



Verified Carbon Standard

SILVADOR CLIMATE ACTION



Document Prepared by EPIC Sustainability Services Private Limited

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SUMMARY:

The Silvador Climate Action project includes private forest lands located in the counties of Buzău and Dâmbovița, Romania. The project was implemented as a forest carbon credit initiative with an aim of greenhouse gas (GHG) emission reductions and removals through conservation of logged to protected (LtPF) forests. This is a grouped project with a single project activity instance (PAI) as of now and the designated PAI comprises 1,538 ha of privately owned forest land that was previously utilized for regular timber harvesting operations. The project activity ceased all the harvesting operations in the area, transitioning into conserved forest by discontinuing timber extraction for a crediting period of 30 years. However low levels of harvesting activities will be carried out in the project area for enhancing its ecological conditions and mitigating possible risks and Carbon pool dynamics associated with these activities will be monitored and accounted.

The sole purpose of this validation and verification was to assess the design of the project as per the requirements of VCS Standard v4.4, following the Approved VCS VM0012-Improved Forest Management in Temperate Boreal Forests (LtPF), v1.2, dated 23rd of July 2013, and the reported GHG emission reductions and removals that have occurred during the monitoring period since project implementation. The assessment of the project included a combination of gathering and reviewing historical data and evidence documents, conducting on-site visits for monitoring plot inventory verification, and interviewing stakeholders.

An estimated 3,43,978 tonnes of CO₂ equivalent (t CO₂e) of emission reduction and removals is expected to be achieved during the project crediting period, with average annual emission reduction of 11,096 t CO₂e. The monitoring period for the project is from 1st August 2020 to 31st December 2022 with a net change in carbon stocks of 62,040 t CO₂e during this specified period with an overall non-permanent risk rating of 11 %. Additionally, a buffer of 6,824 t CO₂e in Verified Carbon Units (VCUs) will be deposited.

During the validation and verification process, 07 findings were issued, including 02 CL, 03 CARs including 2 FARs for the upcoming verification event. These findings are detailed in Appendix A of this report. All these findings were effectively resolved through corrections, clearer explanations, and the provisions of additional supporting documents.

EPIC (Validation and Verification team) confirmed all validation and verification related activities including objectives, scope and criteria, level of assurance and project documentation adherence to VCS Standard v4.4 and all associated updates as documented in this report, are complete. EPIC concludes that the “Silvador Climate Action” project description version 1.8 dated 23rd October 2024 meets the requirements of VCS and associated tools. The GHG statements provided by Silvador Company SRL validated by EPIC are expected to result reasonably accurate GHG emission reductions over the crediting period of 30 years. Subsequently, the total VCUs to be issued will be 54,285 t CO₂e for the monitoring period.

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1 INTRODUCTION

1.1 Objective

The purpose of the validation and verification was to independently assess the compliance of the project to the criteria specified in the guidance documents provided in Section 1.2 of this report. This includes evaluating the monitoring procedures and verifying the accuracy of GHG removals reported in the monitoring report.

In accordance with VCS standard v4.4, EPIC conducted an independent assessment of the project activity to ensure that the project complies with VCS program rules. The validation is conducted to assess the following.

- Compliance of the project with the VCS standard, v4.4.
- The project conformance with the Applied Methodology VM0012, Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2 and Additionality conditions specified within the methodology.
- The likelihood of the methods and procedures outlined in the project description resulting in measurable GHG reduction and removals as well as information upon implementation.

Additionally, EPIC conducted an independent assessment of GHG emissions and reductions that occurred via the implementation of the project for a given verification period in conformance with the VCS program. The purpose of verification was to evaluate the monitoring report and assess the following.

- The methods and procedures involved in monitoring and calculation of GHG reduction and removals for the specified period follow the applied methodology.
- The amount of GHG removals and reductions achieved by the project for the verification period is considered materially accurate.

1.2 Scope and Criteria

As defined in accordance with Section 5.1.6 of ISO 14064-3:2019 (E) the project includes the following.

- Baseline scenario in absence of project activity
- Project activities
- Carbon pools and GHG's quantified in the project activity.
- Project crediting period and verification period

In addition to the requirements established in ISO 14064-3:2019 (E), As per Section 4.1.8 of the VCS Standard v4.4, the validation and verification criteria adhered to VCS Version 4, which encompass the following documents.

- VCS Program guide, v4.4, dated 29th August 2023
- VCS Standard, v4.4, dated 17th January 2023
- VCS Program definitions, v4.4, dated 29th August 2023

- Applied Methodology VM0012, Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2, Dated 23rd July 2013
- VT001 Tool for the Demonstration and Assessment of Additionality in VCS AFOLU Project Activities v3.0, Dated 1st February 2022
- AFOLU Non-Permanence Risk Tool v4.0, dated 19th September 2019

1.3 Reasonableness of Assumptions and Level of Assurance

The validation aimed to assess the validity of assumptions, limitations and methods supporting the Project Proponent's statement regarding the project outcomes. Verification intends to provide a reasonable level of assurance regarding compliance with defined audit criteria and materiality thresholds within the audit scope. Based on the audit findings, a satisfactory conclusion reasonably assures that the project's GHG assertions are materially accurate and provide fair representation of GHG data and information.

The joint Validation and Verification report underwent an independent internal technical review before submission to the client. This review ensured that all validation and verification activities were carried out in accordance with EPIC instructions. The technical review was conducted by the qualified technical reviewer following EPIC's qualification scheme for VCS validation and verification.

Altogether, the assumptions, limitations, and methods for quantification of GHG's emission reduction and removals are reasonable. There was acceptable level of assurance for verifications, with respect to material errors, omissions, and misrepresentations.

1.4 Summary Description of the Project

The "Silvador Climate Action" project was established as a forest carbon credit initiative with an aim of the greenhouse gas (GHG) emission reductions and removals through conservation of logged to protected (LtPF) forests. The project is implemented in private forest lands owned by the following entities 1. Silvador company SRL and 2. Forest Capital SRL (Collectively referred as "Silvador") and forest lands are located in the counties of Buzău and Dâmbovița, Romania which was earlier used for regular timber extraction (baseline scenario). The VCU's generated from the project activities will be jointly owned by Silvador SRL and Forest Capital SRL. The project is referred as grouped project with first project activity instance (PAI) as of now and the designated PAI comprises 1,538 ha of privately owned forest land. The project activity is intended to cease all the harvesting operations in the area, transitioning into conserved forest by discontinuing timber extraction for a crediting period of 30 years. However low levels of timber harvesting will be carried out as sanitary and hygiene cutting in the project area for enhancing its ecological conditions and mitigating possible risks and these low levels of harvesting will not exceed 20% of carbon stocks in each PAI as per Harvesting activity definition outlined in then VCS Program definitions, v4.3, dated 21st December 2022. The project aligns to eligibility criteria and GHG quantification procedures outlined in Applied Methodology VM0012, Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2.

2 VALIDATION AND VERIFICATION PROCESS

The validation and verification team were selected according to EPIC's GHG validation and verification Policies & Procedures to ensure team members are qualified to perform validation and verification of activities pertaining to the project.

Table 1. Audit team and technical review team composition.

Name	Role	Responsibility
Mr. R. Vijayaraghavan	Lead Auditor	Reviewing documentation, conducting background research, creating interview questionnaires and interviews with community and local stakeholders. Coordinating the project, reviewing audit findings and responses from project proponent.
Mr. Santhosh D. T	Auditor	Reviewing documentation, conducting background research, creating interview questionnaires, performing on-site audits and interviews with community and local stakeholders. Coordinating the project, drafting the validation report, reviewing audit findings and responses from project proponent, and preparing the final validation and verification report.
Mrs. Sheela H. K	Auditor	Reviewing documents, conducting background research, creating interview questionnaires, preparing draft reports, reviewing audit findings, and assessing responses from project proponent.
Mr. Dinesh C. V	Auditor	Reviewing documents, conducting background research, creating interview questionnaires, preparing draft reports, reviewing audit findings, and assessing responses from project proponent.
Mr. Marius Turtica	Technical and Host Country Expert	Conducting on-site visits, interviewing community and local stakeholders, and reviewing project compliance with laws and regulations of the host country.
Mr. A Prabu Das	Internal Technical Reviewer (ITR)	Technical review
Mr. Madhusudhana Reddy B	Internal Technical Reviewer (ITR)	Technical review

Mr. R. Vijayaraghavan, holds a B. E in Mechanical Engineering, M. Tech in Energy Conservation and Management and MBA in Technology Management. He is certified as Energy Auditor by Bureau of Energy Efficiency (BEE), Government of India. He has eighteen years of industry experience in validation /

verification of CDM, VCS and GS projects. He has undergone extensive training on CDM validation and verification and has been qualified as Lead Auditor as per EPIC procedures with respect to various global GHG schemes, standards, and protocols. He is based in India.

Mr. Santhosh D.T. has both a postgraduate and undergraduate degree in the field of forestry and has a strong foundation in technical and interpersonal skills. He has more than 2 years of experience in forestry research and academics, demonstrating a deep understanding of this discipline. His technical proficiency includes the use of R-Studio and SPSS for statistical analysis, as well as expertise in tasks such as mapping, vector layer creation, basic raster styling and raster analysis. He also obtained certification through a self-paced course titled "Fundamentals of REDD+" by the United Nations Climate Change, highlighting his knowledge in the field of Reducing Emissions from Deforestation and Forest Degradation (REDD+). He is currently handling AFOLU categorized projects such as Improved agriculture land management (ALM) and Afforestation, Reforestation, and Revegetation (ARR). He is qualified as an auditor for conducting audits related to Greenhouse Gas (GHG) reduction and removals projects in various countries, adhering to various international standards and protocols as per EPIC's accreditation procedures. He is based in India.

Mrs. Sheela H K holds a master's degree in agriculture (Specialization: Genetics and Plant Breeding). She has four years of experience in agriculture and forestry field. She has worked as a research fellow & assistant professor in various forestry research institutes. She has hands on experience in data analysis during her academics. She was involved in validation/ verification of REDD+ projects. She is qualified as an auditor as per EPIC procedures with respect to various global GHG schemes, standards, and protocols. She is based in India.

Mr. Dinesh C.V holds Master's degree in Forestry and Bachelor's degree in Forestry. He has two years research experience in the field of Natural Resource Management. He is having a technical skill in Remote sensing and Geographic Information System including Satellite image processing and GIS data analysis. He is qualified as an auditor for various GHG/ Energy reduction project audits in various countries under various standards and protocols.

Mr. Marius Turtica holds Graduation in Silviculture and Forest Engineering with relevant experience in Forest Stewardship Council (FSC) and Programme for the Endorsement of Forest Certification (PEFC) audits, with relevant social and cultural expertise. Currently leading a position of Project Manager and President of the Association for Forest Certification, Brasov, Romania.

Mr. A Prabu Das holds a Master of Technology degree in Energy Conservation and Management and Bachelor of Technology Degree in Petro-chemical Technology. He is a certified Energy Auditor by Bureau of Energy Efficiency, Government of India. He has a total of 16 years of industry experience in CDM/GS/VCS and validation/verification services. He has participated in the validation/verification of various CDM/VCS/GS/GHG and sustainability projects globally. He has undergone extensive training on CDM validation and verification and is a qualified lead auditor in accordance with procedures of EPIC Sustainability Services Pvt. Ltd. Further, he has been thoroughly trained in Social Carbon's latest Standard and qualified to perform social carbon validation and verification. He is also an ISO 26000 lead auditor certified by the Professional Evaluation and Certification Board (PECB). He is a Certified Sustainability Assurance Professional from Accountability, UK. Among other qualifications, he is recognised by the Gold Standard Foundation to perform fast track audits. He is qualified as technical reviewer as per EPIC procedures with respect to various global GHG schemes, standards, and protocols. He is based in India.

Mr. Madhusudhana Reddy B holds a master's degree in forestry (Specialization: Forest Management) and a Post Graduate Diploma in Environment and Sustainable development. He has successfully completed

FSC Forest Management Lead Auditor training, ISO 19011 Lead Auditor training and FSC Chain of Custody Lead Auditor training. He is certified in Basic Remote Sensing Geographical information system offered by IIRS. He has experience in the field of forestry. He has participated in ARR and REDD+ projects. He is qualified as an auditor and technical expert as per EPIC procedures with respect to various global GHG schemes, standards, and protocols. He is based in India.

2.1.1 Method and Criteria

The evidence-gathering plan utilized for the Validation and Verification of the "Silvador Climate Action" project involved a multifaceted approach conducted by the assessment team, initially the Validation and Verification team conducted a comprehensive review of key documents, including the Project Design Document (PD-MR), Non-permanence risk report, GHG Quantification workbooks, Ownership documents, and other relevant materials specified in Table 3 of the report. Furthermore, several virtual meetings via MS Teams were organized with the project proponent to discuss various aspects such as GHG Reduction and removal quantification, Leakage, Uncertainty assessment, and the demonstration of pool-specific carbon stocks quantification using the CBM-CFS3 model.

The onsite audit, scheduled from January 8th to January 13th, 2024, involved an in-depth examination of documents related to company registration, Forest Management Plans, FSC certification, harvest folders, worker training reports^{/34/35/36/}, and other supporting documents outlined in Table 3. As part of the biomass inventory field assessments, the team strategically selected 8 out of 31 permanent monitoring plots as representative samples, covering the project's geographical area. These selected plots encompassed all dominant species (Beech, Oak, and other Softwoods), various site classes, and both managed and unmanaged forest management types, ensuring a comprehensive representation of the project area.

During the onsite monitoring plot visits, biomass inventory was conducted using ZEB-SLAM HORIZON Lidar with a circular plot of fixed radius 11.28m (400 m²). The Lidar-based biomass quantifications were calibrated for accuracy with manual inventory data obtained using tree calipers for DBH and Haglof Vertex IV Hypsometer for height measurements. Furthermore, initial Lidar and manual inventory data were also utilized for calibration purposes. The assessment team also engaged in discussions regarding forest management and harvesting procedures with the forest management companies (FMCs), namely Ocolul Silvic Muntenia and Ocolul Silvic Evergreen.

To ensure compliance and accuracy, the assessment team inspected the marking of stumps selected for felling before the project commencement date and verified marked trees outside the project areas for felling. The team also utilized the drone (Phantom 4 PRO+ (WM331A)) for capturing footage of the forest areas. The assessment team also reviewed the website namely SUMAL 2.0^{/79/}, a Digital wood tracking portal (<https://www.mmediu.ro/categorie/sumal-2-0/321>) to track the wood from harvesting site to the end use including transport within Romania including the transport documents^{/94/}. Additionally, visits were made to Firewood warehouse, Sawmills, and a representative natural ecosystem designated by the FSC Forest Management Standard of Romania^{/62/}.

The project was submitted to VERRA for registration and verification approval on February 29, 2024. During the review process, the project proponent voluntarily decided to increase the number of permanent monitoring plots to improve accuracy and more effectively account for uncertainty calculations. Consequently, the PP requested the VVB to assess these additional monitoring plots and submit the changes along with responses to the PRR comments. As the requested changes do not alter the project design and are solely intended to enhance calculation accuracy, the VVB evaluated the updates through a remote audit of the newly established monitoring plots and uncertainty calculations.

A remote audit was conducted on November 5, 2024, to evaluate the additional permanent monitoring plots and review the revised uncertainty calculations. Of the 79 additional established monitoring plots, the audit team selected 10 for assessment, ensuring comprehensive coverage across all analysis units within the project's geographic area. Altogether, 18 monitoring plots, including those from both onsite and remote audits, were assessed out of the 110 established plots. Detailed information on the sampled plots is provided in Table 6, Section 2.4 of this report.

During the remote audit, the audit team observed key activities, including plot center demarcation, tree numbering, and the setup of transects for circular plot demarcation. The audit team also reviewed tree height measurements using the Haglof Vertex IV Hypsometer, DBH measurements using a tree caliper and the Arboreal smartphone application, and deadwood density classification conducted by striking deadwood with a sharp blade and measuring with a caliper. Research articles^{95/} on the Arboreal application were reviewed, confirming its use of technology similar to the ZEB-SLAM HORIZON Lidar system, which is deemed appropriate for these measurements.

The audit team reviewed the revised uncertainty calculations and additional monitoring plots, conducted interviews with the technical consultants responsible for the calculations, to confirm that the revised calculations follow the applied methodology and are appropriate with no changes to the project design.

Interviews were conducted with personnel involved in project implementation, covering stakeholders from all identified stakeholder groups as per the PD-MR. The list of interviewed personnel was detailed in Table 3 of this report, ensuring a comprehensive understanding of stakeholder perspectives and involvement in the project.

Table 2. Validation and verification schedule of the project

Sl. No	Events corresponding to the project	Date (or period) of the event
1	Kick-off meeting	30 th October 2023
2	Desk review	01 st November 2023 to 29 th January 2024
3	Teams Meeting-Project Updates	16 th November 2023
4	Teams Meeting-GHG Calculations Review	21 st November 2023
5	Teams Meeting-Work Book Reviews	29 th November 2023
6	Teams Meeting-Work Book Reviews	14 th December 2023
7	Combined onsite visit	8 th January 2024 to 13 th January 2024 (6 Days)
8	Draft Validation and Verification report submission	30 th January 2024
9	Validation and Verification report submission to project proponent	29 February 2024

2.2 Document Review

The Joint VCS Project Description and Monitoring Report (v1.5, dated 8 February 2024) and Non-permanence Risk Report (v1.1, dated 9th February 2024) and GHG quantification workbooks were

reviewed for assuring conformance with VCS program criteria. Additionally, the following set of documents and reports were also examined as part of validation and verification.

Table 3. List of documents reviewed during the Validation and Verification process.

Ref. No	Documents Reviewed	File / Document name / Weblink
1	VCS Joint PD-MR	<ul style="list-style-type: none"> Silvador_2_Project_Description_Monitoring_Report ' v1.8
2	Non-permanence risk reports	<ul style="list-style-type: none"> Silvador – NPV for Non-Perm Risk Report (Jul24')
3	Investment analysis-Additionality	<ul style="list-style-type: none"> Silvador – Investment Analysis for Additionality Assessment (Feb'24')
4	Activity shifting leakage workbook	<ul style="list-style-type: none"> Silvador Activity Leakage (Jul'24').xlsx
5	Market leakage	<ul style="list-style-type: none"> Silvador_MARKetLeakage (Oct'23) v1.1.xlsx 02-Auditor Support MarKetz Leakage.zip
6	Estimated GHG emission reductions or removals (tCO _{2e})	<ul style="list-style-type: none"> GHG Estimate_20240202.XLSX
7	Project Area (KML)	<ul style="list-style-type: none"> Silvador_Project_Instance_2023
8	Analysis units (KML)	<ul style="list-style-type: none"> Silvador_AnalysisUnits_2022
9	Permanent monitoring plots (KML)	<ul style="list-style-type: none"> SilvadorMonitorPlots_2024
10	Reference of all cadastral shapefiles	<ul style="list-style-type: none"> Cadastral Shapefiles.zip
11	Registration and Incorporation Certificate for the Silvador Company SRL and Forest Capital SRL	<ul style="list-style-type: none"> Registration certificate document Forest Capital from 31.05.2019 Registration certificate document Silvador from 10.11.1999 Incorporation document Forest Capital nr. 996 from 30.04.2020 – page number 2.pdf Incorporation document Silvador from 26.09.2018 – page number 2 to 10.pdf
12	Proof of Ownership (Sales Contracts and Land Deed Documents)	<ul style="list-style-type: none"> Auditor Share_02-Auditor Support_1-Sales Contract Auditor Share_01-Intial VV Informatio03A-Ownership_20231212.zip
13	Tax invoice for the land deed documents	<ul style="list-style-type: none"> Auditor Share_02-Auditor Support 5-Tax Documents.zip

14	Forest Management Companies (FMCs), their authorization and role in forest management	<ul style="list-style-type: none"> ▪ EVG Registration certificate and Authorization.pdf ▪ OSM Registration certificate and Authorization.pdf ▪ FMUs roles.pdf
15	Proof for project Start date	<ul style="list-style-type: none"> ▪ Forest Capital - FMC Ever Green project notification.pdf ▪ Forest Capital - FMC Muntenia project notification.pdf ▪ Forest purchasing agreement - UP I Constantinescu.pdf ▪ Silvador Company - FMC Ever Green project notification.pdf ▪ Silvador Company - FMC Muntenia project notification.pdf ▪ <u>Project Start Date.zip</u> ▪ (Details) APV Registry - Silvador and Forest Capital(SVD).xlsx
16	Forest management plans (FMPs)	<ul style="list-style-type: none"> ▪ 01- Initial VV Information Forest Management Plans.zip
17	Period of harvesting	<ul style="list-style-type: none"> ▪ Annex 2, Annex 3 and Appendix 2 of Ministerial order (MO 1540/2011): https://legislatie.just.ro/Public/DetaliuDocument/%20129446
18	Romanian Forest Code	<ul style="list-style-type: none"> ▪ The Forest Code (26_1996) revised as The Forest Code 46/2008 http://legislatie.just.ro/Public/DetaliuDocument/90768
19	NATURA-2000: Protected area network covering Europe's most valuable and threatened species and habitats.	<ul style="list-style-type: none"> ▪ Natura2000_end2021_epsg3035.kml https://ec.europa.eu/environment/nature/natura2000/index_en.htm
20	Declaration letter to prove no registration other GHG program	<ul style="list-style-type: none"> ▪ <u>GHG Declaration Nov 2023.pdf</u>
21	FSC - Centralized National Risk Assessment, FSC-CNRA-RO V1-0 EN, Dated 20 September 2017	<ul style="list-style-type: none"> ▪ FSC-Centralized National Risk Assessment Romainia, 2017.pdf
22	Grievance Redress Procedure - SOP	<ul style="list-style-type: none"> ▪ GreenRaise SOP - Grievance Redress Procedure (EN).pdf

23	Stakeholder consultation – SOP	<ul style="list-style-type: none"> GreenRaise SOP-Stakeholder Consultation+Engagement (May '22).pdf
24	List of identified Stakeholders, stakeholder consultation email and other documentation.	<ul style="list-style-type: none"> 02-Auditor Support Stakeholder consultation Email and Documentation.zip
25	SOP – GHG Monitoring	<ul style="list-style-type: none"> SOP – GreenRaise GHG Monitoring (Dec'22).pdf
26	FMC harvest quota confirmation	<ul style="list-style-type: none"> Evergreen quota confirmation.pdf OS Muntenia harvesting quota confirmation.pdf.
27	Canadian Budget Model of the Canadian Forest Sector (CBM-CFS3), v1.2	<ul style="list-style-type: none"> Kurz et al 2009: CBM-CFS3: a model of carbon-dynamics in forestry and land-use change implementing IPCC standards: KurzetalEcolMod2009.pdf, https://www.sciencedirect.com/science/article/abs/pii/S0304380008005012 Kull S et al 2016: Operational-scale Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) version 1.2: user's guide. 2016. https://scf.rncan.gc.ca/publications?id=36556&lang=fr_CA
28	Delta ecosystem output(Output obtained from the CBM-CFS3 model)	<ul style="list-style-type: none"> delta_eco_(Feb'24)_BSL'
29	Baseline and Project harvested wood products	<ul style="list-style-type: none"> VM0012-BSL HWP70ST-30PLP_20240202.xlsx VM0012-PRJ HWP70ST-30PLP_20231218.xlsx
30	Uncertainty calculations	<ul style="list-style-type: none"> Silvador_VM0012_Uncertainty Calculator ().xlsx Silvador_Zimplot Calculator-UvM(Aug9'24).xlsx
31	Assessment of high value forest by conservation, Dated, 18 November 2021	<ul style="list-style-type: none"> Addendum Report_PVRC_2021 EN.pdf
32	Forest inventory data	<ul style="list-style-type: none"> Silvador_Forest_Inv_GC's_Jan24'23.xlsx
33	Final VCUs calculation data	<ul style="list-style-type: none"> GHG Estimate_20240202.xlsx
34	Personnel worker training records regarding work security and health and emergency situations	<ul style="list-style-type: none"> Fisa PSI Ghinea.pdf Fisa SSM Ghinea.pdf
35	Assessment of safety on workers and Periodic Training	<ul style="list-style-type: none"> Report regarding the assessment of safety on workers.pdf

36	Inspection by Labour Inspectorate regarding training the workers	<ul style="list-style-type: none"> Inspection record of labour inspectorate.pdf
37	Worker Contracts	<ul style="list-style-type: none"> Services Agrmt-Implement + Sales Marketing (Silvador ForestCapital + GRC GFS) signed FINAL.pdf
38	Emergency response plan of Silvador and Romanian regulation	<ul style="list-style-type: none"> Folder 36 – Silvador Emergency Plan full EN .pdf, Dated: 22-07-2020. First aid personnel – Certificates.pdf
39	FSC Manual: Specifying avoiding usage of chemical substances	<ul style="list-style-type: none"> FSC Manual – chemical substances.pdf
40	Law for Occupational Health and Safety, (Dated 11 th October 2006)	<ul style="list-style-type: none"> OHS Law 1425_2006.pdf. https://www.inspectiamuncii.ro/86
41	Social Dialogue law (Dated 19 th December 2022)	<ul style="list-style-type: none"> Social Dialogue Law (SVD).pdf
42	ZEB-Horizon Technical Specification and User manual Dated 2020	<ul style="list-style-type: none"> ZebHorizon_Specifications_Sheet.pdf ZEB-Horizon-User-Manual-v1.3.pdf
43	ZEB-Horizon data for monitoring plots	<ul style="list-style-type: none"> Synthetic_data.pdf
44	Proportion of Harvested Wood Products	<ul style="list-style-type: none"> HWP FMC EverGreen.pdf HWP FMC Muntenia.pdf APV-HWP further breakdown final Dec 18 2023
45	Complied List of Technical and Research Publications of Carbon Budget Model 2022	<ul style="list-style-type: none"> A Complied List of Technical and Research Publications Involving the Carbon Budget Model 2022.pdf. https://cfs.nrcan.gc.ca/pubwarehouse/pdfs/40710.pdf
46	Volume Increment Data	<ul style="list-style-type: none"> VOLUME INCREMENT data derived by the CBM Output.pdf
47	Growth curve reference	<ul style="list-style-type: none"> Giurgiu&Draghiciu2004.pdf
48	Drone Aerial Footage of Representative natural ecosystems recorded during onsite	<ul style="list-style-type: none"> UP I Constantinescu (110 A) – 10%FSC.MOV
49	Drone footage of project area	<ul style="list-style-type: none"> DJI_0215.MOV
50	Scope 3 Emissions	<ul style="list-style-type: none"> Appendix 8 of VCS PD-MR Scope 3 Emissions Silvador Climate Action Email 2023-03-14. Silvador Email to Clients Regarding Scope 3 Emissions March 14, 2023.pdf

		<ul style="list-style-type: none"> Overview Of VCS Program Updates and Effective Dates: Verra Issued August-2023-Overview-of-VCS-Program-Updates-Effective-Dates.pdf
51	Fire and Pest management of forests under project from FSC and FMP procedures	<ul style="list-style-type: none"> Section 4.6 of Forestry Management Plan, Ocolul Silvic Ever Green-Forest Management Certification.pdf Section 2 of Silvador specific documentation for emergency situations: Silvador Emergency plan – page 4.pdf Action plan in emergency situations and response capacity: Silvador Emergency Plan.pdf Pg 1-2 of “SOP_EVERGREEN EN v2 – FMC Certification”.pdf Indicator 10.6. of FSC Forest Management Certification Manual, v4.0 Dated, 17th November 2021: Manual_certificare_forestiera_EG_V4 pages 72 – 73.pdf
52	Harvest information: Report from all the activities from initiation and termination of harvest activities.	<ul style="list-style-type: none"> Harvest file UP I Manesti year 2018.pdf.
53	FSC list of highly hazardous pesticides, EU, and Romanian legislation of use	<ul style="list-style-type: none"> Section 8.5 of FMP specifying “combating pests and diseases”. FSC lists of highly hazardous pesticides, FSC-POL-30-001a EN: FSC-POL-30-001a V3-0 EN FSC Lists of Highly Hazardous Pesticides pages 5-8.pdf. Lists of Highly Hazardous Pesticides, FSC-POL-30-001a EN: https://connect.fsc.org/current-processes/fsc-pol-30-001a-v1-0-fsc-lists-highly-hazardous-pesticides EU Pesticides Database: https://food.ec.europa.eu/plants/pesticides/eu-pesticides-database_en The EU’s chemicals strategy prohibiting the use of the most harmful chemicals: https://www.europarl.europa.eu/factsheets/en/sheet/78/chemicals-and-pesticides
54	Annual illegal felling inspection reports submitted to Forestry Guard (2015-2023)	<ul style="list-style-type: none"> 02-Auditor Support Submitted Illegal Felling Report.zip

55	Prevention of Illegal felling	<ul style="list-style-type: none"> ▪ Article 51, Article 52 and Article 107 of Forestry Code Law nr. 46/2008 ▪ Forest Services Contract to guard against illegal felling: Service contract UP I Valea Tisei.pdf
56	FSC procedure and reports for illegal felling quantifications, procedures, and actions	<ul style="list-style-type: none"> ▪ Page 1-3, 3-3, Specific Procedures Implementation of Certification Management Forestry, Dated 10.08.2017: SOP_EVERGREEN EN v2 - FMC Certification.pdf ▪ Criterion 1.4 of FSC-STD-ROU-01-2017 EN Romanian NFSS.pdf ▪ FSC Management plan.pdf
57	Reference for minimal fuelwood removals	<ul style="list-style-type: none"> ▪ Section 3.3.2, pg. 18: OS Ever Green FSC FM CoC Audit 22 ENG_public.pdf
58	Overlay analysis of peatland map	<ul style="list-style-type: none"> ▪ Global Peatlands.zip ▪ Dataset Citation: Greifswald Mire Centre (2022) Global Peatland Map 2.0. Underlying dataset of the UNEP Global Peatland Assessment – The State of the World’s Peatlands: Evidence for action toward the conservation, restoration, and sustainable management of peatlands, Global Peatlands Initiative, United Nations Environment Programme, Nairobi.
59	Reference of Project lands excluding Wetlands	<ul style="list-style-type: none"> ▪ Section 2.4.3 of all the FMPs
60	Important evidence that proves that no application of organic and inorganic fertilizer in the project area	<ul style="list-style-type: none"> ▪ Section 6.3 and 6.7 of FMPs ▪ Section “H”, Pg 14. Of FSC 3rd Surveillance Report for Asociatia Ocolul Silvic Evergreen in Prahova, Romania: OS Ever Green FSC FM Audit 21 ENG public.pdf ▪ Forest management certification manual (A131), v4.0, Dated 17th November 2021: FSC Manual – chemical substances.pdf. ▪ Law 232/2010, Import Rules for Fertilizers: Law 232 from 2010 fertilization import rules.pdf
61	Occupational health and safety laws regarding the registering of work accidents, insurance for work accidents and professional diseases, social dialogue law.	<ul style="list-style-type: none"> ▪ Article.175 (1), Article.177 (1), Article.178 (1), Article.179, Article. 180 (1) and Article.181 of Labor Code – Law 53 from 2003: Labor Code (SVD).pdf http://www.mmuncii.ro/j33/images/Documente/M_MJS/english/2018_LAW53-2003_Labour-Code.pdf

		<ul style="list-style-type: none"> ▪ Occupational Safety and Health Law no. 319/2006: OHS Law 1425_2006.pdf. http://legislatie.just.ro/Public/DetaliiDocument/73772 ▪ Social dialogue, Law 367/2022: <input type="checkbox"/> Social Dialogue Law 367 from 2022(SVD).pdf ▪ Law no. 319/2006, on work health and safety: http://legislatie.just.ro/Public/DetaliiDocument/73772 ▪ Government Decision no. 1425/2006, modified by HG no.955/2010 and Government Decision no. 1242/2011, Standard Method for the implementation of Law no.319/2006: http://legislatie.just.ro/Public/DetaliiDocument/76337 ▪ Government Decision no. 1051/2006 on minimal requirements for work health and safety during the manual handling of volumes which present risks for workers, especially back injuries: http://legislatie.just.ro/Public/DetaliiDocument/74429 ▪ Government Decision no. 1146/30.08.2006 on minimal requirements for health and safety for the use of work equipment by workers: http://legislatie.just.ro/Public/DetaliiDocument/75585 ▪ Government Decision no. 1091/16.08.2006 on minimal requirements for health and safety in the workplace: http://legislatie.just.ro/Public/DetaliiDocument/74708 ▪ Government Decision no. 1048/09.08.2006 on minimal requirements for health and safety for the use of personal protective equipment by workers in the workplace: http://legislatie.just.ro/Public/DetaliiDocument/74559 ▪ Government Decision no. 300 in 02/03/2006 on minimal requirements for health and safety on temporary or mobile sites:
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		http://legislatie.just.ro/Public/DetaliiDocument/69995
62	Global review of forest pest and diseases, 2009	<ul style="list-style-type: none"> ▪ https://www.fao.org/3/i0640e/i0640e.pdf
63	Romania Deforestation Rates & Statistics – Global Forest Watch	<ul style="list-style-type: none"> ▪ Globalforestwatch.org/
64	National Inventory Report – Romania, 2019	<ul style="list-style-type: none"> ▪ Romania. 2019 National Inventory Report (NIR) UNFCCC
65	FAO – Ecological Zones	<ul style="list-style-type: none"> ▪ 04-Spatial FAO Ecological Zones.zip ▪ https://storage.googleapis.com/fao-maps-catalog-data/uuid/2fb209d0-fd34-4e5e-a3d8-a13c241eb61b/resources/gez2010.zip ▪ Source : https://data.apps.fao.org/catalog/iso/2fb209d0-fd34-4e5e-a3d8-a13c241eb61b
66	Global Forest Resources Assessment, 2020	<ul style="list-style-type: none"> ▪ https://www.fao.org/3/ca9825en/CA9825EN.pdf
67	Status of Abiotic disturbance in Romania	<ul style="list-style-type: none"> ▪ Anfodillo, et al., 2008. ▪ Turbe, et al., 2012 ▪ Anfodillo, et al., 2008 ▪ Mihai, Savulescu, & Sandric, 2007 ▪ Popa, 2008
68	Status of Geological Risks in Romania	<ul style="list-style-type: none"> ▪ Pavel, Vacareanu, Arion, Aldea, & Scupin, 2021 ▪ Malek, Boerboom, & Glad, 2015 ▪ Roșca, S et.al, 2020 ▪ Codru, I.C. and Niacsu, L., 2022.
69	Ministerial Order Nr. 460/2010	<ul style="list-style-type: none"> ▪ https://legislatie.just.ro/Public/DetaliiDocument/118103
70	Ministerial Order Nr. 1039/2010	<ul style="list-style-type: none"> ▪ https://legislatie.just.ro/Public/DetaliiDocument/120652
71	Ministerial Order Nr. 1540/2011	<ul style="list-style-type: none"> ▪ https://legislatie.just.ro/Public/DetaliiDocument/129446
72	Non-transferrable harvest quota proof	<ul style="list-style-type: none"> ▪ Article 62, Law on the Forest Code, https://faolex.fao.org/docs/pdf/rom176434.pdf
73	VERRA – Confirmation mail referring no public comments received	<ul style="list-style-type: none"> ▪ Fwd Verra Registry Project Review Status Change SD VISta 4511 Silvador Climate Action. (Email-outlook)

74	Romania Bank lending rate (Average 20 years)	<ul style="list-style-type: none"> ▪ https://www.ceicdata.com/en/indicator/romania/bank-lending-rate
75	MAI and Yield Curve Value References	<ul style="list-style-type: none"> ▪ Giurgiu&Draghiciu2004.pdf ▪ rou_cbm (Jan '23).xlsx ▪ Blujdea, V.N., Sikkema, R., Dutca, I. and Nabuurs, G.J., 2021. Two large-scale forest scenario modelling approaches for reporting CO₂ removal: a comparison for the Romanian forests. Carbon balance and management, 16, pp.1-17.
76	NPV analysis for NPRT	<ul style="list-style-type: none"> ▪ Silvador - NPV for Non-Perm Risk Report ('Feb'24).xlsx
77	Role of trees and forests in prevention of landslides and rehabilitation of landslide affected areas in Asia, Dated 2011.	<ul style="list-style-type: none"> ▪ https://www.fao.org/3/ba0126e/ba0126e00.pdf
78	FSC Forest Management Standards Certification, Dated Jan 07, 2018	<ul style="list-style-type: none"> ▪ Timestamped_FSC-C139122.pdf
79	SUMAL - Digital Wood Tracking	<ul style="list-style-type: none"> ▪ https://www.forestinnovationhubs.rosewood-network.eu/en/content/digital-wood-tracking ▪ Transport Document of wood material (EN) from forest.pdf ▪ Transport Document of wood material (EN) from warehouse.pdf
80	Anticorruption Law no. 78/2000	<ul style="list-style-type: none"> ▪ https://www.ecba.org/extdocserv/projects/ace/20160114_ACE_CountryreportRomania.pdf
81	Romanian legislations to strengthen property rights	<ul style="list-style-type: none"> ▪ Law 18/1991 (Law on Land Resources) https://www.cdep.ro/legislatie/eng/vol48eng.pdf ▪ Law 169/1997 (Amendment of Law 18/1997) ▪ Law 1/2000 (Reconstitution of the rights of owners over Agricultural and Forest lands) https://www.cdep.ro/legislatie/eng/vol48eng.pdf ▪ Law 247/2005 (Reforms in property and Justice) https://www.ccr.ro/wp-content/uploads/2021/07/studiu_en.pdf
82	Environment Impact Assessment (EIA) - Proof for No EIA Required for project Areas	<ul style="list-style-type: none"> ▪ Environment Impact Assessment.zip

83	Silvador worker's registry	<ul style="list-style-type: none"> Revisal Workers.pdf
84	Lidar information	<ul style="list-style-type: none"> Lidar Info 20231215.zip
85	CBM Model input and output video	<ul style="list-style-type: none"> Silvador_CBM_BSL_example.mp4
86	Lidar data quantification data during onsite visit	<ul style="list-style-type: none"> tree_data_carbon_audit.xlsx
87	All pools Carbon quantification	<ul style="list-style-type: none"> CBM_All_Pools_BSL+PRJ)Feb'24.xlsx
88	Fossil Fuel Emissions Associated with Logging, Transport, and Manufacture	<ul style="list-style-type: none"> Emissions_BSL_Estimate (Feb'24).xlsx Emissions_PRJ_Estimate(Feb'24).xlsx
89	Tool utilized and calculation workbook for number of analysis units to be situated in PAI	<ul style="list-style-type: none"> UNFCCC/CCNUCC A/R Methodological Tool "Calculation of the number of sample plots for measurements within A/R CDM project activities" Version 02.1.0 EB 58 Report Annex 15 page 1 Silvador_Zimplot Calculator-UvM(Jan'23).xlsx
90	CBM-CFS3: A model of carbon-dynamics in forestry and land-use change implementing IPCC standards	<ul style="list-style-type: none"> Kurz, W.A., Dymond, C.C., White, T.M., Stinson, G., Shaw, C.H., Rampley, G.J., Smyth, C., Simpson, B.N., Neilson, E.T., Trofymow, J.A. and Metsaranta, J., 2009. CBM-CFS3: a model of carbon-dynamics in forestry and land-use change implementing IPCC standards. Ecological modelling, 220(4), pp.480-504. https://www.sciencedirect.com/science/article/abs/pii/S0304380008005012
91	Information of Default spatial units (SPU), administrative boundaries, ecological boundaries including species composition	<ul style="list-style-type: none"> (https://static-content.springer.com/esm/art%3A10.1007%2Fs13595-018-0743-5/MediaObjects/13595_2018_743_MOESM1_ESM.xlsx)
92	CBM-MAKELIST	<ul style="list-style-type: none"> https://annforsci.biomedcentral.com/articles/10.1007/s13595-018-0743-5
93	Model-based, volume-to-biomass conversion for forested and vegetated land in Canada, Dated 2007	<ul style="list-style-type: none"> Boudewyn, P.A., Song, X., Magnussen, S. and Gillis, M.D., 2007. Model-based, volume-to-biomass conversion for forested and vegetated land in Canada. https://cfs.nrcan.gc.ca/pubwarehouse/pdfs/27434.pdf
94	Average sale prices of Hardwood and softwoods, operational cost and harvesting costs	<ul style="list-style-type: none"> Average sale prices and average logging costs SW, HW.xlsx

95	Research articles for demonstrating appropriateness of arboreal smartphone application	<ul style="list-style-type: none"> ▪ https://academic.oup.com/forestscience/advance-article-abstract/doi/10.1093/forsci/fxae017/7664433 ▪ https://www.mdpi.com/1999-4907/14/8/1553 ▪ https://www.sciencedirect.com/science/article/pii/S157495412400092X ▪ Hur gör man för att använda Arboreal Trädhöjd Arboreal
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2.3 Interviews

During the validation and verification process, the assessment team conducted interviews with the project team. The validation and verification team discussed the following:

- 1) Information submitted to the Validation and Verification team supporting the project design, sectoral scope, project activity involved and the monitoring report.
- 2) Measures taken to ensure compliance with VCS and other additional requirements
- 3) Planning and execution of project activities. The individuals interviewed and involved in the project are listed below.

