

KATINGAN PEATLAND RESTORATION AND CONSERVATION PROJECT VALIDATION REPORT

AENOR

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Project lifetime	01 November 2010 – 31 October 2070; 60-year lifetime
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Summary:

AENOR CONFÍA S.A.U has carried out validation activities for the baseline renewal assessment of the Katingan Peatland Restoration and Conservation Project (ID 1477) under the VCS and CCB Programs. The project is included in the scope of Reducing Emissions from Deforestation and forest Degradation (REDD+), applying VM0007 REDD+ Methodology Framework (REDD+ MF), v1.8, implemented in Central Kalimantan, Indonesia.

The scope of this validation audit is limited to those aspects related to the baseline renewal, to validate the emissions reductions estimation and related assumptions of the proposed project activity in Indonesia against the Verified Carbon Standard (VCS), the identified methodology and associated tools, as well as to validate the compliance of the project design with the criteria of the Climate, Community and Biodiversity Standards (CCB).

The re-assessment of the baseline was performed through a combination of in-depth document desk review, interviews with relevant stakeholders and on-site inspections. During the validation, 15 CARs and 14 CLs were raised for both VCS and CCB findings. All these issues were appropriately closed by providing corrections, clearer explanations, and additional supporting documents.

Once all issues detected were appropriately resolved, AENOR elaborated this final VCS & CCB validation report, deeming with reasonable level of assurance that the project complies with all of the validation criteria. The assessment team has no restrictions or uncertainties with respect to the compliance of the project with the validation criteria.

Hence, the audit team concludes that the project complies with all the requirements set by the VCS Standard v4.7 and the Third Edition CCB Standards (CCB v3.1), and that the GHG emission reductions

of 37,341,835 (after buffer discount of 14%) expected to be achieved through the implementation of project activities during the baseline validity period (2021 – 2026), have been quantified in accordance with VCS rules. AENOR confirms that the project has been validated for the Community Gold distinctions in accordance with the Third Edition CCB Standards.

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1 INTRODUCTION

1.1 Objective (VCS, 4.1; CCB Program Rules, 4.2)

The purpose of the validation audit activity was to conduct an independent assessment of the project in order to determine whether the project complies with the validation criteria as set out in the guidance documents listed in Section 1.2 of this report, including the monitoring procedures and the expected climate, community, and biodiversity benefits; and that the GHG emission reductions estimated ex-ante in the Project Description (PD) are materially accurate.

1.2 Scope and Criteria (VCS, 4.1, CCB Program Rules, 4.2)

In the Fourth Verification of the Katingan Mentaya Project, a new updated Project Description document was produced to reflect all the changes regarding the baseline renewal.

The whole Climate section of the validated PD has been updated, and these are the sections with the most relevant changes:

- PD Section 3.1 has been updated using the latest remote sensing technology for the creation of the digital terrain model and the mapping of peat thickness, peat depletion time and above ground biomass.
- PD Section 3.2.2.1 outlines the new regulations impacting the baseline and how these have been implemented in the baseline model.
- PD Section 3.2.2.2 has been updated to calculate the new deforestation rate for this baseline period.
- PD Section 3.2.2.3 details the updated baseline stratification and model, implementing all the new datasets and regulations affecting the baseline.
- PD Section 3.2.2.4, 3.2.25 have been updated with the new baseline emissions.
- PD Section 3.2.3 has been updated with the implementations of the new datasets, project stratification and ex-project emissions.
- Section 3.2.4 has been updated with the new leakage calculations.
- Section 3.2.5 has been updated with the new VCUs estimations.
- Section 3.3 has the updated monitoring plan.
- Section 3.4 has been updated with the new climate change benefits analysis.
- The baseline scenario is still valid, with a detailed justification in PD Section 3.1.4.

The scope of this validation audit is limited to those aspects related to the baseline renewal, to validate the emissions reductions estimation and related assumptions of the proposed project activity in Indonesia against the Verified Carbon Standard (VCS), the identified methodology and associated tools, as well as to validate the compliance of the project design with the criteria of the Climate, Community and Biodiversity Standards (CCB).

