition, a new AFOLU non-permanence risk analysis shall be provided. Anyhow, the activity must be additional to be included as an instance in the grouped Project. In addition, criteria 6 was corrected, as reference region information is now in section 3.4.	
CAR 4 The project scale defined in the VCS PD&MR is not according to the definition provided in section 3.9.1 of the VCS Standard.	Project scale was corrected to large scale, according to the definition provided by VCS Standard	The project scale was correctly defined in section 1.10 of the revised VCS PD&MR. This CAR is closed.
CAR5 PP is requested to include in section 1.12 of the VCS PD&MR the map with	The geographical coordinates of the centroids were included in section 1.12, and detailed limits coordinates are presented in Appendix I. There is a difference between the values of the project	See CAR 1 for details. This CAR is open.

the limits of the properties with geographical coordinates with the size of the property validated in the INCRA maps /11//12/. At the moment the area of the properties used in the development of the baseline /13/ seen during the audit (90,801ha) is not the same as the area seen in the INCRA evidence (90,679ha). Information regarding to definition of reference region and leakage belt are not part of the project location.	area in the property documentation and the database used for the mapping because of the projection utilized. Information regarding Reference Region and Leakage Belt were relocated to section 3.4.	
CAR 5 (cont.) See CAR 1 for details.	The maps and the descriptive memorial of the Grupo Leão farms (Gleba 2 and Gleba 4) have been added to the Appendix (appendix III and IV). As described in CAR 1, the SIGEF documents are calculated in geodetic coordinates GCS SIRGAS2000. The property area and the coordinates informed in the PD's Appendix I, informed during round 1, were already available in WGS84. There was only one typo in the size of the property, which, however, did not reflect any change in the coordinates of the project area. Documents attached (folder Yellow Ipe Draft 2\Documentos – SIGEF): FazendaGrupoLeao_Gleba2_MemorialDescritivo.pdf FazendaGrupoLeao_Gleba2_PlantaSIGEF.pdf FazendaGrupoLeao_Gleba4_MemorialDescritivo.pdf FazendaGrupoLeao_Gleba4_PlantaSIGEF.pdf.	As per CAR1, the VVB confirms that the property area in UTM measurements comes to 90,801.24ha and in geodesic it comes to 90,675.46 ha explaining the difference of 125.78ha. The INCRA documentation has the property area total as 90,679.08. This measurement is also in geodesic coordinates (SIRGAS2000), the difference of 3.62ha must be a difference of rounding up values of the software used to calculate the total area by INCRA and the PP's consultants.

		The PP placed the map with the coordinates in UTM in Figure 1 of the PD v4. CAR 5 is closed.
CAR 6 PP is requested to include all references of the cartographic bases.	References of the cartographic bases were included in the PDD and sent as a table for the audit team.	All references were included in the revised VCS PD&MR and checked by the auditing team. This CAR is closed.
CAR 7 PP is requested to provide more information regarding the applicable laws.	Section 1.14 was completed with references to decree No. 10,088, of November 5, 2019.	The revised VCS PD&MR provided more information regarding the applicable laws. The decree N0. 10,088 related to indigenous people was included. This CAR is closed.
CAR 8 No description of a leakage management plan is provided in section 1.12 of the VCS PD&MR. Moreover, information regarding leakage management plan and area should not be included in this section.	Description of leakage management area and leakage management plan is provided in section 3.4; Leakage management plan and mitigation actions are also detailed in Sustainable Development, in section 1.17.	Section 1.12 was revised in the VCS PD&MR and information regarding leakage management plan and area were included in the baseline scenario section. This CAR is closed.
CAR 9 Since only the VVB team attended the remote meeting held on 07 December	The date of the meeting was corrected in the PDD. A second online stakeholder consultation was conducted on January 18th, 2021. Receipts of the dispatched letters will be sent to the VVB/auditors.	A new remote meeting was held on 18 January 2021. PP demonstrated that all stakeholders invited to the meeting received the invitation by

2020, PP is requested to invite again the stakeholders listed in section 2.2 of the VCS PD&MR for a new remote conference. During the remote audit, PP was not able to demonstrate that all stakeholders invited to the meeting received the invitation by email. In addition, in the VCS PD&MR it is stated that stakeholders were invited by letter however, it was checked that they were invited by e-mail. Moreover, the date of the meeting is not correct in the VCS PD&MR.	More information on how the consultations were conducted in section 2.2	email or letter. VVB team also attended the second remote meeting and confirmed that other stakeholders attended the meeting. Moreover, the date of the first remote meeting was corrected in the VCS PD&MR. This CAR is closed.
CAR 10 The description related to local stakeholder identification and background in section 2.5 of the VCS PD&MR is not according to section 3.16.11 of VCS standard.	Description of Local Stakeholder Identification and Background was added to section 2.5. Local Stakeholder consultation on site and social diagnosis were conducted in April 2021.	The description related to local stakeholder identification and background was correctly revised in section 2.5 of the VCS PD&MR and is according to section 3.16.11 of VCS standard. This CAR is closed.
CAR 11 PP is requested to discuss the paragraph 3.16.12 to 3.16.15 of the VCS standard.	Items 3.6.12 to 3.16.15 were included to section 2.5 of the PDD. Local Stakeholder consultation on site and social diagnosis were conducted in April 2021.	The description related to risks to local stakeholders was revised in section 2.5 of the VCS PD&MR. However, paragraphs 3.16.14 and 3.16.15 were not discussed. This CAR is open.

CAR 11 (cont.) The description related to risks to local stakeholders was revised in section 2.5 of the VCS PD&MR. However, paragraphs 3.16.14 and 3.16.15 were not discussed.	Subjects addressed in paragraphs 3.16.14 and 3.16.15 were discussed and included in section 2.5. A consultation was carried out with governmental agencies to verify any process that violates human rights. The proponent or any entity related to the project does not have administrative (Public Ministry, Labor Public Ministry, Unions, among others) or judicial procedures involving, directly or indirectly, sexual moral harassment, racism, work in conditions analogous to slavery, forced or childish.	Paragraphs 3.16.14 and 3.16.15 were correctly discussed in the revised joint VCS PD&MR. This CAR is closed.
CAR 12 PP is requested to provide more details regarding to how the appropriate measures to communicate and consult with local stakeholders will be implemented. In addition, as described in the VCS PD&MR, a permanent communication channel with local stakeholders was created in order to receive any comments or suggestions. PP is requested to provide evidences.	More details on communication are on section 2.5 (Communication and Consultation). Communication with stakeholders will be established during local visits and consultations. Local Stakeholder consultation on site and social diagnosis were conducted in April 2021.	Evidence of the permanent communication channel with local stakeholders was not provided. This CAR is open.
CAR 12 (cont.) Evidence of the permanent communication channel with local stakeholders was not provided.	For those who have access to communication and the LSC was done remotely, the communication channel is the email and telephone provided in the PD. This was described in the meeting and the information was also provided in the invitation letter. For families living close to the project area, as they are in a very remote location, the telephone number and physical and virtual address for the communication channel were given to them during the LSC and social diagnosis, carried out in person. The folder	The VVB team verified the information provided of the permanent communication channel with local stakeholders. This CAR is closed.

	distributed during the consultation is attached in "Yellow Ipe Draft 2\Diagnóstico Socioambiental e Consulta Presencial\Folder LSC - Yellow Ipê.pdf". In addition, with the resources of carbon credit, it is intended to improve the means of communication and presence in the area, in order to make communication more effective.	
CAR 13 Since the project is a grouped project, the additionality should be demonstrated for each combination of baseline scenario. In addition, the project scenario was not listed in Step 1. PP is also requested to provide evidence of each input parameter included in the simple cost analysis.	Additionality steps were described for the grouped project and the current instance. Project scenario without being registered as the VCS AFOLU project was included in step 1. A simple cashflow and evidence for the simple cost analysis were sent to audit team, to present values and references for all considered expenses.	Regarding to the input parameter included in the simple cost analysis, evidence of the forest conservation and social environmental activities should be provided. This CAR is open.
CAR 13 (cont.) Regarding to the input parameter included in the simple cost analysis, evidence of the forest conservation and social environmental activities should be provided.	The values of socio-environmental investments and forest conservation were estimated based on the last verification of the Ecomapuá REDD Project, with an area similar to that of the first instance, Grupo Leão. Annexes "Budget Ecomapuá_2013-2017.xls" and "SCR_Ecomapua_Point01_v03.pdf" (located on folder "Ecomapuá REDD Project") present the project's budget spreadsheet and the Social Carbon report, where, in indicator 12, the percentage of revenues directed to actions of this type is presented. This project was verified in 2020 and it is similar to the Grupo Leão project instance due to the presence of riverside communities living in the region, and also because the project does not generate any financial or economic benefits other than VCS related income.	The evidence of the forest conservation and social environmental activities was provided and verified by the VVB team. This CAR is closed.

CAR 14 PP is requested to provide the adaptative management plan.	The adaptation plan chosen was the application of SOCIALCARBON Standard, as described in the Buffer Report. Thus, the planning for mitigating impacts and reducing risks is listed in the prospects of the report, which shows the actions that the owner proposed to take until the next verification. PP is therefore sending the SCR for the project's first monitoring report.	PP is requested to provide the Socialcarbon report. This CAR is open.
CAR 14 (cont.) PP is requested to provide the Socialcarbon report.	Social Carbon Report is attached in "Yellow Ipe Draft 2\SCR_Yellow IPE_Point0_v02.pdf".	PP provide the Socialcarbon report. This CAR is closed.
CAR 15 The financial analysis of the alternative scenario should be revised. The value of some input parameters is not according to the evidence provided during the remote audit.	The following parameters were updated on the financial analysis: Arroba value – from 15 kg to 30kg, as reference used on the PD Pasture % - According to the Forest Code, 80% of the total area should be preserved as Legal Reserve. Furthermore, Permanent Preservation Areas (APPs) and other inaccessible areas are estimated to compose around 23% of the remaining area (according to SFMP of Boa Fé and Agro cortex). Thus, this scenario considers an exploration within the established by the Brazilian law. Sources: - PMFS Agro cortex, absolute preservation area value available on pg 13, Tab 2, and permanent preservation area and infrastructure available on pg 263, Section 11. https://drive.google.com/file/d/1O4_fTNOLWXpGoOil6TRWVFQ6HgMsAMEJ/view?usp=sharing	VVB team checked the revised financial analysis and verified that the input parameters were revised according to the evidences provided during the remote audit. This CAR is closed.