Table 4. Project participants interviewed during the validation and verification.

Sl. no	Name	Entity or Organization	Role of the personnel	Topic of Discussion
A	Vlad Chitulescu	Silvador Company SRL Forest Capital SRL	Project proponent	Investment decision, legal status of forest land, conservation plan, historical scenario of the project area, Community and ecosystem benefits, Local stakeholder consultation and continuous engagement etc.
B	Jason Zimmerman	Green Raise consulting GmbH Global Forest Support GmbH Zimmfor Management Services ltd.	Director, President	Authorized representative, implementation partner, Listing representor, IFM project development. Project management.
C	Zoie Richards	Zimmfor Management Services ltd.	Specialist, Forest Carbon & Management Services	Assessment of monitoring plot, IFM project development, implementation and

				monitoring, GIS, remote sensing, land mapping, baseline, and project maps
D	Dave Brown	Zimmfor Management Services Ltd.	Specialist, Forest Carbon & Management Services	IFM project development, CBM-CFS3 modelling for baseline and project scenarios, Quantification of GHG emission reduction and removals
B	Jason Zimmerman	Green Raise consulting GmbH Global Forest Support GmbH Zimmfor Management Services Ltd.	Director, President	Authorized representative, implementation partner, Listing representor, IFM project development. Project management.
E	Marika Forge	Zimmfor Management Services Ltd.	Specialist, Forest Carbon & Management Services	IFM project development, CBM-CFS3 modelling for baseline and project scenarios, Quantification of GHG emission reduction and removals
F	Trevor de Zeeuw	Zimmfor Management Services Ltd.	Specialist, Forest Carbon & Management Services	IFM project development, Uncertainty calculations, HWP calculations, GHG emission reduction and removals
F	Bercaru Marcel	Silvador Company SRL Forest Capital SRL	Legal Counsel	Investment decision, legal status of forest land, Other Romanian legislation, conservation strategies, baseline scenario of the forest area, Local stakeholder consultation, and continuous engagement etc.
G	Mihai Panutru	Silvador Company SRL	GIS analyst & Forest Engineer	Assessment of monitoring plot, IFM project development, implementation and monitoring, GIS, remote sensing, land mapping, baseline, and project maps.

H	Dragos Paraschiva	Silvador Company SRL	Forest Engineer	Assessment of monitoring plot, IFM project development, Historical harvest practices, management, and risk mitigation strategies
I	Virgil Popescu	Silvador Company SRL	Forest Acquisition	Local stakeholder consultation and community benefits
J	Florea Sergiu	Forest Design	Forest Engineer	Operation of ZEB-SLAM HORIZON Lidar for DBH and Height measurement, biomass quantification, Monitoring plot inventory
K	Elena Vosciatinscaia	Silvador Company SRL	Freelancer	Silvador Climate Action website development and maintenance

Additionally, stakeholders were interviewed during on-site visits in the project regions to ensure the communication of project design, risks and impacts due to implementation of the project. Details regarding the individuals interviewed, including their organization, position and interview date is provided below.

Table 5. Stakeholder's interviewed during the Validation and Verification process.

Sl. no	Name	Gender (M/F)	Entity/Organization	Role of the Personnel	Topic of Discussion	Date(s) of Interview
AA	Monac Emilian	M	Egger Romania SRL	Fibre board Producer	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AB	Alexandru Constantin	M	Primaria Manesti	Mayor	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AC	Stoica Mihaela	F	Primaria Valea Lunga	Counselor	Awareness of project design, Impacts due to project	08/01/2024

					implementation, Initial Stakeholder consultation	
AD	Gheorghe Niculae	M	Guarda Forestiera Dambovit a	Counselor	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	08/01/2024
AE	Codroiu Vasile	M	Ocolul Silvic Muntenia	Forest Ranger	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	08/01/2024
AF	Dinca Alexandru	M	Primaria Ludesti	Counselor	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AG	Andrei Gheorghe	M	Ocolul Silvic Muntenia	Forest Ranger	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	08/01/2024
AH	Murat Hacibektanglu	M	Yildiz Entegre Romania SRL	Purchasing Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024

AI	Mincu Anca	F	ENA WOOD	Production responsible & Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AJ	Edebak Erkan	M	ENA WOOD	Production responsible & Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AK	Danciu Damian	M	Private FMU	Tornator	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AL	Liviu Flusca	M	Private FMU	Tornator	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AM	Stan Cristian	M	AJVPS Dambovit a	Hunting Association Representative	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Hiking and Hunting permission	08/01/2024
AN	Ilina Stefanita	M	Ocolul Silvic Evergreen	Forest Engineer	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	08/01/2024
AO	Popa Alexandru	M	ROMSILV A,	Forest Engineer	Awareness of project design, Impacts due to	08/01/2024

			Pucioasa FMU		project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	
AP	Serban Constantin	M	In Colt Supermarket SRL	Wood trader and Processor	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AQ	Stanciu Vlad	M	Meladvita SRL	Bee Keeper	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	08/01/2024
AR	Dumitra Silviu	M	Timber Real Wood SRL	Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	09/01/2024
AS	Nicu Barbulescu	M	Ocolul Silvic Muntenia	Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	09/01/2024
AT	Neagu Alin	M	Ocolul Silvic Muntenia	Forest Engineer	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	09/01/2024
AU	Tudor Alin	M	KRONOSP AN	Purchasing Responsible	Awareness of project design, Impacts due to project implementation, Initial	09/01/2024

					Stakeholder consultation	
AV	Serban Tudor	M	Preffered by Nature	Auditor	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, FSC and Inspection and Certification	09/01/2024
AW	Mihail Caradaica	M	Tomorrow's Forest Foundation	Executive Director	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	09/01/2024
AX	Jipa Daniela	F	Primaria Vernesti	Environmental Operator	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	10/01/2024
AY	Mitrache Ciprian	M	Primaria Vernesti	Cashier	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	10/01/2024
AZ	Jipa Daniel	M	Primaria Vernesti	Financial Inspector	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	10/01/2024
BA	Ionita Mircea	M	Primaria Vernesti	Land Inspector	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	10/01/2024
BB	Nanescu ION	M	Private Winery	Winery Owner	Awareness of project design, Impacts due to project	10/01/2024

					implementation, Initial Stakeholder consultation	
BC	Enescu Felix	M	Even Green	Forest Ranger	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Forest management, Inspection of forest areas	10/01/2024
BD	Petre Cristinel Bogdan	M	Tisau Town Hall	Public Acquisitions	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BE	Ene Elena Andreea	F	Tisau Town Hall	Social Inspector	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BF	Stanciu Elena	F	Tisau Town Hall	Medical Assistant	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BG	Mocanu Viorica	F	Tisau Town Hall	General Secretary of Village	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BH	Lencaru Corina Mihaela	F	Tisau Town Hall	Land Management Inspector	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024

BI	Andrei Carmen	F	Tisau Town Hall	Documents & Archive	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BJ	Diaconu Mariana	F	Tisau Town Hall	Registry Referent	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BK	Dragomir Steluta	F	Tisau Town Hall	Documents & Archive	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BL	Marina Roxana Elena	F	Tisau Town Hall	H.R. Counsel	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BM	Oprea Daniela Luminita	F	Tisau Town Hall	Inspector for Marital Status	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	11/01/2024
BN	Raducanu Adrian	M	Silvador Company Firewood Warehouse	Warehouse and harvesting operations Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	12/01/2024
BO	Raducanu Valentin	M	Silvador Company Firewood Warehouse	Warehouse Manager	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Job security	12/01/2024

BP	Manta Vasile	M	Silvador Company Firewood Warehouse	Firewood Worker	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Job security	12/01/2024
BQ	Dumitru Adrian	M	Silvador Company Firewood Warehouse	Skidder Operator	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Job security	12/01/2024
BR	Dumitru Marian	M	Silvador Company Firewood Warehouse	Chainsaw Operator	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation, Job security	12/01/2024
BS	Brutaru Georgian	M	Firewood Buyer	Firewood Buyer	Awareness of project design, Impacts due to project implementation, Initial Stakeholder consultation	12/01/2024

2.4 Site Visits

The objective of the site visit and inspections were to achieve the following:

- To collect necessary information on biomass inventory of the selected sample monitoring plots and to provide assurance as described in Section 4.1.2 of VCS Standard v4.4.
- To accomplish a risk-based review of the project area and project activities, quantification of emissions, emission reductions and removals including monitoring for the specific period complies to validation and verification criteria.
- To verify the accuracy of the information presented in the non-permanence risk report.

Table 6. Details of sample monitoring plots visited during onsite inspection.

ON-SITE AUDIT							
Sl. no	Monitoring plots	Analysis units	Forest Management Plan	County	Co-ordinates from center of the plot	Date of Visit	Remarks
1	O3-5	O3M	Hodoba	Buzau	45° 15' 50" N 26° 39' 34" E	10 January 2024	-
2	S3-1	S3M	Barbu V	Buzau	45° 12' 43" N 26° 39' 52" E	10 January 2024	-
3	O2-3	O2M	Popescu	Buzau	45° 9' 8" N 26° 32' 12" E	10 January 2024	-
4	S3-3	S3U	Constantinescu	Buzau	45° 10' 24" N 26° 32' 42" E	11 January 2024	No softwoods were identified. Resolved in findings (Refer CAR-01 in Appendix A)
5	B3-10	B3M	Constantinescu	Buzau	45° 10' 7" N 26° 32' 49" E	11 January 2024	-
6	O3-3	O3U	Manesti	Dâmbovița	45° 51' 8" N 25° 43' 41" E	12 January 2024	-
7	B4-4	B4M	Valea tisei	Dâmbovița	45° 3' 1" N 25° 29' 45" E	12 January 2024	-
8	B2-4	B2U	Valea tisei	Dâmbovița	45° 2' 48" N 25° 28' 43" E	12 January 2024	-
REMOTE AUDIT							
1	B2-10U	B2M	Valea tisei	Dâmbovița	45° 03' 13" N 25° 28' 8" E	05 th November 2024	-
2	B3-13U	B3M	Manesti	Dâmbovița	44° 55' 40" N 25° 18' 4" E	05 th November 2024	-

3	B3-21U	B3M	Valea tisei	Dâmbovița	45° 03' 4" N 25° 29' 9" E	05 th November 2024	-
4	B3-30U	B3U	Cornatelu	Dâmbovița	44° 49' 35" N 25° 40' 28" E	05 th November 2024	-
5	B4-5U	B4M	Valea tisei	Dâmbovița	45° 02' 56" N 25° 29' 37" E	05 th November 2024	-
6	O3-12U	O3M	Hodoba	Buzau	45° 15' 58" N 26° 39' 25" E	05 th November 2024	-
7	O3-20U	O3M	Barbu V	Buzau	45° 12' 34" N 26° 39' 9" E	05 th November 2024	-
8	O3-36U	O3U	Manesti	Dâmbovița	44° 55' 52" N 25° 17' 41" E	05 th November 2024	-
9	O4-9U	O4U	Forest Capital	Buzau	45° 14' 15" N 26° 40' 38" E	05 th November 2024	-
10	S3-4U	S3M	Manesti	Buzau	44° 55' 32" N 25° 18' 38" E	05 th November 2024	-

As per the aforementioned requirements, the Validation and Verification team conducted the onsite visits to the project areas comprising private forest lands both in Buzau and Dambovita counties of Romania from the 8th of January 2024 to 13th of January 2024. The plan and activities carried out by Validation and Verification team is described below (also refer Section 2.1 of this report).

- The Validation and Verification team selected eight (8) permanent monitoring plots as a sample across the PAI, 5 from Buzau and 3 from Dâmbovița counties of Romania. The details of permanent sample plots visited is depicted in Table 6 of this report.
- The project team demonstrated how the the biomass inventory measurements were collected using a ZEB-SLAM HORIZON Lidar unit^{/42/43/84/} with a circular plot of fixed radius 11.28m (400 m²). Lidar based biomass quantifications were calibrated for accuracy with the manual inventory data using Tree calliper for DBH and Haglof Vertex IV Hypsometer for height measurement respectively. The Validation and Verification team conducted the same process after the demonstration to cross verify.
- GPS locations of the inventoried plots were noted to compare with the given location of monitoring plots.

- Interviews were conducted with project proponents and other entities involved in the project to collect information regarding project activity, monitoring, data collection and processing etc.
- Interviews were conducted with relevant stakeholders and beneficiaries during the onsite visit/AA-BS/.
- Photographs were taken during the onsite visits and are included in the Appendix B of this report.

2.5 Resolution of Findings

All the documentation provided by the project proponent was evaluated in accordance with the relevant VCS guidance documents specified in Section 1.2 of this report. Any potential or factual inconsistencies raised from the audit process were resolved by issuing the findings. The issued findings were categorized as follows.

- **Clarifications (CL):** Additional information is required for clarification on a specific matter.
- **Corrective Action Requests (CAR):** Indicates a deviation from a specific requirement, and it can only be resolved upon evidence provided that the identified issue has been corrected. Corrective action of all open CAR's is necessary before validation and verification statements can be issued.
- **Forward Action Requests (FAR):** Matters concerning the project implementation that need examination during upcoming verification of the project activity. These concerns should not pertain to VCS.

The validation and verification were aimed to address and resolve any outstanding clarification and corrective action requests, along with other unresolved issues, before obtaining a positive conclusion from EPIC on the project.

During the audit, 2 CLs, 3 CARs and 2 FARs were issued. All the audit findings have been closed effectively, as detailed in the Appendix A of this report, following the VCS standard, v4.4.

2.5.1 Forward Action Requests

The Validation and Verification team issued 2 FARs, and the detailed information is provided in the Appendix A.

3 VALIDATION FINDINGS

3.1 Project Details

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

The Validation and Verification team has performed a combination of document review, on-site inspections, and interviews with relevant personnel such as project proponent, local stakeholders, communities etc regarding the project type, technologies, measures implemented and eligibility of the project.

- The validation process consisted of review of PD-MR^{1/}, ER sheets and other supporting documents, onsite visits, field assessments etc. The project is categorized within the Sectoral Scope 14 – Agriculture, Forestry and Other Land Use (AFOLU). The project category falls within Improved Forest Management (IFM), with Logged to protected forests as the activity (IFM-LtPF).

- The Validation and Verification team reviewed the FMPs, and harvest quota to affirm that project areas were previously subjected to regular timber extraction including thinning, progressive cuttings, hygiene cutting etc. The project incorporates activities such as preventing progressive cuts and thinning to transition from logged forest to conservation forests encouraging carbon sequestration. However, low levels of hygiene cuttings were still performed to prevent any potential risks from occurring. Subsequently, the technologies and measures outlined in Section 3 of the PD-MR are also eligible under the VCS program.
- The information regarding Project Eligibility aligning with VCS Applied Methodology VM0012, v1.2, were discussed below in the Section 3.4.2 below.

Project design, including eligibility criteria for grouped projects.

The Validation and Verification team has performed a combination of document review, on-site inspections and interviews with relevant personnel such as project proponent, local stakeholders, communities etc.

Considering the aforementioned, the proposed project is referred to as grouped project, and it aligns with criteria set out in the Section 3.6 of the VCS Standard v4.4. As of now a single project activity instance (PAI) is present in the project. The selected PAI qualifies the eligibility criteria listed out in the Section 1.3 of the PD. In addition, project proponent ensures the project conformance with the eligibility criteria’s for including new project activity instances as per 3.6.16 of the VCS Standard v4.4. All the eligible criteria met by the project is discussed detail in the Section 3.4.2 below. The validation and verification team confirms that the projects activity is a grouped project and qualifies the eligible criteria for inclusion of activity instance in future as per Section 1.4.1 of the PD-MR.

Project proponent and other entities involved in the project.

Project proponent information

Organization name	Silvador Company SRL	<u>Validation conclusion</u> The Validation and Verification team reviewed the company incorporation certificate ^{/11/} and affirmed that the provided document is appropriate.
Contact person	Vlad Chitulescu	
Title	Director	

Organization name	Forest Capital SRL	<u>Validation conclusion</u> The Validation and Verification team reviewed the company incorporation certificate ^{/11/} and affirmed that the provided document is appropriate.
Contact person	Vlad Chitulescu	
Title	Director	

Information of other entities involved.

Organization name	GreenRaise Consulting GmbH	<u>Validation conclusion</u>
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Role in the project	Authorized Representative, Implementation Partner, Project Developer	The Validation and Verification team reviewed agreement between project proponent and GreenRaise Consulting GmbH and affirmed that the provided document is appropriate.
Contact person	Jason Zimmerman, RPF	

Organization name	Global Forest Support GmbH.	<u>Validation conclusion</u> The Validation and Verification team reviewed the Agreement between project proponent and Global Forest Support GmbH and affirmed that the provided document is appropriate.
Role in the project	Listing Representor, Authorized Representative	
Contact person	Jason Zimmermann, RPF	

Organization name	Zimmfor Management Services Ltd.	<u>Validation conclusion</u> The Validation and Verification team reviewed the Agreement between project proponent and Zimmfor management services ltd. and affirmed that the provided document is appropriate.
Role in the project	Implementation Partner, Project Developer	
Contact person	Jason Zimmermann	

Furthermore, the two FMCs, namely Ocolul Silvic Muntenia and Ocolul Silvic Evergreen, which are authorized by the Ministry of Environment and Climate Change and Ministry of Environment and Forests, are actively included in management activities of forest area. The sole responsibility of the FMC's includes guarding and protection against illegal logging, regeneration of plantations, and detection and forecast of diseases and pests' services etc^{14/}.

Ownership

Table 7. Evaluation of Ownership proof and Validation and Verification team conclusion

Sl.no	Ownership Evidence Type	Validation and Verification team Conclusion
1	Project ownership arising or granted under statute, regulation, or decree by a competent authority.	N/A
2	Project ownership arising under law.	N/A
3	Project ownership arising by virtue of a statutory, property or	N/A

	<p>contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals (where the project proponent has not been divested of such project ownership).</p>	
<p>4</p>	<p>Project ownership arising by virtue of a statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG emission reductions and/or removals (where the project proponent has not been divested of such project ownership).</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team verified that Silvador Company SRL and Forest Capital SRL (project proponent) holds the land ownership through a review of Land deed Documents^{12/}. The deed document contains information regarding cadastral number, area (m²), property description, sale-purchase agreement number, date of Issue, real-estate linear details (start point, segment length, end point), Land registry number, Name of municipality and authorization by Assistant registrar. ▪ The Validation and Verification team verified these documents through the National Agency for Cadastre and Real Estate Advertising Institution (https://www.ancpi.ro/) as well. These ownership registry is governed by Law No.7 Of March 13, 1996 (Republished) Cadastre and Real Estate Advertising. https://www.global-regulation.com/translation/romania/3748442/law-no.-7-of-13-march-1996-%2528republished%2529-cadastre-and-real-estate-advertising-nr.-7-1996%2529.html ▪ The Validation and Verification team, further supporting its findings, reviewed additional evidence of tax invoices for the owned by project proponent^{12/13/}. The tax invoices contain information regarding fiscal declaration for taxation purposes, the forest owner, forest location, forest area (m²), and ownership document reference and local town information. ▪ Additionally, the Validation and Verification team reviewed land purchase sales contract evidence for proving ownership of lands purchased by the project proponent^{12/13/}. These purchase sales contract contains information regarding cadastral number, area (m²), property description, date of purchase, relevant applicable laws, and the authentication conclusion and public notary.

		<ul style="list-style-type: none"> ▪ Upon reviewing the legislation, the Validation and Verification team confirmed that Silvador management representatives operate in compliance with the Forestry Code (Law 26/1996) and the regulations governing the forestry regime and administration of the national forest fund^{18/}. ▪ According to Article 557 of the Romanian Civil Code, Silvador and Forest Capital acquired property rights from the previous owner through legally executed and notarized agreements. ▪ Article 1650 of the Civil Code states that a sale is a contract in which the seller transfers or promises to transfer ownership of a good to the buyer in exchange for a price that the buyer agrees to pay. ▪ Silvador is a legally registered business owner who owns property verified by the National Agency for Cadastre and Real Estate Advertising, as mandated by Law no. 7/1996. They are obligated to comply with the provisions outlined in Anti-corruption Law no. 78/2000^{80/}. ▪ As part of the validation process, the Validation and Verification team with expertise of the technical expert verified the validity and authenticity of all the documents. ▪ Lastly, the Validation and Verification team affirmed that the key documents proving the ownership of project proponent over the forest fund properties are appropriate and credible.
<p>5</p>	<p>An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the plant, equipment or process that generates GHG emission reductions and/or removals which vests project ownership in the project proponent.</p>	<p>N/A</p>
<p>6</p>	<p>An enforceable and irrevocable agreement with the holder of the statutory, property or contractual right in the land, vegetation or conservational or management process that generates GHG</p>	<p>N/A</p>

	emission reductions or removals which vests project ownership in the project proponent.	
7	Project ownership arising from the implementation or enforcement of laws, statutes or regulatory frameworks that require activities be undertaken or incentivize activities that generate GHG emission reductions or removals.	N/A

Project Start Date

The project start date for an AFOLU project is determined as the date when activities leading to generation of GHG emission reduction and removals commence. The project start date is 1st August 2020, aligning with the evidence provided including the forest purchasing agreement and project notification submission (dated 15th July 2020) to the Forest Management companies (FMCs) namely Ocolul Silvic Muntenia and Ocolul Silvic Ever Green^{15/}, which are authorized by the Ministry of Environment and Climate Change, Ministry of Environment and Forests. These FMCs are involved in the management activities of the forest area. The sole responsibility of the FMC is to safeguard and protect against illegal logging, carrying out regeneration of plantations, and the detection and forecast of disease and pest infestations. This date signifies the transition from the historical baseline scenario (regular timber extraction) to logged to protected forest (LtPF) activity indicating the initiation of GHG reductions and removals.

EPIC has reviewed the project notification submission to FMCs regarding the implementation of the carbon credit initiative. The Validation and Verification team reviewed the Forest purchasing agreements to support these claims. Additionally, the Validation and Verification team has confirmed the project start date by conducting interviews with relevant personnels^{/A-J/AS/}. In accordance with requirements outlined in Section 3.8 of VCS Standard v4.4, the project start date is considered reasonable and correct.

Project Crediting Period

To assess the project crediting period and its alignment with VCS criteria, the Validation and Verification team reviewed the requirements in the VCS Standard and conducted interviews with relevant project personnel. The implementation of the project starts from 1st August 2020 (included) continued till 31st July 2050 (included).

- The Validation and Verification team discussed with project team^{/A-J/AS/} and affirmed that the start of crediting period coincides with the project start date when the timber harvesting or extraction activities were ceased and transitioned to protected forests. This is the date when the project initiates the GHG reduction and removals from the forest areas.
- The Validation and Verification team considering the crediting period of 30 years, affirmed that it is in conformance with VCS standard requirements for crediting period as per Section 3.9.3 of VCS Standard v4.4.

Project scale and estimated GHG emission reductions or removals

To assess the project scale and estimated GHG emission reductions or removals, The Validation and Verification team reviewed the PD-MR and GHG Quantification workbooks^{/34/} to affirm that the anticipated average annual GHG emission reduction or removals during the crediting period spanning from 1st August 2020 to 31st July 2050 is 11,096 tCO_{2e}. Therefore, the project size is categorised as “Project” according to the scale (lower or equal to 3,00,000 t CO_{2e} per year) for annual average GHG emission reductions or removals as per Section 3.10.1 of VCS Standard v4.4.

Project location

The Validation and Verification team reviewed the PD-MR, project area KML files and google earth satellite imagery to validate the project location and concluded the following.

- The project is located as non-contiguous private forest areas of Buzau and Dâmbovița counties of Romania. Further details about the project location including the coordinates are detailed in the Section 1.12 of PD.
- The project boundary corresponds to 45.274769 North, 44.641421 South, 26.700656 East and 24.957056 West (Co-ordinate system GCS_WGS_84).
- The project is concluded as grouped project with a single PAI as of now. The PAI as private forest area parcels are non-contiguous in nature and present in various regions within above mentioned counties.

The KML files of project areas were made available through VERRA Registry and provided to the audit as well^{/7/8/}. The Validation and Verification team utilized the QGIS software for visualization of KML files and its alignment with ground truth conditions during onsite visits. Lastly, the Validation and Verification team affirmed that the project location is as described in the PD-MR and the provided information is adequate.

Conditions prior to project initiation

To assess the conditions prior to project initiation, the Validation and Verification team reviewed FMPs, harvest quotas, company incorporation certificates^{/11/}, and historical harvesting data.

- The validation and verification team noted that project area is the private forest fund property approved for wood management under the national regulatory body of Romania, i.e “The National Directorate of Forests – ROMSILVA” (<https://www.rosilva.ro/>). Since the project areas are private property, these areas are required to follow the guidelines (https://www.rosilva.ro/articole/paduri_private_p_213.htm) and host country regulations (https://www.rosilva.ro/articole/paduri_private_p_1912.htm) given from ROMSILVA.
- The Validation and Verification team reviewed the forest inventory information^{/32/}, information pertaining to age class structure of tree species as outlined in Section 4 of FMPs^{/16/}, drone footage of project area^{/48/49/} and through interviews with the project team^{/A-J/} as well the personnels from Hunting Association^{/AM/} and FMC^{/AS/} to confirm that the areas are not cleared with the native ecosystems within 10 years prior to project start date.
- The Validation and Verification team reviewed the FMPs, FMC incorporation certificates including their roles and historical harvesting data to confirm that the selected PAI was within the operational timber harvesting land base and previously utilized for regular timber extraction^{/16/26/}. FMPs are the legal documents that outline forest inventory, management activities and strategies over a period of 10 years. They typically include inventory assessments, past management of forests, timber production processes, tree management measures, and

include the evaluation of non-wood forest products. These management plans establish sustainable and proper forest practice objectives and details in accordance with forestry laws and regulations applicable in Romania.

- The Validation and Verification team reviewed the historical harvesting data^{/52/} and FMC authorized harvest quotas^{/26/} to confirm that the selected PAI were previously within the operational timber harvesting land base and were utilized for regular timber extraction. Historical harvest data documents contained details such as inventory records, unit volume information, reports on the commencement of harvesting activities, harvesting authorizations and any contracts for the sale of the standing wood if any. All these documents are authorized and maintained by the FMCs. Harvest quotas are the information regarding the maximum possible harvest within the FMP. This includes primary, secondary, sanitary and hygiene cuts altogether for a period of 10 years.
- The Validation and Verification team reviewed the authorization letters of FMCs, their roles in forest management^{/26/} and conducted interviews with relevant personnels^{/AE/AG/AN/AO/AS/AT/} to confirm that the selected PAI were previously within operational timber harvesting land base and were previously utilized for regular timber extraction.
- The Validation and Verification team affirms that the baseline scenarios prior to the proposed project is outlined in the Section 3.4 of the PD is appropriate. The identified baseline scenarios were also corresponding to additionality requirements of the project as per Section 3.5 of the PD and in compliance with the Section 2.1 of VT0001 (Tool for The Demonstration and Assessment of Additionality In VCS-AFOLU Project Activities, dated 1st February 2012).

The conditions prior to the project initiation were affirmed by the Validation and Verification team with a combination of reviewing forest inventory information, drone footage and conducted interviews with project personnel and affirmed the information is adequate and appropriate.

Project compliance with applicable laws, statutes and other regulatory frameworks

The Validation and Verification team reviewed the information described in PD-MR, regarding the relevant laws and regulations of Romania and project compliance with such applicable laws, statutes and other regulatory frameworks.

- The Validation and Verification team reviewed relevant laws, statutes and other regulatory frameworks outlined in Table 8, Section 1.14 of the PD. Interviews were conducted with the project proponents, as well as verified by the hired local expert for the host country. It is confirmed that the project complies with relevant laws and regulations of Romania. The conclusions regarding all the relevant legislations, their descriptions, and assessment of conformance by the Validation and Verification team are detailed below.

Table 8. Process for review of legislation and Validation and Verification team conclusion.

Sl.no	Legislation	Specifics of the Legislation	Validation and Verification team Validation and Conclusion
1	Law 46/2008 (Forestry Code)	Legislation governing all forest properties in Romania covers ownership rights, management processes, and harvest stipulations	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment

		necessary for sustainable forest management and environmental practices. This includes the requirement for Forest Management Plans for forested areas larger than 10 hectares, detailing plan development specifications and ownership obligations.	concluded that the legislation aligns with the project activity ^{/18/} .
2	Law No. 18 on Land Fund	This law establishes the land tenure system in Romania, classifying lands into categories and outlining ownership rights registration requirements. Relevant provisions include procedural aspects related to land use for agricultural and silvicultural production.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity. https://legislatie.just.ro/Public/DetaliuDocument/1459
3	Ministerial Order Nr. 23/2009	This regulation outlines the security structures, organizations, and legal obligations of forestry personnel within forest management frameworks and service contracts to protect forest resources from illegal activities.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity. https://legislatie.just.ro/Public/DetaliuDocument/114795
4	Ministerial Order Nr. 460/2010	This order establishes certification methodologies for developing forest management plans and outlines requirements for legal entities seeking certification for management activities.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity ^{/69/} .
5	Ministerial Order Nr. 1039/2010	This order defines approved methodologies for technical experts responsible for approving and reviewing the quality of forest management planning activities. It also sets conditions for certification of individuals creating management plans.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity ^{/70/} .
6	Ministerial Order Nr. 1540/2011	This order specifies the terms, approvals, documents, permits, and collection methods for timber harvesting and transportation.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment

			concluded that the legislation aligns with the project activity ^{/71/} .
7	Water Law No. 107/1996	Legislation regarding water resource use, water management, and associated activities, including penalties. Forestry aspects cover water conservation, soil protection, pollution control, and protected zones around natural water bodies.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity. https://leap.unep.org/en/countries/ro
8	Environmental Protection Law No. 137/1995	Legal framework for the protection and regulation of activities impacting natural resources (water and land environments), enforced by the Ministry of Waters, Forests, and Environmental Protection.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity. https://faolex.fao.org/docs/pdf/rom13258E.pdf
9	Law no. 319/2006, on Work Health and Safety	Legislation requiring monitoring of forest activities related to health and safety by Labor Inspectorates, ensuring safe work environments and outlining challenge procedures for safety requirement violations.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity ^{/61/} .
10	NATURA 2000	Natura 2000 is a network of ecologically sensitive areas protected across the European Union (EU), promoting sustainable management strategies for birds, animals, and natural habitats through Bird and Habitat Directives. While a main driver for biodiversity and nature policies in EU countries, it does not replace existing legal obligations. Natura 2000 management plans for forest lands and wildlife fauna serve as guidelines rather than legal mandates.	The Validation and Verification team verified the legislation and adherence of the project to the requirements. The assessment concluded that the legislation aligns with the project activity ^{/19/} .

Participation under other GHG programs:

The Validation and Verification team reviewed the similar projects in various carbon credit programs including Gold Standard, International Carbon Registry, Plan Vivo etc for Romania and affirmed that the proposed project is not registered or seeking registration, nor rejected under any other GHG programs.

Additionally, The Validation and Verification team reviewed the VERRA Registry for the project "Silvador Climate Action initiative" with VCS ID 4321. The project is under a VCS status of "Rejected by

Administrator” as it had initially attempted to list under the VCS program but was request denied by the Administrator due to non-compliance with the listing process requirements within the stipulated three-year timeframe, as per Section 3.8.3 of VCS Standard v4.4. Following this, discussions were held with the project proponent regarding the denial notification from the VERRA registry. Subsequently, the project proponent addressed the listing process requirements, and the project has been relisted under the VCS program with VCS ID 4511. Furthermore, the Project proponent has provided with a declaration letter to prove no participation under other GHG programs^{/20/}.

Other forms of credit and supply chain (Scope 3) emissions:

The Validation and Verification team reviewed the PD-MR and Silvador website regarding other forms of credit and supply chain (Scope 3) emissions.

- The Validation and Verification team reviewed the information outlined in Section 1.16 of the PD and discussion with the project proponent to affirm that the project has not received any form of GHG related credits, including any renewable energy certificates.
- The Validation and Verification team reviewed the issuance of public statement pertaining to Scope 3 emissions indicated by the Silvador company SRL through their company website. Additionally, an e-mail has been sent to current retailers informing them about the project and potential risk associated with the double counting. The conclusions were given by discussion with project proponent, reviewing the PD and verifying the website for public statement^{/50/}.