	- pg 41 from Boa Fé report, summing APP areas, Ecosystem representation and infrastructure, and comparing it to the total property area. https://drive.google.com/file/d/1iLhEnv9O0U8Z5DE7TtfBH6HYWgZsX4vi/view?usp=sharing	
CAR 16 PP is requested to revise the cash flow for the most profitable alternative land use activity.	NPV and breakeven were updated on the Buffer report and Cashflow.	PP is requested to explain why the values applied for the cashflow buffer were not revised as per evidences provided. This CAR is open.
CAR 16 (cont.) PP is requested to explain why the values applied for the cashflow buffer were not revised as per evidences provided.	Values were revised and applied in the cashflow buffer, as per evidence provided on round 1.	The cashflow buffer was correctly revised. This CAR is closed.
CAR 17 Regarding to opportunity cost, PP is requested to provide explanation for each mitigation (risk factors g, h and i).	Mitigation rating was not accounted for items g, h and j since: g) Project proponent is not a non-profit organization h) and j) The project does not have any legal agreement or requirement to continue the management practice.	The non-risk permanence report was revised and PP included an explanation for each mitigation. This CAR is closed.
CAR 18 PP is requested to demonstrate that the risk factor b) is not applicable. In addition, PP is requested to explain how it was considered that there are no	Risk factor b) – Ownership and resource access/use rights are held by the same entity (Grupo Leão). Risk rating = 0. There is no legal process related to disputes over access/use rights. The landowner acknowledges the presence of the families inside the project area and allows them to use the land for subsistence and nut	PP demonstrated that the risk factor b) is not applicable and explained how it was considered that there are no disputes over the land tenure and over access/use rights.

disputes over the land tenure. PP is requested to demonstrate that there are no disputes over access/use rights.	extraction. A declaration of no disputes over access and use was provided as evidence.	This CAR is closed.
CAR 19 The values provide in the table are not according to the evidence mentioned. In addition, PP is requested to demonstrate the determination of the value -0.18 (verification risk assessment) and -0.16 (validation risk assessment).	Values were updated according to the reference. The correct value is -0.18, which is the mean from values between 2015 and 2019 for Brazil.	The table was revised according to the evidence provided during the remote audit and the mean was updated. This CAR is closed.
CAR 20 VM0015 states that for projects below 100,00 ha the reference region should be 20-40 times the size of the project area. The first instance of the project is below this. Furthermore, it is not possible to see from the graphs presented in the PD, or the consultants' report, the PA and RR mean annual precipitation and average slope and their percentages of the population of these values in order to check if requirement of the applied methodology is met. Furthermore, the graph of frequency of distribution of altitudes suggests that the altitudes of	For the reference region, the 4th order hydrographic basins were initially delimited within an area of more than 10 million hectares around the project area, from the drainage network produced by the SRTM digital elevation model. For each of these basins, the average values of elevation, slope and precipitation and the percentages of different types of vegetation were determined. Based on these values, basins were selected that presented values close to these parameters to the values of the project area. It was then sought to select basins until reaching an extension above 1 million hectares. The definition of the size of this buffer was based on the suggestion contained in the VM0015 methodology that the reference region for project areas above 100,000 ha should be 2 to 7 times larger than the project areas. As the areas of this project totaled 86,097.67 ha, that is, a value close to 100,000 ha, an approximation was made, and a buffer 10 times larger than the project areas was established (since these are less than 100,000 ha; still thus, the defined RR is even higher, with 1,440,404.91 ha). A similar approach has been	1) The VVB checked that the RR is 17 times the PA of 86,097.67 ha (to be confirmed in CAR1). As rounding this value up, we come to 20 times the project area and the methodology suggests this as a "rule of thumb", this precision was deemed acceptable by the VVB. This first issue of CAR20 is just pending closure of CAR1; 2) With regards to rainfall and slope: the PP has added to section 3.4 of the PD the information of the average rainfall and slope in the PA is 2289mm per year and 4.26° respectively. This has been checked

PA is within the range of the RR, although it is necessary that exact percentages be presented so as to promptly check compliance with methodology too. Please provide such analysis with all shape files and spreadsheets used to find the values, averages, ranges and percentages of the population. Please provide the graphs and shape files of the phytophisionomies analysis shown in the consultants report but with clear keys to phytophisionomies and values of ha appearing in full so that the audit team can promptly confirm compliance. Place all analysis in the PD and also state if this analysis will be done every time a new instance is included.	conducted in other registered VCS Projects, such as Ecomapuá Amazon REDD Project, which has an area of around 86 thousand hectares (very similar to the present project activity). Graphs comparing the project area with the area of the reference region, according to each parameter, were included in the PD	during the audit. However, the value of 3.97° for the RR do not seem to have been the ones checked during the audit when the PP showed the VVB how they used the tool of the ArcMap “Classification Statistics” do calculate the averages. Please provide the shapes of the RR with the PA already cutout, in 2 datasets, one for slope and the other for precipitation, as shown in fig 18 and fig 20 of the PD v2 and explain the steps to calculate the average so that the VVB can replicate the results. Issue still opened; 3) Altitude: Section 3.4 of the PD v2 states that the altitude of the PA ranges from 13 to 138m. The exact minimum and maximum values of the altitude ranges in the PA were checked during the audit and are in the file “ap_dem_fill.tiff” sent by the PP. The map in figure 16 of the PD v2 also shows that the ranges of the RR are between 0 and 184. This was also checked during the audit. Also during the audit, the PP did a count of total number of pixels in the RR and total number of pixels
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		between 13 and 138m in the RR. The ratio between the latter and the former counts came to 99%. This means that the range found in the PA is found in 99% of the RR which is what is stated in page 60 of the PD v2. Issue closed; 4) The datasets requested, with the areas of vegetation cover (base map from Sivam) of the RR with PA already cutout and with legends (fig.15 of the PD v2) were not found in the files sent for the RR. Please provide this already as a dataset (with legends of areas etc) so that the audit team can just open it and quickly check the area of the 3 types of forest categories which are found in the PA correspond to >90% of the rest of the RR. During the audit it was done but in looking back records it seems that the total area of the 3 types of vegetation found in the PA, in the RR comes to an area greater than the area of the RR itself so the audit team needs to double check. Issue open.
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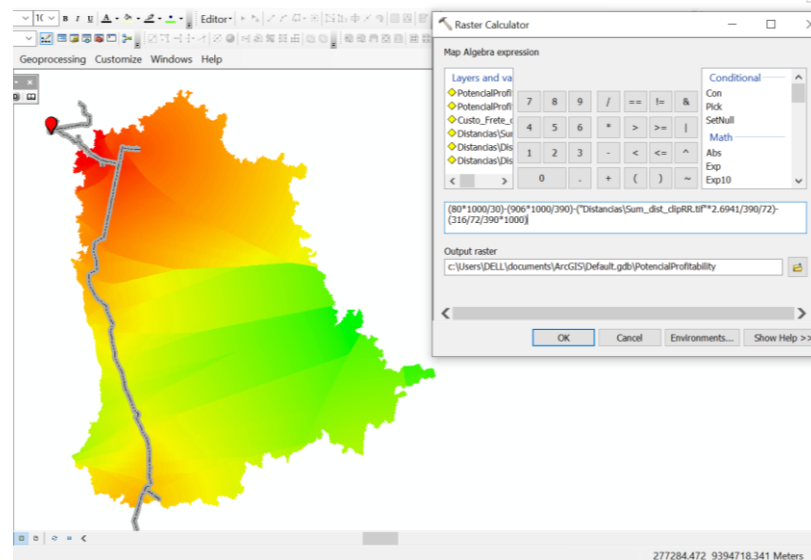
		This CAR is opened because of issues 2) and 4) above.
CAR 20 (cont.) 1) The VVB checked that the RR is 17 times the PA of 86,097.67 ha (to be confirmed in CAR1). As rounding this value up, we come to 20 times the project area and the methodology suggests this as a “rule of thumb”, this precision was deemed acceptable by the VVB. This first issue of CAR20 is just pending closure of CAR1; 2) With regards to rainfall and slope: the PP has added to section 3.4 of the PD the information of the average rainfall and slope in the PA is 2289mm per year and 4.26° respectively. This has been checked during the audit. However, the value of 3.97° for the RR do not seem to have been the ones checked during the audit when the PP showed the VVB how they used the tool of the ArcMap “Classification Statistics” to calculate the averages. Please provide the shapes of the RR with the PA already cutout, in 2 datasets, one for slope and the other for precipitation, as shown in fig 18 and fig	2nd round: 2) Regarding the slope map, as only 95% of the reference region has to be considered, the average value of 95% of the highest pixels was calculated, totaling 3.97 degrees. In order to do so, it was necessary to exclude values equal to zero that correspond to 5% of the lowest values. To verify that 0 is the break value of 5%, a classification by quantiles was done in 20 classes. Therefore, the first break, which was zero, broke down 5% of the smallest data from the largest 95%. Maps attached (folder Yellow Ipe Draft 2\CAR20): rr01_precipitacao.tif – precipitation map, in raster, with a cutout of the reference region without the project area. ap_precipitacao.tif – precipitation map, in raster, with a cutout of the project area. rr01_declive.tif – slope map, in raster, with a cutout of the reference region without the project area. ap_decliv_graus.tif – slope map, in raster, with a cutout of the project area. rr01_altitude.tif – altitude map, in raster, with a cutout of the reference region without the project area. ap_dem_fill.tif – altitude map, in raster, with a cutout of the project area	1) In CAR1 the PA was corrected to 86,091.66ha. The PP corrected the RR to 1,440,404.91ha so this issue is definitely closed; 2) The PP took out 9,5% of the slopes of the RR without the PA (slopes of 0 degrees) and the average slope for that came to 3,97 degrees. This value + or - 10% gives a range of 3,58° and 4,37°. The average slope for the PA is 4,26° as already seen, and therefore complies with the applied methodology. Issue closed. 4) The audit team checked the map “rr_ap_veg_sivam.shp – vegetation map (SIVAM) with clipping of the reference region without the project area” and crosschecked it with the spreadsheet with the areas and percentage calculation of phytophysognomies in the cut of the reference region without the PA and the phytophysognomies in the PA and confirms that the

20 of the PD v2 and explain the steps to calculate the average so that the VVB can replicate the results. Issue still opened; 3) Altitude: Section 3.4 of the PD v2 states that the altitude of the PA ranges from 13 to 138m. The exact minimum and maximum values of the altitude ranges in the PA were checked during the audit and are in the file “ap_dem_fill.tiff” /xx/ sent by the PP. The map in figure 16 of the PD v2 also shows that the ranges of the RR are between 0 and 184. This was also checked during the audit. Also during the audit, the PP did a count of total number of pixels in the RR and total number of pixels between 13 and 138m in the RR. The ratio between the latter and the former counts came to 99%. This means that the range found in the PA is found in 99% of the RR which is what is stated in page 60 of the PD v2. Issue closed; 4) The datasets requested, with the areas of vegetation cover (base map from Sivam) of the RR with PA already cutout and with legends (fig.15 of the PD v2) were not found in the files sent	4) Maps are attached as requested (folder Yellow Ipe Draft 2\CAR20): rr_ap_veg_sivam.shp – vegetation map (SIVAM) with clipping of the reference region without the project area. ap_veg_sivam.shp – vegetation map (SIVAM) of the project area. fitofisionomias.xlsx – spreadsheet with the areas and percentage of phytophysiognomies in the cut of the reference region without the PA and the phytophysiognomies in the PA.	phytophysiognomies covering the PA make up 89,1% of the area of the RR and 90,6% of the area covered by vegetation in the RR (i.e. when water bodies are discounted from RR area). This issue is closed. This CAR is closed.
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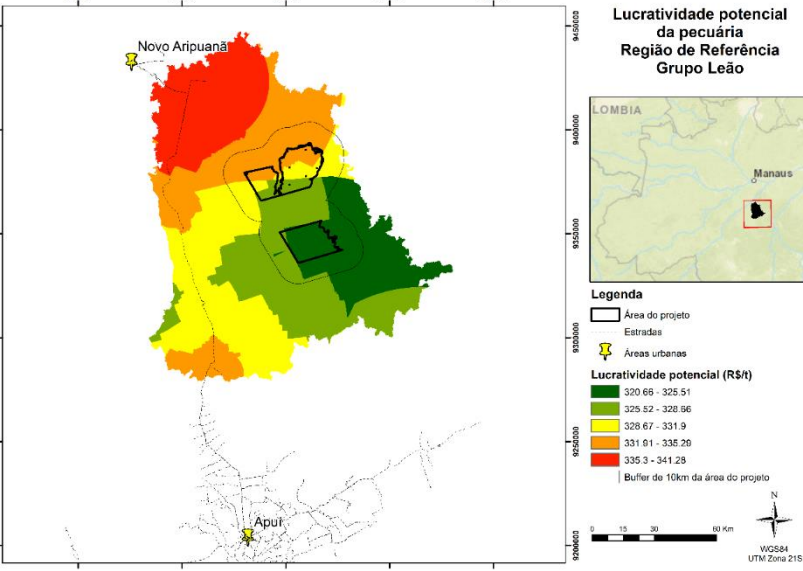
for the RR. Please provide this already as a dataset (with legends of areas etc) so that the audit team can just open it and quickly check the area of the 3 types of forest categories which are found in the PA correspond to >90% of the rest of the RR. During the audit it was done but in looking back records it seems that the total area of the 3 types of vegetation found in the PA, in the RR comes to an area greater than the area of the RR itself so the audit team needs to double check. Issue open. This CAR is opened because of issues 2) and 4) above.		
CAR21 the map of the leakage belt area was not placed in the section of the PD describing the development of the leakage belt. Perhaps because the explanation was placed in the wrong section of the PD v1. Furthermore, the second part of the formula (TDv*TCv), informed during the audit to have been placed in the “Raster Calculator”, did not seem correct.	1st round: Leakage belt area map was placed in section 3.4. It was added to the opportunity cost formula the loading and unloading costs fixed by type of truck in the freight table of resolution n° 5.890, of May 26, 2020. After the audit, an error was detected in the transportation cost, as the conversion to R\$/t was done. The calculation details in the material before and after the audit are as described below: Calculation on report 27/11/2020:	The VVB checked and the Leakage Belt area map is now in section 3.4 which is the section of the PD which describes the development of the leakage belt. OK the correction done to the calculation is correct, however confirm that the cost of freight shouldn't be added to cost of transportation instead of subtracted. Furthermore the PP must send evidence that this has been changed in the formula of the

	$PPx_i = S\$x + PCx_i - \sum_{v=1}^V (TDv * TCv) - \text{loading and unloading}$ $S\$x = \left(\frac{80R\$}{@} \right) * \left(\frac{@}{30kg} \right) * \left(\frac{1000kg}{t} \right)$ $PCx_i = \left(\frac{906R\$}{animal} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$ $TDv = \text{distance raster (m)} * \left(\frac{km}{1000m} \right)$ $TCv = \left(\frac{2.6491 R\$}{km} \right)$ $\text{loading and unloading} = \left(\frac{316.03 R\$}{truck} \right) * \left(\frac{truck}{72 animals} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$ Calculation review on report 01/03/2021: $PPx_i = S\$x + PCx_i - \sum_{v=1}^V (TDv * TCv) - \text{loading and unloading}$ $S\$x = \left(\frac{80R\$}{@} \right) * \left(\frac{@}{30kg} \right) * \left(\frac{1000kg}{t} \right)$ $PCx_i = \left(\frac{906R\$}{animal} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$ $TDv = \text{distance raster (m)} * \left(\frac{km}{1000m} \right)$ $TCv = \left(\frac{2.6491 R\$}{km} \right) * \left(\frac{truck}{72 animals} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$ $\text{loading and unloading} = \left(\frac{316.03 R\$}{truck} \right) * \left(\frac{truck}{72 animals} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$	lucrative potential in the system (i.e a print screen of the raster calculator) and state in the answer to the this CAR whether there was any impact of these changes to the lucrative potential and leakage belts maps, sending the shape of the before and after just like done for the equations. We take this opportunity to clarify why the area south of the PA was not included as leakage belt if shown in the Potential Profitability map to be profitable. CAR21 remains opened.
CAR 21 (cont) The VVB checked and the Leakage Belt area map is now in section 3.4 which is the section of the PD which describes the development of the leakage belt.	2nd round: The sum refers only to the transport cost per km, as there could be more than one type of transport. As the loading and unloading cost is unitary, it is being subtracted from the potential profitability. To be clear, the following representation indicates that the production	VVB confirms that, with the sign between selling price and average production cost corrected as well as brackets added to separate the cost of freight from cost of transport, the

OK the correction done to the calculation is correct, however confirm that the cost of freight shouldn't be added to cost of transportation instead of subtracted. Furthermore the PP must send evidence that this has been changed in the formula of the lucrative potential in the system (i.e a print screen of the raster calculator) and state in the answer to the this CAR whether there was any impact of these changes to the lucrative potential and leakage belts maps, sending the shape of the before and after just like done for the equations. We take this opportunity to clarify why the area south of the PA was not included as leakage belt if shown in the Potential Profitability map to be profitable. CAR21 remains opened.	costs, transport costs per km and loading and unloading costs were removed from the net sales. What needs a correction is the signal between net sales and production costs: $PPx_i = S\$x - PCx_i - \left(\left(\sum_{v=1}^v (TDv * TCv) \right) + \text{loading and unloading} \right)$ $PPx_i = S\$x - PCx_i - \left(\sum_{v=1}^v (TDv * TCv) \right) - \text{loading and unloading}$ $S\$x = \left(\frac{80R\$}{@} \right) * \left(\frac{@}{30kg} \right) * \left(\frac{1000kg}{t} \right)$ $PCx_i = \left(\frac{906R\$}{animal} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$ $TDv = distance\ raster\ (m) * \left(\frac{km}{1000m} \right)$ $TCv = \left(\frac{2.6941\ R\$}{km} \right) * \left(\frac{truck}{72\ animals} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$ $\text{loading and unloading} = \left(\frac{316.03\ R\$}{truck} \right) * \left(\frac{truck}{72\ animals} \right) * \left(\frac{animal}{390kg} \right) * \left(\frac{1000kg}{t} \right)$	formula is now correct. Also, PP sent print screen of formula entered in the system so the VVB was able to see that the formula of the lucrative potential entered in the system is correct. Furthermore, the PP clarified that the leakage belt was planned to be an intersection between lucrative potential and a buffer of 10Km around PA. The buffer was added to the map in figure 25 of the PD v4 which helped in the clarification. This CAR is closed.
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Regarding the areas to the south, two criteria were used for the definition: the areas with the highest potential profitability (4th and 5th classes, ie areas in orange and red in the figure below) and the intersection with a buffer of 10 km at around the project area. The orange area to the south, despite having high potential profitability, is not in the buffer and therefore was not defined as a leakage area.