Additional information relevant to the project

The Validation and Verification team reviewed key project documents, conducted interviews with relevant personnel regarding leakage management for AFOLU projects, commercially sensitive information and sustainable development contributions and the validation conclusions are as follows:

- The Validation and Verification team reviewed harvest quota confirmed by FMCs^{/26/}, respective FMPs^{/16/} and Activity shifting leakage workbook^{/4/} to affirm that no compensatory harvesting is carried out in other forest areas owned by the project proponent to account for the volume of timber lost during the project^{/4/16/26/}.
- As per Romanian Forestry Regulations, the transfer of harvest quotas from one Forest management plan (FMP) to another is not permitted^{/72/}. This regulation prohibits compensatory harvesting in other forest areas owned by the project proponent to offset the volume of the timber lost during the project. Therefore, it is not feasible to undertake compensatory harvesting activities in alternate forest areas under the ownership of the project proponent.
- The Validation and Verification team reviewed the information in Section 2.4, considered as sensitive information and excluded from public version of PD as per the VCS requirements.
 - a) Section 2.4; The names of the individuals associated in the comments of local stakeholder consultation process.
- The Validation and Verification team reviewed the SD VISTa project document and monitoring report with the information of the Sustainable Development Contributions to VCS for Validation and Verification.
- According to the information outlined in the SD VISTa project document and monitoring report, the project implemented two group activities and are described as follows.

1. Group Activity 1 – Sustainable Forest Management: Silvador implements a Forest Management Plan (FMP) aimed at sustainable and nature-friendly forest management in Romania. This includes certification by recognized third-party standards, ensuring measures for water quality, biodiversity, wildlife habitat, and conservation of forests with high value.

SDGs linked to Group Activity 1: SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land).

2. Group Activity 2 - Climate Action Initiative: The "Silvador Climate Action" project, under the Verified Carbon Standard (VCS), focuses on reducing and removing greenhouse gas (GHG) emissions. It involves transitioning privately owned periodic harvest forest lands into protected forest areas, following the methodology VM0012 for Improved Forest Management in Temperate and Boreal Forests (LtPF), version 1.2.

The group activities aiming to achieve the following Sustainable Development Goals (SDGs):

Table 9. Associated SDG targets and audit team validation conclusions

Sl. No	SDG Target	Fulfilment of targets in project lifetime	Validation and Verification conclusion
1.	12.2	100% of private forest areas owned and managed by Silvador expected to voluntarily accredited and certified to FSC Forest Management Standard.	<p>The Validation and Verification team reviewed the certificates from FSC Forest Management Standard, Romania and affirm that the project implementation will achieve sustainable development contribution through Group activity 1. The SDG target specifies that the sustainable management and efficient use of natural resources is achieved through increase in the hectares of land certified to Sustainable Forest Management Standards and follows established project level indicator “Responsible Consumption + Production” of forest.</p> <p>As of now >62% of project area is certified to FSC Forest Management Standard^{78/}.</p>
2.	13.0	Around 3,43,978 thousand tCO _{2e} sequestered by project area encompassing forests throughout the project lifetime.	<p>The Validation and Verification team reviewed PD-MR, GHG Quantification workbooks and other key documents to affirm that the project implementation will achieve sustainable development contribution through Group activity 1 and Group activity 2. The SDG target specifies to “Take urgent action to combat climate change and its impacts”.</p> <p>This target is achieved by curtailing the timber harvest leading to enhanced carbon sequestration aligning with established</p>

			project level indicator “Tonnes of greenhouse gas emissions avoided or removed” ^{/34/} .
3.	15.2	Perpetuation of halted deforestation on 1,538 ha of privately owned forest lands owned by Silvador for a duration of 30 years project lifetime. Approximately 2,65,286 m ³ of volumes of harvest is avoided during entire project lifetime.	<p>The Validation and Verification team reviewed PD-MR, GHG Quantification workbooks and other key documents to affirm that the project implementation will achieve sustainable development contribution through Group activity 1. The SDG target specifies to “Promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally.</p> <p>This target is achieved following established SDG Indicator 5.2.1 “Progress towards sustainable forest management”^{/29/}.</p>

After review of aforementioned information, the Validation and Verification team has confirmed the accuracy and completeness of the project description. The project's activities, as outlined, have been implemented effectively, aligning with the objectives of greenhouse gas (GHG) emission reduction and removals. The project's aim is in line with sustainable forest management practices, focusing on preserving biodiversity, water quality, and wildlife habitats, while also addressing climate action goals.

This initiative, similar to **Group Activity 1**, reflects a commitment to achieving Sustainable Development Goals (SDGs), including SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), and SDG 15 (Life on Land). By adhering to recognized certification standards and implementing mitigation measures, such as safeguarding water quality and conserving forests with high conservation value, the project contributes to these global sustainability targets.

Additionally, **Group Activity 2** underlines the importance of climate action through the "Silvador Climate Action" project. By transitioning periodic harvest forest lands into protected areas, the project aims to reduce GHG emissions and promote carbon sequestration. This aligns with SDG 13 (Climate Action), to mitigate the effects of climate change.

Furthermore, the validation and verification process emphasize the importance of transparency and accountability in environmental initiatives. While the project has shown likely results of estimated GHG emission reduction and removals, it's acknowledged that outcomes may vary due to the inherent uncertainties associated with modelling and assumptions.

3.2 Participation under Other GHG Programs

Not applicable. The project solely aims for registration under VCS program and has been reviewed for potential overlaps with other initiatives in the territory through the revision of other program registries.

It is affirmed that the project is not registered, nor is it seeking registration under any other GHG program. This confirmation is based on the internet review of other program registries, interviews with the project proponent during the interviews and information provided in the Section 1.15.1 and 1.15.2 of PD-MR.

3.3 Safeguards

3.3.1 No Net Harm

- The Validation and Verification team reviewed the information outlined in the VCS PD-MR and FSC Forest Management Standard Certification to affirm that ceasing the regular timber harvesting in the project scenario and certifying their forest areas with FSC Forest Management Standard, is expected to yield positive outcomes for climate change mitigation. This includes enhanced carbon sequestration, positive biodiversity impacts through the preservation of critical habitats, prevention of risks and prohibition from use of hazardous chemicals in the region^{/21/31/51/53/}. The similar conclusion was derived from interviewing relevant stakeholders as well^{/AE/AG/AM/AO/AN/AQ/AT/AX/BB/BC/}.
- The Validation and Verification team conducted interviews with relevant stakeholders^{/AA-BS/} to assess the community benefits yielded from project implementation. The project's community focused activities aim to contribute through provision of firewood for house heating, provision for recreational activities like hiking and hunting with specific emphasis on improving the lives of community residing adjoining to the forest areas.
- The Validation and Verification team reviewed the Life Cycle and Aspect analysis to determine the risks to stakeholders and their resources outlined as per GreenRaise GHG - Stakeholder Consultation + Engagement SOP^{/25/}. The relevant stakeholders were also interviewed by the Validation and Verification team to affirm that no negative environmental impacts have occurred due to project implementation. Additionally, the anticipated negative socio-economic impacts through job loss were assessed and confirmed that no job loss has occurred due to implementation of project activity^{/BN/BO/BP/BQ/BR/}.

Given that the project is specifically intended to conserve forests, the Validation and Verification team in consideration of the requirements outlined in Section 3.18.2 of the VCS Standard v4.4. confirms that the project is not expected to have any known or anticipated adverse environmental and socio-economic impacts.

3.3.2 Local Stakeholder Consultation

The Validation and Verification team reviewed the PD-MR and conducted interviews with the project team as well as relevant stakeholders to gather information and confirm that the project proponent conducted the local stakeholder consultation in conformance with the Sections 3.18.3 to 3.18.5 of the VCS Standard v4.4. Additional details regarding the events and audit conclusions were discussed below.

- Firstly, The Validation and Verification team conducted interviews with personnel from Silvador and Greenraise to verify the content and focus of Local Stakeholder Consultation. Additionally, the time and means of communication to stakeholders regarding in-person meeting was discussed^{/24/}.
- The Validation and Verification team reviewed the emails sent to notify relevant stakeholders about local stakeholder consultation. The consultation was conducted through electronic documents delivered by email as well as in person consultation on 28th November 2022 and 29th November 2022 in town halls in both Dâmbovița and Prahova counties respectively. The attendance list of attendees taken during the consultation were reviewed by the Validation and Verification team^{/24/}.
- The Validation and Verification team also conducted interviews with the representative stakeholders from all categories and covering different geographical regions during the onsite visit. The feedback from the interviewed relevant stakeholders specifies that they are aware of

the project design, implementation activity, risks, costs and benefits, relevant laws and regulations related to the project activity^{/AA-BS/}.

- Additionally, the project proponent conducted an additional follow up local stakeholder consultation on 16th February 2024 at the Silvador office in Targoviste, Romania. The virtual meeting invitation was also sent to the Validation and Verification team to attend the same. Around 60 individual stakeholders were invited for the meeting, and attendance taken during the process was reviewed as part of assessment.

In the meantime, no negative comments have been received from the local stakeholder consultation process. In addition, stakeholders provided favourable feedback on the project implementation, noting increased benefits resulting from the project.

3.3.3 Environmental Impact

The validation and Verification team reviewed FMPs, FSC Certificates, and the European Environment Agency (<https://www.eea.europa.eu/en>) to assess the environmental impacts for the project scenario. Each FMP is drafted only after conducting an onsite environmental impact assessment. The project proponent intends to ensure that the environmental impacts are in line with the FSC Forest Management Standards for Romania. FSC procedures for certification and the European Union (EU) pesticide database prohibits the application hazardous pesticides to prevent the project area from any possible risks that may occur^{/53/}. The Validation and Verification team reviewed the FSC certification documentation to prove environmental assessment and affirmed that an Environment Impact assessment (EIA) is not required by law for the current project^{/78/82/}.

Given that the project activity is transition from regularly harvested forests (Baseline Scenario) to conservation forests (Project Scenario), Environment impacts are not anticipated. Furthermore, any potential impacts from forestry activities would be adequately addressed through implementation of FSC audits and FMC assessments.

3.3.4 Public Comments

The joint VCS PD-MR, SD VISta; PD and MR were updated in the verra project registry and were open for public comments from 18th August 2023 to 17th September 2023. No public comments were received during this specified period. The Validation and Verification team reviewed the VERRA Registry, and the email received from VERRA to confirm this information^{/73/}.

3.3.5 AFOLU-Specific Safeguards

The Validation and Verification team reviewed the PD-MR^{/1/} and AFOLU-Specific Safeguards in accordance with the requirements outlined in the Section 3.18 of VCS standard v4.4 and Validation and Verification conclusion are described as follows.

Table 10. Evaluation of AFOLU Specific Safeguards and Validation and Verification team conclusion

Sl.no	AFOLU Specific Safeguards	Validation and Verification team Conclusion
1	The procedures for identifying local stakeholders in proximity to the project area	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the GreenRaise GHG - Stakeholder Consultation + Engagement SOP and affirms that the local

		<p>stakeholder identification process followed the criteria^{23/}.</p> <ul style="list-style-type: none"> ▪ In summary, Stakeholders within a 20km radius of the project area were identified to meet the VCS Non-Permanence Risk Tool requirements. They covered economic, social, environmental, forest agency, and research institute/university groups. Stakeholders were further categorized into groups based on income, livelihood, well-being, and/or cultural values. Interested stakeholders, not materially affected by the project, were excluded^{23/}. ▪ The Validation and Verification team confirmed that the project proponent identified the stakeholders as per information in Section 2.5 of PD-MR. ▪ This is further affirmation through interviews held with project personnel throughout the process and relevant stakeholders during the onsite visits.
<p>2</p>	<p>Identifying potential adverse environmental and socio-economic impacts and outlining measures to mitigate them</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the GreenRaise GHG - Stakeholder Consultation + Engagement SOP^{23/} and the list of all the possible adverse environmental and socio-economic impacts on stakeholders in Table 12 of PD and confirms that the information provided by the project proponent is appropriate. ▪ Regarding the negative impact of anticipated job loss due to project activity, the Validation and Verification team verified that the project proponent is actively providing employment opportunities on the remaining forest lands through Silvador worker registry^{83/}, worker contracts^{40/}, Emergency response plan for workers^{38/} and by conducting interviews with the workers of Silvador^{BN/BO/BP/BQ/BR/}. ▪ The Validation and Verification team offers recreational opportunities through the provision of hunting as well as access to fuelwood and forage collection for local communities. This was confirmed by interviews with relevant stakeholders^{AA-BS/}. Additionally, the project proponent is consistently maintaining the project area to prevent road failures, landslides, and/or similar concerns^{38/}. ▪ The Validation and Verification teams reviewed the job hazards, emergency situations, and accidents that are related to the working environment. This included specific work equipment and their malfunctioning,

		fires, explosions, environmental incidents etc. The hazard monitoring systems and prevention measures were reviewed during the on-site visit and are appropriate for work conditions ^{/38/} .
3	Engaging local stakeholder consultations before validation to inform the project design and enhance stakeholder's participation	<ul style="list-style-type: none"> The Validation and Verification team reviewed the stakeholder consultation documents including electronic documents sent through e-mail as well as attendance of in-person meetings conducted in neutral locations (Town halls) to affirm that the project proponent conducted local stakeholder consultations appropriately^{/23/24/}. The aforementioned information was verified during the interviews with the project personnel^{/A-I/} as well as with relevant local stakeholders^{/AA-BS/}.
4	Potential risks to stakeholder's land rights, resource use etc due to the implementation of the project and measures to address the same	<ul style="list-style-type: none"> The Validation and Verification team reviewed the Ownership documents^{/12/13/} and conducted interviews with relevant stakeholders^{/AA-BS/} to confirm that there were no stakeholders identified that were disputing their land rights and resource use within the area of project implementation. It has been affirmed that there are no disputes and concluded in consideration of the Romanian legislations to strengthen property rights^{/81/}, and interviews with the project team^{/A-I/}.
5	Establishing mechanisms for continuous communication and consultation, including a grievance redress procedure for the conflicts that may arise.	<ul style="list-style-type: none"> The Validation and Verification team conducted interviews with project team and stakeholders to conclude that the continuous communication mechanisms have been established through GreenRaise website (https://green-raise.com/)^{/A-I/AA-BS/}. During stakeholder interviews, the Validation and Verification team verified that the stakeholders are aware of the existence of a grievance mechanism and understand the process for submitting a complaint for any conflicts that may arise in future^{/AA-BS/}.

Overall, the Validation and Verification team affirmed that the project has been appropriately designed and is implementing plans and processes to prevent or mitigate any negative impacts on local stakeholders.

- The Validation and Verification team conducted interviews with project proponents to confirm that potential negative impacts have been identified and communicated to stakeholders.
- The Validation and Verification team conducted interviews with relevant stakeholders to affirm that the project proponent has implemented appropriate prevention and mitigation measures for identified risks.

- The Validation and Verification team reviewed the grievance and redress procedure^{/22/} and affirms that it aligns as outlined in Section 3.18.19 of VCS Standard, and that local stakeholders are aware of it.

3.4 Application of Methodology

3.4.1 Title and Reference

The Applied Methodology, Tools and Modules utilized for the project are outlined as follows.

- Applied Methodology VM0012; Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2, dated 23rd July 2013.
- Tool VT0001 - Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) project activities; v3.0, dated 1st February 2012.
- VCS Module VMD0033 –Estimation of Emissions from Market Leakage, v1.0, dated 16th November 2012.
- AFOLU Non-Permanence Risk Tool: VCS v4.0, dated 19th September 2019.

The Validation and Verification team confirms that the Applied Methodology, additional tools and Modules used for reference during project implementation are valid with their respective versions.

3.4.2 Applicability

Table 11. Applicability conditions and their respective conclusions from Validation and Verification team

Sl. No	Applicability condition	Evaluation plan and conclusion derived by the Validation and Verification team to assess the conformance with criteria
1	The project (specifically the current PAI) aligns with the latest approved criteria for VCS IFM-LtPF eligible projects.	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, Requirements of VCS Standard v4.4 and other key documents to affirm that the project activity intended to achieve GHG reductions and removals from logged forests transitioned to protected forests. The regular harvesting operation for timber extraction will be halted for a period of 30 years leading the forest to grow and enhance biomass carbon stocks. However minimal harvesting practices will be continued in the project scenario to protect from potential risks associated. ▪ The Validation and Verification team reviewed the information outlined in the Section A1.4, Appendix 1 of VCS Standard, v4.4, PD-MR and went onsite to the field to witness ground truth conditions and confirm that the proposed project falls within the category of VCS IFM-LtPF eligible projects.
2	The project (specifically the current PAI) falls within the Temperate Global Ecological Zone (As defined by FAO, 2001) are forests lands	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the information from FAO - Global Forest Resources Assessments - Global Ecological Zone Mapping (https://www.fao.org/forest-resources-

	<p>categorized to remain forest lands according to the definition provided by the IPCC (IPCC, 2003) and adhere to the requirements of IPCC GPG LULUCF Tier III inventory.</p>	<p>assessment/remote-sensing/global-ecological-zones-gez-mapping/en/) and by spatial datasets provided by project proponent^{65/} to affirm that all the relevant spatial polygons of the PAI falls within the Temperate Global Ecological Zone (As defined by FAO, 2001).</p> <ul style="list-style-type: none"> ▪ The Validation and Verification team conducted onsite field inspections, stakeholder interviews, and reviewed the forest inventory data and standard operating procedures. It is concluded that the PAI were forests lands remaining forests lands^{16/25/} and adhere to requirements of IPCC GPG LULUCF Tier III inventory through reviewing biomass plot inventory data, monitoring SOP and FMPs^{25/32} /. Additionally, interviews with project relevant personnels were conducted to confirm the same^{A-1/AS/}.
<p>3</p>	<p>The project (specifically the current PAI) complies with most recent approved VCS Standard v4.4 requirements for ownership and able to demonstrate Proof of Right of use ownership of carbon rights in compliance with VCS requirements.</p>	<p>The Validation and Verification team conducted an assessment to confirm that the current PAI aligns with the most recently approved VCS Standard v4.4 requirements for ownership with the following steps.</p> <ul style="list-style-type: none"> ▪ Land deed documents specifying the ownership of the Silvador properties encompassed in the project area were provided to the Validation and Verification team. The Validation and Verification team reviewed the same through the National Agency for Cadastre and Real Estate Advertising Institution (https://www.ancpi.ro/) for each cadastral parcel^{12/}. ▪ The Land deed documents were cross verified with the coordinates and area with shapefiles of each individual land parcel^{10/}. ▪ The land deed documents were verified with the host country technical expert for coordinates and document credibility for ownership during the onsite visit. ▪ Additionally, the Validation and Verification team also verified the purchase sales contracts and tax invoice for the lands owned by the project proponent^{12/13/}.
<p>4</p>	<p>The implementation of the project activities in Romania doesn't violate any host country laws whether enforceable or not</p>	<p>The Validation and Verification team concluded that the project activities don't violate any laws whether enforceable or not by considering the following.</p> <ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the legal right to manage and extract timber from forest fund properties falls under Law 46/2008 of The Forestry code^{18/} of Romania.

		<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed all the laws pertaining to various forestry activities outlined in the Table. 7 of the PD and concluded that the project doesn't violate any laws (Also refer to Section 3.1.10 of this report)
5	<p>The baseline scenario indicated that there are de minimis (less than 5%) instances of illegal, unplanned or fuelwood removals.</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team conducted the onsite field inspections, stakeholder interviews and review of the PD-MR and supporting documents of FMC Inspection, Romanian legislations for preventing Illegal felling and FSC Procedures for quantification and actions for illegal felling and affirmed that there are de minimis instances of illegal, unplanned or fuelwood removals during baseline scenario^{/54/55/56/57/}. ▪ The project area is also mandated to adhere to the Ministerial Order Nr. 23/2009 (Refer Section 3.1.10 of this report) of Romanian legislation to prevent from unlawful activities. Project proponent asserts that there are de-minimis levels of fuelwood removals during the baseline scenario^{/57/}. ▪ Eventually, by considering the aforementioned information the Validation and Verification team affirms that there are currently no instances of illegal or unplanned harvesting activities occurring in any of the forest lands of the PAI.
6	<p>The project (particularly the current PAI) excludes peatland forests as defined by IPCC GPG LULUCF.</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team evaluated the peatland forests across the project areas using supplementary data from UNEP Document repository by extracting The Global Peatland Map 2.0 (https://wedocs.unep.org/20.500.11822/37571) ▪ The Validation and Verification team evaluated the provided documentation and evidence by the project proponent, conducting an overlay analysis of the peatland map with the project area polygons. Eventually, the Validation and Verification team confirmed that none of the polygons within the project area contain peatland forests^{/58/}.
7	<p>The project area (particularly the current PAI) does not encompass wetlands.</p>	<p>The Validation and Verification team conclude that the project area (particularly the current PAI) does not encompass wetlands through the following details.</p> <ul style="list-style-type: none"> ▪ Following the onsite inspections, project personnels interviews, review of respective FMPs and review of the PD-MR the Validation and Verification team confirmed

		<p>that the project exclusively consists of productive and managed forest fund properties. The information from Section 2.4.3 of all the FMPs determines that it is solely managed for timber extraction under sustainable manner^{/16/59/} and also specifies that the non-forest and non-productive areas excluded from the gross area falling under inventory.</p> <ul style="list-style-type: none"> ▪ In conformance with point 6 of Table. 13 in the PD, the Validation and Verification team affirms the project proponent statement that the percentage of wetlands in the project area is not expected to change because of project implementation^{/59/}.
<p>8</p>	<p>There are no planned compensatory harvesting practices on other lands owned by the project proponents. Monitoring of activity shifting leakage conducted and reported in accordance with VCS requirements.</p>	<ul style="list-style-type: none"> ▪ Through stakeholder interviews, onsite field inspections and detailed review of the PD along with supporting documentation the Validation and Verification team identified evidence indicating that no planned compensatory harvesting practices are carried out in areas owned by the proponent outside the project area. Reviewing of Activity shifting workbook, historical harvest volumes and FMP specific harvest quota, it is demonstrated that baseline benchmark harvesting levels are not anticipated to shift beyond the project activity instance. The affirmation is in conformance with the statement outlined in the point 7 from Table. 13 in the PD and also refer to Section 3.1.13 of this report^{/4/16/26/72/}.
<p>9</p>	<p>The owner of the project area commits to refraining from applying organic and inorganic fertilizer in the project scenario</p>	<ul style="list-style-type: none"> ▪ Following the onsite inspections, stakeholder interviews and review of Section 6.3 and 6.7 of FMPs, Section “H” of FSC 3rd Surveillance Report, Forest management certification manual and Romanian Law 232/2010, Import Rules for Fertilizers^{/39/60/} the Validation and Verification team confirmed that, in accordance with the statement in point 8 of Table. 13 in the PD, the project proponent doesn’t apply any fertilizer in the polygons of the project.

3.4.3 Project Boundary

The Validation and Verification team affirms that the project boundary is accurately defined, and the opted sources, sinks and reservoirs are justified appropriately and are described below.

Spatial Project Boundaries

The Validation and Verification team evaluated the spatial boundaries of the project area using the procedures outlined in Section 5.1 of the Applied Methodology VM0012, v1.2. It was confirmed that the PAI and spatial boundaries within private forest lands of Buzau and Dambovită counties of Romania,

aligns with the shapefiles provided by the project proponent^{7/8/10/} as per details outlined in the Section 3.3 of the PD. Additionally, the Validation and Verification team independently reassessed the areas corresponding to individual ownership documents as well as total number of analysis units using QGIS v3.24.1.

Temporal Project Boundaries

The Validation and Verification team reviewed the requirement specified in Section 5.2 of the Applied Methodology VM0012, v1.2 and Section 3.9 of VCS Standard v4.4. The affirmation is provided through consideration of the information in the Section 3.2 of the PD specifying project involves 30 years of crediting period starting from 1st August 2020 to 31st July 2050 (Refer Section 3.1.6 of this report).

Leakage Assessment Boundaries

For all the projects employing the Applied Methodology VM0012, v1.2 the leakage should be assessed against National leakage area. The Validation and Verification team confirms that the leakage assessments of project were conducted utilizing the information from National Forest Inventory, Forest resources assessment In Romania (<https://roifn.ro/site/rezultate-ifn-2/>) as per the requirements outlined in the Section 5.3 of the Applied Methodology VM0012 v1.2.

Carbon pools and emission sources included in the project activity.

The carbon pools and emission sources included in the project activity are described as follows.

Table 12. The carbon pools included/excluded in the project activity and Validation and Verification team conclusion.

Sl. no	Carbon pools	Included	Justification from the methodology	Conclusion from the Validation and Verification team
1	Aboveground Tree Biomass Pool	Yes	Mandatory by VCS. The primary reservoir of carbon susceptible to change from baseline scenario to project scenario.	The Validation and Verification team concludes that the selected pool in the project is appropriate as per Applied Methodology.
2	Aboveground Non-tree Biomass Pool	No	Excluded by VCS. The carbon pool is less susceptible to change, and its exclusion is conservative.	The Validation and Verification team concludes that the excluded pool in the project is appropriate, and its exclusion is considered conservative as per Applied Methodology.
3	Belowground Biomass Pool	Yes	Mandatory by VCS. A significant reservoir of carbon susceptible to alterations between the baseline scenario to project case.	The Validation and Verification team concludes that the selected pool in the project is appropriate as per Applied Methodology.

4	Dead Wood Pool	Yes	Mandatory by VCS. Major carbon pool subject to change from baseline to the project scenario.	The Validation and Verification team concludes that the selected pool in the project is appropriate as per Applied Methodology.
5	Litter Pool	No	Excluded by VCS. Considered as minor carbon pool and it is a transition pool only.	The Validation and Verification team concludes that the excluded pool in the project is appropriate, and its exclusion is considered conservative as per Applied Methodology.
6	Soil Carbon Pool	No	Excluded by VCS. Assumed that alterations to soil carbon from harvesting activities to be de minimis.	The Validation and Verification team concludes that exclusion of SOC pool in the project is appropriate and is considered conservative as per Applied Methodology.
7	Wood Products Pool	Yes	Mandatory by VCS. A significant reservoir of carbon susceptible to alterations between the baseline scenario to project case.	The Validation and Verification team concludes that the selected pool in the project is appropriate as per Applied Methodology.

Table 13. Emission sources included/excluded from the project boundary and Validation and Verification team conclusion.

Sl. no	Emission sources	Gas	Selected	Justification from the methodology	Conclusion by Validation and Verification team
1	Use of Fertilizers	CO ₂	No	Non-de minimis use of fertilizer in the project scenario is excluded. These exclusions are conservative, and do not increase the emission reductions as per Applied Methodology.	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the applied methodology. No potential emissions from the source are noted considering the management practices outlined in FMP/60/.
		CH ₄	No	Non-de minimis use of fertilizer in the project scenario is excluded. These exclusions are conservative, and do not increase the	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the applied methodology. No potential emissions from the source are

				emission reductions as per Applied Methodology.	noted considering the management practices outlined in FMP ^{60/} .
		N ₂ O	No	Non-de minimis use of fertilizer in the project scenario is excluded. These exclusions are conservative, and do not increase the emission reductions as per Applied Methodology.	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the applied methodology. No potential emissions from the source are noted considering the management practices outlined in FMP ^{60/} .
2	Combustion of Fossil Fuels by Vehicles/ Equipment	CO ₂	Yes (optional)	Carbon emissions from harvesting equipment, log transport, and primary forest product manufacturing are optional sources and are accounted as change in carbon stocks as per Applied Methodology.	Validation and Verification team reviewed PD-MR, conducted interviews and onsite visits to justify that the source can be included optionally by verifying the Table. 2 of the Applied Methodology. Affirmation is given that the selected emission source in the project is appropriate in baseline as well as project scenario as it involves emissions resulting from harvesting and transporting operations ^{105/} .
		CH ₄	No	Methane (CH ₄) emissions from equipment are considered negligible as per Applied Methodology.	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the Applied Methodology. Potential emissions from the source are minimal ^{88/} .
		N ₂ O	No	Nitrous oxide (N ₂ O) emissions from equipment are considered negligible as per Applied Methodology.	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the Applied Methodology. Potential emissions from the source are minimal ^{88/} .
3	Burning of Biomass (on site)	CO ₂	No	Carbon stock reductions resulting from biomass burning are included as part	Validation and Verification team justified that the source is excluded by verifying the

	slash burning)			of the carbon stock changes as per Applied Methodology.	Table. 2 of the Applied Methodology. Potential emissions from the source are minimal.
		CH ₄	No	These exclusion assumptions do not enhance the emission reductions within the project as per Applied Methodology.	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the Applied Methodology. Potential emissions from the source are minimal.
		N ₂ O	No	These exclusion assumptions do not enhance the emission reductions within the project as per Applied Methodology.	Validation and Verification team justified that the source is excluded by verifying the Table. 2 of the Applied Methodology. Potential emissions from the source are minimal.

3.4.4 Baseline Scenario

STEP 1 - Identify Plausible Alternative Baseline Scenarios to the VCS Activity

Table 14. Identification of plausible alternative scenarios and Validation and Verification team conclusions

Sl. no	Identified baseline scenarios	Validation and Verification team assessment procedure and conclusion
1	Historical Practice	<ul style="list-style-type: none"> The Validation and Verification team reviewed the information outlined in the Section 3.2 of the PD-MR, Forest management plans (FMPs), Harvest folders and Harvest quotas confirmed by FMC to affirm that one of the baseline scenarios is continuing pre-project activities for conventional timber extraction^{/16/26/}. The Validation and Verification team also conducted interviews with project personnels, other entities and relevant stakeholders to confirm the same^{/1/AE/AG/AN/AO/AT/BC/}.
2	Common Practices	<ul style="list-style-type: none"> The Validation and Verification team reviewed the information from Section 3.2 of the PD to compare with respective Forest Management Plans (FMPs) Harvest folders (historical harvest data), period of harvesting and Harvest quotas that one of the common practices in Romania is conventional timber extraction from forest fund properties. Every forest fund property greater than 10 Hectares in extent is mandated to have a Forest Management Plan for a period of 10 years. FMCs are

		<p>mandated to align their harvest related activities as specified in the FMPs as well as Harvest quota confirmation^{16/17/26/52/}.</p> <ul style="list-style-type: none"> ▪ Additionally, the Validation and Verification team conducted interviews with project personnels, other entities and relevant personnel from FMCs and Forest Guarda to confirm the same^{/I/AE/AG/AN/AO/AT/BC/}.
3	Land Acquisition for Conversion to Real Estate Development	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed information from Section 3.2 of the PD, The Romanian Civil Code of October 1st, 2011, Romania deforestation rates^{63/} and through satellite imagery that land acquisition for conversion to real estate development is one of the baseline scenarios. Additionally, as per requirements outlined in the Step-1, Section 6 of the Applied Methodology, the identified baseline scenario should be forest areas remaining forest areas. Hence this baseline scenario is excluded from the consideration. ▪ Additionally, the Validation and Verification team conducted interviews with project personnels^{/A-I/}, other entities and Land Acquisition personnel^{/I/} to confirm the same.
4	Acquisition for Conversion to Conservation Lands	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the baseline scenario outlined in Step-1, Section 6 from the PD-MR and confirms that the acquisition for conversion to conservation lands is one of the baseline scenarios and is similar to the project activity but without issuance of carbon credits.

STEP 2 – Selection of a Single Baseline Scenario for the Project

STEP 2a - The Historical Baseline Scenario – based on historical operating practices on the property:

The Validation and Verification team reviewed the FMPs and harvest quotas for all the Forest Fund properties and verified its compliance with requirements outlined in STEP-2, Section 6 of the Applied Methodology ensuring a minimum of 5 years of historical harvest data aligns with the forward-looking management plan. Additionally, the Validation and Verification team confirmed the accuracy of the information outlined in the management plan, period of harvesting and other harvest related information^{16/17/52/}.

STEP 3 – Additionality

The information of the project additionality is outlined in Section 3.4.5 as of this report.

3.4.5 Additionality

The Validation and Verification team reviewed the guidelines specified in the VT0001- Tool for the Demonstration and Assessment of Additionality in VCS AFOLU Project Activities, v3.0, dated February 1, 2012, to establish its additionality in Agriculture, Forestry, and Other Uses of Land projects (AFOLU) under VCS project activities focusing on demonstrating and evaluating additionality in AFOLU projects. The project activities aligned with applicable laws, meeting the conditions for tool applicability.

Additionally, the VM0012 baseline methodology was employed, offering a systematic approach to determine the most plausible baseline scenario for estimating GHG emissions reductions and removals.

Additionally, the project employed the baseline methodology outlined in VM0012, which offers a systematic approach to determining the most realistic baseline scenario for estimating greenhouse gas (GHG) emissions reductions and removals. This methodology delineates four steps to demonstrate additionality:

1. Identifying alternative land use scenarios to the AFOLU project activity.
2. Conducting an investment analysis to ensure that the proposed project activity is not the most economically or financially profitable option among the identified land use scenarios.
3. Analyzing barriers that could inhibit the implementation of the project activity under regular circumstances.
4. Examining common practices to ensure that the project differs from established standards.

Each step plays a crucial role in demonstrating the project's additionality and justifying its environmental impact within the AFOLU activities domain.

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

During assessment of additionality within the VCS AFOLU Project, an evaluation was conducted to ensure compliance with regulatory surplus requirements, validate the accuracy of financial calculations, and confirm the reasonableness of assumptions. The first step involved identifying credible alternative land use scenarios relevant to the proposed project activities. These scenarios were developed based on the historical and existing conditions within Romania.

Four distinct scenarios have been identified:

- 1. Historical Practice:** The Validation and Verification team thoroughly examined the details provided in Section 3.2 of the Project Description - Monitoring Report (PD-MR), including FMPs, Harvest folders (historical harvest data), and harvest quotas certified by the FMCs, to confirm that one of the baseline scenarios involves continuing conventional timber extraction activities. Interviews were conducted with project personnel, relevant stakeholders, and other entities to validate this information.
- 2. Common Practices:** The Validation and Verification team reviewed the information from Section 3.2 of the PD-MR and cross-referenced with Forest Management Plans (FMPs), Harvest folders (historical harvest data), and harvest quotas to establish that conventional timber extraction is a common practice in Romania for forest fund properties exceeding 10 hectares. FMCs are required to align their harvesting activities with the FMPs and Harvest quotas. Interviews with project personnel, stakeholders, FMCs and the Forest Guarda were conducted to verify this finding.
- 3. Land Acquisition for Conversion to Real Estate Development:** By reviewing the information from Section 3.2 of the PD-MR, the Romanian Civil Code of October 1st, 2011, and satellite imagery revealed that land acquisition for real estate development is another baseline scenario. However, this scenario is excluded from consideration as per Step-1, Section 6 of the Applied Methodology, which mandates that identified baseline scenarios should involve forest areas remaining as forest areas. Interviews with project personnel, relevant entities, and Land Acquisition personnel confirmed this exclusion.
- 4. Acquisition for Conversion to Conservation Lands:** The Validation and Verification team assessed the baseline scenario outlined in Step-1, Section 6 of the PD-MR and confirmed that land acquisition for

conversion to conservation lands is indeed one of the baseline scenarios. This scenario closely resembles the project activity but does not involve the issuance of carbon credits.

The Validation and Verification team reviewed the four identified credible Alternative Baseline Scenarios for the VCS Carbon project activity, as outlined in PD-MR. During the assessment we reviewed the FMPs, harvest quotas and Romanian legislations to confirm that these scenarios represented plausible alternate land use changes within the project boundary.

Sub-step 1b. Consistency of credible land use scenarios with enforced mandatory applicable laws and regulations

The consistency of Alternative Baseline Scenarios with Romania's enforced mandatory laws and regulations has been assessed by the Validation and Verification team. Justification and conclusions regarding compliance are detailed in Table 8, Section 3.1.10 of this report.

Sub-step 1c. Selection of the baseline scenario

The Validation and Verification team reviewed the FMPs and harvest quotas across all Forest Fund properties. They ensured compliance with STEP-2 requirements specified in Section 6 of the Applied Methodology, verifying a consistent alignment between historical harvest data and forward-looking management plans. Additionally, they validated the accuracy of management plan specifics, harvesting timelines, past harvest records, and other relevant details. Consequently, the Validation and Verification team affirmed that the chosen baseline scenario meets the criteria outlined in the Applied methodology.

Step 2. Investment analysis

The IFM Project, aimed at conservation in the project area, relies solely on carbon revenues for income, prompting the project proponent (PP) to opt for a straightforward cost analysis to demonstrate additionality. The audit team agrees with this approach, given the project's lack of financial benefits beyond VCS-related income. Independent analysis by the audit team on historical practice, validated during site inspections and stakeholder interviews, supported this conclusion.

It is affirmed that the proposed project activity is economically or financially less attractive than at least one of the other land use scenarios (i.e the selected baseline scenario) without revenue from the sale of GHG credits. This conclusion was reached through NPV analysis comparing the alternative baseline scenario with the carbon project activity, and the details are provided below.

Sub-step 2a. Determine appropriate analysis method.

The Validation and Verification team discussed with the project proponent and other relevant personnel regarding the financial stability of the project and affirmed that the VCS AFOLU project generates no financial or economic benefits apart from VCS-related income in the project scenario, thus the NPV analysis is employed.