	 Files are located on drive link: _05_auditoria\APPENDIX 2_IPE_dados\CAR21.	
CAR22 From the PD v1 forest management is a possible project activity in future instances. Please indicate that different instances will include different carbon pools too. Also, the applied methodology actually states “TBD” for litter, that is to be decided by the PP. It also states that “the pool can be excluded only when its exclusion does not lead to a significant	1st round: Carbon pools table was updated in the PD and spreadsheet.	The VVB checked and the PD now states that harvested wood products are included as future instances might have SFMP and states that the first instance does not include the implementation of a SFMP thus in this instance this pool was not included. The VVB also checked that the exclusion of Litter is conservative in

over-estimation of the net anthropogenic GHG emission reductions of the AUD Project Activity. The exclusion of this pool is actually conservative but this must be corrected in the PD.		the results of the GHG emissions reductions of the AUD Project Activity. This CAR is closed.
CAR23 The trend of substitution of non-timber forest products, as the largest contributor to the value of annual production in Novo Aripuanã, for timber logging has been demonstrated in figure 29 of the PD v1. The coinciding trends of increase of cattle herd and deforestation has also been demonstrated figure 27 of the PD v1. This seems good evidence of deforestation attributable to cattle industry in the municipality. The values of production were checked during the audit against the values in the Institute of Brazilian Geography and Statistics (IBGE) website and the values of deforestation against the PRODES site. Nevertheless, the same trends were not clear for municipality of Borba (which has a smaller percentage of land in the RR) or compared to other agricultural products (so that we can exclude agriculture as an agent too). Since it	1st round: The deforestation and herd numbers were updated with the values of the Terra Brasilis and the IBGE's livestock census, respectively. All data has been updated to include 2019. The exploitation of wood and livestock were considered as the main agents of deforestation since wood has a high value, when compared to other products extracted in the region, and the great use of land for grazing. In addition, the southern Amazon region represents an important center for livestock production in the country. Although the municipality of Borba does not have the same characteristics as Novo Aripuanã, the profile of the municipality of Novo Aripuanã was considered, since it represents most of the Reference Region (almost 80%). The analysis may be reassessed when there are updated data from the Brazilian Agricultural Census.	The VVB checked that the data for 2019 now included. Furthermore, it also visually checked from IBGE shapes of the municipalities (dashboard_cities-static-layer) that approximately 80% of the RR is within the municipality of Novo Aripuanã. Also the data of 2019 shows that Borba might be developing similar trends to Novo Aripuanã after years of improvement which is a knowledge which is now in the public domain. Furthermore, the PP introduced in the PD v2, figures 35 and 36, an analysis of land use in both municipalities in the RR, showing that cattle is the main product in the area and thus the likely baseline scenario. An analysis of all graphs in the analysis of agents, drivers and underlying causes of deforestation

has been claimed that cattle is the main product that follows logging in the RR, a comparison with other agricultural products should also be presented. Furthermore, the PP should present an analysis that shows that the situation in Borba (considering the size of its territory, compared to Novo Aripuanã, in the RR) has been taken into account for the conclusion that loggers and ranchers are the main agents of deforestation in the reference region. Also state in the PD whether this analysis is needed every time a new instance is included or not. Furthermore, the analysis should have been done from 2010 to 2019 and all sources of data in the graphs should be included in the PD.		suggest that cattle ranching is the main agent together with logging. This CAR is closed.
CAR24 Population size: Insert reference of the source of data in the graphics that show population growth during the reference period (please also send graphics in spreadsheet format to the VVB). Also, the PD states that the trend of the	1st round: The reference of the estimated population data was included, as well as the trend line in the graph, indicating the increase in population. The sentence was corrected, associating the increase in population with the future deforestation and the need for infrastructure.	1) Population size: The VVB checked the PD v2 and the PP has corrected explanation in there about trends. However the source of information of data in the graph must be placed in a way that it is explicit where the data came from. Issue still opened;

population growth was increasing during the reference period but it is expected to decrease in future years. Since factors that drive land use decisions in the future are to be used in the projection of future deforestation, explain why this should be included as a driver of deforestation. Prices of timber and cattle: The PD v1 state the following “As detailed in previous sections and in the description of deforestation agents above, timber and cattle prices have much higher value than other products exploited in the region.” From the graphs in the section of the PD v1 which analysis values of production and volumes it is not possible to see the volumes of certain products to reach such conclusion. A statistical analysis of prices should be added to this section. Furthermore, Apuí cattle herd was used in the analysis of drivers of deforestation in the RR but Apuí municipality is outside the RR. Access to forests – Rivers and Highways: The map showing the rivers are not very clear. Please provide all	An analysis of the price of cattle as a commodity on the stock exchange in Brazil was included, which demonstrates the valorization of the activity in the period analyzed. The map with the location of the conservation units was included in this section. The spreadsheet with the analysis of data on production, population and livestock prices was sent to the audit team.	2) Prices of timber and cattle: A graph with the valorisation of cattle prices (data from CEPEA) was introduced and Apuí was taken out of the analysis. Furthermore, it was noticed that pie charts with land use information in both the municipalities which compose the RR were introduced to the PD (figures 35 and figure 36 of the PD). VVB confirms that when all data analysed together it is clear that cattle main product in the region. Issue closed; 3) Access to forests - Rivers and Highways: the map in the PD still doesn't show the rivers clearly and the PP does not state in the answer to this CAR whether the shapes for the rivers were provided and the file. As per VVB email sent with the findings, the PP must cite references sent to close the CAR. Issue still opened; 4) Proximity to Conservation Units: map inserted to demonstrate
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shapes too and state in the PD the source of the base maps. Proximity to Conservation Units: Please insert a map in the section that demonstrates your point. Please provide shapes too.		the point the PP is trying to make. Issue closed. CAR24 is still opened because of 1 and 3 above.				
CAR 24 (cont) 1) Population size: The VVB checked the PD v2 and the PP has corrected explanation in there about trends. However, the source of information of data in the graph must be placed in a way that it is explicit where the data came from. Issue still opened; 2) Prices of timber and cattle: A graph with the valorisation of cattle prices (data from CEPEA) was introduced and Apuí was taken out of the analysis. Furthermore, it was noticed that pie charts with land use information in both the municipalities which compose the RR were introduced to the PD (figures 35 and figure 36 of the PD). VVB confirms that when all data analysed together it is clear that cattle main product in the region. Issue closed;	2nd round: 1) The link including the search for municipalities was included in the footnote, as well as the complete data in the reference sheet (folder Yellow Ipe Draft 2, file “Extrativismo_Pecuária_Grupo Leão (2).xls”). 3) A clearer map was included in the PDD. Shapefiles are attached in Drive folder “_05_auditoria\APPENDIX 2_IPE_dados\CAR24_3”. The hydrography maps source is ANA, and the updated links are: <table><tr><td>Rios_ANA</td><td>https://metadados.snirh.gov.br/geonetwork/srv/por/catalog.search#/metadata/7bb15389-1016-4d5b-9480-5f1acdadd0f5</td></tr><tr><td>RiosGrandes_ANA</td><td>https://metadados.snirh.gov.br/geonetwork/srv/por/catalog.search#/metadata/7d054e5a-8cc9-403c-9f1a-085fd933610c</td></tr></table>	Rios_ANA	https://metadados.snirh.gov.br/geonetwork/srv/por/catalog.search#/metadata/7bb15389-1016-4d5b-9480-5f1acdadd0f5	RiosGrandes_ANA	https://metadados.snirh.gov.br/geonetwork/srv/por/catalog.search#/metadata/7d054e5a-8cc9-403c-9f1a-085fd933610c	1) The VVB checked the PD v4 and confirms that the link for values of the population in the municipalities of Borba and Novo Aripuanã were placed in page 98 of the PDv4 (referring to graph in figure 45 of the PD too). The VVB checked the data used to construct the graphs in the file “Extrativismo_Pecuária_Grupo Leão (2).xls” and confirms they are correct. Issue closed; 3) The VVB checked that the map in figure 46 of the PD v4 now shows the rivers in the region clearly. Although the names of the main rivers were not placed in the map, the VVB checked from the ANA shapefiles sent in the answer to this CAR that these are shown in the map in figure 46 of the PD v4 and are to the NE of the RR, Canumã River, and to the NW of the RR,
Rios_ANA	https://metadados.snirh.gov.br/geonetwork/srv/por/catalog.search#/metadata/7bb15389-1016-4d5b-9480-5f1acdadd0f5					
RiosGrandes_ANA	https://metadados.snirh.gov.br/geonetwork/srv/por/catalog.search#/metadata/7d054e5a-8cc9-403c-9f1a-085fd933610c					

3) Access to forests - Rivers and Highways: the map in the PD still doesn't show the rivers clearly and the PP does not state in the answer to this CAR whether the shapes for the rivers were provided and the file. As per VVB email sent with the findings, the PP must cite references sent to close the CAR. Issue still opened; 4) Proximity to Conservation Units: map inserted to demonstrate the point the PP is trying to make. Issue closed. CAR24 is still opened because of 1 and 3 above.		Aripuanã River. The River Sucunduri, mentioned in the PD to reach PA was also checked. Issue closed. This CAR is closed.
CAR25 1 - Include in table 19 of PD v1 the exact source (link) of the base map used to produce each of the factor maps and provide both (base maps and factor maps to the VVB). 2 - There seems to have been an error with the logic utilised in the calculation of the similarity index for testing the generation of the predictive model. Furthermore, the PP must demonstrate that criteria adopted for the selection of	1st round: Explanation related to the calculation of the similarity index for testing the generation of the predictive model was included on subsection Projection of Future Deforestation. Quality Assurance/Quality Control description was updated on the monitoring plan, according to applied methodology. Shapefiles were sent to audit team.	1- The source of the base maps were added to table 24 of PD v2 (table 19 of the PD v1) however the exact links where the maps are found were not. Issue still opened; 2- The VVB checked the logic presented in the PD v2 and confirms that it was corrected according to what was seen and explained in the site visit. However, the model adopted doesn't seem to have changed, even though the factor map slope is now substituting large

the risk map is in accordance with the p54 of the methodology. 3 - When this is done the PPs must also provide the shapes for the projected deforested and also for the phytophisionomies so that the projected deforested areas can be checked for RR, PA and LB and also for each Phytophisionomy. This is so that the VVB can check the land use and land cover change for each year projected in tables 27, 28 and 29 of the PD v1. 4 - Furthermore, the QA/QC of maps accuracy in the monitoring plan below, must be as per applied methodology.		rivers in the final model said to be adopted. Also, the factor map “distance from deforested areas” doesn’t seem to have been used in the similarity analysis although their weight of evidence seem correlated to deforestation from results shown in tables 25. The factor map “distance from towns” was also not used in the similarity analysis. Please explain. Furthermore, it is still not clear how the criteria adopted to select the risk map (similarity index and Barni 2009) attends the methodology. The PP is requested to explain exactly how it attends the methodology. Is it the assessment technique mentioned in the methodology to be included in the Dinamica Ego? Also the method of similarity analysis of multiple growing windows is still not clear. How many widows are required for representativeness of the results? Can you provide evidence of the test being run, since this was not in the PD before audit was done? Provide
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		a precise reference (the thesis cited in page 121 of the PD, with page numbers) of the threshold level of acceptance mentioned in the PD v2, so that the VVB can promptly crosscheck information. Issue still opened; 3 – Please indicate what shapes/raster were sent and the files. Preferably send them in a single data set already, to speed up analysis by audit team. Issue still opened; 4- The Joint VCS PD and Monitoring Report template states the following “Describe the quality assurance and quality control (QA/QC) procedures applied, including the calibration procedures where applicable.” The Quality Assurance/Quality Control description was updated in the monitoring plan but does not describe the QA/QC procedure only cites “Best practices in remote sensing”. According to page 36 of the methodology the QA/QC procedure has a threshold and ground truthing should be applied.
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		Please clarify here in the car and in the monitoring plan both of these. Issue still opened. CAR25 is still opened.
CAR 25 (cont) 1- The source of the base maps were added to table 24 of PD v2 (table 19 of the PD v1) however the exact links where the maps are found were not. Issue still opened; 2- The VVB checked the logic presented in the PD v2 and confirms that it was corrected according to what was seen and explained in the site visit. However, the model adopted doesn't seem to have changed, even though the factor map slope is now substituting large rivers in the final model said to be adopted. Also, the factor map "distance from deforested areas" doesn't seem to have been used in the similarity analysis although their weight of evidence seems correlated to deforestation from results shown in tables 25. The factor map "distance from towns" was also not used in the similarity analysis. Please explain.	2nd round: 1) The direct links to the maps were included in the referred table in the VCS PD. In addition, the files are also attached in the database folder sent to VVB, with the following file names (folder Yellow Ipe Draft 2\CAR25): Rodovias_IBGE_edit_c_EstradasIlegais.shp (legal and illegal roads) UCs_MMA.shp (protected areas) Assentamento_INCRA (rural settlements) Rios_ANA.shp (rivers) RiosGrandes_ANA.shp (large rivers) AreasUrbanas_IBGE.shp (urban areas) DEM_srtm_mosaic.tif (slope and altitude) 2) The similarity index was presented to VVB, and the literature source sent as evidence. The model was updated to include the factor "slope" for the projections. Tables, figures and information on the projection were updated on the PD.	1) The links where the maps are found were placed in PD v4. Issue closed. 2) The PP stated that the model was updated to include the factor map slope however the risk map didn't seem to have changed from the initial PD. A conference call was arranged to clarify this once and for all. The PP informed that "the slope had been accounted for in initial model and thus the model has not changed. Table 26 of the initial PD was incorrectly reported and this was corrected in PD v4". Explanation was provided for the the factor map "distance from deforested areas": because its weight of evidence is so correlated to deforestation, as seen from results shown in tables 25, these are

Furthermore, it is still not clear how the criteria adopted to select the risk map (similarity index and Barni 2009) attends the methodology. The PP is requested to explain exactly how it attends the methodology. Is it the assessment technique mentioned in the methodology to be included in the Dinamica Ego? Also the method of similarity analysis of multiple growing windows is still not clear. How many widows are required for representativeness of the results? Can you provide evidence of the test being run, since this was not in the PD before audit was done? Provide a precise reference (the thesis cited in page 121 of the PD, with page numbers) of the threshold level of acceptance mentioned in the PD v2, so that the VVB can promptly crosscheck information. Issue still opened; 3 – Please indicate what shapes/raster were sent and the files. Preferably send them in a single data set already, to	The factor map "distance from deforested areas" was included in the similarity analysis, as part of the Dinamica Ego software, which automatically contemplates this variable in the analysis. However, the factor "distance from urban areas" was excluded because it was noted that the closest urban area is over 70 km away from the Project Area and about 15 km from the limit of the RR. In addition, and the main reason, the weights of evidence did not reflect a greater or lesser risk of deforestation, as the areas close to cities (up to 17 km) had a relatively low value, and after this distance, the weights varied a lot, either presenting very low or very high values. Therefore, this data was considered unclear and, thus, it was decided to delete the variable. 3) Files related to the projection model were sent as evidence (zipfile Projecao_Correcao_2021_06d26). The folder includes baseline deforestation projection by vegetation type sheets and shapefiles and the monitoring files for the first MR. 4) Both Google Earth Engine and MapBiomas use Landsat image series for classification. In the case of the supervised classification of the year 2020, an accuracy analysis described in table 20 on page 69 of the mapping report (Yellow Ipe Draft 2\Mapeamento\2021_03_01d_GrupoLeao_relatório_04_) was carried out. Detailed data are in " Yellow Ipe Draft 2\Mapeamento\Anexo_II_verificacao_da_acuracia_monitoramento_dez2020". Likewise, MapBiomas already performs an accuracy analysis for the classification of land uses, but it was redone using the same methodology, comparing the visually classified value with Landsat	automatically used in all the models. Issue closed. Explanation was also provided as to why the factor map "distance from towns" was not considered in the similarity analysis. Issue closed. Once the comparison with the similarity index was carried out, the VVB was presented with the similarity analysis of the growing windows mentioned in page 127 of the PD v4. In this the projection for 2019 of the chosen model (model number 12) was compared to the real values of deforestation for 2019 images. The values of similarity presented in page 121 of the PDv4 were checked and are correct. The value of acceptance mentioned in the PD v4, 50%, was crosschecked with the reference cited in the PD, Barni 2009. This is a statistical test run by the Dinamica Ego and it is therefore in conformity with page 54 of the methodology VM0015. Issue closed. 3) During a concall on July 28th 2021 the PP explained that the
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speed up analysis by audit team. Issue still opened; 4- The Joint VCS PD and Monitoring Report template states the following “Describe the quality assurance and quality control (QA/QC) procedures applied, including the calibration procedures where applicable.” The Quality Assurance/Quality Control description was updated in the monitoring plan but does not describe the QA/QC procedure only cites “Best practices in remote sensing”. According to page 36 of the methodology the QA/QC procedure has a threshold and ground truthing should be applied. Please clarify here in the CAR and in the monitoring plan both of these. Issue still opened	satellite images. The accuracy values are summarized in table 5 on page 23 of the mapping report (Yellow Ipe Draft 2\Mapeamento\2021_03_01d_GrupoLeao_relatório_04_) and detailed data for each year are in “Yellow Ipe Draft 2\Mapeamento\Anexo_I_verificacao_da_acuracia_linha de base_2009-2019”. The annexes show that both the supervised classification maps and the MapBiomass maps meet the criteria defined in the methodology.	areas projected to be deforested in the spreadsheet calculation “VCS PD Calculation_Yellow IPE Grouped REDD Project_v03” came from the areas in the 3 spreadsheets “Baseline_AP_FITO_pol”, “Baseline_LB_FITO_pol” and “Baseline_RR_FITO_pol”. The areas in these files in turn were crosschecked with the areas clipped using a sample from the shapes “pa_md12_01.shp” to “pa_md12_31.shp”, which in turn come from the raster files generated from the Dinamica Ego models for the 30 years of project (“md12_01.tif” to “md12_31.tif”), and shapes with phytophysognomies from SIVAM /101/. The VVB confirm the areas in tables 32, 33 and 34 of the PD are correctly reported. Issue closed. 4) PP informed that ground truthing was done by themselves by visually checking Landsat 8 images against the classification done by Mapbiomass and
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		Google Earth Engine. The VVB checked a sample of the random points generated to carry out such check and confirms these were correctly classified by visual checks and used in the confusion matrix. The confusion matrix for both baseline maps and the year of 2020 map were checked and the VVB confirms that all results of accuracy are over 80% and thus complies with applied methodology. Issue closed. This CAR is closed.
CAR 26 In the estimates of the carbon stocks for the baseline, the value from literature for pioneer formations with fluvial influence should be Pa and not Pf. Also please note that the carbon stocks are parameters available at validation and fixed for the baseline period.	1st round: The value was updated in the PDD. 2nd round: The parameters related to Carbon stocks were updated to fixed parameters. The 3rd national inventory used the work carried out by Xavier (2009) in Central Amazonia as reference for the aboveground biomass of Vegetation with Fluvial and/or Lacustrine Influence (Pa) present in the Amazon region. However, this study by Xavier (2009) was carried out in the Mamirauá Sustainable Development Reserve in lowlands floodplain forests of Central Amazonia.	The PP changed the value of carbon stock in the calculations for pioneer formations from Pf to Pa. Issue closed. The PP still has the carbon stocks in the monitored parameters. The PP also introduced new values for the stock of certain phytophysiognomies. The VVB checked the values against the 3rd National Communication of Brazil to the UNFCCC and found the values

	In addition, the vegetation present in the Yellow Ipê project area is not categorized as forest, but as shrubby vegetation on the banks of rivers, named by IBGE as Fluvial Influenced Vegetation (pg 139 of the Technical Manual of Brazilian Vegetation, 2012, available at: https://www.terrabrasilis.org.br/ecotecadigital/pdf/manual-tecnico-da-vegetacao-brasileira.pdf). Therefore, there is a discrepancy between values, as the 3rd national inventory uses a lowland forest reference for this type of vegetation, while Nogueira (2015) brings results from a shrub vegetation with river influence, which is in fact the one present in the area of project, according to SIVAM/IBGE.	used to be relatively conservative apart from the pioneer formations. Please double check why such discrepancy between the literature. 2nd round: The PP placed the carbon stocks in the fixed parameters. Issue closed. The initial CAR was raised for the PP to correct the value of the literature from Pf (pioneer vegetation in areas with riverine and marine influence) to Pa (pioneer vegetation in areas with riverine influence) so as to correctly reflect the area of the vegetation (not in a marine environment) so the same logic should be used to address this part of the CAR. The VVB confirms that Pa in the 3rd communication is described as “fluvial and/or lacustre influenced vegetation” and not pioneer so the VVB accepts the estimate of Nogueira (2015) for the pioneer formations. This CAR is closed.
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CAR 27 The formulae used to calculate other instances shall be included in the PD.	1st round: Formulae used to calculate planned deforestation, in case any other instance performs it as project activity, was included in the PDD.	The VVB checked the PD v2 and the formula to calculate project emissions due to planned deforestation placed there and it is stated that it is to be used in the advent of a forest management plan being introduced as a project activity. This CAR is closed.
CAR28 No leakage was estimated for the verification.	1st round: The MR spreadsheet was corrected as no leakage was estimated for the period. 2nd round: Ex ante leakage was stated as zero as it is considered that in the project scenario there would be less deforestation than in the baseline scenario. This is based on Ecologica's experience with other REDD Projects. According to the methodology, if carbon stocks in the leakage belt area will decrease more during project implementation than projected in the baseline case, this will be an indication that leakage due to displacement of baseline activities has occurred. Therefore, the ex post monitoring of deforestation in the leakage belt was carried out through the comparison of ex post observed deforestation with ex ante projected baseline deforestation. As the ex ante value is higher than the ex post deforestation, no displacement leakage occurred during the current monitoring period, according to the applied methodology.	There was some deforested areas in the leakage belt and PD v2 states that estimated ex-ante leakage is zero but still no calculations of leakage in the MR spreadsheets. CAR28 still opened. The VVB compared areas reported to be deforested ex-post in the leakage belt with areas projected to be deforested ex-ante in the leakage belt. The overall projected area of deforestation is greater than the overall area actually deforested so it is concluded no activity displacement leakage occurred. This CAR is closed.