Sub-step 2b. – Option II. Apply investment comparison analysis

The NPV analysis between the Alternative Baseline Scenario (Historical practice) and the carbon project activity is conducted as part of the investment analysis. The investment decision date is considered to be 1st June 2020, and uses a 7.50 % discount rate based on the Average Romanian Bank lending rate. The parameters quantified in the NPV analysis include sales price for hardwood and softwoods, harvesting and operational costs (wood sorting, loading & transportation)^{92/} incurred both in the baseline scenario and in the project scenario without VCU credits. Additionally in the project scenario the inclusion of VCS fees, Validation/Verification fees and project implementation with maintenance is incurred. The Validation and Verification team affirms that the costs incurred for various parameters

discussed above are reasonably accurate and appropriate. The NPV quantified for the Baseline scenario and Project Scenario is €5,900,980 and - €252,385 respectively, indicating that the baseline scenario is >100% financially attractive compared to the project activity without VCS benefits^{/3/}. The Validation and Verification team concludes that the proposed VCS AFOLU project without the financial benefits from the VCS is not financially most attractive.

Sub-step 2d. Sensitivity analysis

The Validation and Verification team reviewed the Sensitivity analysis performed by reducing both the amount and frequency of fixed costs for the forest carbon project scenario^{/3/}. Despite these changes, the NPV of the carbon project remained significantly lower than the NPV of the baseline scenario. The Validation and Verification team affirms that the project without financial benefits from the VCS is unlikely to be financially most attractive.

Step 3. Barrier analysis

The VT0001 tool, part of the Verified Carbon Standard (VCS), is specifically constructed to evaluate additionality in agriculture, forestry, and other land use (AFOLU) projects. It employs either investment analysis (Step 2) or barrier analysis (Step 3) as part of its process. For this specific case, the chosen method was Investment Analysis, following the guidelines outlined in Step 2 of the process.

Additional information regarding the barrier analysis is outlined below.

Sub-step 3a. Identify barriers that would prevent the implementation of the type of proposed project activity.

The Validation and Verification team reviewed the FMPs, website of Foundation Conservation Carpathia, The Forestry Code of Romania to affirm that the private forest entities face barriers when undertaking AFOLU project activities. Similar conservation efforts have typically depended on grants or other non-commercial finance terms, such as those guaranteed in the Foundation Conservation Carpathia project of 2009 (<https://www.carpathia.org/ro/>). Additionally, financial incentives from carbon credits have facilitated similar activities. Notably, the project will be the second VCS project in Romania, with no comparable operations currently in Eastern Europe under other Carbon offsetting programs.

Sub-step 3b. Show that the identified barriers would not prevent the implementation of at least one of the alternative land use scenarios (except the proposed project activity):

The Validation and Verification team reviewed the FMP, Historical Baseline scenarios and their financial benefits to affirm that the funding barriers do not affect scenarios based on historical or common practices, as they generate income from timber harvest. In contrast, the real estate development scenario in Romania benefits from property and timber sales. However, the project scenario relies solely on carbon credit sales for financial viability, indicating its economic dependence on the VCS AFOLU project.

Step 4. Common practice analysis

The Validation and Verification team reviewed the PD-MR, VERRA Registry, Other Forest Carbon projects under different carbon credit programs and website of Foundation Conservation Carpathia (FCC). The assessment showed that SCA is an IFM-LtPF carbon project in Romania marking it a the second of its kind in the country. Similar conservation efforts like the Foundation Conservation Carpathia (FCC), established in 2009, are aiming to protect forest lands in the Făgăraș Mountains through a combination of funding sources, including leasing hunting rights and eco-tourism. Unlike Carpathia, the SCA project relies solely on funding from Silvalor, with no external donations (<https://www.carpathia.org/ro/>). The

carbon project was established on private land for revenue diversification and environmental conservation. The Validation and Verification team reviewed this information, noting the unique nature of the project's funding model and its distinctiveness within the Romanian conservation landscape and affirmed that the conducted common practice analysis is appropriate, and the provided information reflect the authenticity. Based on the Validation and Verification team's assessment of the common practice analysis, it is confirmed that no similar activities were observed, and significant differences exist between the proposed IFM project activity (SCA) and any comparable activities. Therefore, the project is considered additional.

According to the examination of alternative land use scenarios, investment analysis, barrier analysis, and common practice analysis, the SCA project is considered additional.

Table 15. Additionality particulars evaluated and Validation and Verification team conclusions.

Sl.no	Particulars evaluated	Validation and Verification team assessment procedure and conclusion
1	Adherence to regulatory surplus requirements	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the information regarding the identified alternative baseline scenarios in Section 3.4.1 of PD-MR, FMPs and The Forest code (Law 26/1996). Considering, Historical baseline scenario the regulations of the forestry regime, administration of the national forest fund, management of forest resources, implementation of forest operations and plans are in accordance with the requirement as per Forest code (Law 26/1996). <p>The Validation and Verification team reviewed the PD-MR and GHG Quantification workbooks to affirm that the amount of CO₂ sequestered during the project activity exceeds the sequestration that would have occurred in the baseline scenario^{/33/}.</p>
2	The appropriateness of data and parameters used in financial calculations and sensitivity analyses, including those taken from feasibility study reports.	The Validation and Verification team reviewed the PD-MR, Investment analysis workbook and Romanian bank lending rate to affirm that the project employs the discount rate of 7.5% as per the considering the average Romanian bank lending rate for over past 20 years. The Validation and Verification team reviewed the information and used the knowledge of host country expert to affirm the same ^{/74/} .
3	The suitability of the benchmark used for investment analysis.	The Validation and Verification team reviewed the PD-MR, Investment analysis workbook and Sub-step 2b. – Option II. Investment comparison analysis of VT001. It is confirmed that Investment comparison analysis was used instead of benchmark. Specifically, NPV of both baseline and project scenario is calculated for investment analysis. The Validation and Verification team affirmed that the performed investment

		comparison analysis is reasonably accurate to prove NPV of both project and baseline scenarios ^{/3/} .
4	The credibility of each barrier identified in the barrier analysis.	The Validation and Verification team reviewed the PD-MR and website of Foundation Conservation Carpathia to confirm that the claims in the PD that there are no financial incentives gained to conserve the project area in the absence of carbon credits. For instance, Foundation Conservation Carpathia receives donations for conservation and restoration efforts on ecosystems (https://www.carpathia.org/), the project activities aimed at similar ecosystem conservation do not receive any financial assistance. The Validation and Verification team affirms that this lack of financial support presents a barrier to implementing the project activity.
5	The appropriateness of the geographical region used in the common practice analysis.	The Validation and Verification team reviewed the PD-MR and website of Foundation Conservation Carpathia to confirm that geographic region used in common practice analysis is appropriate. The affirmation is based on the fact that the entire Romania is considered in the analysis.
6	Information regarding similar projects identified in the common practice analysis, including essential distinctions between similar projects and the proposed project.	The Validation and Verification team reviewed the PD-MR and website of Foundation Conservation Carpathia to affirm that the common practice analysis was carried out for a project similar in nature, focusing on the development of a forest conservation project. Foundation Conservation Carpathia (FCC) established in 2009, which aims to protect privatized forest lands in the Făgăraș Mountains, funding its activities through hunting rights leasing, donations, and eco-tourism (https://www.carpathia.org/ro/). In contrast, the SCA project, funded solely by Silvador, seeks to establish a carbon project on private land for revenue diversification and environmental stewardship. The Validation and Verification team affirms that no similar projects exist in terms of scale or funding approach.
7	The reasonableness of assumptions made in the demonstration of additionality.	The Validation and Verification team conducted interviews with relevant project personnel ^{/A-J/} , other stakeholders ^{/AA-BS/} and by onsite visits that the assumptions made in the demonstration of additionality are reasonable.

3.4.6 Quantification of GHG Emission Reductions and Removals

Quantification of baseline emissions

To assess the Quantification of baseline emissions, the Validation and Verification team considered the following factors for quantification methods for GHG emission reductions and removals generated by the project during the project crediting period. Additionally, all the factors were validated in accordance with the requirements detailed in Sections 8.1 and 8.1.1 of the Applied Methodology VM0012 v1.2.

a) Validation of Starting Inventory requirements

The Validation and Verification team reviewed the forest inventory information used for preparation of FMPs, procedures outlined in SOPs, Romanian National Forest Inventory, conducted interviews with project personnel and conducted onsite visits to biomass inventory plots and ensured the following.

- The Validation and Verification team reviewed initial forest inventory data containing leading species, age class, proportion of each species, disturbance type, rotation age etc. It is affirmed that this inventory information is utilized in preparation of FMP for forest areas greater than 10 hectares in extent^{/16/32/} and it covers entire project area.
- The Validation and Verification team reviewed initial forest inventory data and FMPs to affirm that they were prepared using the forest inventory data for a period of 10 years. Upon the term ending, the inventory should be employed again to draft newer FMP replacing the older one. Hence it is validated that the FMPs were created and valid <10 years ago^{/16/}.
- The Validation and Verification team reviewed the requirements outlined in the Article 21 – Forestry Code – Law 46/2008 to affirm that the FMPs are created by specialized units authorized by the central public authority directing forestry. The expenses associated with FMPs are funded by either the administrator of the state's forestry fund, which is public property, or by the owner for forest fund for areas exceeding 10 hectares. In cases where the owner has established a regular forest bypass, the administrator managing the forest fund is responsible for supporting the costs. The methodology employed were documented specifying creation, validation of starting inventory in addition are in accordance with the scientific data and technical norms for their development dated 23 July 2018^{/16/32/}.

b) Validation of stratification to create homogenous units

The Validation and Verification team reviewed the forest inventory information and respective FMPs of all the forest fund properties included in the project area to authenticate the species composition within each region. The forest inventory and FMPs reflect the presence of leading species such as Beech, Oak and other Softwoods, including proportional area of these leading species within the project activity. The total project area of 1,538 Ha was stratified into 14 Analysis units with varied areas^{/32/} based on leading species [Beech (B), Oak (O) and other Softwoods (S)], yield class (grouped 0 to 2, 3, and 4 & 5 where 0 being highest growth and 5 being the lowest) and forest management type (Managed and Unmanaged). In order to collect inventory data and to develop growth models, 31 permanent monitoring plots were situated across all the analysis units. Considering plots per stratum and total number of plots required, 31 monitoring plots were selected based on the procedure outlined in A/R Methodological Tool - Calculation of the number of sample plots for measurements within A/R CDM project activities, Version 02.1.0^{/89/}.

Additionally, drone footage of the project area was obtained from the project proponent and an independent evaluation of the spatial datasets of baseline polygon area including total area of analysis units using QGIS v3.24.1 was completed. The Validation and Verification team confirms that the stratification of forest regions was reasonably accurate, and the affirmation was also provided

that the reported total area is accounted for quantification of GHG emissions reduction and removals^{32/}.

c) Validation of eligible areas for specific management activities

Considering STEP-2, Section 8.1 of the Applied Methodology, the Validation and Verification team reviewed FMPs, PD-MR, conducted onsite field visits, conducted interviews with project team, verified the satellite imageries and concluded the following according to Applied Methodology.

1) The Validation and Verification team reviewed the forest inventory information and respective FMPs and affirmed that the project area selected is forested area^{/16/49/}.

2) The Validation and Verification team reviewed the FMPs and with FMC consultation, confirmed harvest quotas pertaining to each FMPs to affirm that the project area is merchantable and operable forest area suitable for economic timber extraction^{/16/26/52/}.

3) The Validation and Verification team reviewed the information of project area with Natura 2000, which is a network of protected areas covering Europe's most valuable and threatened species and habitats. It is the largest coordinated network of protected areas in the world, extending across all 27 EU Member States, both on land and at sea. Furthermore, it is affirmed that the location of the project areas is within defined limits and are considered regions outside the legally restricted and protected areas^{/7/19/}.

d) Validation of Model Selection and Use

The Validation and Verification team reviewed the model CBM-CFS3 (Carbon Budget Model of the Canadian Forest Sector, v1.2) and model user guide. The Carbon Budget Model of the Canadian Forest Sector (CBM-CFS3) is a resourceful modelling framework applicable at stand, landscape, and national levels. It integrates diverse forest inventory and monitoring datasets, allowing for spatially referenced analysis and tracking of land-use changes. Ecosystem pools of this model is designed to fulfil the requirements outlined by the United Nations Framework Convention on Climate Change and follows the carbon estimation methodologies recommended by the Intergovernmental Panel on Climate Change^{/90/}. The model employs advanced algorithms for biomass estimation and simulates annual disturbance events. Scientific updates enhance representation of ecosystem components, including dead organic matter and soil carbon, while improving predictions for growth and belowground biomass. Operational versions are accessible and support data import from various sources, accommodating adaptation for international applications beyond Canada. It influences a wide array of data essential for forest management planning, including forest inventory, growth and yield curves, disturbance information, and land-use data. The underlying European Union Archive Index Database (AIDB) (<https://data.europa.eu/89h/jrc-cbm-eu-aidb>), implemented through Microsoft Access, serves as a repository for default ecological parameters specific to various forest ecosystems. Over the past seven years, the CBM-CFS3 has been extensively adapted, tested, and applied worldwide to inform policy decisions and support scientific research initiatives. The suitability of this model is evaluated based on established criteria outlined in the methodology requirements, ensuring its effectiveness and reliability for Improved Forest Management projects in temperate and boreal forests.

The Validation and Verification team reviewed the research articles, examined the CBM-CFS3 user guide, watched a sample video of the model working principle, reviewed demonstrations of the input and output extractions within the model and conducted several interviews with project team to affirm

that the selected model is appropriate to project condition and meets the following requirements^{/27/45/85/}.

- The Validation and Verification team reviewed the CBM-CFS3 user guide^{/28/} and other related research articles^{/45/} to affirm that the model was created in 2001 by the Carbon Accounting Team at the Canadian Forest Service for the purpose of carbon modelling. The preliminary version of the Canadian Forest Sector (CBM-CFS3), v.10 was published in 2006 by Canadian Forest Service, Northern Forestry Centre and is well established and under continuous use (<https://cfs.nrcan.gc.ca/pubwarehouse/pdfs/26683.pdf>).
- The Validation and Verification team reviewed the information outlined in Section 1.3 and 8.6 of CBM-CFS3 user guide, v1.2^{/27/} and other related research articles^{/45/} to affirm that the model generates carbon stocks values on an annual basis.
- The Validation and Verification team reviewed the information outlined in chapter 3 of CBM-CFS3 user guide, v1.2^{/27/} and affirms that the model involves reasonable representation of mortality from stand-self thinning, clear cuts and natural disturbances etc^{/27/}.
- The Validation and Verification team reviewed the information outlined in Section 8.4.1, Chapter 8 of CBM-CFS3 user guide, v1.2^{/27/} and affirmed that the output data are expressed in tonnes of carbon.
- The Validation and Verification team reviewed the compiled list of Technical and Research Publications regarding CBM-CFS3 model, 2022 and affirmed that the model is documented as expert reviewed^{/27/}.
- The Validation and Verification team reviewed the information outlined in Section 4.7, 6.4 and 7.15 of CBM-CFS3 user guide, v1.2^{/27/} and affirmed that the composition of growth and yield curves were utilized to quantify project productivity^{/27/}.
- The Validation and Verification team reviewed the information outlined in Section 4.4 of CBM-CFS3 user guide, v1.2^{/27/} to conclude that the model defines specific administrative boundaries correspond to Romania (ID 164), ecological boundaries align with climatic unit (CLU35) with information of the associated mean annual temperature and total annual precipitation within default ecological boundary, and administrative units are categorized under SPU Group 1^{/91/}. The Archive Index Database (AIDB) is a Microsoft Access database used to manage model inputs, track simulations, and store default information and parameters for new projects. Within the EU-AIDB, there are 1034 spatial units derived from the overlap of 204 European administrative regions and ecological boundaries representing 35 climatic units. Additionally, it includes updated parameters for 192 primary tree species obtained from the National Forest Inventories of each EU country ([Joint Research Centre Data Catalogue - The EU Archive Index Database customised for the C... - European Commission \(europa.eu\)](#)). Considering the above, it is stated that the selected model is parameterized, calibrated, and tested for specific conditions.

e) Validation of Preparation of Stand-level Carbon Curves in CBM

The Validation and Verification team reviewed the established growth curves for utilizing in the carbon modelling. The growth and yield curves were developed based on data sourced from forest stand inventory, extracted from existing FMPs^{/16/32/}. This data included mean annual increments (MAI)^{/90/} and site class, crucial for developing representative yield curves for all forest polygons within Analysis Units (AUs).

In the PAI inventory, polygons consisted of various species and ages. Each polygon was assigned a leading species by categorizing it according to the Analysis units. Within 14 Analysis units, the project developer established 5 distinct categories for growth and yield curves. The Validation and Verification team reviewed the growth curve workbook^{/32/} and affirmed that Analysis units namely B3 and O3 accounted for 20% and 49% of the area respectively, while S3M and S3U only made up 8% of the PAI area^{/32/}, it was decided to establish 5 distinct categories for growth and yield curves and the categorization is appropriate considering the proportional areas.

- B3M includes analysis units B2M, B3M and B4M.
- B3U includes analysis units B2U, B3U and B4U.
- O3M includes analysis units O2M, O3M and O4M.
- O3U includes analysis units O2U, O3U and O4U.
- S3 includes analysis units S3M and S3U.

The Validation and Verification team reviewed growth and yield curve categories to assess that the curve had undergone further analysis for stand age as the stands consist of multiple cohorts and to proportionally apply a weighted age to each polygon. These polygons were then multiplied by their "new" age and corresponding mean annual increment (MAI) to determine the current standing volume. The age and standing volume data were plotted, and a second-order polynomial trendline was applied to derive an age-to-volume formula. This formula was used to calculate representative volumes for ages 5 to 200, at intervals of 5 years and generated a yield curve for each associated AU. The Validation and Verification team reviewed growth and yield curve categories to compare against data from the most recent (2020) Romanian Forest Inventory^{/64/} and peer-reviewed literature^{/47/} to affirm that the obtained equation and curves are reasonable accurate (<https://roifn.ro/site/about-nfi/>).

Furthermore, The Validation and Verification team reviewed CBM model, confirming that it was utilized to generate a series of stand attribute curves for each analysis unit, thus enabling the prediction and simulation of forest development, merchantable timber volume, and carbon storage and dynamics over time across different carbon pools. Considering the above specified information the Validation and Verification team affirmed that specific forest type is adjusted for each analysis units aligned with the dominant species observed in the carbon monitoring plots. Additionally, this alignment was achieved through simplified AU groupings based on species composition, site productivity, and management disturbance history.

The Validation and Verification team reviewed the CBM model demonstration video and CBM-CFS3 User guide to assess assumptions and allometric equations and affirmed that theme groupings, in conjunction with polygon area, were used to match modelled inventory polygons with the appropriate carbon yield curve data. The CBM-CFS3 derived stand and carbon curves based on the assumption of a fully stocked representative stand in each AU with possible increments^{/46/} and apply carbon and merchantable volume outcomes for each polygon using relevant allometric formulas. The model incorporates discrete "Runs" representing the project scenario with deferred harvest and baseline scenario with specific baseline disturbances/harvest activities.

The Validation and Verification team reviewed AIDB spatial units (SPU 1) for Romania that were utilized for all analysis units as mentioned above. Additionally, CBM 'MAKELIST' is employed to format inventory information for input into the CBM-CFS3 and to initialize the DOM carbon pools. CBM-MAKELIST is a preprocessing tool utilized to organize inventory data before it is fed into the CBM-CFS3 model. Its primary function is to set up the carbon pools within the model, encompassing both aboveground and

belowground components of dead tree biomass, such as coarse woody debris, litter layers, fibric layers, humic layers, and mineral soil^{/92/}.

The Validation and Verification team reviewed the MAKELIST and affirms that it employs the same algorithms and parameters as the CBM-CFS3. By default, MAKELIST assumes a historical natural disturbance regime for growing stands for 300 years during the specific disturbance period for the ecoregion.

f) Biomass Carbon Modeling

The Validation and Verification team reviewed the information outlined in Table 2 of peer reviewed article titled CBM-CFS3: A model of carbon-dynamics in forestry and land-use change implementing IPCC standards^{/90/} and the CBM-CFS3 User guide^{/27/} to affirm that the total biomass flows for each analysis unit were computed using equations integrated into the CBM-CFS3 and output by representative carbon curves, tracking carbon pool dynamics. The model simulates detailed forest growth and development over time, linking it to biomass accumulation and decay functions to monitor carbon biomass by pool over time^{/90/}. The CBM converts merchantable volume per hectare from growth curves (yield tables) to tonnes of Carbon (tC) using species-specific allometric equations utilizing Biomass Expansion and Conversion Factors, without additional wood density values^{/93/}.

The Validation and Verification team reviewed CBM-CFS3 User guide and CBM-CFS3 model demonstration and affirmed that the model simulates and tracks carbon in all relevant carbon pools over time by polygon, including the Wood Products pool after scheduled events if any. By reviewing the user guide, total delta ecosystem changes and the Applied Methodology, the assessment team affirms that carbon quantifications are summarized for the baseline as well as project scenarios annually across the project area. Baseline emissions are computed by applying Baseline disturbances to each polygon, then modelling the baseline activities and related carbon flows using CBM-CFS3 model and are consistent with the methods outlined in Applied Methodology.

The Validation and Verification team reviewed the information outlined in Chapter 8 of CBM-CFSE User guide, v1.2 and Total Delta Ecosystem Reports^{/28/}. Total Delta Ecosystem is the output obtained after CBM-CFS3 modelling and these reports contain the information of Change in Total Ecosystem carbon stocks. The Stock Changes output category includes data on alterations in carbon stocks, measured in tonnes of carbon annually for the user-selected area. The database only stores stock changes for total biomass (Total Delta Biomass), total Dead Organic Matter (Total Delta DOM) finally to obtain total ecosystem pools (Total Delta Ecosystem). The simplified summary is detailed in the Table 16 of this report. The Stock Change resultant 'Delta Total Ecosystem' ($\Delta tC\ yr^{-1}$) represents total change in Ecosystem carbon stocks, with positive values indicating a net gain or increase, negative values indicating a net loss or decrease, and zero indicating neither a gain nor a loss in carbon stocks^{/27/28/}.

Quantification of baseline parameters and their procedures

Quantification of baseline emissions were carried out by quantifying the parameters as detailed in Section 8 of Applied Methodology VM0012, v1.2. The CBM quantification methods of live biomass gain, live biomass loss and Dead Organic Matter are detailed below.

Table 16. Carbon pools and CBM quantification procedures^{/27/}

Carbon pools and Equations as per VM0012	CBM Output	CBM quantification of pools
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Live Biomass $\Delta C_{BSL,G,t}$ Equations 4 to 5a-b	Gain	Total Delta Biomass	[Gross Growth Aboveground (AG) + Gross Growth belowground (BG)]-Biomass to soil - Softwood production - Hardwood production - Biomass CO ₂ emission
Live Biomass $\Delta C_{BSL,L,t}$ Equations 6 to 9	Loss		
Dead Organic Matter $\Delta C_{BSL,DOM,t}$ Equations 10 to 17a-d		Total Delta DOM	Biomass to Soil - DOM CO ₂ Emission - DOM Production

The validation of quantification parameters for estimating the baseline emissions are detailed as follows.

a) Validation of Baseline carbon balance

The Validation and Verification team reviewed the following reports to assess carbon dynamics:

- Delta Total Biomass Reports ($\Delta C_{BSL,LB,t}$):** These reports detail changes in biomass carbon stocks, considering both aboveground and belowground biomass, to quantify the overall change in biomass (Delta Total Biomass). The Stock Changes category in the output variables provides data on changes in carbon stocks, measured in tonnes of carbon per year, for the user-selected area. This report specifies the gain and loss of carbon stocks in a given time, with a positive value in the annual change in carbon stock signifying an increase in carbon stocks, while a negative value indicates a decrease, and zero values indicate no change in carbon stocks.
- Delta Total DOM Reports ($\Delta C_{BSL,DOM,t}$):** These reports outline changes in biomass carbon stocks related to biomass transfer to soil, Dead Organic Matter (DOM) production, and DOM CO₂ emissions.
- Delta Total Ecosystem Reports ($\Delta C_{BSL,P,t}$ excluding $\Delta C_{BSI,HWP,t}$):** These reports depict the annual changes in carbon stocks across all pools in the baseline scenario throughout the project area. They consider information from Delta Total Biomass Reports, Delta Total DOM Reports.
- Carbon stocks associated with Harvested Wood Products ($\Delta C_{BSI,HWP,t}$):** This assessment involves quantifying carbon stocks linked to harvested wood products by subtracting fossil fuel emissions from harvesting and processing from the annual change in harvested carbon that remains in storage after conversion to wood products.

Calculating the Baseline and Project Carbon Balance (According to Applied Methodology)

The total annual carbon balance in year, t, for the baseline scenario is calculated as ($\Delta C_{BSL,t}$, in t C yr⁻¹):

$$\Delta C_{BSL,t} = \Delta C_{BSL,P,t} \quad (1)$$

For Example, $\Delta C_{BSL,P,t}$ value for t=1 is **-2,766 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. Negative value of the total carbon balance indicating a decrease in Carbon stocks as per cell Master! D4 of the GHG Estimates 20240202 workbook^{33/}.

where:

$\Delta C_{BSL,P,t}$ = Annual change in carbon stocks in all pools in the baseline across the project activity area; t C yr⁻¹.

$$\Delta C_{BSL,P,t} = \Delta C_{BSL,LB,t} + \Delta C_{BSL,DOM,t} + \Delta C_{BSI,HWP,t} \quad (2)$$

For example,

$\Delta C_{BSL,LB,t}$ value for t=1 is **-5556.46 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. Negative value of the total carbon balance indicating a decrease in Carbon stocks as per "Sheet All_Pools_BSL of the workbook^{/87/}.

$\Delta C_{BSL,DOM,t}$ value for t=1 is **2790.35 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. Positive value of the total carbon balance indicating a increase in Carbon stocks as per "Sheet All_Pools_BSL of the workbook^{/87/}.

$\Delta C_{BSI,HWP,t}$ value for t=1 is **-231 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions and fossil fuel emissions from harvesting and processing as per cell Master! F4 of the workbook^{/33/}

Considering equation 2, $\Delta C_{BSL,P,t} = \Delta C_{BSL,LB,t} + \Delta C_{BSL,DOM,t} + \Delta C_{BSI,HWP,t}$

$$\Delta C_{BSL,P,t} = -5556.46 \text{ t C} + 2790.35 \text{ t C} - 231 \text{ t C}$$

$$\Delta C_{BSL,P,t} = -2997.00 \text{ t C}$$

where:

$\Delta C_{BSL,LB,t}$ = annual change in carbon stocks in living tree biomass (above- and belowground); t C yr⁻¹

$\Delta C_{BSL,DOM,t}$ = annual change in carbon stocks in dead organic matter; t C yr⁻¹

$\Delta C_{BSI,HWP,t}$ = annual change in carbon stocks associated with harvested wood products, t C yr⁻¹

$$\Delta C_{BSL,LB,t} = \Delta C_{BSL,G,t} - \Delta C_{BSL,I,t} \quad (3)$$

For example,

$\Delta C_{BSL,G,t}$ value for t=1 is **14,102.54 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions as per "Sheet All_Pools_BSL of the workbook^{/87/}.

$\Delta C_{BSL,I,t}$ value for t=1 is **19,658.91 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions as per "Sheet All_Pools_BSL of the workbook^{/87/}.

where:

$\Delta C_{BSL,G,t}$ = annual increase in tree carbon stock from growth; t C yr⁻¹

$\Delta C_{BSL,I,t}$ = annual decrease in tree carbon stock from a reduction in live biomass; t C yr⁻¹.

Lastly, the Validation and Verification team confirms that the quantification of live biomass gain was accomplished using the Equations (1), (2) and (3).

b) Validation of Baseline Scenario Live biomass gain

The Validation and Verification team reviewed the information regarding the Historic Baseline Scenario, as outlined in the Section 3.4 of PD-MR. Harvest details from existing FMPs and Harvest quotas that

were used to establish historic baseline activities (disturbances). The annual harvest volume was projected based on forward-looking harvest volumes within the same FMPs, with all baseline management activities assumed to commence in year 1 i.e 2018.

The Validation and Verification team reviewed the Delta Total Biomass Reports specifying both Gross Aboveground (AG) Growth and Gross Belowground (BG) Growth to quantify the overall gain in carbon stocks. Forest dynamics specific to Romania along with the associated carbon curves mentioned earlier, are monitored and documented by carbon pool types and presented in the Delta Total Biomass Reports later in Delta Total Ecosystem Reports.

Further details regarding model default values, functionality, and parameters can be found in Kull et al. (2019) and Kurz et al. (2009).

Live biomass gain in year, t , polygon, i ($\Delta C_{BSL,G,i,t}$) is calculated as:

$$\Delta C_{BSL,G,t} = \sum(A_{BSL,i} \bullet G_{BSL,i,t}) \bullet CF \quad (4)$$

For Example,

$\Delta C_{BSL,G,t}$ value for $t=1$ is **14,102.54 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. The value indicates Live Biomass Gain for total project area of 1,538 Ha, considering CF Value of 0.5 (IPCC default value) as per "Sheet All_Pools_BSL of the workbook^{87/}. Similarly, the Live biomass gain for entire crediting period is quantified.

where:

$A_{BSL,i}$ = area (ha) of forest land in polygon, i ; (areas for quantification were generated based on information obtained from respective FMPs, comprising a total area of 1,538 Ha)

$G_{BSL,i,t}$ = annual increment rate in tree biomass (t d.m. ha⁻¹ yr⁻¹), in polygon, i , This parameter is quantified based on the input data considering regional forest dynamics of Romania integrated within CBM-CFS3 model.

CF = carbon fraction of dry matter t C t-1 d.m. (IPCC default value 0.5).

$$G_{BSL,i,t} = G_{BSL,AG,i,t} + G_{BSL,BG,i,t} \quad (5a)$$

$G_{BSL,AG,i,t}$ and $G_{BSL,BG,i,t}$ is the annual above and belowground biomass increment rates (t d.m. ha⁻¹ yr⁻¹); These values are quantified based on the input data considering regional forest dynamics of Romania, Integrated within CBM-CFS3 model.

$$G_{BSL,BG,i,t} = G_{BSL,AG,i,t} \bullet R_i \quad (5b)$$

R_i is the root to shoot ratio in polygon and these values are quantified based on regional forest dynamics of Romania, Integrated within CBM-CFS3 model.

By considering the aforementioned information, the Validation and Verification team confirms that the quantification of live biomass gain was accomplished using the Equations (4), (5a) and (5b). using the integrated equations within CBM-CFS3 model which cannot be altered by the user.

c) Validation of Baseline Scenario Live biomass loss

The Validation and Verification team reviewed the information regarding the Historic Baseline Scenario, as outlined in the Section 3.4 of PD-MR. Harvest details from existing FMPs and harvest quotas that were used to establish historic baseline activities (disturbances). Additionally, the projected annual harvest volume based on forward-looking harvest volumes within the same FMPs, were reviewed.

The Validation and Verification team reviewed the CBM-CFS3 user guide and Delta Total Biomass Reports specifying loss of Biomass to Soil, loss from softwood or hardwood and CO₂ emission from biomass to quantify the overall loss in carbon stocks. Utilizing the default parameters and algorithms, the CBM-CFS3 model quantifies annual decrease in live biomass tree carbon by tracking various stand dynamics, such as natural tree mortality, harvesting activities, blowdown events, and other forms of biomass loss. Typically, the CBM-CFS3 model reallocates mortality-related live biomass into dead biomass pools (such as Aboveground Standing Dead, Aboveground Downed and Dead Wood, Belowground Dead Organic Matter). Forest dynamics specific to Romania along with the associated carbon curves mentioned earlier, are monitored and documented by carbon pool types and presented in the Delta Total Biomass Reports later in Delta Total Ecosystem Reports.

Live biomass loss in year, t , polygon, i ($\Delta C_{BSL,L,t}$) is calculated as:

$$\Delta C_{BSL,L,t} = \sum (LBL_{BSL,NATURAL,i,t} + LBL_{BSL,FELLINGS,i,t} + LBL_{BSL,OTHER,i,t}) \bullet CF \quad (6)$$

For Example,

$\Delta C_{BSL,L,t}$ value for $t = 1$ is **19,658.91 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. The value indicates Live Biomass loss for total project area of 1,538 Ha, considering CF Value of 0.5 (IPCC default value) as per “Sheet All_Pools_BSL of the workbook^{87/}. Similarly, the Live biomass loss for entire crediting period is quantified.

Where:

$LBL_{BSL,NATURAL,i,t}$ = annual loss of live tree biomass due to natural mortality in polygon, i ; t d.m. yr⁻¹

$LBL_{BSL,FELLINGS,i,t}$ = annual loss of live tree biomass due to commercial felling in polygon, i ; t d.m. yr⁻¹

$LBL_{BSL,OTHER,i,t}$ = annual loss of live tree biomass from incidental sources in polygon, i ; t d.m. yr⁻¹

CF = carbon fraction of dry matter; t C t⁻¹ d.m. (IPCC default value = 0.5).

$$LBL_{BSL,NATURAL,i,t} = A_{BSL,i} \bullet LB_{BSL,i,t} \bullet f_{BSL,NATURAL,i,t} \quad (7)$$

Where:

$A_{BSL,i}$ = area (ha) of forest land in polygon, i ; (Areas for quantification were generated based on information obtained from respective FMPs, comprising a total area of 1,538 Ha)

$LB_{BSL,i,t}$ = average live tree biomass (t d.m. ha⁻¹) in polygon, i , for year, t . This parameter is quantified based on the input data considering regional forest dynamics of Romania integrated within CBM-CFS3 model.

$LB_{BSL,i,t}$ is calculated for year, t , beginning with biomass estimates in year $t=1$ (the project start year) and with annual biomass increments ($G_{BSL,i,t}$) added as per calculations in equation 5a.

$f_{BSL,NATURAL,i,t}$ = the annual proportion of biomass that dies from natural mortality in polygon, i (unitless; $0 \leq f_{BSL,NATURAL,i,t} \leq 1$), year, t . This parameter is quantified based on the input data considering regional forest dynamics of Romania, Integrated within CBM-CFS3 model.

$f_{BSL,NATURAL,i,t}$ = the annual proportion of biomass that dies from natural mortality in polygon, i (unitless; $0 \leq f_{BSL,NATURAL,i,t} \leq 1$), year, t . Tree mortality is an ongoing process during stand development. Trees die as a consequence of insect attack, disease, competition, or some combination thereof. These values are quantified based on the input data considering regional forest dynamics of Romania integrated within CBM-CFS3 model.

$$LBL_{FELLINGS,i,t} = A_{BSL,i} \bullet LB_{BSL,i,t} \bullet f_{BSL,HARVEST,i,t} \quad (8)$$

where:

$A_{BSL,i}$ = area (ha) of forest land in polygon, i (Areas for quantification were generated based on information obtained from respective FMPs, comprising a total area of 1,538 Ha)

$LB_{BSL,i,t}$ = average live tree biomass (t d.m. ha⁻¹) in polygon, i , for year, t . These values are obtained from equation 7 above.

$f_{BSL,HARVEST,i,t}$ = the proportion of biomass removed by harvesting from polygon, i , (unitless; $0 \leq f_{BSL,HARVEST,i,t} \leq 1$), in year, t . This information data is obtained from respective FMPs and previous harvest records of Softwood and Hardwood.

Incidental loss ($LBL_{BSL,OTHER,i,t}$; t d.m. yr⁻¹) is the additional live tree biomass removed for road and landing construction in the polygon, i , and is calculated as a proportion of biomass removed by harvesting.

$$LBL_{BSL,OTHER,i,t} = A_{BSL,i} \bullet LB_{BSL,i,t} \bullet f_{BSL,DAMAGE,i,t} \quad (9)$$

where:

$A_{BSL,i}$ = area (ha) of forest land in polygon, i ; (Areas for quantification were generated based on information obtained from respective FMPs, comprising a total area of 1,538 Ha)

$LB_{BSL,i,t}$ = average live tree biomass (t d.m. ha⁻¹) in polygon, i , for year, t . This parameter is quantified based on the input data considering regional forest dynamics of Romania integrated within CBM-CFS3 model.

$f_{BSL,DAMAGE,i,t}$ = the proportion of additional biomass removed for road and landing construction in polygon, i , year, t (unitless; $0 \leq f_{BSL,DAMAGE,i,t} \leq 1$). This parameter is quantified based on the input data considering regional forest dynamics of Romania integrated within CBM-CFS3 model.

Lastly, the Validation and Verification team confirms that the quantification of live biomass loss was accomplished using the equations (6), (7), (8) and (9) by means of the integrated equations within CBM-CFS3 model which cannot be altered by the user.

d) Validation of Baseline Scenario Dead Organic Matter Dynamics

The Validation and Verification team reviewed the information regarding the Historic Baseline Scenario, as outlined in the Section 3.4 of PD-MR. Harvest details from existing FMPs and harvest quotas that were used to establish historic baseline activities (disturbances). Additionally, the projected annual harvest volume based on forward-looking harvest volumes within the same FMPs, were reviewed.