CAR29 The frequency of monitoring of catastrophic events have to be corrected. The value applied ex ante also has to be stated in the PD.	1st round: According to VCS' Registration and Issuance Process document, "Where an event occurs that is likely to qualify as a loss event (see the VCS Program document Program Definitions for definition of loss event), the project proponent shall notify Verra within 30 days of discovering the likely loss event." Thus, monitoring frequency for catastrophic events is "At each time a catastrophic event occurs", and Verra will be duly notified when it occurs. 2nd round: Value applied ex ante is considered 0. It was updated in the monitoring plan.	Ok the methodology actually states the same in appendix 5 but please indicate the value applied in the ex ante calculations in section 5.2. CAR29 opened. 2nd round: The VVB checked the PD and confirms that the ex-ante value applied in the estimates for catastrophic events is now reported as 0. This CAR is closed.
CAR30 The area of deforestation in the Leakage Belt in the MR must be corrected.	1st round: Deforestation areas on the Leakage Belt during MR were corrected. 2nd round: The deforested areas for each vegetation type were included in the ABSLLKt table for the MR. This was included for ABSLPAt as well.	Deforestation on the leakage belt were corrected in the calculations spreadsheets and MR. However, as different phytophysionomies have different carbon stock values, please report the areas separately in MR. CAR30 still opened. 2nd round analysis: The VVB checked VCS MR Calculation_Yellow IPE Grouped REDD Project_period 01_01 03 2020_31 12 2020_v03 and the Joint

		PD and MR v4 and confirms that the values verified during audit are now correct in these two documents. This CAR is closed.
CAR31 It is the opinion of the audit team that the options in PD v1 section 3.2 b) are not correct. Furthermore the PP should revise analysis of applicability conditions to identify all choices for futures instances too. Also provide evidences that the soils in the region are not considered peat as per description of the methodology.	1st round: A new methodology applicability table was inserted in the PD, considering both the eligibility of the grouped project and f the first instance. A map and reference to show that the region's soils are not considered peat were inserted in section 1.13.	VVB checked new applicability criteria description and it now includes other instances. The VVB also checked that the PD now has a map from INPE with the soils in the region and that, according to this map, the project is inserted in a region of tropical red earth. This CAR is closed.
CAR 32 Community Engagement: PP is requested to provide evidences in order to demonstrate the risk factors a and b.	The local stakeholder consultation with the communities was conducted on April 12th, 2021. A questionnaire to obtain information about the socioeconomic conditions of the families was distributed, as well as a folder with information about the project, with the contact number and address of Ecológica Assessoria. This information is more detailed in section 2 of the PDD and sent in the folder "Diagnóstico Socioambiental e Consulta Presencial".	The VVB team checked the evidences provided in order to demonstrate the risk factors a and b. This CAR is closed.

Table 2: CLs from this validation/verification

Clarification requests	Response by project participants	Validation/Verification conclusion
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CL 1 PP is requested to clarify how the contract could be considered a protection plan.	According to the rules established by the “VCS Standard V4.0” document, “The project start date of an AFOLU project is the date on which activities that led to the generation of GHG emission reductions or removals are implemented (eg, preparing land for seeding, planting, changing agricultural or forestry practices, rewetting, restoring hydrological functions, or implementing management or protection plans). Therefore, the project start date is 12-February-2020, and it was defined taking into consideration the date of the contract named “Private Partnership Instrument for the Development of the Project to Generate Verified Emission Reductions” signed between Grupo Leão and Ecológica Assessoria. This action was the first step to demonstrate the intention and commitment to the conservation of the project area. This document was chosen as evidence since it can be applied as a framework for a protection plan, an activity which was mentioned in the paragraph above that led to the generation of GHG emission reductions or removals.	According to Cambridge English dictionary, the definition of a “plan” in the US is: <i>noun</i> (method) “a method for doing or achieving something, usually involving a series of <u>actions</u> or <u>stages</u> or something you have arranged to do”; <i>verb</i> (method) “to think about and decide on a method for doing or achieving something” The audit team agrees that the contract indicates that the PP thought about carbon credits as method for protection but it does not describes the <u>actions</u> or <u>stages</u> for implementing the actual protection. For example it does not say: - How will the PP regularize documentation - How the PP will execute, monitor and maintain in full operation the structure that authorizes and serves as the basis for the development of the project; - Ensure the reduction of deforestation and degradation in the PA; - The socio-environmental activities to be implemented that will help the above and how they will be maintained.
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	As provided in Clause 5.2, Items ii and v., of this same document: It is the contractor's obligation to “Keep all documents regularized” and “Execute, monitor and maintain in full operation the structure that authorizes and serves as the basis for the development of the project, ensuring the reduction of deforestation and degradation, the implementation and maintenance of socio-environmental activities, the reduction of greenhouse gases and the maintenance of its legal obligations.”	The PP is therefore requested to thoroughly describe all this in section 1.11 as requested in CAR2 and also provide the VVB evidence that at least one of these activities in the plan were being implemented at the starting date informed in the PD. This CL is open.
CL 1 (cont.) According to Cambridge English dictionary, the definition of a “plan” in the US is: <i>noun</i> (method) “a method for doing or achieving something, usually involving a series of actions or stages or something you have arranged to do”; <i>verb</i> (method) “to think about and decide on a method for doing or achieving something” The audit team agrees that the contract indicates that the PP thought about carbon credits as method for protection but it does not describe the actions or stages for implementing the actual protection. For example, it does not say:	In addition to the clause mentioned in the 1st round, as provided in Clause 3, the agreement binds the landowner to pay for the activities determined in this PD, for the implementation and/or maintenance of the project activities to reduce deforestation and degradation, surveillance, fire prevention, illegal logging, prevention of invasions, in addition to social and environmental activities. Thus, the contract becomes law between the parties, and the non-fulfillment of any obligation is subject to the consequences provided for in the contract or in the law. After signing the contract, following the project planning stages, initial meetings and actions were carried out,	PP clarified that the georeferencing of the land together with the contract signed between Grupo Leão and Ecológica Assessoria Ltda can be considered as an action of land regularization so important for responsabilising any deforestation activity which may happen in the PA and and therefore the first action needed for conservation which culminated in the contract signing and commitment to subsequent conservation actions. This CL is closed.

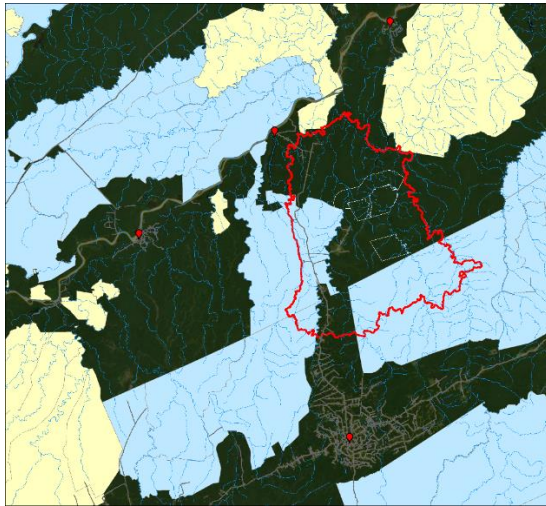
- How will the PP regularize documentation; - How the PP will execute, monitor and maintain in full operation the structure that authorizes and serves as the basis for the development of the project; - Ensure the reduction of deforestation and degradation in the PA; - The socio-environmental activities to be implemented that will help the above and how they will be maintained. The PP is therefore requested to thoroughly describe all this in section 1.11 as requested in CAR2 and also provide the VVB evidence that at least one of these activities in the plan were being implemented at the starting date informed in the PD.	such as the, hiring a mapping team to determine the baseline and projection of deforestation, which acts as a guide to define project activities and comparison over the years, hiring the team for social diagnosis of the area, in order to guide future social actions, etc. Regarding the regularization of documentation, the georeferencing is a fundamental process to ensure the land title and the exact limits of each property. The georeferencing of the Gleba 2 property was carried out in 2018 and updated in the land title (matricula nº 1.813) in October/2018. The georeferencing of the Gleba 4 property (matrícula nº 1.818) was updated in the respective land title in June/2019. This land regularization procedure was an essential step that enabled the project owner to analyze some alternatives within the properties, amongst them conservation activities, which culminated in the contract for the development of the present REDD project together with the SocialCarbon Indicators, guided by a conservation plan. Furthermore, as the project is additional, that is, the owner needs the income from the sale of carbon credits to carry out the activities, it is from this investment that the most significant	
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	actions, such as hiring more people for the monitoring team, building monitoring stations, donations and generating income for the communities, etc. will be carried out. The project itself, as well as the application of the social and environmental benefits standard, act as planning of activities, once it is based on the monitoring parameters and creation of SOCIALCARBON indicators that the owner's actions are guided, being effectively carried out with the sale of credits, and evolving according to the success of the project. In line with the Project Design Document, the Conservation Plan (Yellow Ipe Draft 2\Documentos – PSD\PLANO DE CONSERVAÇÃO.pdf) was prepared to formalize the actions already taken after the contract signing and those that will be developed throughout the project's progress. As described in CAR 2 and in the PD v. 03, the SocialCarbon report contains the prospects proposed by the landowner, to be implemented until the next monitoring period. The listed prospects were not included in the PD as their monitoring is independent of the information listed at validation and may undergo changes that shall be justified at each verification and must be updated at each point/monitoring	
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	report, in order to update the region's sustainable development goals. The “PLANO DE CONSERVAÇÃO AMBIENTAL.pdf” and minutes of meeting “ATA_BufferReport_180220.pdf” evidence are provided (folder Yellow Ipe Draft 2\Documentos – PSD).	
CL 2 PP is requested to provide further details to explain how the project will contribute to each sustainable development goal listed.	Contributions to the sustainable development goals are detailed in section 1.17 (Sustainable Development)	Further details were included in section 1.17 of the revised VCS PD&MR in order to explain how the project will contribute to each sustainable development goal listed. This CL is closed.
CL 3 PP is requested to demonstrate how is guaranteed that the issues discussed in section 2.5 of VCS PD&MR in response to items 1 and 2, section 3.16.16 of VCS standard will be implemented.	Response to Item 3.16.16 of VCS Standard was included on the PD, in addition to a table analyzing risks to local stakeholders (table 9).	Section 2.5 of VCS PD&MR was revised. However, it is not clearly described how is guaranteed that the issues discussed in response to item 2, section 3.16.16 of VCS standard will be implemented. This CL is open.
CL 3 (cont.) Section 2.5 of VCS PD&MR was revised. However, it is not clearly described how is guaranteed that the issues discussed in response to item 2, section 3.16.16 of VCS standard will be implemented.	The discussion of item 2, section 3.16.16 was included in section 2.5 of the PD. The project will not introduce any invasive species or allow invasive species to be planted, since the objective is to preserve the existing native vegetation.	Section 2.5 of VCS PD&MR was revised and it is clearly described how is guaranteed that the issues discussed in response to item 2, section 3.16.16 of VCS standard will be implemented. This CL is closed.