The Validation and Verification team reviewed the CBM-CFS3 User guide and Delta Total DOM Reports specifying changes in biomass carbon stocks related to biomass transfer to soil, Dead Organic Matter (DOM) production and CO₂ emissions from DOM. The value is quantified using the area stratifications, regionally specific forest dynamics, and the corresponding carbon curves discussed previously. Additionally, CBM-CFS3 employs default parameters and algorithms to track all stand dead wood dynamics, encompassing standing dead, downed dead, and below-ground dead organic matter.

The model utilizes regionally specific variant data and related parameters to simulate and track dead organic matter movement between carbon pools, including Aboveground Dead Wood, Belowground Dead Wood and Lying Dead Wood. Furthermore, CBM-CFS3 monitors dead organic matter dynamics associated with harvesting activities or other events as applicable. The project relies on default decay factors and dead matter dynamics integrated within the CBM-CFS3 model, specific to the dataset being

utilized. Results regarding dead organic matter dynamics are systematically reported in Delta DOM Reports as well as Delta Ecosystem Reports^{/33/87/}.

The annual change in carbon stocks in DOM ($\Delta C_{BSL,DOM,t}$; t C yr⁻¹) is calculated as:

$$\Delta C_{BSL,DOM,t} = \Delta C_{BSL,LDW,t} + \Delta C_{BSL,SNAG,t} + \Delta C_{BSL,DBG,t} \quad (10)$$

For Example,

$\Delta C_{BSL,DOM,t}$ value for t =1 is **2790.35 t C**. The Value is obtained after CBM-CFS3 modelling referring to Delta Total DOM Reports considering the Baseline scenario conditions. The value indicates annual change in carbon stocks in DOM for total project area of 1,538 Ha, considering CF Value of 0.5 (IPCC default value) as per "Sheet All_Pools_BSL of the workbook^{/87/}. Similarly, the annual change in carbon stocks in DOM for entire crediting period is quantified.

where:

$\Delta C_{BSL,LDW,t}$ = change in lying dead wood (LDW) carbon stocks in year, t; t C yr⁻¹

$\Delta C_{BSL,SNAG,t}$ = change in snag carbon stock in year, t; t C yr⁻¹

$\Delta C_{BSL,DBG,t}$ = change in dead belowground biomass carbon stock in year, t; t C yr⁻¹.

$$\Delta C_{BSL,LDW,t} = (LDW_{BSL,IN,i,t} - LDW_{BSL,OUT,i,t}) \cdot CF \quad (11a)$$

$$LDW_{BSL,i,t+1} = LDW_{BSL,i,t} + (LDW_{BSL,IN,i,t} - LDW_{BSL,OUT,i,t}) \quad (11b)$$

where:

$LDW_{BSL,i,t}$ = The total mass of lying dead wood accumulated in polygon i , at time, t (t d.m.).

$LDW_{BSL,IN,i,t}$ = annual increase in LDW biomass for polygon i , year, t (t d.m yr⁻¹). LDW increases occur as a result of natural mortality (typically, blowdown), and as a direct or indirect result of harvesting.

$LDW_{BSL,OUT,i,t}$ = annual loss in LDW biomass through decay, for polygon i , year, t , (t d.m yr⁻¹)

$LDW_{BSL,IN,i,t}$ and $LDW_{BSL,OUT,i,t}$ are summed across polygons.

CF = carbon fraction of dry matter (IPCC default value = 0.5).

$$\begin{aligned} LDW_{BSL,IN,i,t} = & (LBL_{BSL,NATURAL,i,t} - LBL_{BSL,NATURAL,i,t} \cdot R_i) \cdot f_{BSL,BLOWDOWN,i,t} + ((LBL_{BSL,FELLINGS,i,t} - \\ & LBL_{BSL,FELLINGS,i,t} \cdot R_i) + (LBL_{BSL,OTHER,i,t} - LBL_{BSL,OTHER,i,t} \cdot R_i)) \cdot f_{BSL,BRANCH,i,t} + \\ & ((LBL_{BSL,FELLINGS,i,t} - LBL_{BSL,FELLINGS,i,t} \cdot R_i) + (LBL_{BSL,OTHER,i,t} - LBL_{BSL,OTHER,i,t} \cdot R_i)) \cdot (1 - \\ & f_{BSL,BRANCH,i,t}) \cdot f_{BSL,BUCKINGLOSS,i,t} + SNAG_{BSL,i,t} \cdot f_{BSL,SNAGFALLDOWN,i,t} \end{aligned} \quad (12)$$

where:

$LBL_{BSL,NATURAL,i,t}$, $LBL_{BSL,FELLINGS,i,t}$, and $LBL_{BSL,OTHER,i,t}$ were quantified using equations 7, 8, and 9, respectively. This parameter is quantified using CBM-CFS3 for specific input considering regional forest dynamics of Romania integrated within the model.

R_i is the root:shoot ratio in polygon, i and this parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model (Refer to equation 5b).

$f_{BSL,BLOWDOWN,i,t}$ = the annual proportion of live aboveground tree biomass subject to blowdown in polygon, i , year, t (unitless; $0 \leq f_{BSL,BLOWDOWN,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

$f_{BSL,BRANCH,i,t}$ = the annual proportion of aboveground tree biomass comprised of branches ≥ 5 cm diameter in polygon, i (unitless; $0 \leq f_{BSL,BRANCH,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

$f_{BSL,BUCKINGLOSS,i,t}$ = the annual proportion of the log bole biomass left on site after assessing and/or merchandizing the log bole for quality, in polygon, i (unitless; $0 \leq f_{BSL,BUCKINGLOSS,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

$SNAG_{BSL,i,t}$ = the total mass of the snag pool in polygon, i , year, t (Refer equation 14b).

$f_{BSL,SNAGFALLDOWN,i,t}$ = the annual proportion of snag biomass in polygon, i , year, t , that falls over and thus is transferred to the LDW pool (unitless; $0 \leq f_{BSL,SNAGFALLDOWN,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

$$LDW_{BSL,OUT,i,t} = LDW_{BSL,i,t} \bullet f_{BSL,IWDECAY,i,t} \quad (13)$$

where:

$LDW_{BSL,i,t}$ = the total amount of lying deadwood mass in polygon i , year, t (Refer to equation 11b).

$f_{BSL,IWDECAY,i,t}$ = the annual proportional loss of lying dead biomass due to decay, in polygon i , year, t (unitless; $0 \leq f_{BSL,IWDECAY,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

The change in standing dead wood (snag) carbon stock in year, t ($t \text{ C yr}^{-1}$) is calculated as:

$$\Delta C_{BSL,SNAG,t} = (SNAG_{BSL,IN,i,t} - SNAG_{BSL,OUT,i,t}) \bullet CF \quad (14a)$$

$$SNAG_{BSL,i,t+1} = SNAG_{BSL,i,t} + (SNAG_{BSL,IN,i,t} - SNAG_{BSL,OUT,i,t}) \quad (14b)$$

where:

$SNAG_{BSL,i,t}$ = The total mass of snags accumulated in polygon i , at time t ($t \text{ d.m.}$).

$SNAG_{BSL,IN,i,t}$ = annual gain in snag biomass for polygon i , year, t ($t \text{ d.m yr}^{-1}$). Snag biomass develops as a result of natural mortality. In cases where snags are created through management activities, these should be accounted for here.

$SNAG_{BSL,OUT,i,t}$ = annual loss in snag biomass through decay, or fall down ($t \text{ d.m yr}^{-1}$). This refers to the transfer to the LDW pool.

CF = carbon fraction of dry matter (IPCC default value = 0.5).

$SNAG_{BSL,IN,i,t}$ and $SNAG_{BSL,OUT,i,t}$ are summed across polygons.

$$SNAG_{BSL,IN,i,t} = (LBL_{BSL,NATURALI,t} - LBL_{BSL,NATURALI,t} \bullet Ri) \bullet (1 - f_{BSL,BLOWDOWN,i,t}) \quad (15)$$

where:

$LBL_{BSL,NATURALI,t}$ is as quantified as per equation 7

$1 - f_{BSL,BLOWDOWN,i,t}$ is the proportion of live tree aboveground biomass that dies in polygon, i , year, t , but remains as standing dead organic matter (i.e., snags) (unitless; $0 \leq f_{BSL,BLOWDOWN,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

$$SNAG_{BSL,OUT,i,t} = SNAG_{BSL,i,t} \bullet f_{BSL,SWDECAY,i,t} + SNAG_{BSL,i,t} \bullet f_{BSL,SNAGFALLDOWN,i,t} \quad (16)$$

where:

$SNAG_{BSL,i,t}$ = the total amount of snag mass in polygon i , year, t (see equation 14b).

$f_{BSL,SWDECAY,i,t}$ = the annual proportional loss of snag biomass due to decay, in polygon, i , year, t (unitless; $0 \leq f_{BSL,SWDECAY,i,t} \leq 1$).

$f_{BSL,SNAGFALLDOWN,i,t}$ = the annual proportion of snag biomass in polygon, i , that falls over and thus is transferred to the LDW pool (unitless; $0 \leq f_{BSL,SNAGFALLDOWN,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

Note that the parameter $SNAG_{BSL,OUT,i,t}$ is referring to annual loss in snag biomass through decay, or fall down (t d.m yr⁻¹) and this specifies the annual loss that is transferred to the LDW pool. Hence the equation 16 is not necessary in the quantification.

$$\Delta C_{BSL,DBG,t} = (DBG_{BSL,IN,i,t} - DBG_{BSL,OUT,i,t}) \bullet CF \quad (17a)$$

$$DBG_{BSL,i,t+1} = DBG_{BSL,i,t} + (DBG_{BSL,IN,i,t} - DBG_{BSL,OUT,i,t}) \quad (17b)$$

where:

$DGB_{BSL,i,t}$ = The total quantity of dead belowground biomass accumulated in polygon i , at time, t (t d.m.).

$DBG_{BSL,IN,i,t}$ = annual gain in dead belowground biomass for polygon i , year, t (t d.m yr⁻¹). Dead belowground biomass accumulated due to natural mortality or as a result of harvesting operations.

$DBG_{BSL,OUT,i,t}$ = annual loss in dead belowground biomass through decay, (t d.m yr⁻¹)

CF = carbon fraction of dry matter (IPCC default value = 0.5).

$$DBG_{BSL,IN,i,t} = [(A_{BSL,i} \bullet LB_{BSL,i,t} \bullet R_i) \bullet (f_{BSL,NATURAL,i,t} + f_{BSL,HARVEST,i,t} + f_{BSL,DAMAGE,i,t})] \quad (17c)$$

where:

$A_{BSL,i}$ = area (ha) of forest land in polygon, i ; (Areas for quantification were generated based on information obtained from respective FMPs, comprising a total area of 1,538 Ha)

$LB_{BSL,i,t}$ = average live tree biomass (t d.m. ha⁻¹) in polygon, i , for year, t . $LB_{BSL,i,t}$ is calculated for year, t , beginning with biomass estimates in year $t=1$ (start year of the project) and with annual biomass increments ($G_{BSL,i,t}$) added as per calculations in equation 5 a, b. This value is then multiplied by $A_{BSL,i}$, the area (ha) of forest land in polygon, i .

R_i is the root:shoot ratio in polygon, i (Refer to equation 5b).

$f_{BSL,NATURAL,i,t}$ = the annual proportion of biomass that dies from natural mortality in polygon, i (unitless; $0 \leq f_{NATURALi,t} \leq 1$), year, t (Refer to equation 7),

$f_{BSL,HARVEST,i,t}$ = the proportion of biomass removed by harvesting from polygon, i , (unitless; $0 \leq f_{HARVESTi,t} \leq 1$), year, t

$f_{BSL,DAMAGE,i,t}$ = the proportion of additional biomass removed or road and landing construction in polygon, i (unitless; $0 \leq f_{DAMAGE,i,t} \leq 1$), year, t (Refer to equation 9)

$$DBG_{BSL,OUT,i,t} = DBG_{BSL,i,t} \bullet f_{BSL,DGB_DECAY,i,t} \tag{17d}$$

where:

$DBG_{BSL,i,t}$ = the total quantity of dead belowground in polygon i , year, t (see equation 17b).

$f_{BSL,dgbDECAY,i,t}$ = the annual proportional loss of dead belowground biomass due to decay, in polygon i , year, t (unitless ; $0 \leq f_{BSL,dgbDECAY,i,t} \leq 1$). This parameter is quantified based on regional forest dynamics of Romania integrated within CBM-CFS3 model.

Lastly, the Validation and Verification team confirms that the Baseline Scenario Dead Organic Matter Dynamics is accomplished using the equations (10), (11a-b), (12), (13), (14a-b), (15) and (17a-d) by means of the integrated equations within CBM-CFS3 model which cannot be altered by the user.

e) Validation of Baseline Scenario Harvested Wood Product Modeling

The Validation and Verification team reviewed the information regarding the Historic Baseline Scenario, as outlined in the Section 3.4 of PD-MR. Harvest details from existing FMPs, harvested wood proportions^{/44/} and harvest quotas that were used to establish historic baseline activities (disturbances). Additionally, the projected annual harvest volume based on forward-looking harvest volumes within the same FMPs, were reviewed.

Step 1 (Carbon contained in the harvested timber): The Validation and Verification team reviewed the information outlined in the Step 1, Section 8.1.6 of the Applied Methodology and information of species, product groups (Fuel Wood and Sawlogs), and corresponding harvest volumes for each planning period, which utilizes CBM output reports to forecast species, product groups, and harvest volumes for each planning period. These volumes are then converted into Merchantable Carbon/Wood Product pools using wood densities specific to each species, measured in t C, in order to meet the requirements of Step 1 of the methodology. The product groups and their respective percentages are based on historical harvest and sales records, which are categorized into Sawlogs, Fuelwood, and Pulpwood^{/29/}.

Table 17. Categories of Wood products and their processing

Sl.no	Major wood groups	Wood product groups	Processing of Wood products
1	Softwood	Sawlog	Wood processing is possible
		Pulpwood	Wood processing is possible
		Fuelwood	Not possible, as the wood is collected by community
2	Hardwood	Sawlog	Wood processing is possible
		Pulpwood	Wood processing is possible
		Fuelwood	Not possible, as the wood is collected by community

The annual change in carbon storage in harvested wood products in year t ($\Delta C_{BSL,STORHWP,t}$; t C yr⁻¹) is determined based upon the following equation:

$$\Delta C_{BSL,STORHWP,t} = (C_{BSL,STORHWP,t2} - C_{BSL,STORHWP,t1}) / T \tag{19}$$

where:

$C_{BSL,STORHWP,t2}$ = carbon storage in harvested wood products at $t=2$; t C

$C_{BSL,STORHWP,t1}$ = carbon storage in harvested wood products at $t=1$; t C
 T = number of years between monitoring $t1$ and $t2$

t : 1,2,3... t years elapsed since the project start date

$$C_{BSL,TIMBER,h} = \sum [(LBL_{BSL,FELLINGS,i,h} - LBL_{BSL,FELLINGS,i,h} \cdot R_i + LBL_{BSL,OTHER,i,h} - LBL_{BSL,OTHER,i,h} \cdot R_i) \cdot (1 - f_{BSL,BRANCH,i,h}) \cdot (1 - f_{BSL,BUCKINGLOSS,i,h})] \cdot CF \quad (20)$$

For example,

$C_{BSL,TIMBER,h}$ value for $t = 1$ is **3922.13 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. The value indicates carbon contained in harvested timber for total project area of 1,538 Ha, considering CF Value of 0.5 (IPCC default value) as per “Sheet, CBM Export of the workbook^{/29/}. Similarly, the annual change in carbon contained in harvested timber for the entire crediting period is quantified.

where:

$C_{BSL,TIMBER,h}$ = carbon contained in timber harvested in period h (summed for all harvested polygons, i);tC

$LBL_{BSL,FELLINGS,i,h}$ = annual removal of live tree biomass due to commercial felling in polygon, i ; t d.m. (Refer to equation 8)

$LBL_{BSL,OTHER,i,h}$ = annual removal of live tree biomass from incidental sources in polygon, i ; t d.m. (Refer to equation 9)

R_i is the root:shoot ratio in polygon, i (Refer to equation 5b).

$1 - f_{BSL,BRANCH,i,h}$ the proportion of live tree biomass remaining after netting out branch biomass, in polygon i (unitless; $0 \leq f_{BRANCH,i,t} \leq 1$) (Refer to equation 12)

$1 - f_{BSL,BUCKINGLOSS,i,h}$ = the proportion of the log bole remaining after in-woods log processing/bucking for quality, length, etc., in polygon, i (unitless; $0 \leq f_{BUCKINGLOSS,i,t} \leq 1$) (Refer to equation 12)

h = harvest period; yr

Step 2 (Carbon contained in the harvested timber after milling): The Validation and Verification team reviewed the information outlined in Step 2, Section 8.1.6 of the Applied Methodology, harvested volume information and Forest Product Conversion Factors (FPCF) from the UNECE region to affirm that these factors, along with estimated product dispositions, determine the total carbon entering the wood products pool for each product type. The carbon contained in harvested timber for each product type is adjusted to account for processing losses aligning to the methods described in the Applied Methodology and is reflected in the quantification workbook^{/29/}.

Table 18. Categories of Wood products, type of loss and FPCF

Sl.no	Major wood groups	Wood product groups	Types of loss during processing	FPCF to quantify losses from bark and milling waste (UNECE/FAO. 2010)
1	Softwood	Sawlog	Softwood chip loss	0.70

			Slabs/trim/edge/cull	0.29
			Planing	0.08
			Trim/cull/re-edge	0.06
2	Hardwood	Pulpwood	Softwood chip loss	0.14
			Slabs/trim/edge/cull	0.22
			Planing	0.10
			Trim/cull/re-edge	0.03

To determine Carbon contained in harvested timber after milling in period h , for product type k ; t

$$C_{\text{BSL,MILL},h,k} = (C_{\text{BSL,TIMBER},h,k} \bullet f_{\text{RND},k} \bullet r_{\text{RND},k}) \quad (21)$$

For Example,

$C_{\text{BSL,MILL},h,k}$ value for $t=1$ is **3343.49 t C**. The Value is obtained after CBM-CFS3 modelling considering the Baseline scenario conditions. The value indicates Carbon contained in harvested timber after milling in period for total project area of 1538 Ha, considering CF Value of 0.5 (IPCC default value) as per “Sheet, K in Use of the workbook/^{29/}. Similarly, the annual change in carbon contained in harvested timber after milling for the entire crediting period is quantified.

where:

$C_{\text{BSL,MILL},h,k}$ = carbon contained in harvested timber after milling in period h , for product type k ; t C

$C_{\text{BSL,TIMBER},h,k}$ = carbon contained in timber harvested in period h , for product type k ; t C. (Generated from CBM-CFS3 based on Merchantable; Softwood and Hardwoods, Other; Softwood and Hardwoods).

k = wood product type – (softwood saw log, softwood pulpwood, hardwood saw log, or hardwood pulpwood, proportions. (The value is derived based on FMPs and previous harvest data)

$f_{\text{RND},k}$ = fraction of growing stock volume removed as roundwood for product type k . The Forest Product Conversion Factors (UNECE/FAO.2010) were utilized to report for bark and milling waste.

$r_{\text{RND},k}$ = ratio of industrial roundwood to growing stock volume removed as roundwood for product type k . The Forest Product Conversion Factors (UNECE/FAO.2010) were utilized to determine the amount of bark and milling waste.

Step 3 (Carbon storage in medium-term and long-term wood products): The Validation and Verification team reviewed the information outlined in Step 3, Section 8.1.6 of the Applied Methodology, harvested volume information and various factors such as product type, decay rates, and storage durations (Smith et al. (2006)). The result is then calculated as a fraction of the Wood Products pool emitted or stored annually and these values are summed for every year using a cohort approach. According to Applied Methodology, quantification of three harvested wood pools is mandated such as a) Short-lived wood products (SLF) products, are in use for less than 3 years and all carbon is emitted immediately after harvest., b) Medium-lived wood products (MLF) used for 3-100 years and Carbon storage remains unaffected immediately after harvest, but decreases gradually over 20 years, reducing by 1/20th each year. c) Long-lived wood products (LLF) used for over 100 years, with no loss of carbon.

Three values are then calculated for each product type, k : the short-lived fraction ($P_{\text{BSL,SLF},k}$), medium-lived fraction ($P_{\text{BSL,MLF},k}$), and long-lived fraction ($P_{\text{BSL,LLF},k}$):

$$P_{BSL,SLF,k} = 1 - P_{3\text{-year}} \quad (22a)$$

$$P_{BSL,LLF,k} = P_{100\text{-year}} \quad (22b)$$

$$P_{BSL,MLF,k} = P_{3\text{-year}} - P_{100\text{-year}} \quad (22c)$$

The values for equations 22a, 22b and 22c were referenced from (Smith et al. (2006) and are depicted in the table below.

Table 19. Short-lived, Medium-lived and Long-lived fraction of Hardwood and Softwood (Smith, J.E., 2006)

NORTHEAST SOFTWOOD						NORTHEAST HARDWOOD					
Sawlog			Pulpwood			Sawlog			Pulpwood		
P-SLF	P-MLF	P-LLF	P-SLF	P-MLF	P-LLF	P-SLF	P-MLF	P-LLF	P-SLF	P-MLF	P-LLF
0.505	0.40	0.095	0.683	0.311	0.006	0.5	0.465	0.035	0.504	0.393	0.103

$$C_{BSL,STORHWP,t} = S ((C_{BSL,MILL,h,k} \bullet P_{LLF,k}) + [(C_{BSL,MILL,h,k} \bullet P_{MLF,k}) \bullet ((20-h) / 20)]) \quad (23)$$

For example,

$C_{BSL,STORHWP,t}$ value for $t = 4$ is **8120.00 t C**. The Value is obtained after CBM-CFS3 modelling and other conversion factors considering the Baseline scenario conditions. The value indicates carbon stored in harvested wood products in year t , summed for all product types k and then over all harvest periods for total project area of 1,538 Ha, as per "Sheet, K in Use of the workbook^{29/}. Similarly, the quantification is also done for the entire crediting period.

Considering equation 23 (Without summation, for $t=4$), carbon stored in harvested wood products include includes 4 different product groups such as softwood lumber ($k1$), softwood pulpwood extraction ($k2$), Hardwood lumber ($k3$), and Hardwood pulpwood extraction ($k4$) hence the formula is updated as below.

$$C_{BSL,STORHWP,t} = ((C_{BSL,MILL,h,k1} \bullet P_{LLF,k1}) + (C_{BSL,MILL,h,k2} \bullet P_{LLF,k2}) + ((C_{BSL,MILL,h,k3} \bullet P_{LLF,k3}) + (C_{BSL,MILL,h,k4} \bullet P_{LLF,k4}) + ((C_{BSL,MILL,h,k1} \bullet P_{MLF,k1}) + (C_{BSL,MILL,h,k2} \bullet P_{MLF,k2}) + ((C_{BSL,MILL,h,k3} \bullet P_{MLF,k3}) + (C_{BSL,MILL,h,k4} \bullet P_{MLF,k4}) \bullet ((20-h) / 20))$$

$$C_{BSL,STORHWP,t} = ((156.82 \bullet 0.095) + (134 \bullet 0.006) + (824.74 \bullet 0.035) + (447.42 \bullet 0.103) + ((156.82 \bullet 0.40) + (134 \bullet 0.311) + ((824.74 \bullet 0.465) + (447.42 \bullet 0.393) \bullet ((20-0) / 20))$$

$$C_{BSL,STORHWP,t} = 621.80 \text{ t C}$$

where:

$C_{BSL,STORHWP,t}$ = carbon stored in harvested wood products in year t summed for all product types k and then over all harvest periods h ; t C

$C_{BSL,MILL,h,k}$ = carbon contained in harvested timber after milling in period h , for product type k ; t C

k = wood product type – softwood saw log, softwood pulpwood, hardwood saw log, or hardwood pulpwood; proportions determined via FMPs.

h = year of harvest (the term (20-h), taken as 0.

Lastly, the Validation and Verification team confirms that the Baseline Scenario Harvested Wood Product Modeling is accomplished using the equations (18), (19), (20), (21), (22a-c) and (23) by means of the integrated equations within CBM-CFS3 model as well as other conversion equations mentioned above.

f) Validation of Fossil Fuel Emissions Associated with Logging, Transport, and Manufacture

The Validation and Verification team reviewed the information regarding the Historic Baseline Scenario, as outlined in the Section 3.4 of PD-MR. Harvest details from existing FMPs, average distance of truck transportation and harvest quotas that were used to establish historic baseline activities (disturbances). Additionally, the projected annual harvest volume based on forward-looking harvest volumes within the same FMPs, were reviewed.

The Validation and Verification team reviewed the information outlined in Section 8.1.8 of the Applied Methodology including intensity factors, information related to fossil fuel emissions associated with the harvesting, transporting and manufacturing of raw materials. For harvesting-related emissions ($C_{BSL,EMITHARVEST,t}$), the carbon emission intensity factor ($C_{HARVEST}$) is applied to the harvested timber, considering thinning and final felling practices. Transportation emissions ($C_{BSL,EMITTRANSPORT,t}$) were calculated based on the fraction of raw material transported by different transportation types ($f_{BSL,TRANSPORTk}$), the distance transported ($d_{TRANSPORTk}$), and the carbon emission intensity factor for each transportation type ($C_{TRANSPORTk}$). The manufacturing emissions ($C_{BSL,EMITMANUFACTURE,t}$) were determined by considering the carbon emission intensity factor associated with the manufacture of each product type ($C_{MANUFACTUREk}$), such as sawn wood, chemical pulp, and veneer, as specified in the Table 4, Applied Methodology VM0012.

The Validation and Verification team affirmed that these calculations were conducted based on existing FMPs, which forecasted species, product groups, and related harvest volumes for each planning period. Results were then converted to merchantable carbon pools using species-specific wood densities and a Carbon Fraction (CF = 0.5). All terms and calculations were consistent with procedures outlined in the Applied Methodology VM0012.

Table 20. Proportion of wood and their emission factors

Wood type		Proportion of wood			Means of Emission	Emission factors (Table 4, VM0012)
Softwood (tC)	Harvest	Softwood utilization (%)	Saw	log	Clearcut	0.016
					Transport	0.00007
					Sawn wood Manufacture	0.04
					Pulp Manufacture	0.00
		Softwood utilization (%)	Fuelwood	No emissions occurred	Not applicable	
Hardwood (tC)	Harvest	Hardwood utilization (%)	Saw	log	Clearcut	0.016
					Transport	0.00007

		Sawn wood Manufacture	0.04
		Pulp Manufacture	0.00
	Hardwood Fuelwood utilization (%)	No emissions occurred	Not applicable

The annual change in fossil fuel emissions from harvesting and processing of the various wood products ($\Delta C_{BSL,EMITFOSSIL,t}$) are calculated as:

$$C_{BSL,EMITFOSSIL,t} = C_{BSL,EMITHARVEST,t} + C_{BSL,EMITMANUFACTURE,t} + C_{BSL,EMITTRANSPORT,t} \quad (24)$$

For Example,

$C_{BSL,EMITFOSSIL,t}$ value for $t = 1$ is **231.28 t C**. The Value is obtained after individual quantification of emissions from harvest, manufacture and transport of raw materials. The value indicates the annual change in fossil fuel emissions from harvesting and processing of the various wood products in a period for total project area of 1,538 Ha as per “Sheet, Total emissions of the workbook^{/88/}. Similarly, the annual change in fossil fuel emissions from harvesting and processing of the various wood products for the entire crediting period is quantified.

$C_{BSL,EMITHARVEST,t}$ value for $t = 1$ is **62.75 t C**. The Value is obtained after individual quantification of emissions from harvesting (Thinnings). The value indicates annual fossil fuel emissions associated with harvesting of raw material in a period for total project area of 1,538 Ha as per “Sheet, Total emissions of the workbook^{/88/}. Similarly, the annual fossil fuel emissions associated with harvesting of raw material for the entire crediting period is quantified.

$C_{BSL,EMITMANUFACTURE,t}$ value for $t = 1$ is **109.80 t C**. The Value is obtained after individual quantification of emissions from manufacturing of sawn wood. The value indicates annual fossil fuel emissions associated with the manufacturing of raw material in a period for total project area of 1,538 Ha as per “Sheet, Total emissions of the workbook^{/88/}. Similarly, the annual fossil fuel emissions associated with the manufacturing of raw material for the entire crediting period is quantified.

$C_{BSL,EMITTRANSPORT,t}$ value for $t = 1$ is **58.70 t C**. The Value is obtained after individual quantification of emissions from manufacturing of sawn wood. The value indicates annual fossil fuel emissions associated with the transport of raw material in a period for total project area of 1,538 Ha as per “Sheet, Total emissions of the workbook^{/88/}. Similarly, the annual fossil fuel emissions associated with the transport of raw material for the entire crediting period is quantified.

Considering Equation 24

$$C_{BSL,EMITFOSSIL,t} = C_{BSL,EMITHARVEST,t} + C_{BSL,EMITMANUFACTURE,t} + C_{BSL,EMITTRANSPORT,t}$$

$$C_{BSL,EMITFOSSIL,t} = 62.75 + 109.80 + 58.70$$

$$C_{BSL,EMITFOSSIL,t} = 231.28 \text{ t C}$$

where:

$C_{BSL,EMITHARVEST,t}$ is the annual fossil fuel emissions associated with harvesting of raw material (t C yr⁻¹)

$C_{BSL,EMITMANUFACTURE,t}$ is the annual fossil fuel emissions associated with the manufacturing of raw material (tC yr⁻¹)

$C_{BSL,EMITTRANSPORT,t}$ is the annual fossil fuel emissions associated with the transport of raw material (t C yr⁻¹)

$$C_{BSL,EMITHARVEST,t} = [(LBL_{BSL,FELLINGS,i,t} - LBL_{BSL,FELLINGS,i,t} \bullet R_i + LBL_{BSL,OTHER,i,t} - LBL_{BSL,OTHER,i,t} \bullet R_i) \bullet (1 - f_{BSL,BRANCH,i,t}) \bullet (1 - f_{BSL,BUCKINGLOSS,i,t})] \bullet CF \bullet C_{HARVEST} \quad (25)$$

For Example,

$C_{BSL,EMITHARVEST,t}$ value for t =1 is **62.75 t C**. The Value is obtained after individual quantification of emissions from Harvesting (Clear cut). The value indicates annual fossil fuel emissions associated with harvesting of raw material in a period for total project area of 1538 Ha as per “Sheet, Total emissions of the workbook^{88/}. Similarly, the annual fossil fuel emissions associated with harvesting of raw material for entire crediting period is quantified.

All other parameters outlined in equation 25 quantified within CBM-CFS3 and total harvest in t C is obtained as output.

where:

$C_{HARVEST}$ is the carbon emission intensity factor (tC emitted/tC raw material) associated with harvesting (Default values for “Clearcutting” from Table 4 of Applied methodology is utilized as timber harvest in PAI is through thinning and final felling); all other terms are as defined in equation 20.

$C_{BSL,EMITTRANSPORT,t}$ is calculated after consideration of the transport distance from harvest to processing facility, and the means of transportation.

$$C_{BSL,EMITTRANSPORT,t} = [(LBL_{BSL,FELLINGS,i,t} - LBL_{BSL,FELLINGS,i,t} \bullet R_i + LBL_{BSL,OTHER,i,t} - LBL_{BSL,OTHER,i,t} \bullet R_i) \bullet (1 - f_{BSL,BRANCH,i,t}) \bullet (1 - f_{BSL,BUCKINGLOSS,i,t})] \bullet CF \bullet (f_{BSL,TRANSPORTk} \bullet d_{TRANSPORTk} \bullet c_{TRANSPORTk}) \quad (26)$$

For Example,

$C_{BSL,EMITTRANSPORT,t}$ value for t =1 is **231.28t C**. The Value is obtained after individual quantification of emissions from manufacturing of sawn wood. The value indicates annual fossil fuel emissions associated with the transport of raw material in a period for total project area of 1,538 Ha as per “Sheet, Total emissions of the workbook^{88/}. Similarly, the annual fossil fuel emissions associated with the transport of raw material for the entire crediting period is quantified.

$d_{TRANSPORTk}$ value for t =1 is **316.3 km**. The Value is obtained is the average distance the truck travelled from harvest site to location of wood customer. This is obtained by average of distances from all forest areas of the FMPs. The value indicates the distance transported by transportation type and the details is referenced from the “Sheet, Notes of the workbook^{88/}. Similarly, the distance transported by transportation type for entire crediting period remains same.

$c_{TRANSPORTk}$ value is **0.00007**. This is the default valued obtained from Table 4 of the Applied Methodology. The value indicates the carbon emission intensity factor (kg C emitted/t C raw material) associated with transportation type, k.

All other parameters outlined in equation 26 are quantified within CBM-CFS3 and total harvest in t C is obtained as output.

where:

$f_{BSL,TRANSPORTk}$ = the fraction of raw material transported by transportation type, k . (unitless; $0 \leq f_{BSL,TRANSPORTk} < 1$).

$d_{TRANSPORTk}$ = the distance transported by transportation type, k . (km);(Based on the historical average distance from harvest site (forest fund property) to location of the customer is utilized)

$C_{TRANSPORTk}$ is the carbon emission intensity factor (kg C emitted/t C raw material) associated with transportation type, k (Default values for truck from Table 4 of Applied methodology is utilized); all other terms are as defined in equation 20.

$$C_{BSL,EMITMANUFACTURE,t} = [(L_{BSL,FELLINGS,i,t} - L_{BSL,FELLINGS,i,t} \bullet R_i + L_{BSL,OTHER,i,t} - L_{BSL,OTHER,i,t} \bullet R_i) \bullet (1 - f_{BSL,BRANCH,i,t}) \bullet (1 - f_{BSL,BUCKINGLOSS,i,t})] \bullet (f_{BSL,PRODUCTk} \bullet C_{MANUFACTUREk}) \bullet CF \quad (27)$$

For Example,

$C_{BSL,EMITMANUFACTURE,t}$ value for $t = 1$ is **125.10 t C**. The Value is obtained after individual quantification of emissions from manufacturing of sawn wood. The value indicates annual fossil fuel emissions associated with the manufacturing of raw material in a period for total project area of 1,538 Ha as per “Sheet, Total emissions of the workbook/⁸⁸”. Similarly, the annual fossil fuel emissions associated with the manufacturing of raw material for the entire crediting period is quantified.

$C_{MANUFACTUREk}$ value is **0.04**. This is the default valued obtained from Table 4 of the Applied Methodology. The value indicates the carbon emission intensity factor (t C emitted/t C raw material) associated with manufacture of product type.

All other parameters outlined in equation 27 are quantified within CBM-CFS3 and total harvest in t C is obtained as output.

Where,

$C_{MANUFACTUREk}$ is the carbon emission intensity factor (t C emitted/t C raw material) associated with manufacture of product type, k ; (Default values from Table 4 of VM0012 for sawn wood (0.04), chemical pulp (0.13) and veneer (0.06) were utilized). All other terms are as defined in equation 19.

Default values for $C_{MANUFACTUREk}$ are utilized from Table 4 of Applied Methodology.

Quantification of project emissions

The Validation and Verification team reviewed the PD-MR, GHG Quantification workbooks, Stock Change resultant Total Delta Ecosystem ($\Delta tC \text{ yr}^{-1}$), representing the total change in ecosystem carbon stocks. This equation encompasses the annual change in living tree biomass ($\Delta C_{BSL,LB,t}$), annual change in dead organic matter ($\Delta C_{BSL,DOM,t}$), and annual change in carbon stocks associated with harvested wood products ($\Delta C_{BSL,HWP,t}$).

Stock Changes output variables report changes in carbon stocks in tonnes of carbon (tC) annually for the selected area. A positive value indicates a net gain in carbon stocks, a negative value indicates a net loss, and zero indicates neither gain nor loss. For Total Delta Ecosystem analysis, positive values signify the ecosystem functioning as a carbon sink, negative values as a carbon source, and zero as carbon neutral.

Project activities affecting GHG emissions occurred during the initial monitoring period (2020-2022), with no projected scenario activities occurring before. The Project scenario live biomass gain is

calculated for all project scenario polygons starting from the project start date. There is no difference between the baseline and project scenario net emission reductions/emissions until the harvesting date as scheduled in the baseline FMP (Eq. 57). This indicates the date when the project achieves additional emission reductions/removals compared to the baseline scenario at the polygon level. Future years may involve various forest management activities that affect ex-post carbon stocks, which will be monitored and reported in future verifications. These methods align with equations and processes outlined in the Applied Methodology VM0012 and all the parameters evaluated will be described below.

Table 21. Parameters quantified in projects scenario and Validation and Verification team conclusions.

Sl. No	Parameter	Unit	Value	Validation and Verification team conclusion
1	A _{BSL,i} , A _{PRJ,i} ,	Hectares (Ha)	1538 Ha	The Validation and Verification team confirms the parameter as respective areas of baseline and project polygon, i for all project instances. The Validation and Verification team verified the information through independent evaluation using QGIS with the spatial datasets and confirms that quantification of GHG reduction and removals involves entire region ^{/7/8/} .
2	A _{PSR,i} ,	m ²	400 m ² (Radius=11.28 m)	The Validation and Verification team confirms the parameter as area of permanent monitoring plots. The Validation and Verification team verified the information through reviewing monitoring SOP, Lidar Synthetic and inventory data etc ^{/9/25/84/86/} .
3	CF	t C t ⁻¹ d.m	0.5 (IPCC Default value)	The Validation and Verification team confirms that the Carbon Fraction of dry matter value is sourced as IPCC Default value of 0.5 as per requirements outlined in Section 8.1.4 of Applied Methodology.
4	BEF	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team verified that the Biomass Expansion Factor (BEF), a parameter integrated into CBM-CFS3 model, v1.2, is employed to convert volume into biomass, considering jurisdiction, ecozone and tree species ^{/27/85/} .

5	R_i	Unitless	Established by CBM-CFS3 as a function of tree species and tree size.	The Validation and Verification team verified Root to Shoot Ratio, a parameter integrated into the CBM-CFS3 model, is employed to convert aboveground biomass into belowground biomass as a function of tree species and tree size ^{/27/} .
6	$\Delta C_{BSL,t}$ $\Delta C_{PRJ,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,t}$ value at $t=1$ is 1210 t C	The Validation and Verification team reviewed the quantification workbook and affirm that the parameter indicates the total annual carbon balance in year, t , for the project scenario ^{/33/} .
7	$\Delta C_{BSL,P,t}$ $\Delta C_{PRJ,P,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,P,t}$ value at $t=1$ is 1210 t C	The Validation and Verification team reviewed the quantification workbook and confirms that the parameter indicates the annual change in carbon stocks in all pools in the project across the project activity area; $t \text{ C yr}^{-1}$. Quantified by considering carbon stocks in living tree biomass, dead organic matter and harvested wood products ^{/33/} .
8	$\Delta C_{BSL,LB,t}$ $\Delta C_{PRJ,LB,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,LB,t}$ value at $t=1$ is 759.16 t C	The Validation and Verification team reviewed the quantification workbook to confirm that the parameter indicates the annual change in carbon stocks in living tree biomass (above- and belowground); $t \text{ C yr}^{-1}$. Quantified by considering annual increase and decrease in tree carbon stock ^{/87/} .
9	$\Delta C_{BSL,DOM,t}$ $\Delta C_{PRJ,DOM,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,DOM,t}$ value at $t=1$ is 470.22 t C	The Validation and Verification team reviewed the quantification workbook and confirms that the parameter indicates the annual change in carbon stocks in dead organic matter $t \text{ C yr}^{-1}$. Quantified by considering lying deadwood, snag carbon stock and belowground carbon stock ^{/87/} .
10	$\Delta C_{BSL,STORHWP,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,STORHWP,t}$ value at $t=4$ is 3110 t C	The Validation and Verification team reviewed the quantification

	$\Delta C_{PRJ,STORHWP,t}$			workbook and confirms that the parameter indicates the annual change in carbon stocks associated with harvested wood products. Quantified by considering carbon storage in harvested wood products from different periods ^{/29/} .
11	$\Delta C_{BSL,G,t}$ $\Delta C_{PRJ,G,t}$	t C	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $\Delta C_{PRJ,G,t}$ value for t=1 is 14135.00 t C	The Validation and Verification team confirms that the parameter indicates Live biomass gain in year, t, polygon, i, in the project scenario. The Validation and Verification team concludes that it as a modelled parameter by CBM-CFS3 utilizing default values specifically for Romania in alignment with equation 35 and 33a-b of Applied Methodology ^{/33/27/87/} .
12	$\Delta C_{BSL,L,t}$ $\Delta C_{PRJ,L,t}$	t C yr ⁻¹	$\Delta C_{PRJ,L,t}$ value at t=1 is 13375.83 t C	The Validation and Verification team confirms that the parameter indicates the annual decrease in tree carbon stock from a reduction in live biomass. Quantified by considering annual loss of biomass from natural mortality, commercial felling and other incidental sources ^{/33/27/87/} .
13	$G_{BSL,i,t}$ $G_{PRJ,i,t}$	t d.m. ha ⁻¹ yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual increment rate in tree biomass (t d.m. ha ⁻¹ yr ⁻¹), in polygon, i ^{/27/} .
14	$G_{BSL,AG,i,t}$ $G_{PRJ,AG,i,t}$	t d.m. ha ⁻¹ yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual aboveground biomass increment rates ^{/33/27/87/} .
15	$LBL_{BSL,NATURALi,t}$ $LBL_{PRJ,NATURALi,t}$	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual loss of live tree biomass due to natural mortality in polygon, i. Quantified by considering area of forest land, average live tree biomass and proportion of biomass dies from natural mortality ^{/33/27/87/} .

16	LBL _{BSL,FELLINGS,i,t} LBL _{PRJ,FELLINGS,i,t}	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual loss of live tree biomass due to commercial felling in polygon, i. Quantified by considering area of forest land, average live tree biomass and proportion of biomass removed by harvesting ^{/27/85/87/} .
17	LBL _{BSL,OTHERi,t} LBL _{PRJ,OTHERi,t}	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual loss of live tree biomass from incidental sources in polygon, i. Quantified by considering area of forest land, average live tree biomass, proportion of biomass removed by harvesting, and biomass removed for road construction ^{/27/85/87/} .
18	LB _{BSL,i,t} LB _{PRJ,i,t}	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the average live tree biomass in polygon, i, for year, t. Quantified by considering area of forest land, average live tree biomass, proportion of biomass removed by harvesting, and biomass removed for road construction ^{/27/85/87/} .
19	f _{BSL,NATURAL,i,t} , f _{PRJ,NATURAL,i,t}	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. (0 < f _{BSL,NATURAL,i,t} , f _{PRJ,NATURAL,i,t} < 1)	The Validation and Verification team confirms that the parameter indicates the proportion of biomass that dies from natural mortality in polygon, i, year, t, in the baseline and project cases, respectively. The Validation and Verification team concludes it as a modelling parameter within the default configuration of CBM-CFS3 ^{/27/85/87/} .
20	f _{BSL,DAMAGE,i,t} , f _{PRJ,DAMAGE,i,t}	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the proportion of additional biomass removed from road and building construction in polygon, i, year, t, in the baseline and project

			$(0 < f_{\text{BSL,DAMAGE},i,t}$ $f_{\text{PRJ,DAMAGE},i,t} < 1)$	cases, respectively. The Validation and Verification team concludes that it serves as a modelling parameter within the default configuration of CBM-CFS3/27/85/87/.
21	$\Delta C_{\text{BSL,DOM},t}$ $\Delta C_{\text{PRJ,DOM},t}$	t C yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual change in carbon stocks in Dead Organic Matter. Quantified by considering change in lying dead wood, snag carbon stock and below ground carbon stock/27/87/.
22	$\Delta C_{\text{BSL,LDW},t}$ $\Delta C_{\text{PRJ,LDW},t}$	t C yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the change in lying dead wood (LDW) carbon stocks in year, t. Quantified by considering annual increase as well as loss in lying deadwood biomass/27/87/.
23	$\Delta C_{\text{BSL,SNAG},t}$ $\Delta C_{\text{PRJ,SNAG},t}$	t C yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the change in snag carbon stock in year, t. Quantified by considering annual gain as well as loss in snag biomass/27/87/.
24	$\Delta C_{\text{BSL,DBG},t}$ $\Delta C_{\text{PRJ,DBG},t}$	t C yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the change in belowground carbon stock in year, t. Quantified by considering annual gain as well as loss in dead belowground biomass/27/87/.
25	$\text{LDW}_{\text{BSL,IN},i,t}$ $\text{LDW}_{\text{PRJ,IN},i,t}$	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual increase in LDW biomass for polygon i, year, t/27/87/.
26	$\text{LDW}_{\text{BSL,OUT},i,t}$ $\text{LDW}_{\text{PRJ,OUT},i,t}$	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the annual loss in LDW biomass through decay, for polygon i, year, t/27/87/.

27	C_{HARVEST}	t C	0.0016 (Table 4, VM0012)	The Validation and Verification team confirms that the parameter indicates the carbon emission intensity factor associated with harvesting.
28	$C_{\text{MANUFACTUREk}}$	t C	0.04 (Table 4, VM0012)	The Validation and Verification team confirms that the parameter indicates the carbon emission intensity factor associated with manufacture of product, k.
29	$C_{\text{TRANSPORTk}}$	t C	0.00007 (Table 4, VM0012)	The Validation and Verification team confirms that the parameter indicates the carbon emission intensity factor associated with the transport of raw material by transportation type of product, k.
30	$d_{\text{TRANSPORTk}}$	Km	316.3 km.	The Validation and Verification team confirms that the parameter indicates the distance transported by transportation type, k. This is obtained by average of distances from all forest areas of the FMPs. The value indicates the distance transported by transportation type and the details is referenced from the "Sheet, Notes of the workbook ¹⁰⁵ /.
31	$G_{\text{AG},i,t}$	t d.m. ha ⁻¹ yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the Annual increment rate in aboveground biomass (t d.m. ha ⁻¹ yr ⁻¹), in polygon, $i^{27/87}$ /.
32	$G_{\text{BG},i,t}$	t d.m. ha ⁻¹ yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the Annual increment rate in belowground biomass (t d.m. ha ⁻¹ yr ⁻¹), in polygon, $i^{27/87}$ /.
33	$SNAG_{\text{BSL},i,t}$ $SNAG_{\text{PRJ},i,t}$	t d.m. yr ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the total amount of snag mass in polygon i, year, $t^{27/87}$ /.

34	$DBG_{i,t}$	$t \text{ d.m. yr}^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the total quantity of dead belowground biomass accumulated in polygon i since the project start; t biomass ^{/27/87/} .
35	$\Delta C_{PRJ,EMITFOSSIL,t}$ $\Delta C_{BSL,EMITFOSSIL,t}$	$t \text{ C}$	$\Delta C_{PRJ,EMITFOSSIL,t}$ value for $t=1$ is 18.59 t C	The Validation and Verification team confirms that the parameter indicates the annual change in fossil fuel emissions from harvesting and processing of the various wood products in year, t , in the project scenario. The Validation and Verification team concludes that the quantification using harvest, extraction and transportation of Hardwoods and Softwoods in alignment with equation 46 to 50c of Applied Methodology ^{/27/}
36	$\Delta C_{BSL,EMITHARVEST,t}$ $\Delta C_{PRJ,EMITHARVEST,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,EMITHARVEST,t}$ value at $t=1$ is 5.07 t C	The Validation and Verification team confirms that the parameter indicates the Annual fossil fuel emissions associated with harvesting of raw material. Quantified by considering live biomass loss, bucking loss and emission intensity factor associated with harvest ^{/88/} .
37	$\Delta C_{BSL,EMITMANUFACTURE,t}$ $\Delta C_{PRJ,EMITMANUFACTURE,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,EMITMANUFACTURE,t}$ value at $t=1$ is 8.88t C	The Validation and Verification team confirms that the parameter indicates the annual fossil fuel emissions associated with the manufacturing of raw material. Quantified by considering live biomass loss, bucking loss and emission intensity factor associated with manufacture ^{/88/} .
38	$\Delta C_{BSL,EMITTRANSPORT,t}$ $\Delta C_{PRJ,EMITTRANSPORT,t}$	$t \text{ C yr}^{-1}$	$\Delta C_{PRJ,EMITTRANSPORT,t}$ value at $t=1$ is 4.64 t C	The Validation and Verification team confirms that the parameter indicates the annual fossil fuel emissions associated with the transport of raw material. Quantified by considering live biomass loss,

				bucking loss and emission intensity factor associated with transport ^{88/} .
39	LE _y	t CO ₂ e yr ⁻¹	1,543 (value at t=1)	The Validation and Verification team confirms that the parameter indicates the project market leakage in year, y ^{5/} .
40	ER _{y,GROSS}	t CO ₂ e yr ⁻¹	ER _{y,GROSS} value at t=1 is 15,428 t CO ₂ e	The Validation and Verification team confirms that the parameter indicates the gross difference in the overall annual carbon change between the baseline and project scenarios in year, y ^{33/} .
41	ER _y	t CO ₂ e yr ⁻¹	ER _y value at t=1 is 13,885 t CO ₂ e	The Validation and Verification team confirms that the parameter indicates the net GHG emissions reductions and/or removals in year y ^{33/} .
42	BR _y	t CO ₂ e yr ⁻¹	BR _y value at t=1 is 1,527 t CO ₂ e	The Validation and Verification team confirms that the parameter indicates the Estimated VCU-equivalent tCO ₂ e issued to the VCS Buffer Pool in year, y ^{33/} .
43	DBH _t	cm	Estimated using ZEB-SLAM HORIZON Lidar and Tree Calliper	The Validation and Verification team confirms that the parameter indicates the Diameter at breast height measured for each tree in the sample plots at time, t
44	Height _t	m	Estimated using ZEB-SLAM HORIZON Lidar and Haglof Vertex IV Hypsometer	The Validation and Verification team confirms that the parameter indicates the Tree height measured for each tree in the sample plots at time, t
45	L _t	m	Estimated using ZEB-SLAM HORIZON Lidar and Measuring tape	The Validation and Verification team confirms that the parameter indicates the Length of the transects to used determine volume of lying dead wood in the sample plots at time, t
46	d _{n,t}	cm	Estimated using Measuring tape	The Validation and Verification team confirms that the parameter indicates the Diameter of each piece

				n of dead wood along the transects in the sample plots at time, t.
47	$D_{LDW,c,i,t}$	$t \text{ d.m. m}^{-3}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the Density of dead wood in density class, c along the transect in polygon, i, at time, t
48	$B_{AGi,t}$	$t \text{ d.m. yr}^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the Average total aboveground biomass in polygon, i, for year, t.
49	$B_{BGi,t}$	$t \text{ d.m. yr}^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the Average total belowground biomass in polygon, i, for year, t.
50	$B_{TOTAL,i,t}$	$t \text{ d.m. yr}^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The Validation and Verification team confirms that the parameter indicates the Average total live biomass in polygon, i, for year, t
51	$f_{BSL,BLOWDOWN,i,t}$, $f_{PRJ,BLOWDOWN,i,t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. ($0 < f_{BSL,BLOWDOWN,i,t}$, $f_{PRJ,BLOWDOWN,i,t} < 1$)	The Validation and Verification team confirms that the parameter indicates the proportion of live aboveground tree biomass subject to blowdown in polygon, i, year, t, in the baseline and project cases, respectively. The Validation and Verification team concludes that it is determined based on the natural mortality factors modelled in the CBM-CFS3/27/87/.
52	$f_{BSL,BRANCH,i,t}$, $f_{PRJ,BRANCH,i,t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. ($0 < f_{BSL,BRANCH,i,t}$, $f_{PRJ,BRANCH,i,t} < 1$)	The Validation and Verification team confirms that the parameter indicates the proportion of aboveground tree biomass comprised of branches > 2cm in diameter in polygon, i, year, t, in the baseline and project cases, respectively. The Validation and Verification team concludes that it as a modelled parameter using of CBM-CFS3/27/87/.

53	$f_{BSL, BUCKINGLOSS, i, t}$, $f_{PRJ, BUCKINGLOSS, i, t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $(0 < f_{BSL, BUCKINGLOSS, i, t}$ $f_{PRJ, BUCKINGLOSS, i, t} < 1)$	The Validation and Verification team confirms that the parameter indicates the proportion of the log bole biomass left on site after assessing and/or merchandizing the log bole for quality, in polygon, i, year, t, in the baseline and project cases, respectively. The Validation and Verification team concludes that it is modelled parameter using CBM-CFS3/27/87/.
54	$f_{BSL, SNAGFALLDOWN, i, t}$, $f_{PRJ, SNAGFALLDOWN, i, t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $(0 < f_{BSL, SNAGFALLDOWN, i, t}$ $f_{PRJ, SNAGFALLDOWN, i, t} < 1)$	The Validation and Verification team confirms that the parameter indicates the proportion of snag biomass in polygon, i, year, t, that falls over, in the baseline and project cases, respectively. The Validation and Verification team concludes that it is a modelled parameter by CBM-CFS3 based on the species, DBH and age-class/27/87/.
55	$f_{BSL, LWDECAY, i, t}$, $f_{PRJ, LWDECAY, i, t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $(0 < f_{BSL, LWDECAY, i, t}$ $f_{PRJ, LWDECAY, i, t} < 1)$	The Validation and Verification team confirms that the parameter indicates the annual proportional loss of lying dead biomass due to decay, in polygon i, year, t in the baseline and project cases, respectively. The Validation and Verification team concludes it as a modelled parameter by CBM-CFS3 utilizing default values specifically for Romania/27/87/.
56	$f_{BSL, SWDECAY, i, t}$, $f_{PRJ, SWDECAY, i, t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $(0 < f_{BSL, SWDECAY, i, t}$ $f_{PRJ, SWDECAY, i, t} < 1)$	The Validation and Verification team confirms that the parameter indicates the proportional loss of snag biomass due to decay, in polygon, i, year, t, in the baseline and project cases, respectively. The Validation and Verification team concludes that it as a modelled parameter by CBM-CFS3 utilizing default values specifically for Romania/27/87/.

57	$f_{BSL,dgbDECAY,i,t}$ $f_{PRJ,dgbDECAY,i,t}$	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $(0 < f_{BSL,DBGDECAY,i,t} < 1)$ $f_{PRJ,DBGDECAY,i,t} < 1)$	The Validation and Verification team confirms that the parameter indicates the proportional loss of dead belowground biomass due to decay, in polygon i, year, t, in the baseline and project cases, respectively. The Validation and Verification team concludes that it as a modelled parameter by CBM-CFS3 utilizing default values specifically for Romania ^{/27/87/} .
58	$\Delta C_{BSL,G,t}$ $\Delta C_{PRJ,G,t}$	t C	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species. $\Delta C_{PRJ,G,t}$ value for t=1 is 14135.00 t C	The Validation and Verification team confirms that the parameter indicates Live biomass gain in year, t, polygon, i, in the project scenario. The Validation and Verification team concludes that it as a modelled parameter by CBM-CFS3 utilizing default values specifically for Romania in alignment with equation 35 and 33a-b of Applied Methodology ^{/27/87/} .
59	$\Delta C_{BSL,DOM,t}$ $\Delta C_{PRJ,DOM,t}$	t C	$\Delta C_{PRJ,DOM,t}$ value for t=1 is 470.22 t C	The Validation and Verification team confirms that the parameter indicates Dead Organic Matter in year, t, polygon, i, in the project scenario. The Validation and Verification team concludes that it as a modelled parameter by CBM-CFS3 utilizing default values specifically for Romania in alignment with equation 38 to 45d of Applied Methodology ^{/27/87/} .
60	E _M	%	-0.373% Percent Calculated from comparison of model output and field data.	The Validation and Verification team confirms that the parameter indicates the estimate of model error based on the relative area-weighted difference between model-predicted values of carbon storage and those values measured in field plots. The Validation and Verification team concludes that the quantification methods are appropriate and in alignment with equation 60a of Applied Methodology ^{/30/} .

61	E_i	%	0.335% Percent Calculated from comparison of model output and field data.	The Validation and Verification team confirms that the parameter indicates the estimate of Inventory sampling error calculated as the 90% confidence limit of the area-weighted differences between the model-predicted values of carbon storage and those values measured in field plots. The Validation and Verification team concludes that the quantification methods are appropriate and in alignment with equation 60c of Applied Methodology /30/.
62	E_P	%	-0.038% Percent Calculated from comparison of model output and field data.	The Validation and Verification team confirms that the parameter indicates the estimate of total project error used to determine the uncertainty factor. The Validation and Verification team concludes that the quantification methods are appropriate and in alignment with equation 60f of Applied Methodology/30/.
63	$E_{R_y,ERR}$	%	1.5% Percent Calculated from comparison of model output and field data.	The Validation and Verification team confirms that the parameter indicates the uncertainty factor calculated for year 'y'. The Validation and Verification team concludes that the quantification methods are appropriate and in alignment with equation 60f of Applied Methodology /30/.
64	MLF_y	%	10% Percent Calculated from Marketz tool	The Validation and Verification team confirms that the parameter indicates the market leakage factor determined for year 'y'. The Validation and Verification team concludes that the value is derived from Marketz tool based upon the approach defined in Section 5.3 of the PD/5/.

65	VCU _y ,	Unitless	Calculated as per the formula outlined in VM0012 VCU _y value for t=1 is 12,150	The Validation and Verification team confirms that the parameter indicates the Amount of Verified Carbon Units the project estimates are available for issuance and sale in year y ^{33/} .
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Quantification of leakage

The methods for quantifying leakage emissions throughout the project crediting period are outlined as follows.

- The Validation and Verification team reviewed the requirements outlined Section 8.3.1 of the Applied Methodology VM0012, v1.2 to assess the activity-shifting leakage that might occur in other areas owned by project proponent. As per Romanian Forestry Regulations, the transfer of harvest quotas from one Forest management plans to another is not permitted^{72/}. This regulation prohibits compensatory harvesting in other forest areas owned by the project proponent to offset the volume of the timber lost during the project implementation. Therefore, it is not feasible to undertake compensatory harvesting activities in alternate forest areas under the ownership of the project proponent.
- Additionally, the Validation and Verification team reviewed FMPs of other lands to confirm that there have been no significant changes in the FMPs of other lands operated by the project proponent due to implementation of the project activity as this FMP is mandated for period of 10 years without change. This confirmation was established through interviews with project team, detailed document review, detailed review of harvest quota pertaining to other forest lands, on-site inspections by demonstrating the volume trends from harvest align with historical patterns^{16/26/72/}. Regarding the Market Leakage, the Validation and Verification team reviewed the PD-MR and quantification methods outlined in Option 3 within Section 8.3.5 of the Applied Methodology VM0012. The evaluation of most recent market leakage with a focus on methodology deviation utilized the MARKETZ tool^{5/}. The assessment of market leakage involved a stepwise process in accordance with the information provided in Appendix 10 of PD-MR, aligning with the criteria of Option 3 of market leakage assessment in Applied Methodology. Additionally, the Validation and Verification team reviewed the confirmation email received from VERRA (Dated, November 20, 2023) regarding utilization of the MARKETZ tool for SCA.
- The validation and verification team noted that the assessment of market leakage via the deviation (Marketz tool) is less conservative (10%) versus calculated value (17.4%) utilizing default VM0012 – Option 3. Without the methodology deviation the market leakage would be $17.4\% = (1 - 0.13) * 20\%$. Where 0.13 is the international leakage factor for Romania and 20 % is proportional leakage by biomass ratio obtained as per default VM0012 – Option 3.

The Marketz tool uses seven distinct analyses to evaluate how project activities may impact local, regional, and national markets in the host country. This analysis involves detailed calculations across various stages including market determination, market equilibrium, distribution and regulatory barriers, product substitutability, land/carbon impact as a percentage of the national inventory, and biomass ratio of the project. In contrast, the default method prescribed in the methodology relies only on market

determination and biomass ratio to determine the market leakage of the project. Despite the market leakage value derived from the deviation method being less conservative than the default approach as in VM0012, it still ensures enhanced accuracy through a multi-faceted approach supported by credible publicly available references.

Table 22. Factors for Market Leakage Determination and VVB Conclusion

Factors for Market Leakage Determination	Description	Validation and Verification team conclusion
Market Determination	This assessment determines the potential leakage between domestic and international markets, considering factors like wood removals and production types. An international leakage discount factor is applied to assess the impact.	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, Market leakage workbook and information of Forestry Production and Trade. To assess the market determination the removal of industrial roundwood, including both coniferous and non-coniferous wood, sawlogs, veneer logs, and pulpwood round production were reviewed from 2016 to 2022. Additionally, it includes information on export, import, and production volumes measured in cubic meters (m³). <p>https://www.fao.org/faostat/en/#data/FO</p> <ul style="list-style-type: none"> ▪ The Validation and verification team affirmed that value for international market leakage is 13% and is appropriately quantified.
Market Equilibrium	This assessment examines how the project affects production and consumption in the host country, considering global economic factors, using the Global Forest Products Model (GFPM, v202029).	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, Market leakage workbook and Global Forest Products Model for assessment of Market Equilibrium. Considering the project start date, total Roundwood Production and Consumption, the year of first equilibrium disturbance was assessed to be 2070, which is 50 years beyond from project start date. Regarding as project crediting period of 30 years, the occurrence of equilibrium disturbance has no potential impacts and low risk of market leakage^{5/}. <p>https://buongiorno.russell.wisc.edu/gfpm/</p>
Barriers A. Distribution Barrier – Cost of Transportation	It evaluates the spatial extent of market leakage based on the increased transportation costs. A 15%	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, Market leakage workbook and The Romanian Road freight

	<p>or more increase indicates a market barrier and potential leakage risk.</p>	<p>transport in 2020 for Cost of Transportation^{5/}.</p> <ul style="list-style-type: none"> ▪ Considering the average freight cost for a standard operating condition for a 40-ton heavy goods vehicle used internationally is €0.83/km. The average distances were categorized into of local, regional and National terms. The transportation over National average distance causes a High barrier, i.e more than 15% of average cost in pre-project case. As more than 90% of the wood is transported within Romania, the cost of transportation as a barrier is not anticipated to occur^{5/}. ▪ https://www.cnr.fr/en/romanian-road-freight-transport-2020
<p>Barriers B. Regulatory Barrier – Jurisdiction</p>	<p>This assessment evaluates the legal extent of market leakage based on ownership types within the project country, distinguishing between quota-based and non-quota-based ownership.</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, Market leakage workbook and National forestry accounting plan of Romania (2021-2025). National forestry accounting plan of Romania (mmediu.ro) ▪ The Validation and Verification team reviewed the extent of public and private forest and quota-based legislation for forest areas in Romania. Considering the aforementioned information, it is affirmed that Romania is a country with a higher proportion of land ownership regulated by quota-based cutting rules facing a lower risk of market leakage^{5/}.
<p>Product Substitutability</p>	<p>This assesses if alternative products can replace those generated in the baseline scenario, with higher substitutability indicating a greater risk of market leakage.</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, FMP and Market leakage workbook to assess the Product Substitutability. ▪ Considering the Beech, Oak and Spruce as major species groups and Substitutability Factors for Trees (Forest Carbon Offset Protocol -BC FCOP 2.0), there is medium range of Product Substitutability^{5/}.
<p>Land/Carbon Impact</p>	<p>It determines the project's scale compared to the national harvest</p>	<ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the PD-MR, FMP and Market

<p>A. Percent of National Inventory</p>	<p>volumes, providing a proportional analysis of its implementation concerning national resources.</p>	<p>leakage workbook to assess the Land/Carbon Impact by Percent of National Inventory.</p> <p>https://www.fao.org/faostat/en/#data/FO</p> <ul style="list-style-type: none"> Considering Log supply Balance from Forestry Production and Trade, forward looking Project quotas of project area it is affirmed that only 0.1046% of Log is supplied from the project area. Henceforth, it is confirmed that the project land covering Percent of National Inventory is very less, and lower risk of market leakage^{5/}.
<p>Land/Carbon Impact B. Biomass Ratio of Project</p>	<p>This assesses the project's biomass ratio compared to the national leakage area, using a ratio of relative biomass pools to understand its impact on the national biomass pools.</p>	<ul style="list-style-type: none"> The Validation and Verification team reviewed the PD-MR, Market leakage workbook, Forest information system of Europe and Global wood density database to assess the Land/Carbon Impact by Biomass Ratio of Project. <p>http://hdl.handle.net/10255/dryad.235</p> <ul style="list-style-type: none"> Considering leading species, regions, merchantable volume per hectare, biomass per hectare and biomass ratio it is confirmed that the Biomass Ratio of Project is very less, and lower risk of market leakage^{5/}.

The MARKETZ Tool is designed to assess the risks of market leakage from AFOLU projects by quantitatively analyzing their impact on local, regional, and national markets. Developed by resource professionals in British Columbia, Canada, it utilizes seven analyses to evaluate factors such as market equilibrium, transportation barriers, regulatory barriers, product substitutability, and the project's impact on national inventory and biomass ratio. Scores are assigned based on predefined criteria, and the resulting Assessment Score is compared to a Market Leakage Factor Scoring Matrix to determine the overall market leakage factor. The Validation and Verification team reviewed the tool and affirmed that this tool provides a structured approach to accurately quantify market leakage risks, offering an alternative to existing methodologies within the VCS Standard.

The International leakage factor is quantified and is as follows

$$\text{International Leakage Factor (LF}_{\text{INTL}}) = (\text{FP}_{\text{TO_DOMESTIC}}) * (\text{DOM.DEMAND}_{\text{FROM_INTL}}) + (\text{FP}_{\text{TO_EXPORT}}) * (\text{EXP.DEMAND}_{\text{FROM_INTL}})$$

$$\text{International Leakage Factor (LF}_{\text{INTL}}) = (99 \times 13) + (1 \times 13)$$

$$\text{International Leakage Factor (LF}_{\text{INTL}})^{5/} = 13\%$$

The market leakage factor is quantified using the Marketz tool as follows

MARKET LEAKAGE FACTOR (MLF_y) = 10%

The project market leakage (LE_y; t CO₂e yr⁻¹) is calculated as:

$$LE_y = MLF_y \cdot ER_{y,GROSS} \quad (56d)$$

Where,

MLF_y = the market leakage factor in year, y

ER_{y,GROSS} = the gross difference in the overall carbon balance between the baseline and project scenarios in year, y (t CO₂e yr⁻¹).

The quantified market leakage factor for the project is 10%. Conclusively the Validation and Verification team assured that the market leakage factor to the project is reasonable, and it is validated through the following details.

- 1) The Validation and Verification team concluded that the tool is appropriate for the specific project considered all the factors in the tool and through detailed review of quantification spreadsheets^{5/}.
- 2) The Validation and Verification team verified all the information sourced to the spreadsheet for market leakage calculation and are concluded accurate^{5/}.

Summary of Gross and Net GHG emission reductions or removals

The quantification of net GHG emissions reductions and removals throughout the project crediting period adheres to the established equations outlined in the Applied Methodology VM0012, v1.2 and complementary modules.

$$ER_y = ER_{y,GROSS} - LE_y \quad (58)$$

where:

ER_y = the net GHG emissions reductions and/or removals in year y (the overall annual carbon change between the baseline and project scenarios, net all discount factors except the permanence buffer) (t CO₂e yr⁻¹).

ER_{y,GROSS} = the difference in the overall annual carbon change between the baseline and project scenarios (t CO₂e yr⁻¹).

LE_y = Leakage in year y (t CO₂e yr⁻¹), as calculated in equation 56b.

The number of VCU's the project available for issuance and sale in year, y (VCU_y; t CO₂e yr⁻¹), is calculated as:

$$VCU_y = ER_y \cdot (1 - ER_{y,ERR}) - BR_y \quad (59)$$

where:

ER_y = the net GHG emissions reductions and/or removals in year (t CO₂e yr⁻¹), as calculated in equation 58.

ER_{y,ERR} = the uncertainty factor for year, y, (calculated in Section 8.5.3), expressed as a proportion.

BR_y = estimated VCU-equivalent tCO₂e issued to the VCS Buffer Pool in year, y , calculated using the latest version of the VCS AFOLU Non-Permanence Risk Tool.

Table 16 below outlines the anticipated GHG reduction and removals during the crediting period of 30 years. The Validation and Verification team reviewed the GHG estimate workbook^{33/} based on the assumption of constant project area of 1,538 Ha of project area for entire crediting period. This area aligns with the accounting ex-post GHG emission removals and reductions.

Table 23. Anticipated GHG reduction and removals for the entire crediting period

Year/Time step	Quantified baseline emission reductions or removals tCO ₂ e	Quantified project emissions or removals tCO ₂ e	Estimated leakage emissions	Estimated Net GHG emission reductions or removals (tCO ₂ e)
January 1, 2020 - July 31, 2020	-	-	-	-
August 1, 2020 - December 31, 2020	-10,990	4,438	1,543	13,885
January 1, 2021 - December 31, 2021	7,805	-4012	-1,182	-10,635
January 1, 2022 - December 31, 2022	-49,978	15,343	6,532	58,789
January 1, 2023 - December 31, 2023	-4,579	-30173	-2,559	-23,034
January 1, 2024 - December 31, 2024	-7,750	3,950	1,170	10,529
January 1, 2025 - December 31, 2025	-8,560	3,777	1,234	11,102
January 1, 2026 - December 31, 2026	-9,048	3,411	1,246	11,213
January 1, 2027 - December 31, 2027	-14,839	3,173	1,801	16,211
January 1, 2028 - December 31, 2028	-7,714	3,171	1,088	9,796
January 1, 2029 - December 31, 2029	-11,215	3,026	1,424	12,817
January 1, 2030 - December 31, 2030	-10,038	2,832	1,287	11,583
January 1, 2031 - December 31, 2031	-17,905	2,526	2,043	18,388
January 1, 2032 - December 31, 2032	-9,023	2,279	1,130	10,171
January 1, 2033 - December 31, 2033	-8,026	2,267	1,029	9,264
January 1, 2034 - December 31, 2034	-10,336	2,174	1,251	11,260

January 1, 2035 - December 31, 2035	-7,025	2,012	904	8,133
January 1, 2036 - December 31, 2036	-9,505	1,811	1,132	10,184
January 1, 2037 - December 31, 2037	-3,091	1,716	481	4,327
January 1, 2038 - December 31, 2038	-2,688	1,699	439	3,949
January 1, 2039 - December 31, 2039	-2,419	1,631	405	3,645
January 1, 2040 - December 31, 2040	-19,327	1,569	-1,776	-15,982
January 1, 2041 - December 31, 2041	-13,651	1,411	1,506	13,556
January 1, 2042 - December 31, 2042	-9,739	1,344	1,108	9,974
January 1, 2043 - December 31, 2043	-9,547	1,331	1,088	9,790
January 1, 2044 - December 31, 2044	-11,405	1,275	1,268	11,412
January 1, 2045 - December 31, 2045	-15,020	1,225	1,624	14,620
January 1, 2046 - December 31, 2046	-11,728	1,189	1,292	11,625
January 1, 2047 - December 31, 2047	-11,348	1,143	1,249	11,242
January 1, 2048 - December 31, 2048	-12,502	1,134	1,364	12,273
January 1, 2049 - December 31, 2049	-18,463	1,087	1,955	17,596
January 1, 2050 - July 31, 2050	-12,165	1,055	1,322	11,897
TOTAL	-303,163	40,815	34,398	309,580

In the context of greenhouse gas (GHG) estimates, negative values indicate emissions, as they represent a release of carbon into the atmosphere. The negative values observed at t=2 and t=4 result from emissions associated with harvested wood products (HWP) in the baseline scenario. HWPs are calculated by subtracting the carbon stored in wood products at t1 from that at t2. Thus, negative values signify a decrease in carbon stored in wood products from one year to the next, indicating decay.

However, in scenarios without harvesting, this would result in positive values, indicating carbon storage. Conversely, if harvesting has occurred, the equation becomes $-PRJ-BSL$, resulting in negative values, indicating emissions from the project (source).

The Validation and Verification team has undertaken the following steps to validate the quantification methods.

- The Validation and Verification team independently computed net GHG emissions by quantifying both ex-ante baseline and project emissions^{/6/34/}.
- The Validation and Verification team verified the accuracy, reasonability and alignment for all parameters and datasets used in the PD for calculating net GHG emissions reductions and removals as outlined in the spreadsheet^{/6/34/}.
- The Validation and Verification team reviewed both the input data used and output data generated from the CBM-CFS3 model for specific region and affirmed that the data were reasonably accurate^{/29/}.
- The Validation and Verification team reviewed the quantifications from the project team from the GHG emissions reduction spreadsheet, ensuring adherence to the guidelines established in the Applied Methodology, v1.2.

Uncertainties associated with the calculation of emissions.

The project-level uncertainty factor is computed through the uncertainty deduction by a specific function within the uncertainty calculator, as per the information outlined in the Section 8.5.3 of the Applied Methodology of the PD.