CL 4 PP is requested to clearly explain how less than 50% of the carbon stocks are fragile to encroachment by outside actors and provide evidences of the same.	Project proponents consider that less than 50% of the carbon stocks are fragile to encroachment by outside actors. The project proponent's strategy to manage possible conflicts is to promote benefits to the community, through the generation of jobs and to establish a good relationship with them. The main deforestation agents are timber harvesting, livestock and the illegal road that crosses the project area at its northwestern border, which is the most likely area to be invaded. These agents affect less than 50% of stocks as it can be seen in deforestation projection, where 27,228.38 hectares would be deforested in 30 years, representing 31.6% of total project area.	PP clearly explained how less than 50% of the carbon stocks are fragile to encroachment by outside actors and provide evidences of the same. This CL is closed.
CL 5 PP is requested to clearly explain why the risk rating is zero.	The project does not have any available callable financial resources to cover the total cash out. The Buffer Report was updated to include this explanation.	The non-permanence risk report was revised and PP explained that the project does not have any available callable financial resources to cover at least 50% of total cash out before project reaches breakeven. This CL is closed.
CL 6 PP is requested to explain how was concluded that there was no record of any pest and disease outbreak in the project area.	There was no record of any pest and disease outbreak in the project areas of the Yellow Ipê Grouped REDD Project. The project area is covered by 100% old-growth Amazon Rainforest; therefore, this system in equilibrium	PP clearly explained how was concluded that there was no record of any pest and disease outbreak in the project area. This CL is closed.

	reduces the significance of pest and disease outbreaks. In such environments, plants live in harmony with pests and diseases. The plants are well adapted to the place they are living in, there are sufficient quantity and quality of nutrients in the soil, with good humidity conditions, incidence of light and the presence of natural predators and biological pest and disease controllers. Thus, pests and diseases do not increase their population, as the environment does not favor the expansion of these agents. This explanation was included on the Buffer Report, in addition to the consulted reference.	
CL7 Clarify a bit more, sending shapes of rivers, roads and nearest towns and any other relevant ones, the choice of 10Km radius and the requirement of the methodology which states that "Option I (opportunity cost, added to the text) is based on the assumption that deforestation agents in the project area will not displace their activities beyond the reference region".	1st round: Required files are in folder 'Dados_DelimitacaoLB'. The choice of the 10 km buffer was due to data in the literature that describe that 95% of deforestation in the Amazon occurs within a radius of 5.5 km of roads and 1 km of navigable rivers (Barber et al., 2014). 10 km around the project area was adopted as a conservative strategy due to the high density of rivers and the proximity to a road that cuts through the reference region. In this way, this area would capture the possible leakage over a greater distance than those established in the literature	Ok the VVB agrees that within the areas that the opportunity cost analysis showed higher profitability, the area within a 10 km radius would be where deforestation could occur directly due to the project's actions. In more distant areas, the increase in deforestation as it is already occurring is probably associated with the proximity to rivers and roads. However, another doubt was raised with the answer to this CL and the map used by the PP in the answer to this CL. The RR is an area with "agents, drivers and patterns of deforestation that in the 10-15years period prior to the start date of the proposed AUD project activity are

	of the main vectors of deforestation in the Amazon. The choice of Option 1 was due to the fact that there are several protected areas around the reference region as shown in the figure below. In addition, the project area is centralized in the reference region. Therefore, it was considered that deforestation in areas more distant from the project area would have a low correlation with the project, or less access to transport infrastructure and proximity to cities.  2nd round: The methodology implies that “The legal status of the land (private, forest concession, conservation concession, etc.) in the baseline case within the project area must	similar to those expected to exist within the project area”. How the PP justifies the inclusion of protected area in the RR. CL remains opened. 2nd assessment: The VVB confirms that the applied methodology states “Socio-economic and cultural conditions: The following conditions must be met: - Legal status of the land: The legal status of the land (private, forest concession, conservation concession, etc.) in the baseline case within the project area must exist elsewhere in the reference region. If the legal status of the project area is a unique case, demonstrate that legal status is not biasing the baseline of the project area (e.g. by demonstrating that access to the land by deforestation agents is similar to other areas with a different legal status).” The legal status of the land (private) happens elsewhere in the region and the PP sent evidence that even in protected areas deforestation has increase in the past years https://www.oeco.org.br/reportagens/desmata
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	exist elsewhere in the reference region. If the legal status of the project area is a unique case, demonstrate that legal status is not biasing the baseline of the project area.” This is complied with the areas surrounding the Grupo Leão that are not public or part of any protected area, such as the first instance areas. The protected area is inserted in the RR because they have the necessary attributes to define RR, that is, characteristics related to altitude, slope, type of vegetation and rainfall. It was considered that those areas, although protected by Brazilian laws and management plans, are also affected by the same agents and drivers of the region. It is possible to observe, through deforestation reports by PRODES that the deforestation rate has significantly increased in Brazil since 2019, however it almost doubled inside protected areas and indigenous lands^{1, 2}. In addition, these areas should not be discarded in advance, since different areas have different deforestation trends, even if in nearby regions. For example, areas that are	<u>mento-em-unidades-de-conservacao-atinge-maior-indice-dos-ultimos-10-anos</u> . Even if the deforestation agents acting in preserved areas were not happening there, the legal status would bias it in a conservative way. This CL is closed.
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¹ Available at: <<https://www.oeco.org.br/reportagens/desmatamento-em-unidades-de-conservacao-atinge-maior-indice-dos-ultimos-10-anos>>

² Available at: <<http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/prodes>>.

	adjacent to an urban area have a greater chance of deforestation, as well as areas that are in rural settlements. On the other hand, areas distant from any deforested area should have a much smaller deforestation rate. That is, although the chances of deforestation are different in relation to the project area, these areas must be part of the RR because they make sense with the context of the region.	
CL8 With respect to 2019 images, clarify where they came from since the collection of MapBiomias 4.1 is from 1984 to 2018. Furthermore, the consultant demonstrated with the Dinamica Ego and R how they arrived at the deforestation rate of increase of 0.0004183 per year in the RR. However, the files with the areas, shown in table 13 of the PD v1, and fed into the Dinamica Ego and R were not shown to the VVB. Therefore the VVB asks the PP to: provide such files so that the VVB can check the areas seen in simulation using Dinamica Ego and R during audit, which confirmed the rate of increase of deforestation calculated. Furthermore, provide all the files which demonstrate the audit trail (the memory of the calculation), from MapBiomias downloaded to the files which show the areas used in the rate of	1st round: The following script was used to classify Landsat images from year 2019 in the Google Earth Engine: https://code.earthengine.google.com/2c53ce02269db2d0e40865a7802feebc?noload=true //Filter Landsat Image The images within the region of interest with less than 1% cloud cover in 2019 were filtered and a median applied to have 1 image. <pre>var L8_Filtered = L8.filterBounds (region3) .filterMetadata('CLOUD_COVER', 'less_than', 1) .filterDate ('2019-01-01', '2019-12-31') .median();</pre>	Thank you for the very detailed explanation. Please just confirm that the raster files used to calculate the rate of deforestation in the Dinamica Ego are the ones in the file “DesmatamentoAcumulado_raster”, that the same data is presented in vector format in the file “DesmatamentoAcumulado_RR_pol” (the VVB was not able to find the file ‘taxa de desmatamento’ mentioned at the end of the answer), and explain how it can be demonstrated to the VVB the areas in tables 18 and 19 of the PD v2 and that these were used to calculate the rate of deforestation. CL still opened. 2nd round: The audit team checked during the second concall arranged that the values presented in table 18 of the PDv4 (which are the values used in the projected deforestation)