The project-level uncertainty factor is calculated as follows:

$$E_M = 100 \cdot (\sum y_{d,h,i} / \sum (A_{PRJ,h} \cdot y_{m,h,i})) \quad (60a)$$

$$E_M = 100 \cdot (10,475.96 / 1,79,807.22)$$

$$E_M = -5.83$$

where:

The summation is across all plot observations, i , and across all analysis units, h ;

$$y_{d,h,i} = A_{PRJ,h} \cdot (y_{m,h,i} - y_{p,h,i}) \quad (60b)$$

$$y_{d,h,i} = 10,475.96$$

E_M = Mean model error for the project (%)

$y_{d,h,i}$ = the area-weighted difference between measured and predicted carbon storage in analysis unit, h , plot observation, i (t C)

$y_{m,h,i}$ = carbon storage measured in analysis unit, h , plot observation, i (t C ha⁻¹)

$y_{p,h,i}$ = carbon storage predicted by model for analysis unit, h , plot observation, i (t C ha⁻¹)

$A_{PRJ,h}$ = area of project analysis unit, h (ha)

The total error for the project (E_P ; %) is calculated by adding the model and inventory error terms.

$$E_P = E_M + E_I \quad (60f)$$

$$E_P = -5.83 + 15.74$$

$$E_P = 9.92\%$$

Table 24. Quantification of Project Error and Uncertainty Factor

Estimated Project Error, E_P (%)	Uncertainty Factor ($=ER_{V,ERR}$)
0 - 10%	= 1.5%
>10%	= 1.5% + E_P - 10%

The project error is quantified using the equation 60f of Applied Methodology and the value is 9.92%. As the estimated project error falls between 0 - 10%, the Uncertainty factor for the project is considered as 1.5%^{30/}.

The Validation and Verification team independently quantified the uncertainty factor and confirms the following.

- The Validation and Verification team independently determined the average percentage model error by analysing the average area-weighted difference between observed values in the monitoring plot and model-predicted values, utilizing the equations denoted in 60a and 60b of Applied Methodology^{30/}.
- The Validation and Verification team independently computed the inventory error at a 90% Confidence Level, presented as a percentage of the mean area-weighted inventory estimate from measured plots. This error is determined by contrasting modelled and measured values in the analysis unit's monitoring plots. Inventory error is determined as per equation 60c of the Applied Methodology accordingly^{30/}.
- The Validation and Verification team independently Quantified the total error of the project by summation of model error and inventory error as per equation 60f of Applied Methodology. Additionally, the final uncertainty factor was determined using details of Table 6 of Applied Methodology^{30/}.
- The Validation and Verification team examined the accuracy of the project team's quantification spreadsheet for uncertainty factor to ensure that it is free from errors^{30/}.

Documentation used as the basis for assumptions and sources of data

The information supporting the preliminary estimation of GHG emission reductions and removals throughout the crediting period were projected, anticipated and historically/forward looking Information derived. The conclusion by Validation and Verification team is detailed as follows.

- Baseline and project harvest volumes rely on existing historical or forward-looking FMPs, established harvest quotas and historical harvest data^{16/26/}.

- Baseline and Project scenarios were projected using region specific existing conditions through CBM-CFS3, a model simulating Carbon Dynamics of Aboveground, Belowground and Deadwood Pools etc. Output was based on forest stand characteristics or respective analysis units. CBM-CFS3 is supported by a Microsoft Access database namely EU-Archive Index Database (EU-AIDB), which contains default ecological information and parameters related to the forest ecosystems of a country, along with other functionalities. (<https://data.europa.eu/89h/jrc-cbm-eu-aidb>).
- As per Section 1.7.3 of CBM-CFS3 User manual^{/27/}, CBM-MAKELIST is a preprocessing tool utilized to organize inventory data before it is fed into the CBM-CFS3 model. Its primary function is to set up the carbon pools within the model, encompassing both aboveground and belowground components of dead tree biomass, such as coarse woody debris, litter layers, fibric layers, humic layers, and mineral soil.
- Ex-ante project scenario emissions were determined based on actual harvest volumes during the monitoring period in respective FMPs^{/84/}. This information was utilized for medium and long-term harvested wood products respectively.

The Validation and Verification team assessed the subsequent and concluded the following.

- a) **All relevant assumptions and data are listed in the PD, including their references and sources are reasonably accurate.**
- b) **All data and parameter values used in the PD are considered reasonable in the context of the project.**
- c) **All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PD.**

Ultimately, the Validation and Verification team affirmed that the methodology and associated tools were accurately utilized to quantify baseline emissions, project emissions, leakage, uncertainty and net GHG reduction and removals for entire project crediting period.

3.4.7 Methodology Deviations

The Validation and Verification team reviewed PD-MR, conducted interviews with project personnel to affirm that a deviation in methodology has been implemented to quantify market leakage resulting from the project activity implementation. The specifics of the deviation are detailed in Section 5.3.2 and Appendix 10 of the PD. The Validation and Verification team evaluated the deviation and concluded the following.

- The substitute quantification approach employs Marketz tool^{/5/} follows the Option-3, Section 8.3.5 of the Applied Methodology VM0012 offering enhanced accuracy compared to methods outlined in the Applied Methodology. Additionally, the alternative meets the criteria and specifications for permitted methodology deviations as per requirements outlined in Section 3.19 of VCS Standard v4.4.
- Section 3.19.2, of VCS Standard v4.4 states that “Methodology deviations shall not negatively impact the conservativeness of the quantification of GHG emission reductions or removals, except where they result in increased accuracy of such quantification”. The validation and verification team noted that the assessment of market leakage using the deviation (Marketz tool) resulted in a value of 10%, whereas the calculated value utilizing default VM0012 – Option 3 arrived at 17.4%. Even though the deviation method resulting in a value that is less conservative than the default approach of VM0012 methodology, the validation and verification

team determined that using the deviation method provides a more accurate assessment of project's scope and scale for quantifying market leakage in GHG emission reductions/removals. The detailed explanation of quantifying the market leakage is provided in 3.4.6 of this report.

3.4.8 Monitoring Plan

Table 25. Parameters included in monitoring plan and Validation and Verification team conclusions.

Sl. No	Parameter	Unit	Value	Description
1	$A_{PRJ,i}$	Hectares (Ha)	1538 Ha	Areas of baseline and project polygon, i for all project instances.
2	$A_{PSP,i}$	m^2	400 m^2 (Radius=11.28 m)	The parameter is area of permanent monitoring plots. The Validation and Verification team verified the information through reviewing monitoring SOP, Lidar Synthetic and inventory data etc
3	CF	$t\ C\ t^{-1}\ d.m$	0.5	Carbon Fraction of dry matter
4	DBH_t	cm	Estimated using ZEB-SLAM HORIZON Lidar and Tree Calliper	The parameter indicates the Diameter at breast height measured for each tree in the sample plots at time, t
5	Height, t	m	Estimated using ZEB-SLAM HORIZON Lidar and Haglof Vertex IV Hypsometer	The parameter indicates the Tree height measured for each tree in the sample plots at time, t
6	$B_{AG\ i,t}$	$t\ d.m.\ ha^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The parameter indicates aboveground live tree biomass in polygon, i , year, t , in the project.
7	$B_{BG\ i,t}$	$t\ d.m.\ ha^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The parameter indicates average belowground live tree biomass in polygon, i , year, t , in the project.
8	$B_{TOTAL\ i,t}$	$t\ d.m.\ ha^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The parameter indicates average total live biomass in polygon, i , for year, t .
9	$C_{LB\ i,t}$	$t\ d.m.\ ha^{-1}$	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The parameter indicates the total carbon storage in live tree biomass in polygon, i , year, t , $t\ C$ in the project case.

10	$C_{DOM,i,t}$	t d.m. ha ⁻¹	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	The parameter indicates the total carbon storage in dead organic matter in polygon, i, year, t,
11	BEF	Unitless	Established by CBM-CFS3 as function of jurisdiction, ecozone and tree species.	Biomass expansion factor (BEF)
12	R_i	Unitless	Established by CBM-CFS3 as a function of tree species and tree size.	Root to Shoot Ratio
13	$f_{PRJ,NATURAL,i,t}$	Unitless	($0 < f_{PRJ,NATURAL,i,t} < 1$) The height and dbh of dead trees in a permanent sample plot will be recorded. Areas of stand replacing natural disturbance events will be delineated if >1.0 hectares.	Proportion of biomass that dies from natural mortality in polygon, i, year, t, in the project case.
14	$f_{PRJ,HARVEST,i,t}$	Unitless	($0 < f_{PRJ,HARVEST,i,t} < 1$) The volume is derived from harvesting records. Modelled estimates of total biomass in polygon, i, used to determine the parameter.	The parameter indicates the proportion of biomass removed by harvesting from polygon, i, in year, t, in the project scenario.
15	$f_{PRJ,DAMAGE,i,t}$	Unitless	($0 < f_{PRJ,DAMAGE,i,t} < 1$) Biomass removals derived from remote sensing data and construction records	Proportion of additional biomass removed by for road and landing construction in polygon, i, year, t, in the project case.
16	$DOM_{SNAG,i,t}$	t d.m. ha ⁻¹	Established by estimating Height, i,t, DBHi,t, and APSP,i of dead trees measured in permanent sample plots.	The parameter indicates the total mass of dead organic matter contained in standing dead wood in polygon, i, year, t in the project case.
17	$DOM_{LDW,i,t}$	t d.m. ha ⁻¹	Established by line intersect method as per monitoring SOP	The parameter indicates the total mass of dead organic matter contained in lying dead wood in polygon, i, year, t in the project case.
18	$V_{LDW,i,t}$	m ³ ha ⁻¹	Established by line intersect method as per monitoring SOP	The parameter indicates the total volume of dead organic matter contained in lying

				dead wood in polygon, i, year, t in the project case.
19	$L_{i,t}$	Meters (m)	Established by calculating lying dead wood: transect length used to determine volume of lying dead wood in the sample plot, at time, t ($4*25m=100m$).	The parameter indicates the length of the transect
20	$D_{n,i,t}$	Centimeters (cm)	Established by calculating the diameter of each piece n of dead wood inside the sample plot at time, t.	The parameter indicates the diameter of each piece n of dead wood inside the sample plot at time, t.
21	$N_{,t}$	unitless	Established by calculating the diameter of each piece n of dead wood along the in the sample plot at time, t).	The parameter indicates the total number of wood pieces in the sample plot, in time t,
22	E_M	%	Percent Calculated from comparison of model output and field data	Estimate of model error
23	E_i	%	Percent Calculated from comparison of model output and field data	Estimate of Inventory sampling error
24	E_P	%	Percent Calculated from summation of model and inventory error	Estimate of total project error
25	$E_{Ry,ERR,y}$	%	Percent Calculated from values of project error	Uncertainty factor calculated for year 'y'.
26	MLF_y	%	Percent Calculated from Marketz tool	Market leakage factor determined for year 'y'.

The PD includes a monitoring plan in Section 6.3 that aligns with the specified requirements outlined in the Applied Methodology VM0012, v1.2. The Validation and Verification team reviewed the information in the monitoring plan through various steps and confirms the following.

- The Validation and Verification team reviewed the scope, description and specified requirements outlined in the monitoring plan and concludes that all the information were following the Applied Methodology and other relevant modules.
- The Validation and Verification team confirms that the team have enough abilities and skills to conduct the monitoring through conducting the interviews with project and onsite biomass inventory observations.
- The Validation and Verification team conducted interviews with the project team to discuss about inventory datasets, field assessment and data management techniques proposed for monitoring carbon stock changes. The team confirmed that this information is presently accessible and viable, moreover the information is assured to remain available for entire crediting period.

- The Validation and Verification team confirmed project ownership of project proponent by detailed review of the land deed documents registered under the National Agency for Cadastre and Real Estate Advertising as required by Law no. 7/1996, Tax invoices and Sales contracts. Additionally, the team affirms that the project proponent possesses the authority to execute, monitor and administer the project activities.
- Following a review of the PD and detailed discussions with the project team, the Validation and Verification team verified the existence of QA/QC plan^{/25/}. This plan ensures employing high-quality data collection and processing for monitoring parameters pertinent to the project.

After examining the evidence provided by the project proponent, EPIC conducted interviews, onsite visits and affirms that the monitoring plan are practical within the project design. Additionally, the method proposed for implementation, including data management and quality control procedures are adequate to ensure that the net GHG removals and reductions achieved by the VCS project activity can be accurately reported and verified. Hence, EPIC concludes that the project proponent is able to implement the monitoring plan as described.

3.5 Non-Permanence Risk Analysis

The project (SCA) was granted an exemption from using AFOLU Non-Permanence Risk Tool, v4.2 from VERRA on 08th December 2023 (Referenced in the letter “Project 4511: Response to exemption submitted on 20th Oct 2023) for joint validation and first verification. This exemption allows the project to utilize the AFOLU Non-Permanence Risk Tool, v4.0. The exemption letter is publicly accessible in the VERRA registry.

Internal Risk – Project Management

Table 26. Evaluation of rationale, assumptions, documentation and data supporting risk score used and Validation and Verification team conclusion.

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
PROJECT MANAGEMENT	a) Validation and Verification team confirmed that no Non-native species or adapted species planted linked to over 25% of the carbon stocks that received GHG credits in the past. <ul style="list-style-type: none"> ▪ Respective FMPs were reviewed in detail to understand the species composition of the PAI^{/16/32/}. 	(0) Risk rating is acceptable
	b) The Validation and Verification team reviewed the documents and conducted the site visits to conclude that continued enforcement is not necessary as illegal logging is not predominant to cause the loss of 50% of stocks. <ul style="list-style-type: none"> ▪ The affirmation was provided through reviewing the FMC inspection records, Illegal felling legislation and procedures of FSC Forest Management Standard to quantify illegal felling^{/54/55/56/}. 	(0) Risk rating is acceptable

	<p>c) Management team does not include individuals with significant experience in all skills necessary to successfully undertake all project activities (i.e., any area of required experience is not covered by at least one individual with at least 5 years' experience in the area).</p> <ul style="list-style-type: none"> ▪ Not applicable 	<p>(0) Risk rating is acceptable</p>
	<p>d) Management team does not maintain a presence in the country or is located more than a day of travel from the project site, considering all parcels or polygons in the project area.</p> <ul style="list-style-type: none"> ▪ Not applicable 	<p>(0) Risk rating is acceptable</p>
	<p>e) The Validation and Verification team conducted interviews with the project management team to affirm that the team contain individuals with significant experience in AFOLU project design and implementation, carbon accounting and under the VCS Program or other approved GHG programs.</p> <ul style="list-style-type: none"> ▪ The affirmation was provided through conducting interviews with interviews with project team including Forest Engineers from Silvador, GIS Analysts from Silvador, Forest Engineer from Forest Design, Personnel from GreenRaise Consulting GmbH/A-K/. 	<p>(-2) Risk rating is acceptable</p>
	<p>f) The Validation and Verification team confirmed that management team resides within Romania and located within a day of travel from the project site, considering all parcels or polygons in the project area.</p> <ul style="list-style-type: none"> ▪ The affirmation was provided through interviews with project proponent and other relevant personnels/A-K/. 	<p>(-2) Risk rating is acceptable</p>
	<p>TOTAL - PROJECT MANAGEMENT</p>	<p>(-4) Risk rating is acceptable</p>

Internal Risk – Financial Viability

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
FINANCIAL VIABILITY	<p>a) Project cash flow breakeven point is greater than 10 years from the current risk assessment.</p> <ul style="list-style-type: none"> ▪ Not applicable 	<p>(0) Risk rating is acceptable</p>
	<p>b) Project cash flow breakeven point is greater than 7 and up to 10 years from the current risk assessment.</p> <ul style="list-style-type: none"> ▪ Not applicable 	<p>(0) Risk rating is acceptable</p>

c) Project cash flow breakeven point greater than 4 and up to 7 years from the current risk assessment. <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
d) The Validation and Verification team affirms that the project cash flow breakeven point is considered to be attained within 4 years from the current risk assessment. <ul style="list-style-type: none"> ▪ The affirmation was provided through interviews with project proponent and document reviews. ▪ Reviewed quantification workbook Cashflow breakeven point and independently assessed the same^{2/}. 	(0) Risk rating is acceptable
e) Project has secured less than 15% of funding needed to cover the total cash out before the project reaches breakeven. <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
f) Project has secured 15% to less than 40% of funding needed to cover the total cash out required before the project reaches breakeven. <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
g) Project has secured 40% to less than 80% of funding needed to cover the total cash out required before the project reaches breakeven. <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
h) The Validation and Verification team affirms that the project has secured more than 80% of funding needed to cover the total cash out before the project reaches breakeven. <ul style="list-style-type: none"> ▪ The affirmation was provided through interviews with project proponent and by reviewing the financial stability statements of the Project proponent. 	(0) Risk rating is acceptable
i) Mitigation: The Validation and Verification team concludes that the project has available callable financial resources at least 50% of the total cash out before the project reaches breakeven. <ul style="list-style-type: none"> ▪ The affirmation was provided through interviews with project proponent and by reviewing the financial stability statements of the Project proponent. 	(-2) Risk rating is acceptable
TOTAL – FINANCIAL VIABILITY	(0) Risk rating is acceptable

Internal Risk – Opportunity Cost

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
OPPORTUNITY COST	a) NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities; or where baseline activities are subsistence-driven, net positive community impacts are not demonstrated <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	b) NPV from the most profitable alternative land use activity is expected to be between 50% and up to 100% more than from project activities <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	c) NPV from the most profitable alternative land use activity is expected to be between 20% and up to 50% more than from project activities <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	d) NPV from the most profitable alternative land use activity is expected to be between 20% more than and up to 20% less than from project activities; or where baseline activities are subsistence-driven, net positive community impacts are demonstrated <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	e) NPV from project activities is expected to be between 20% and up to 50% more profitable than the most profitable alternative land use activity <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	f) The Validation and Verification team concludes that NPV from project activities is expected to be at least 50% more profitable than the most profitable alternative land use activity <ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the NPV quantification workbook and supporting documents including harvest sale prices, operational costs, harvesting and transportation costs^{76/}. ▪ After reviewing the supporting documents mentioned above, the validation and verification team confirmed that “Historical Practice: Continuation of conventional timber extraction activities” as the most profitable alternative land use activity. 	(-4) Risk rating is acceptable

	g) Mitigation: Project proponent is a non-profit organization <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	h) Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over the length of the project crediting period <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	i) Mitigation: Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years. <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	TOTAL – OPPORTUNITY COST	(-4) Risk rating is acceptable

Internal Risk – Project Longevity

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
PROJECT LONGEVITY	a) Following the discussions with the project proponent the Validation and Verification team verified that the project proponent lacks a legal agreement or obligation to sustain the management practice and the project is opted for 30 years crediting period. <ul style="list-style-type: none"> ▪ The Validation and Verification team interviewed the project proponent and to understand that Silvador is not obligated by any legal agreement, conservation easement or protected area requirement to maintain the current management practices as it is a private forest fund property. 	(18) Risk rating is acceptable
	b) Without legal agreement or requirement to continue the management practice <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	TOTAL – PROJECT LONGEVITY	(18) Risk rating is acceptable

TOTAL RISK	INTERNAL	(PROJECT MANAGEMENT + FINANCIAL VIABILITY + OPPORTUNITY COST + PROJECT LONGEVITY)	(10) Risk rating is acceptable
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External Risk – Land Tenure and Resource Access Impacts

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
LAND TENURE AND RESOURCE ACCESS IMPACTS	a) The Validation and Verification team confirmed that the resource access/use rights are held by same owner (Project proponents) by reviewing the Land deed documents, Tax invoices and Sale contracts of the forest lands. <ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed of the land deed documents registered under the National Agency for Cadastre and Real Estate Advertising as required by Law no. 7/1996. Additionally, tax invoices and Sale contracts of the lands were also reviewed^{12/13/}. 	(0) Risk rating is acceptable
	b) Ownership and resource access/use rights are held by different entity(s) (e.g., land is government owned, and the project proponent holds a lease or concession) <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	c) In more than 5% of the project area, there exist disputes over land tenure or ownership <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	d) There exist disputes over access/use rights (or overlapping rights) <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	e) WRC projects unable to demonstrate that potential upstream and sea impacts that could undermine issued credits in the next 10 years are irrelevant or expected to be insignificant, or that there is a plan in place for effectively mitigating such impacts. <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	f) Mitigation: Project area is protected by legally binding commitment (e.g., a conservation easement or protected area) to continue management practices that protect carbon stocks over the length of the project crediting period <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	g) Mitigation: Where disputes over land tenure, ownership or access/use rights exist, documented evidence is provided that projects have implemented activities to resolve the disputes or clarify overlapping claims	(0) Risk rating is acceptable

	<ul style="list-style-type: none"> Not applicable 	
	TOTAL – LAND TENURE AND RESOURCE ACCESS IMPACTS	(0) Risk rating is acceptable

External Risk – Community Engagement

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
COMMUNITY ENGAGEMENT	a) The Validation and Verification team confirmed that there are no communities residing directly within the project area and are not dependent on resources such as food, fuel, fodder etc. <ul style="list-style-type: none"> The Validation and Verification team conducted interviews with project team and stakeholders to obtain information about communities residing within project area and their reliance on resources. Additionally, the team also reviewed the ownership documents, tax invoices and sales contracts to confirm the resource rights^{12/13/}. 	(0) Risk rating is acceptable
	b) The Validation and Verification team confirmed through interviews with stakeholders that no communities reside within a 20km radius of the project area that depend on the project area for essential resources like food, fodder, medicines etc. <ul style="list-style-type: none"> The Validation and Verification team conducted interviews with project team and stakeholders to obtain information about communities residing adjoining to the project area and their reliance on forest resources^{/AA-BS/}. 	(0) Risk rating is acceptable
	c) Mitigation: The project generates net positive impacts on the social and economic well-being of the local communities who derive livelihoods from the project area <ul style="list-style-type: none"> Not applicable 	(0) Risk rating is acceptable

	TOTAL – COMMUNITY ENGAGEMENT	(0) Risk rating is acceptable
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External Risk – Political Risk

Risk	Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score	Risk rating and Conclusion
POLITICAL RISK	a) Governance score of less than -0.79 <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	b) Governance score of -0.79 to less than -0.32 <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	c) Governance score of -0.32 to less than 0.19 <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable
	d) The Validation and Verification team confirmed through that the 5-year average governance score for Romania is 0.24 through independent quantification utilizing the World bank governance indicators for Romania. <ul style="list-style-type: none"> ▪ The Validation and Verification team independently quantified the governance score for 5 years from 2017 to 2022 through World bank governance indicators for Romania (https://www.worldbank.org/en/publication/worldwide-governance-indicators) 	(1) Risk rating is acceptable
	e) Governance score of 0.82 or higher <ul style="list-style-type: none"> ▪ Not applicable 	(0) Risk rating is acceptable

	<p>f) Mitigation: The Validation and Verification team assessed and confirmed that mitigation measures in place and were described in the following.</p> <ul style="list-style-type: none"> ▪ Romania is receiving REDD+ readiness funding from entities such as FCPF, UN-REDD and other bilateral donors. ▪ Romania is participating in initiatives like CCBA/CARE-REDD+ Social and Environmental Standards Initiative. ▪ Involvement of Romania in the Governor’s Climate and Forest Task Force by the jurisdiction where the project is situated. ▪ Romania established national standards body adhering to FSC or PEFC Standards. https://www.pefc.org/discover-pefc/our-pefc-members/national-members/ https://fsc.org/en/newscentre/general-news/fsc-welcomes-romania ▪ Romania has a presence of Designated National Authority (DNA) under CDM, with at least one registered CDM-AR project. https://www.undp.org/sites/g/files/zskgke326/files/migration/tr/1.pdf <p>The Validation and Verification team discussed the information with project proponent and reviewed various websites for obtaining information for the claims.</p>	<p>(-2) Risk rating is acceptable</p>
	<p>TOTAL – POLITICAL RISK</p>	<p>(0) Risk rating is acceptable</p>

<p>TOTAL EXTERNAL RISK</p>	<p>(LAND TENURE AND RESOURCE ACCESS IMPACTS + COMMUNITY ENGAGEMENT + POLITICAL RISK)</p>	<p>(0) Risk rating is acceptable</p>
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Natural Risks

<p>Risk</p>	<p>Assessment of all rationale, assumptions and justifications, documentation and data provided to support the risk score used to support the risk score</p>	<p>Risk rating and Conclusion</p>
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<p style="text-align: center; writing-mode: vertical-rl; transform: rotate(180deg);">FIRE</p>	<p>The Validation and Verification team confirmed that wildfires do not exert a notable influence as natural disturbance in the forest areas. Silvador has implemented effective measures for fire prevention and response, demonstrating proven risk prevention in previous years for fire risks. This is achieved through co-ordination between local communities and skill-based workers.</p> <p>The Validation and Verification team reviewed the information in PD, Fire prevention measures, related research reports, Romania National Inventory Report (NIR), review of adaptive management plan, discussions with project proponent and local stakeholders that wildfires do not exert a notable influence as natural disturbance in the forest areas^{51/}.</p> <p>The information was also gathered from the following references by the Validation and Verification team to conclude the same.</p> <ul style="list-style-type: none"> ▪ https://www.globalforestwatch.org/dashboards/country/ROU/?category=fires ▪ Burlui, I. and Burlui, M.C., 2019. Forest fire hazard in Romanian forests during 1995-2018 period. Revista de Silvicultura si Cinegetica, 24(45), pp.97-105. ▪ (Romania. 2019 National Inventory Report (NIR) UNFCCC) 	<p>(0.25) Risk rating is acceptable</p>
<p style="text-align: center; writing-mode: vertical-rl; transform: rotate(180deg);">PEST AND DISEASE OUTBREAKS</p>	<p>The Validation and Verification team reviewed the information of the pest and disease outbreaks is one of the possible risks for existing forests. It is evident that the project area comprises of deciduous forests with probable risks from <i>Anoplophora chinensis</i>, <i>Lumantria dispar</i> and <i>Tortix viridana</i>. Majorly, the above species impacts the coniferous dominated forests compared to deciduous forests (Anfodillo, et al., 2008; Turbe, et al., 2012). The deciduous forests are less susceptible to diseases than insects and its insignificant.</p> <ul style="list-style-type: none"> ▪ The Validation and Verification team reviewed the information in PD, Pest and Disease prevention plan, related research reports, Romania National Inventory Report (NIR), review of adaptive management plan, discussions with project proponent and local stakeholders^{51/53/62/66/}. ▪ Additionally, ROMSILVA, National Directorate of Forests, Romania (http://www.rosilva.ro/), conducts forest pest management activities on all forest lands and Private landowners are supposed to pay for forest health activities. 	<p>(0.50) Risk rating is acceptable</p>
<p style="text-align: center; writing-mode: vertical-rl; transform: rotate(180deg);">EXTREME WEATHER</p>	<p>The Validation and Verification team confirmed that extreme weather does not exert a notable influence as natural disturbance in the forest areas. Silvador is located in southeastern region of</p>	<p>(0.25) Risk rating is acceptable</p>

	<p>Romania, whereas major wind events are frequent in the northwestern regions of the Carpathian Mountains.</p> <ul style="list-style-type: none"> The Validation and Verification team reviewed the PD, related research articles, review of adaptive management plan, discussions with project proponent and local stakeholders regarding the occurrence of extreme weather^{/51/67/}. 	
GEOLOGICAL RISK	<p>The Validation and Verification team confirmed that geological risk does not exert a notable influence as natural disturbance in the forest areas. Silvador employs regular harvesting activities have the potential to destabilize vulnerable slopes, thereby increasing the likelihood of landslides (https://www.fao.org/3/X4109E/X4109E07.htm). As the project scenario is forest carbon credit project with retaining the primary forest, it is less likely to be affected by geological events^{/77/68/}.</p> <ul style="list-style-type: none"> The Validation and Verification team reviewed the PD, related research articles, review of adaptive management plan, discussions with project proponent and local stakeholders regarding the occurrence of geological risk. 	<p>(0) Risk rating is acceptable</p>
OTHER NATURAL RISKS	<p>The Validation and Verification team concluded that other natural risks like animal browse, especially in younger forest stands can be found, however these have minimum effect on changes of carbon stocks of the forests.</p> <ul style="list-style-type: none"> The Validation and Verification team conducted interviews with project proponent and relevant personnel from Forest Management Companies (FMCs) to discuss about the aforementioned details. 	<p>(0) Risk rating is acceptable</p>
TOTAL NATURAL RISK	(FIRE + PEST AND DISEASE OUTBREAKS+ EXTREME WEATHER + GEOLOGICAL RISK + OTHER NATURAL RISKS)	(1) Risk rating is acceptable

Table 27. Overall Risk rating calculation and Validation and Verification team conclusion

Sl.no	Risk Category	Rating	Risk rating and Conclusion
1	TOTAL INTERNAL RISK	10.00	10.00
2	TOTAL EXTERNAL RISK	0.00	0.00
3	TOTAL NATURAL RISK	1.00	1.00
OVERALL RISK RATING			(11) Risk rating is acceptable

Altogether, the Validation and Verification team concluded with set of examination for all kind of risks that justifications, assumptions and risk scores employed are appropriate to the project.

4 VERIFICATION FINDINGS

4.1 Accuracy of GHG Emission Reduction and Removal Calculations

The Validation and Verification team reviewed all the provided data by project proponent comprising the Project Description and Monitoring Report (PD-MR), Non-permanence risk reports, Standard Operating Procedures (SOP), GHG reduction and removal Quantification Workbooks, Uncertainty Quantification workbook, Investment Analysis, Methodology Deviations, Equations, Parameters, Assumptions and any other relevant Documents. This examination aimed to ensure that the employed approaches and methods aligns with the requirements set out in the VCS Standard v4.4, Applied Methodology VM0012 v1.2 and other supporting tools.

The Validation and Verification team concludes that the quantification workbooks provided by project proponent containing the information of input data and equations, enabled the Validation and Verification team to recalibrate and validate the accuracy of data, application of methodology, equations and calculations. Verification affirmed that the presented data and calculations are devoid of errors and any material misinterpretations. Following the information collected from interviews with project proponent regarding the data collection, processing and details outlined in the PD it is affirmed the abovementioned information were appropriate. The verification confirmed that the data and other information are evident, sufficient, accurate, error-free and consistent with the PD-MR and Applied Methodology.

Furthermore, site visits to the project area involved interviews with the local stakeholders, project personnel, inventory of permanent monitoring plots, on-site visits to firewood warehouse, sawmills and representative conservation areas designated by FSC Forest Management Standard. These inspections substantiate and validate the accuracy of the project claims in PD following the Applied Methodology. Based on the aforementioned findings, EPIC draws the following conclusions.

Table 28. Assessment of accuracy for quantifications of GHG reduction and removals and Validation and Verification team conclusion

Sl. No	Parameter	Assessment of accuracy of GHG emission reductions and removals	Assessment of spreadsheet accuracy and consistency, and conclusion on default values in the monitoring report.
1	$A_{PRJ,i}$	The Validation and Verification team independently recalculated spatial datasets provided using QGIS and affirmed that the total project area instance as well as individual analysis units were reasonably accurate ^{7/} . Additionally, the Validation and Verification team concluded that these areas are documented and utilized for total GHG emission reduction and removals ^{7/32/} .	The methods employed and the values quantified are appropriate
2	$A_{PSP,i}$	The Validation and Verification team independently recalculated the area of sample permanent monitoring plots by Lidar	The methods employed and the values quantified are appropriate

		(Radius:11.28m) ^{42/43/25/86/} during the onsite visit. Additionally, the team affirmed that the procedures followed and quantified area of permanent sample plot (PSP) in polygon, i, is reasonably accurate ^{9/} .	
3	DBH _{i,t}	The Validation and Verification team independently recalculated DBH of trees from sample permanent monitoring plots by Lidar as well as by manually measurement using tree calliper. The team affirmed that the accuracy of DBH calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
4	Height _{i,t}	The Validation and Verification team impartially recalculated height of trees from sample permanent monitoring plots by Lidar ^{42/43/86/} as well as by manually using Haglof Vertex IV Hypsometer. The team affirmed that accuracy of height calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
5	BAG _{i,t}	The Validation and Verification team independently recalculated volume of trees to obtain above ground biomass in the monitoring plots to merchantable volume following published Romanian allometric formulas. The team affirmed that quantification of above ground biomass calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
6	BBG _{i,t}	The Validation and Verification team independently recalculated below ground biomass of using root to shoot ratio of respective trees. The team affirmed that quantification of below ground biomass calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
7	B _{TOTAL i,t}	The Validation and Verification team independently recalculated total biomass of trees by summation of aboveground and belowground biomass. The team affirmed that quantification of below ground biomass calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
8	C _{LB i,t}	The Validation and Verification team independently recalculated total carbon storage in live tree biomass in polygon, i, year, t, tC in the project case. The team affirmed that accuracy total carbon storage in live tree biomass	The methods employed and the values quantified are appropriate

		calculated in permanent sample plot (PSP) is reasonably accurate.	
9	$C_{DOM, i, t}$	The Validation and Verification team independently recalculated total carbon storage in dead organic matter in polygon, i, year, t. The team affirmed that quantification total carbon storage in dead organic matter calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
10	$f_{PRJ, NATURAL, i, t}$	The Validation and Verification team independently recalculated the proportion of biomass removed by harvesting from polygon, i, in year, t, in the project scenario aligns with procedures established in the Applied Methodology VM0012. The team affirmed that quantification proportion of biomass removed by harvesting from polygon calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
11	$f_{PRJ, HARVEST, i, t}$	The Validation and Verification team independently recalculated proportion of biomass that dies from natural mortality, aligns with procedures established in the Applied Methodology VM0012, v1.2. The team affirmed that quantification proportion of biomass that dies from natural mortality calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
12	$f_{PRJ, DAMAGE, i, t}$	The Validation and Verification team reviewed the calculations and independently recalculated percentage of biomass removed during construction of roads; The team affirmed that quantification percentage of biomass removed during construction of roads calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
13	$DOM_{SNAG, i, t}$	The Validation and Verification team affirms that estimations of the total biomass of dead organic matter in standing dead wood in polygon, i, year, t in the project scenario. The team affirmed that quantification of total biomass of dead organic matter in standing dead wood in polygon calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate

14	DOM _{LDW,i,t}	The Validation and Verification team independently recalculated the total mass of dead organic matter contained in lying dead wood in polygon, i, year, t in the project case. The team affirmed that quantification of total biomass of dead organic matter in standing dead wood in polygon calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
15	V _{LDW,i,t}	The Validation and Verification team independently recalculated the total volume of dead organic matter contained in lying dead wood in polygon, i, year, t in the project case. The team affirmed that quantification of total volume of dead organic matter contained in lying dead wood in polygon calculated in permanent sample plot (PSP) is reasonably accurate.	The methods employed and the values quantified are appropriate
16	L _{i,t}	The Validation and Verification team independently recalculated the lying dead wood (m) using transect of dimension 4*25m=100m during the onsite monitoring plot visit. Furthermore, the data used to determine the volume of lying dead wood in the sample plot, at time, t.	The methods employed and the values quantified are appropriate
17	D _{n,i,t}	The Validation and Verification team independently recalculated the diameter of each piece of dead wood along the transects of dimension 4*25m=100m in the sample plot at time, t. Furthermore, the data used to determine the volume of lying dead wood in the sample plot, at time, t.	The methods employed and the values quantified are appropriate
18	E _M	The Validation and Verification team independently quantified the mean model error for the project in the quantification workbook ^{/30/} . The team affirmed that quantification of mean model error is reasonably accurate.	The methods employed and the values quantified are appropriate
19	E _I	The Validation and Verification team independently quantified the calculation of the inventory error for the project in the quantification workbook ^{/30/} . The team affirmed that quantification of inventory error is reasonably accurate.	The methods employed and the values quantified are appropriate

20	E_p	The Validation and Verification team independently quantified the calculation of the project error for the project in the quantification workbook ^{30/} . The team affirmed that quantification of project error is reasonably accurate.	The methods employed and the values quantified are appropriate
21	$E_{Ry,ERR}$	The Validation and Verification team independently quantified the calculation of the uncertainty for the project in the quantification workbook ^{30/} . The team affirmed that quantification of uncertainty is reasonably accurate.	The methods employed and the values quantified are appropriate
22	MLF_y	The Validation and Verification team independently quantified the calculation of the market leakage factor for the project in the quantification workbook ^{5/} . The team affirmed that quantification of market leakage factor is reasonably accurate.	The methods employed and the values quantified are appropriate

The Validation and Verification team concluded that overall GHG emission reductions and removals outlined in the project's GHG statement have been quantified accurately aligning with the monitoring plan and applied methodology for the verification period from 01st August 2020 to 31st December 2022.

4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

Following the review of PD-MR, Standard Operating Procedures (SOP), GHG Quantification Spreadsheets, review of supporting Documents, Onsite visits to Biomass Inventory Monitoring Plots, Interviews with project Proponent and Local Stakeholders the Validation and Verification team affirms that the information collected to quantify GHG reduction and removals during the verification period is adequate, accurate and acceptable quality. The subsequent section outlines the types of evidence utilized in determining GHG reduction and removals. Additionally, it provides details on steps taken to evaluate the appropriateness in quantity and quality for each category of evidence.

Table 29. Assessment of quality of evidence for quantification of GHG reduction and removals and Validation and Verification team conclusion

Sl.no	Category	Assessment of evidence reliability for determining GHG emission reduction and removals	The procedures of collecting, combining, calculating and final transposition into the monitoring report.
1	Forest carbon inventory data as input to plot data workbook	Detailed review of established field SOP's, interviews with project proponent, field crews and comparison to Romanian inventory data ^{25/32/} .	Detailed review of established field SOP's, interviews with project proponent, field crews and comparison to Romanian inventory data ^{25/32/} .

2	GHG quantification workbooks	Review and recalculation of selected sample data from the project quantification workbooks.	Comparing the input data for model and output data detailed in the monitoring report/ ^{4/5/29/32/33/} .
3	Field procedures or practices	The Validation and Verification team examined the field procedures and confirmed that they follow scientific information, employ best practices and have the capacity to record the variations in carbon stocks in accordance with the Applied Methodology.	The Validation and Verification team examined the related field procedures or protocols and affirmed the quality assurance or quality control is adequately specified and found to be appropriate/ ^{91/} .
4	Spatial datasets for analysis units and for GHG quantification	Spreadsheet detailed with homogenous stratification and other spatial data was provided to the Validation and Verification team. The team affirmed that the data contains adequate information to recreate the processes employed by the project and concluded that the quantifications are consistent with values outlined in the project description, monitoring report and workbook.	The Validation and Verification team independently reconstructed and calculated the spatial data to conclude that the total area and area of analysis units presented in the workbooks is appropriate/ ^{7/8/9/10/} .
5	CBM-CFS3, v1.2	The Validation and Verification team reviewed the model to its user guide and found all the default factors, assumptions and outputs from the model are appropriate to the project activity.	The Validation and Verification team independently compared the input data for model and output data detailed in monitoring report/ ^{27/28/} .

5 VALIDATION AND VERIFICATION OPINION

The project “**Silvador Climate Action**” has undergone Validation and Verification processes. EPIC confirms that the project meets all the requirements outlined in the VCS Standard v4.4 without any limitations. The additionality of the project activity is justified, monitoring plans are transparent and sufficient. Quantification of baseline emissions, project emissions and potential leakage has been conducted transparently and conservatively, considering significant long-term GHG benefits.

EPIC confirms that the assumptions, limitations, and methodologies described in the PD-MR support the expected outcomes on GHG emission reduction and removals. Additionally, the GHG statement for Validation and Verification were conducted in accordance with ISO 14064-3:2019 Standards, this ensures that the GHG statement for Validation and Verification align with internationally recognized protocols for GHG accounting and reporting. Altogether, EPIC’s evaluation indicates a high likelihood of achieving the projected GHG benefits outlined in the respective crediting period.

Validation or verification period for the project: 1st August 2020 to 31st December 2022

Validated or verified GHG emission reductions and removals in the above period:

Table 30. Estimated (Gross) GHG reduction and removals for project crediting period.

Year	Estimated GHG emission reductions or removals (tCO ₂ e)
01-January-2020 - 31-July-2020	-
01-August-2020 - 31-December-2020	15,428
01-January-2021 - 31-December-2021	- 11,816
01-January-2022 - 31-December-2022	65,321
01-January-2023 - 31-December-2023	- 25,594
01-January-2024 - 31-December-2024	11,699
01-January-2025 - 31-December-2025	12,336
01-January-2026 - 31-December-2026	12,459
01-January-2027 - 31-December-2027	18,012
01-January-2028 - 31-December-2028	10,885
01-January-2029 - 31-December-2029	14,241
01-January-2030 - 31-December-2030	12,869
01-January-2031 - 31-December-2031	20,431
01-January-2032 - 31-December-2032	11,302
01-January-2033 - 31-December-2033	10,293
01-January-2034 - 31-December-2034	12,511
01-January-2035 - 31-December-2035	9,037
01-January-2036 - 31-December-2036	11,316
01-January-2037 - 31-December-2037	4,808
01-January-2038 - 31-December-2038	4,387
01-January-2039 - 31-December-2039	4,050
01-January-2040 - 31-December-2040	- 17,757

01-January-2041 - 31-December-2041	15,062
01-January-2042 - 31-December-2042	11,082
01-January-2043 - 31-December-2043	10,878
01-January-2044 - 31-December-2044	12,680
01-January-2045 - 31-December-2045	16,245
01-January-2046 - 31-December-2046	12,917
01-January-2047 - 31-December-2047	12,491
01-January-2048 - 31-December-2048	13,636
01-January-2049 - 31-December-2049	19,551
01-January-2050 - 31-July-2050	13,219
Total estimated ERs	343,978
Total number of crediting years	30
Average annual ERs	11,096

Table 31. Net GHG Emissions Reductions and Removals

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
01-August-2020 to 31-December-2020	-10,990	4,438	1,543	13,885	1,527	12,150
01-January-2021 to 31-December-2021	7,805	-4,012	1,182	-10,635	-1,170	-9,305 (0)
01-January-2022 to 31-December-2022	-49,978	15,343	6,532	58,789	6,467	42,135
Total	-53,164	15,770	6,893	62,040	6,824	54,285

- The net change in carbon stocks is **62,040 t CO₂e**.

- The overall non-permanence risk rating is **11%**.
- A buffer of **6,824 tCO₂e** in Verified Carbon Units (VCUs) needs to be deposited.
- The total VCUs to be issued amount to **54,285**
- There was no variation between the estimated ex-ante greenhouse gas emission reductions and removals and the actual achieved reductions and removals for this monitoring period as this is a combined Validation and Verification.

Table 32. Monitoring Period projected and Achieved Emission Reductions and Removals

Year	Ex-ante emissions reductions /removals	Achieved emissions reductions /removals	Percent difference	Justification for the difference
01-August-2020 to 31-December-2020	13,885	13,885	0	Since this is a combined Validation and Verification, there is no difference between Ex-ante and Ex-post GHG estimations
01-January-2021 to 31-December-2021	-10,635	-10,635	0	Since this is a combined Validation and Verification, there is no difference between Ex-ante and Ex-post GHG estimations
01-January-2022 to 31-December-2022	58,789	58,789	0	Since this is a combined Validation and Verification, there is no difference between Ex-ante and Ex-post GHG estimations

APPENDIX A: FINDINGS

Table 1. CL from the Validation and Verification for project titled “SILVADOR CLIMATE ACTION”

CL ID	01	Section no.	1.9 of PD-MR, v1.2	Date: 30th January 2024
Description of CL				
<p>Upon reviewing the PD-MR, V1.4, the VVB noted that Project proponent outlines no information regarding the re-entry period into the harvest area specific to the project activity in the PD-MR.</p> <p>According to the information outlined in Section 3.9.5 of VCS Standard v4.4, For selectively harvested IFM projects the re-entry period into the harvest area is essential for determining the crediting period of the project activity.</p> <p>Project proponent is required to provide the allowable re-entry period into the harvest area as determined by legal and regulatory requirements and/or common practice.</p>				
Project participant response				Date: 30th January 2024
<p>Section 3.9.5 of VCS v4.4 is applicable “For ARR or IFM extension of rotation age or low-productivity to high-productivity with harvesting...” and further specifies the sections applicability to the IFM Extension of Rotation Age (ERA) or IFM low-productivity to high-productivity (LtHP) with harvesting where the harvesting is selective cutting (i.e., “In the case of selectively cut IFM projects...”)</p> <p>Silvador Climate Action (Silvador) is not an IFM ERA or IFM LtHP (with harvesting) project type – it is an IFM Logged to Protected Forest (LtPF) project type. As such, this section is not applicable.</p> <p>For further clarity, Silvador does not have selective cutting within the project and as such would not have a “re-entry period” as would be case if selective harvesting was to occur. The project activity of Silvador is the cessation of timber harvesting, acknowledging low levels of management activities for forest maintenance, ecological enhancement and/or risk mitigation.</p> <p>Silvador has defined an initial crediting period of 30 years, as it required for all other AFOLU projects (except ALM) under the VCS Standard v4.4 Section 3.9.3 which defined the minimum crediting period as 20 years.</p>				
Documentation provided by project participant				
Excerpts below from VCS Standard v4.4:				

AFOLU Projects	
3.9.2	For ALM projects focusing exclusively on reducing N ₂ O, CH ₄ and/or fossil-derived CO ₂ emissions, the project crediting period shall be either seven years (twice renewable for a total of 21 years) or ten years fixed.
3.9.3	For all AFOLU projects other than such ALM projects described in 3.9.2, the project crediting period shall be a minimum of 20 years up to a maximum of 100 years, which may be renewed at most four times, with a total project crediting period not to exceed 100 years.
3.9.4	AFOLU projects shall have a credible and robust plan for managing and implementing the project over the project crediting period.
3.9.5	For ARR or IFM extension of rotation age or low-productive to high-productive projects with harvesting, the length of the project crediting period shall be set to include at least one complete harvest/cutting cycle. In the case of selectively cut IFM projects, where trees are individually selected for harvest, the harvest/cutting cycle is the allowable re-entry period into the harvest area as determined by legal and regulatory requirements, and/or common practice.
3.9.6	The earliest project crediting period start date for AFOLU projects shall be 1 January 2002.

VVB assessment	Date: 13th February 2024
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The Validation and Verification team reviewed the information outlined in the Section 3.9.5 of VCS Standard v4.4 and noted that it is applicable for “ARR or IFM with extension of rotation age or low-productivity to high-productivity with harvesting practices”. In addition, stating its applicability to the IFM Extension of Rotation Age (ERA) or IFM low-productivity to high-productivity (LtHP) with harvesting where the harvesting practices include selective cutting.

Furthermore, it was noted that Silvador does not have selective cutting within the project and as such would not have a "re-entry period" if selective harvesting was to occur. Silvador's project activity is the cessation of timber harvesting, acknowledging low levels of management activities for forest maintenance, ecological enhancement, and/or risk mitigation with applying Harvesting activity definition as per VCS program definitions. The Validation and Verification team reviewed other information such as FMPs and Harvest folder pertaining to the CL raised and affirms that the project area does not involve selective cutting.

The project has defined an initial crediting period of 30 years and is in compliance with the requirements for all other AFOLU projects (except ALM) outlined in Section 3.9.3 of VCS Standard v4.4 which defined the minimum crediting period as 20 years.

The Validation and Verification team concludes that the provided information is sufficient, thus, the raised **CL 01** has been effectively closed.

CL ID	02	Section no.	3.4.1 of PD-MR, v1.2	Date: 30 th January 2024
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Description of CL

Upon reviewing Section 3.4.1 of PD-MR, v1.2, the VVB noted that the project proponent (PP) has identified four distinct plausible alternative baseline scenarios:

- a) Historical Practice
- b) Common Practices
- c) Land acquisition for conversion to real estate development
- d) Acquisition for conversion to conservation lands.

It was observed that PD-MR presents similar descriptions for both Historical Practice and Common Practices. Despite the baseline scenarios of Historical Practice and Common Practices differing from each other, as indicated in Step-1 of Section 6 of the applied methodology VM0012, Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2, the PP is required to provide clarification on this issue.

Project participant response

Date: January 30th 2024

As defined within the VCS VM0012 methodology section 6, Step 2a, “the baseline scenario used on actual property harvest history must be selected if: 2a.1 The project proponent has at least 5 years historical harvest level data history⁷ [Footnote 7: For convenience, projects may utilize a pre-existing forward-looking forest management plan as the historical baseline data, if this management plan can be demonstrated to be consistent with the historical practices and rates, and representative of a forward projection of historical harvest practices]”.

The project utilizes the historical practice baseline scenario (which is analogous with the common practice scenario) as the project proponent has “at least 5 years of historical harvest level data history”.

Historical harvest spreadsheet information has been uploaded to the Auditor Support folder (Silvador Previously Harvested.xls) and can be found in folder named 38-Previously Harvested Information.

As described within the Joint PD/MR v1.3, the common practice scenario and historical baseline scenarios are similar as the Project Proponent managed the project lands for timber harvest prior to project implementation. Forest management plans are required to harvest timber in Romania and must be re-approved every 10-years. Historical management practices followed Forest Management Plans created for the project area, as is common practice for timber harvest and required by Romanian law (outlined in the Forestry Code/1996).

The project is required by the VM0012 methodology to utilize the historical practice baseline scenario (due to the availability of historical harvest level data), which aligns with common practices for other privately owned forest lands being managed for timber harvest.

Documentation provided by project participant

Improved Forest Management in Temperate and Boreal Forests (LtPF) VCS VM00012

STEP 1 – Identify Plausible Alternative Baseline Scenarios to the VCS Project Activity

Project proponents must identify and document descriptions, rationale, and information sources for multiple (at **minimum 3**) realistic and credible property forest management scenarios that would have potentially occurred within the proposed project boundary in the absence of the carbon project activity.

The possible baseline scenarios to be evaluated must include, at minimum:

1. Historical Practice Baseline Scenarios: continuation of pre-project historical activity baseline or management plans;
2. Common Practice Baseline Scenarios: activity on the project area which could have been performed without the carbon project, based on evidence of comparable forest management for similar property types and situations in the region⁵;

STEP 2a - The Historical Baseline Scenario – based on historical operating practices on the property:

The baseline scenario based on actual property harvest history must be selected if:

- 2a.1 The project proponent has at least 5 years historical harvest level data history⁷.

All other cases will utilize the Common Practice Baseline Scenario Selection steps below:

⁷ For convenience, projects may utilize a pre-existing forward-looking forest management plan as the historical baseline data, if this management plan can be demonstrated to be consistent with the historical practices and rates, and representative of a forward projection of historical harvest practices.

Joint Silvador_2_Project_Description_Monitoring_Report v1.3

3.4.1 Step 1 Identify Plausible Alternative Baseline Scenarios to the VCS Activity

The SCA identified four potential baseline scenarios which were evaluated in the baseline selection process.

1. Historical Practice
The VCS standard and VM0012 methodology require that the project proponent assess historical practice as a baseline scenario in Step 2a. The most recent forest management plans (FMP) have been created for the Silvador forested areas and developed for a ten-year period. Each area has an objective of sustainable harvest volume associated with it as well as a total planned annual timber harvest categorized. The current harvest plan created for the project area is further described in Step 2a.
2. Common Practices
The common practice and applicable scenario maximize the allowable timber harvest from the forest fund property as outlined in the FMP document. Romanian forest management plans must be completed every 10 years (Romanian Forest Code, technical regulation no. 5/2005). The common practice is to harvest the annual volume objectives detailed in the forest management plan (i.e. harvest quota). This can be done at a yearly set rate, or all in year X of the plan, however, must remain within the quota. This common practice follows guidelines outlined in the Forestry Code/1996.

Folder with Previously Harvested Information location screen shot:

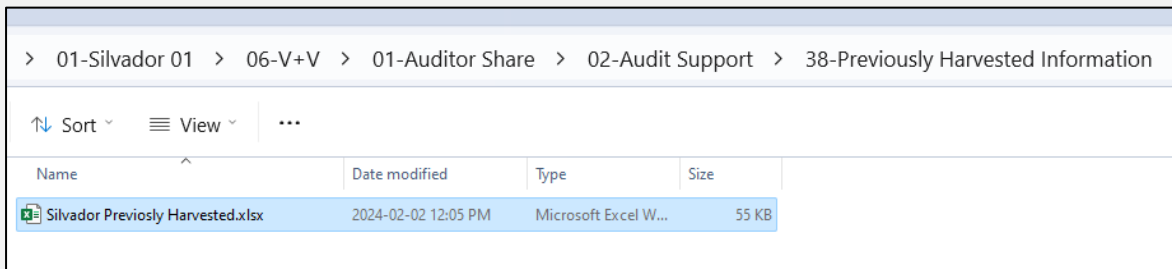


Table 2. CAR from the Validation and Verification for project titled “SILVADOR CLIMATE ACTION”

CAR ID	01	Section no.	6.3.2 of PD-MR	Date: 30 th January 2024
Description of CAR				
<p>The Validation and Verification team reviewed the information outlined in Table 18, Section 6.3.2 of PD-MR, v1.2, dated 26th October 2023, which has summarized as follows: Project proponent outlined 31 permanent monitoring plots within 14 Analysis Units for modelling purposes. The inventory polygons were initially categorized into Analysis Units (AUs) based on leading species (Beech (B), Oak (O), Other Softwood (S)) present in the region, site class (grouped as 0 to 2, 3, and 4 & 5 where 0 referred to highest growth and 5 being the lowest), and harvest regimes (Managed vs. Unmanaged). Additionally, Analysis units are grouped by the presence of leading species, yield classes, and forest management type to represent 14 Analysis Units. Afterward, 31 permanent monitoring plots were identified within 14 Analysis Units for the purpose of modelling.</p> <p>Following an onsite visit to permanent monitoring plot S3-3 in Analysis Unit S3U, initially presumed to have softwoods as the primary species, it was confirmed that softwoods are not present in the area. During the visit, no softwoods were observed by the audit team, contrary to prior claims. PP is required to align with Step-1 of Section 8.1 of Applied Methodology VM0012, Improved Forest Management in Temperate and Boreal Forests (LtPF), v1.2.</p>				
Project participant response				Date: January 30th 2024
<p>For accuracy, the statement noted above “the permanent monitoring plot namely S3-3 within the Analysis Unit S3U assert to contain softwoods as leading specie” may be misleading. Plot S3-3 noted 29 Hornbeam (<i>Carpinus betulus</i>) and two English Oak (<i>Quercus robur</i>), both are considered hardwoods.</p> <p>A stratified random sampling method was used to place plots within each Analysis Unit to remove any sampling bias which may exist. The result of this sampling method placed plot S3-3 within Analysis Unit S3U (un-manged and softwood leading) in a small area of hardwood trees which exists within the analysis unit. It is acknowledged that plot S3-3 was anticipated to be located in a stand more representative of a “softwood leading” analysis unit.</p> <p>As the project is not homogenous, stratification was completed as per Step 1, section 8.1 of VM0012. The stratification process does not remove all variation which exists within a forest stand. The starting inventory used for the stratification process was sourced from the regional common practice, which would generally be described as the inventory completed by the licenced Forest Management Consultant (FMC) and used in the approved Forest Management Plan (FMPs).</p> <p>As further noted in footnote 11 (Step 1, Section 8.1 of VM0012), this methodology evaluates uncertainty using actual results from an ex-post plot network program and hence does not mandate a starting inventory accuracy requirement. Project proponents, however, must provide evidence that the starting inventory has been validated to regional common practice minimum standards for use in ex-ante modelling. This is evident through the use of the licenced FMC, the approved FMPs, etc.</p> <p>For additional accuracy, 31 permanent monitoring plots within 14 Analysis Units were not established for modelling (as incorrectly indicated above and correctly stated in the PD/MR section 6.3.2).</p>				

Information gathered from the plots is used to monitor changes in stand-level forest volumes and are used in Uncertainty calculation (i.e., factor).

The uncertainty factor accounts for uncertainties associated with forest inventory, modelling error, and other factors. The error calculation determines the difference between measured values in monitored plot observations and model-predicted values. Uncertainty has been calculated and applied to calculate Net GHG emissions/reductions. Uncertainty factor of 1.5% was calculated and applied.

Upon inspection (as requested by EPIC) of the plot (and general area surrounding the plot), no softwood species were represented in the plot measurements (as was reflected in the field plot results noted above), but were observed in the area surrounding the plot. This is not un-expected in stands that are non-homogeneous, have a diversity of species, are multi aged, multi-storied and un-managed.

Upon review of the timber type mapping associated with the FMP, it was concluded that the polygon size/shape appear to be accurate however spatial location is not.

In conclusion, the Project Proponent feels the “disparity” relates to the spatial location of the timber typing (of the softwood lead analysis unit) – as illustrated by the FMP/FMP timber type map in comparison to the orthophoto image included below.

The disparity has not materially impacted Net GHG emissions/reductions calculations as the Uncertainty factor has been calculated and applied. The disparity is considered di-minimis as the unit in question is 0.2ha (of +1500ha).

The Silvador monitoring plot inventory work was completed by the licenced FMC. The licenced FMC is aware of the issue. Prior to a new FMP being developed and submitted for approval by the Romanian government, the licenced FMCs will be required to facilitate the completion of updated forest inventory and establish harvest quotas based on the inventory.

Documentation provided by project participant

S3-3 Plot information

plot	Species_short	Species latin	Species ENG	Tree_ID	DBH (cm)	Height (m)	status(alive/dead)
S3-3	CA	Carpinus betulus	Hornbeam	1	25.7	21.02	
S3-3	CA	Carpinus betulus	Hornbeam	2	19.5	21.89	
S3-3	CA	Carpinus betulus	Hornbeam	3	25.2	21.28	
S3-3	CA	Carpinus betulus	Hornbeam	4	21.5	20.76	
S3-3	CA	Carpinus betulus	Hornbeam	5	26.6	21.7	
S3-3	CA	Carpinus betulus	Hornbeam	6	19.2	22.42	
S3-3	CA	Carpinus betulus	Hornbeam	7	11.7	18.72	
S3-3	CA	Carpinus betulus	Hornbeam	8	20.4	19.4	
S3-3	CA	Carpinus betulus	Hornbeam	9	21.3	21.78	
S3-3	CA	Carpinus betulus	Hornbeam	10	19.8	21.68	
S3-3	CA	Carpinus betulus	Hornbeam	11	12.4	14.59	
S3-3	CA	Carpinus betulus	Hornbeam	12	17.6	21.81	
S3-3	CA	Carpinus betulus	Hornbeam	13	20.3	24.01	
S3-3	CA	Carpinus betulus	Hornbeam	14	17.5	22.57	
S3-3	CA	Carpinus betulus	Hornbeam	15	29.1	24.25	
S3-3	CA	Carpinus betulus	Hornbeam	16	12.6	21.26	
S3-3	CA	Carpinus betulus	Hornbeam	17	13.7	23.32	
S3-3	CA	Carpinus betulus	Hornbeam	18	20.9	22.67	
S3-3	CA	Carpinus betulus	Hornbeam	19	24.6	23.19	
S3-3	CA	Carpinus betulus	Hornbeam	20	14.6	18.1	
S3-3	CA	Carpinus betulus	Hornbeam	21	14.7	19.02	
S3-3	CA	Carpinus betulus	Hornbeam	22	20.2	23.83	
S3-3	CA	Carpinus betulus	Hornbeam	23	27.4	23.33	
S3-3	CA	Carpinus betulus	Hornbeam	24	30.9	24.47	
S3-3	CA	Carpinus betulus	Hornbeam	25	24.1	22.65	
S3-3	CA	Carpinus betulus	Hornbeam	26	26.1	24.12	
S3-3	CA	Carpinus betulus	Hornbeam	27	26.4	23.66	
S3-3	CA	Carpinus betulus	Hornbeam	28	26	22.04	
S3-3	CA	Carpinus betulus	Hornbeam	29	13	22.68	
S3-3	STs	Quercus robur (seed)	English oak	30	41	25.38	
S3-3	STs	Quercus robur (seed)	English oak	31	46.6	25.41	

VWB assessment	Date: 13 th February 2024
<p>The Validation and Verification team noted that despite initial claims of softwood presence, the actual composition of plot S3-3 within Analysis Unit S3U reveals Hornbeam and English Oak trees, categorized as hardwoods.</p> <p>During the preparation of homogenous units, stratified random sampling was utilized to minimize bias in plot placement, resulting in the inclusion of plot S3-3 in an area known for softwood dominance but containing a small portion of hardwood. While stratification aims to reduce variation within forest stands, it relied on starting inventory from licensed Forest Management Companies and approved FMPs, aligning with regional guidelines. Subsequently, an uncertainty factor of 1.5% was applied to account for uncertainties in forest inventory and modeling errors, ensuring accurate GHG emissions calculations.</p> <p>Despite the lack of timber type mapping and the small size of the affected unit i.e 0.2 Ha of 1538 Ha, the licensed FMC overseeing the monitoring plot inventory should the issue to ensure accuracy in future Forest Management Plans as the initial forest management plans were approved for a period of 10 years.</p> <p>The Validation and Verification team concludes that the provided information is sufficient, thus, the raised CAR 01 has been effectively closed.</p>	

CAR ID	02	Section no.	1.7 of PD-MR, v1.2	Date: 30th January 2024
Description of CAR				
<p>Following the information provided in Section 1.7 of the PD-MR, v1.2, Dated 26th October 2023, the Validation and Verification team reviewed all ownership documents for the project proponent's areas (Notarized Extract of Land Deed documents demonstrating ownership) officially authorized by the National Agency for Cadastre and Real Estate Advertising Institution. Subsequently, it was noted that some forest areas were registered after the project's commencement date.</p> <p>As per the requirements outlined in Section 3.7.1 of VCS Standard v4.4, the ownership of the project area or areas included in the project activity instance of the project should be owned by the project proponent prior to the project start date. The project proponent is required to provide valid justification regarding the ownership documents along with supporting evidence to address the concern.</p>				
Project participant response				Date: January 31st 2024
<p>Silvador Climate Action start date is noted as August 1, 2020 and consists of multiple properties within the single project activity instance with varying dates of contributing to the GHG emissions/reductions of the project. Contributing dates (conservatively noted as the 1st of the month following date of ownership or in instances where ownership was earlier than the project start date, a contribution date of August 1, 2020 is noted).</p> <p>A table has been added to Section 1.4 (PD/MR) to clearly note the date in which the Project Proponent acquired ownership (i.e., "ownership arising under law" and illustrated via Notarized Extract of Land Deed documents) and the contribution date of the project.</p> <p>In constructing the table, it was realized that the project contribution date associated with Valea Tisei was incorrectly noted as 2020, rather than 2021. Although this error did not change the total harvest volume stopped/protected via the project, it did result in a change in the GHG emissions/reductions when modelled in CBM.</p> <p>PD/MR v1.3 has been updated to include revised Net GHG Emissions Reduction and Removals (table 21). Appendix 3 has been updated to reflect revised supporting datafiles.</p> <p>Ownership documentation continues to be located on the Auditor Share MS SharePoint.</p>				
Documentation provided by project participant				

Joint Salvador_2_Project_Description_Monitoring_Report v1.3

1.4 Project Design

The SCA is a grouped project to allow multiple PAIs to be established within the project area (See Section 1.4.1 below). Conditions within the project area at the time of validation have been used to create the baseline scenario and determine project additionality. The baseline scenario and additionality assessments have been completed within one clearly defined geographic area for The SCA (Figure 2. Overview of the Salvador Climate Action). The current project will only include one project activity, and initially one PAI, implemented under the VM0012 methodology. Additional PAIs may be

Salvador Climate Action - v1.32

2



Joint Project Description & Monitoring Report: VCS Version 4.2

implemented following initial project validation. [The table below outlines the project design regarding ownership and project contribution dates.](#)

Table 1: Project Design Overview

Current UP Name	Past UP Name	Current Owner	Ownership Date (Most recent acquisition date)	Project Contribution Date
I Forest Capital	Hoboda	Silvador	October 2, 2020	November 1, 2020
I Forest Capital	Popescu	Forest Capital	August 28, 2020	September 1, 2020
I Forest Capital	Parte Din UP V	Forest Capital	March 25, 2020	August 1, 2020
Valea Tsei		Forest Capital	June 26, 2021	July 1, 2021
Continescu		Forest Capital	August 14, 2020	September 1, 2020
Barbu		Forest Capital	June 17, 2020	August 1, 2020
Manesti		Silvador	March 28, 2018	August 1, 2020
Cornatelu	Nietscu	Silvador	September 4, 2019	August 1, 2020

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VB assessment

Date: 13th February 2024

The Validation and Verification team concludes that the provided evidence is adequate, and therefore, the raised CAR has been effectively resolved.

CAR ID	03	Section no.	1.17.2 of PD-MR, v1.2	Date: 30 th January 2024
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Description of CAR

The Validation and Verification team reviewed the information outlined in section 1.17.2 of PD-MR, v1.2, dated 26th October 2023, which has summarized as follows: Project proponent claims to attain SDG (Sustainable Development Goals) Target 12.2 (By 2030, achieve the sustainable management and efficient use of natural resources) according to Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. The current project contributions claims that 62% of the project areas owned by Salvador Company SRL are certified to the FSC Forest Management Standard.

Upon reviewing the FSC certificates (NC-FM/COC-028522, Validity: 08/01/2018 to 07/01/2023), initially recognized to have FSC Forest Management Standard certification for >62% of the project areas,

the VVB noted that 0% of area owned by the Silvador Company SRL are certified to the FSC Forest Management Standard.

As per the requirement outlined in the Section 3.17.1 of VCS Standard v4.4, PP is required to verify all the FSC certified project areas and provide valid justification along with supporting evidence to address the concern.

Project participant response

Date: 13th February 2024

The properties within the project activity instance that have achieved FSC certification are noted in the official FSC certification confirmation online portal ([FSC Search](#)) and noted within the publicly available FSC Audit Report (2022 FSC Forest Management Certification, 4th Surveillance Report for: Asociatia Ocolul Silvic Evergreen in Prahova, Romania; dated Feb 23, 2022). Refer to Audit Share, folder name “37-FSC Evidence”.

The sources confirm the following Silvador owned properties as FSC certified:

- UP Barbu
- UP Constinescu
- UP Hodoba
- UP Popescu

Inclusion of the above listed properties correctly claims 62% of the project areas owned by Silvador are FSC certified.

For context, during EPICs review of the recently released 2023 FSC report noted a type-o/error that omitted Silvador entities from the report. During on-site validation/verification EPIC interviewed with FSC Auditor (contract auditor to FSC certification body Preferred by Nature) who confirmed the omission was an error (and attributable to Romanian practice of changing FMP properties names with when FMPs are approved).

Silvador has requested that FSC Certification Body correct the 2023 FSC Audit Report (note the FSC Certification Confirmation online portal continues to be accurate).

Group OS Ever Green FM_COC-028522 4th Surveillance Audit (dated Feb 23, 2022 - Section 3.3.1 Certificate Scope, pg. 13

3.3 Certificate Scope

3.3.1 Scope Details¹

Forest Management Unit (FMU) and group members included in scope of certificate:

Owner (Group member) – Forest Capital with FMU - UP I Constantinescu, UP V Barbu, UP VII Popescu

Owner (Group member) – Silvador Company with FMU – I Hodoba

The following table shows the updated group certificate membership information:

FMU	Owner (Group member)	Type of ownership	Area (ha)
I Batraneni	OMSB	Private	3,543.139
	SC Domeniile Girbea SRL	Private	189.361
	Sandulescu Constantin	Private	17.4
	Duna Mihail-Iulian	Private	9.9995
	Oprea Viorel	Private	17.9995
IV Starchiojd	OMSB	Private	1,237.62
UP I Obstea Chiojdenilor	Obstea Chiojdenilor	Private	2,436.20
UP I Constantinescu	Forest Capital	Private	151.9
UP V Barbu	Forest Capital	Private	426.02
UP VII Popescu	Forest Capital	Private	198
UP I Hodoba	Silvador Company	Private	178.6675
TOTAL			8,406.307

¹ Data presented in the reports shall be in metric system units

FSC Certification Confirmation Portal

Group Members / Sites

ORGANIZATION	ROLE	THE CODE OF THE SITE	STATUS
Domeniile Girbea SRL	FM - Group Member	NC-FM/COC-028522-B	Valid
Forest Capital SRL	FM - Group Member	NC-FM/COC-028522-G	Valid
Mihail-Iulian Duna	FM - Group Member	NC-FM/COC-028522-D	Valid
Obstea Mosnenilor Chiojdeni	FM - Group Member	NC-FM/COC-028522-F	Valid

FSC Certification File - FSC-C139122
Digitally signed by DigiCert Timestamp 2022 - 2
Date: 2022.01.22 11:00:25 +00:00

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FSC CERTIFICATION RECORD

ORGANIZATION	ROLE	THE CODE OF THE SITE	STATUS
Obstea Mosnenilor Starchiojdeni si Batraneni	FM - Group Member	NC-FM/COC-028522-A	Valid
Sandulescu Constantin	FM - Group Member	NC-FM/COC-028522-C	Valid
SILVADOR COMPANY S.R.L.	FM - Group Member	NC-FM/COC-028522-H	Valid
Viorel Oprea	FM - Group Member	NC-FM/COC-028522-E	Valid

Documentation provided by project participant	
VVB assessment	Date: 13 th February 2024
<p>The Validation and Verification team reviewed the FSC Certification documentation (NC-FM/COC-028522-H and NC-FM/COC-028522-G) and conducted interviews with the FSC Auditor during the onsite visit regarding the Corrective Action Request (CAR) raised.</p> <p>Additionally, during the onsite validation/verification process, EPIC interviewed the FSC Auditor (contract auditor to FSC certification body Preferred by Nature), who confirmed that the omission was due to an error, attributed to the Romanian practice of changing FMP properties names when FMPs are approved. The VVB reviewed the FM_COC-028522 4th Surveillance Audit (dated Feb 23, 2022 - Section 3.3.1 Certificate Scope, pg. 13 to affirm that the information provided is adequate.</p> <p>Subsequently, a confirmation notification provided by Ever Green Forestry Association on 21st February 2024, referring to the correction on the FSC certified areas was forwarded to the VVB as well.</p> <p>Based on the information gathered, the Validation and Verification team concludes that the provided evidence is adequate, and therefore, the raised CAR 03 has been effectively resolved.</p>	

Table 3. FAR from the Validation and Verification for project titled “SILVADOR CLIMATE ACTION”

FAR ID	01	Section no.	1.17.2 of PD-MR, v1.2	Date: 30 th January 2024
Description of FAR				
<p>The Validation and Verification team reviewed the information outlined in section 1.17.2 of PD-MR, v1.2, dated 26th October 2023, which has summarized as follows: Project proponent claims to attain SDG (Sustainable Development Goals) Target 12.2 (By 2030, achieve the sustainable management and efficient use of natural resources) according to Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. The current project contributions claim that 62% of the projects owned by Silvador Company SRL are certified to the FSC Forest Management Standard. The project proponent assures that 100% of the forest lands owned by Silvador will be certified to a recognized third-party sustainable management standard over the lifetime of the project.</p> <p>The Validation and Verification team requests the upcoming VVB to verify the regions that were previously certified and those intended for certification in the upcoming verification process.</p>				
Project participant response				Date: January 31 st 2024
Noted as Forward Action Request.				
Documentation provided by project participant				
VVB assessment				Date:

FAR ID	02	Section no.	1.17.2 of PD-MR, v1.2	Date: 30 th January 2024
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Description of FAR	
<p>The Validation and Verification team reviewed the information outlined in section 1.17.2 of PD-MR, v1.2, dated 26th October 2023, which has summarized as follows: Project proponent claims to attain SDG (Sustainable Development Goals) Target 12.2 (By 2030, achieve the sustainable management and efficient use of natural resources) according to Global indicator framework for the Sustainable Development Goals and targets of the 2030 Agenda for Sustainable Development. The current project contributions claim that 62% of the projects owned by Silvador Company SRL are certified to the FSC Forest Management Standard. The project proponent assures that 100% of the forest lands owned by Silvador will be certified to a recognized third-party sustainable management standard over the lifetime of the project. According to FSC Forest Management Standard procedures the certified areas should allocate 10% of the certified areas as representative natural ecosystems and these designated areas must refrain from any harvest related activities.</p> <p>The Validation and Verification team requests the upcoming VVB to verify the representative natural ecosystems that were previously certified and those intended for certification in the upcoming verification process.</p>	
Project participant response	Date: January 31st 2024
Noted as Forward Action Request.	
Documentation provided by project participant	
VVB assessment	Date:

- 1) **Clarifications (CL):** Additional information is required for clarification on a specific matter.
- 2) **Corrective action requests (CAR):** Indicates a deviation from a specific requirement, and it can only be resolved upon evidence provided that the identified issue has been corrected. Corrective action of all open CAR's is necessary before validation and verification statements can be issued.
- 3) **Forward action requests (FAR):** Matters concerning the project implementation that need examination during upcoming verification of the project activity. These concerns should not pertain to VCS requirements for registration.

APPENDIX B: PHOTOGRAPHS TAKEN DURING THE ONSITE VISIT

	
<p>Opening Meeting at Silvador Office, Targoviste</p>	<p>Stakeholder interview conducted in Townhall</p>
	
<p>Estimation of tree height using Haglof Vertex IV Hypsometer</p>	<p>Stakeholder interview conducted in Buzau</p>
	
<p>Measuring DBH in the permanent monitoring plot using tree calliper</p>	<p>Measuring tree height in the permanent monitoring plot using Haglof Vertex IV Hypsometer</p>









Visit to the Firewood Warehouse of Dambovita County and interviewed the wood buyer

Visit to the Wood Sawmill in the Dambovita County



Discussing about working principle of ZEB SLAM HORIZON Lidar and its demonstration

Utilizing the Drone for collecting footage of forest area

	
<p>Processing of Lidar data after measurement using ZEB-SLAM HORIZON Lidar</p>	<p>Discussing about the synthetic data of initial measurement obtained by Lidar</p>
	
<p>Stakeholder interview conducted in the wood sawmill located at Dambovita County</p>	<p>Stakeholder interview conducted in the Dambovita County</p>
	
<p>Stakeholder interview conducted in Buzau County</p>	<p>Closing Meeting at Silvarod Office, Targoviste</p>