deforestation calculation. That is all the raster files downloaded from MapBiomass, all the reclassified raster files and corresponding vector files with the areas to be crosschecked with table 13.	<pre>//add Landsat 8 The image was added for visualization on the Google Earth Engine map viewer Map.addLayer(L8_Filtered, Params,"Landsat8"); //add RR The reference region was added on the Google Earth Engine map viewer Map.addLayer(RR.style({ color: '044B94', width: 3, fillColor: '044B9400', }), {}, 'Reference Region'); //create training polygons variable Training samples were created based on the Landsat image var training_pol = water.merge (forest).merge (deforest); //assigning the spectral values to training polygons Spectral information of the image were added to the polygons of the training layer var training_data = L8_Filtered.sampleRegions ({</pre>	were calculated from the files "DesmatAcum_2009.tif" to "DesmatAcum_2019.tif". From the deforested values the deforestation rate for each year was calculated, a curve found and fed into R. The rates of deforestation for the future are then calculated in R and fed into Dinamica Ego together with the risk map chosen. These then generate the future maps. This CL is closed.
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	<pre> collection: training_pol, properties: ['LC'], scale: 30, }); //make the classifier Creation of the variable for the RandomForest classifier with 1000 forest parameter var classifier = ee.Classifier.smileRandomForest(1000); //train function Sample training with the classifier classifier = classifier.train ({ features: training_data, classProperty: "LC", inputProperties: ["B2", "B3", "B4", "B5", "B6", "B7"] }); //classify image Classification of the pixels from the Landsat image on the training samples categories var classified_image = L8_Filtered.classify (classifier); </pre>	
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	<pre>//Accuracy - Confusion matrix Generation of the confusion matrix print (classifier.confusionMatrix()); //add classified image based on RandomForest Add the classified image on the Google Engine map viewer Map.addLayer (classified_image, {palette: ["3e8b2b", "091066","bc2314"], min:1, max:3}, "classified_image_RandomForest"); //Export Export classified image with 30m resolution and coordinate system WGS 1984 UTM Zone 21S Export.image.toDrive({ image: classified_image, description: "Class2019_GrupoLeao", folder: "Classified2019", crs: 'EPSG:32721', region: region3, scale:30, maxPixels: 9e8, });</pre>	
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	The same methodology was used to classify Landsat images from year 2020 on the Google Earth Engine platform. https://code.earthengine.google.com/432def3473a4ebe72ff60bfd5f988d0d?noload=true <pre>Map.centerObject(RR, 8); //Filter 2019 Landsat Image The images were filtered within the region of interest with less than 1% of cloud covering in 2019, and a median was applied to result in 1 image. var L8_Filtered_2019 = L8.filterBounds (region) .filterMetadata('CLOUD_COVER', 'less_than', 1) .filterDate ('2019-01-01', '2019-12-31') .median(); //add 2019 Landsat 8 The 2019 image was added for visualization on the Google Earth Engine map viewer. Map.addLayer (L8_Filtered_2019, Params,"Landsat8 2019"); //Filter 2020 Landsat Image The images were filtered within the region of interest with less</pre>	
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	than 1% of cloud covering in 2020, and a median was applied to result in 1 image. <pre> var L8_Filtered_2020 = L8.filterBounds (region) .filterMetadata('CLOUD_COVER', 'less_than', 1) .filterDate ('2020-08-01', '2020-12-31') .median(); //add 2020 Landsat 8 The 2020 image was added for visualization on the Google Earth Engine map viewer. Map.addLayer (L8_Filtered_2020, Params,"Landsat8 2020"); //add region A bordering region was added to the classified image Map.addLayer(region.style({ color: '044B94', width: 3, fillColor: '044B9400', }), {}, 'region');</pre>	
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	<pre> //create training polygons variable Training samples based on the 2019 Landsat image were created var training_pol = water.merge (forest).merge (deforest); //assigning the spectral values to training polygons Spectral information of the image were added to the polygons of the training layer var training_data = L8_Filtered_2019.sampleRegions ({ collection: training_pol, properties: ['LC'], scale: 30, }); //make the classifier Creation of the variable for the RandomForest classifier with 1000 forest parameter var classifier = ee.Classifier.smileRandomForest(1000); //train function Sample training with the classifier classifier = classifier.train ({ </pre>	
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	<pre> features: training_data, classProperty: "LC", inputProperties: ["B2", "B3", "B4", "B5", "B6", "B7"] }); //classify 2020 image Classification of the pixels from the 2020 Landsat image in the categories of the training samples. var classified_image_2020 = L8_Filtered_2020.classify (classifier); //Accuracy - Confusion matrix Generation of the confusion matrix print (classifier.confusionMatrix()); //add 2020 classified image based on RandomForest Add the classified image on the Google Earth Engine viewer Map.addLayer (classified_image_2020, {palette: ["3e8b2b", "091066","bc2314"], min:1, max:3}, "classified_image_2020_RandomForest"); //Export 2020 </pre>	
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	<pre>Export.image.toDrive({ image: classified_image_2020, description: "Class_dez2020_GrupoLeao", folder: "Classified2020", region: region, scale:30, });</pre> To classify land use for the 2009 – 2018 period, the 2008-2018 classified images of MapBiomass were downloaded through the following link: https://code.earthengine.google.com/e5f0079bc717d2aa7f21e28eebe1519c Original land use data from MapBiomass' collection 4.1 are in folder 'OriginalMapBiomassGrupoLeao'. The raster files originally in the GCS WGS 1984 coordinate system were designed for WGS 1984 UTM Zone 21S, making pixel by pixel with the digital elevation model, using the ArcGIS 'Project' tool. These files are in the folder 'ProjectUTM'. The images were reclassified according to table below:	
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Reclassificad		Legenda	
Classe	o		
3	1	Floresta	
13	1	Outra Formação Natural não Florestal	
15	4	Pastagem	
24	4	Infraestrutura Urbana	
33	2	Corpos D'água	

Reclassified files are in the folder 'Reclass'.

To standardize the hydrography in the period, the pixels of the images between 2008 and 2018 and the supervised classification of 2019 were analyzed, using the ArcGIS 'Combine' tool.

Pixels in which at least 7 of these years were classified as hydrography, would be kept as hydrography in the accumulated period. These files are in an 'Intermediate' subfolder within 'Reclass'. From the first year of the period (2010), deforestation was added year by year on the forest only. For the year 2009, the forest pixels of 2009 were added to the accumulated deforestation of 2010, using the 'Raster Calculator' tool, with calculation described below.

	Con("DesmatAcum_2010.tif" !=4,"DesmatAcum_2010.tif",Con("grupoleaor edo_v41_2009.tif" != 4,1,"DesmatAcum_2010.tif")) To add deforested areas in 2011 to the accumulated deforestation in 2010: Con("DesmatAcum_2010.tif" !=1,"DesmatAcum_2010.tif",Con("grupoleaor edo_v41_2011.tif" == 4,4,"DesmatAcum_2010.tif")) The same logic was adopted for the following years. The files with accumulated deforestation are in 'AcumuladoRR'. Finally, these files were converted into vector with the tool Raster to Polygon and are available in the folder 'AcumuladoRR_pol'. Files in raster format with accumulated deforestation were used to calculate the rate of deforestation in the period. The rate values for each year calculated with Dinamica Ego are in the spreadsheet 'taxa de desmatamento'.	
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	2nd round: Evidence calculation was presented to the VVB, and files sent for evaluation (Drive folder).	
CL9 Clarify what were the Efficiency Index of 95% based on and the Displacement Leakage Factor of 5% based on what other project activity and why.	1st round: DLF was now updated to 0% as previous experience from Ecológica with other similar carbon projects (Ecomapuá Amazon REDD Project and Agro cortex REDD Project) shows that none had leakage related to displacement activities. 2nd round: Due to the importance of project activities, which is expected to generate improvements in the local economy and employment generation, the Effectiveness Index (EI) was conservatively assumed as 95.94%. This percentage was calculated based on verified reports of similar REDD projects, as presented in table included at tab 'Table 27' of the PD calculation sheet. A comparison of baseline projection and real deforestation of 4 similar verified projects developed by Ecológica was made, totaling 4.06% of deforestation expected to occur in the project area due to unavoidable unplanned deforestation.	Ok the VVB confirms that in the first verification of Agro cortex leakage was shown to be zero. This is actually conservative. What about the Efficiency Index of 95%? Where was this estimated from? CL still opened. 2nd round: The VVB crosschecked a sample of the values in tab 27 of the PD calculation spreadsheet v4 against the values in the spreadsheets of the projects there listed. A value for baseline resforestation was corrected and the validated value for Efficiency Index was of 96%. This CL is closed.
CL10 Clarify whether the emissions from livestock intensification in the leakage management area should not be included as	1 st round: Emissions from grazing animals in leakage management areas are accounted as leakage emissions by the parameter EgLkt.	According to VM0015 Step 8, the "rationale of estimating leakage ex-ante is to assist in guiding the design of optimal leakage

project emissions if this activity is implemented as a leakage management activity.	2nd round: As the project will not involve grazing animals or crop plantations in the leakage management area, actions to avoid leakage involves containing the displacement leakage risk. Thus, the main plan for mitigating leakage is to involve the community in monitoring and inspecting deforestation, training, alternative income generation and other actions described in the Social Carbon and Conservation Plan.	prevention measures, identify sources of leakage that are potentially significant, and therefore subject to MRV and to allow making reasonable projections of carbon and other project revenues”. Section 4.3 of the PD does not make clear if measures against leakage will be carried out and if it is considered that their emissions will be significant. CL still opened. 2nd round: Page 223 of PD v4 actually has a sentence saying that no increase in GHG emissions due to activities implemented in the leakage management area are expected to occur, such as emissions from grazing animals, fertilizer or fuel use. The social carbon audit was not conducted by this audit team. This CL is closed.
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Table 3: FARs from this validation/verification

Forward action requests	Response by project participants	Validation/Verification conclusion

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:

Talita 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, SGS 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	come 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 SGS to carry out Validation and Verification of SGS 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 QUALIFICATION CERTIFICATE

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

Andrea LEIROZ

è qualificato come¹:
is qualified as:

TEC, VAL, VER, TEC

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
5.1	Chemical industry	5
13.1	Solid waste and wastewater	13
13.2	Manure	13

in accordo alle istruzioni dell'unità Sostenibilità & Cambiamenti Climatici.
in accordance with the instructions of the Sustainability & Climate Change Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	17/09/2019	First issue with new template (this certificate is linked to CDM qualification)

Il Resp. CCPLS
Head of CCPLS
Laura SEVERINO



¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS4GG: Gold Standard For Global Goals
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS4GG Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

GHG_QUAL_CERT_EN(07-2018)

Page 1 of 1



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:

Geisa Maria Principe Branco Sacttoni

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
1.1	Thermal energy generation	1
1.2	Renewables	1
13.1	Solid waste and wastewater	13

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



CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra: Gustavo Goes Lima
We declare that Mr/Mrs/Ms: _____

è qualificato come¹: CDM, VCS, SCS - TEC
is qualified as: _____

per le seguenti aree tecniche: 14.1
for the following technical areas: _____

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
14.1	Afforestation and reforestation	14

in accordo alle istruzioni dell'unità Sustainability Compliance & New Scheme Development Coordination.
in accordance with the instructions of the Sustainability Compliance & New Scheme Development Coordination Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	26/05/2021	First Issue

Il Resp. CEINS
Head of CEINS



¹ Legend:

VAL: Validator	CDM: Clean Development Mechanism
VER: Verifier	VCS: Verified Carbon Standard
TEC: Technical Expert	GS4GG: Gold Standard For Global Goals
TL: Team Leader	SCS: SocialCarbon Standard
FIN-EXP: Financial Expert	Ji: Joint Implementation
DET: Determiner	

RINA Services S.p.A. è accreditata da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS4GG Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports

GHG_QUAL_CERT_EN(07-2018)

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