Therefore, this validation report only assesses those sections that have been updated with respect to the validated PD due to the baseline renewal, and those not affected are marked as “Not applicable”.

The baseline reassessment was carried out in accordance with Section 3.2.6, paragraph 3, of the VCS Standard v4.7.

In accordance with Section 3.2.6, paragraph 3, of the VCS Standard v4.7, the reassessment captured changes in the drivers and/or behaviour of agents that cause the change in land use, hydrology, sediment supply and/or land or water management practices and changes in carbon stocks, all of which were incorporated into revised estimates of the rates and patterns of land-use change and estimates of baseline emissions.

In accordance with Section 3.2.6, paragraph 4, of the VCS Standard v4.7, the validity of the original baseline scenario was reassessed, including an evaluation of the impact of new relevant national and/or sectoral policies and circumstances on the validity of the baseline scenario.

The scope was defined as follows:

- The project area, including the different strata.
- The project’s baseline scenarios and additionality.
- The GHG sources, sinks and/or reservoirs that apply to the project.
- The types of GHGs that apply to the project.
- The monitoring plan.
- Legislation changes.

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

- VCS Standard v4.7
- VCS Program Guide v4.4
- VCS Program Definitions v.4.5
- Registration and Issuance Process, v4.6
- VCS AFOLU Non-Permanence Risk Tool v 4.2
- CCB Program Rules v 3.1

- Third Edition CCB Standard v3.1
- CCB Program Definitions v.3.0
- CCB & VCS Project Description Template, CCB Version 3.0, VCS Version 4.4
- CCB & VCS Validation Report Template, CCB Version 3.0, VCS Version 4.4
- VM0007 REDD+ Methodology Framework (REDD+ MF), v1.8 and all the applicable tools (see more information in Section 3.2.1 and 3.2.2 of this report).

Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS and CCB guidance documents.

1.3 Reasonableness of Assumptions (VCS, 4.1; CCB Program Rules, 4.2)

The assessment was conducted to provide a reasonable level of assurance of conformance against the defined audit criteria and materiality thresholds within the audit scope.

AENOR ensures the conformance of the project with VCS rules by considering a materiality threshold of less than 1% in terms of errors, omissions, and misrepresentations relative to total reported GHG emission reductions.

Based on the audit findings, a positive evaluation statement reasonably assures that the project GHG assertions are materially correct and are a fair representation of the GHG data and information.

All the versions of the validation report were subjected to an independent internal technical review before being submitted to the client to confirm that all validation activities had been completed according to the pertinent AENOR instructions required.

The technical review was performed by two technical reviewers qualified in accordance with AENOR's qualification scheme for VCS and CCB validation and verification.

1.4 Summary Description of the Project (VCS, 4.1; CCB Program Rules, 4.2)

The Katingan Mentaya Peatland Restoration and Conservation Project (Katingan Mentaya Project) is located in Central Kalimantan, Indonesia, spanning 157,875 hectares of tropical peat swamp forest (157,875 ha is the entire concession area, whilst 149,800 ha is the 'project area' in which verified emission reductions are generated). This ecosystem plays a critical role in storing carbon, regulating water flows, and supporting biodiversity. The project is mitigating climate change and promoting sustainable development by protecting and restoring peatlands that were previously under threat from conversion to industrial acacia plantations.

To achieve its goals, the project implements the following key activities:

- By managing the concession license, the project is preventing the emissions that would have occurred had the baseline scenario happened (see sections 2.2.1, 2.2.2 and 3.1.4)
- Forest protection and surveillance, to prevent illegal logging and unplanned land conversion (see section 2.5.10).
- Peatland rewetting through canal blocking, restoring hydrological conditions to reduce peat oxidation and fire risk.
- Community-based fire prevention programmes, including early detection systems, local fire teams, and incentive mechanisms (see section 3.3.3.7).
- Sustainable livelihood initiatives, such as agroforestry, eco-tourism, and non-timber forest products (NTFPs), reducing pressure on forest resources.

Prior to project initiation in 2010, the area was slated for conversion to pulpwood plantations, with multiple applications under national development policies. Without intervention, extensive emissions from peat degradation and fire were anticipated. The project secured legal rights through an ecosystem restoration concession (ERC) to prevent these outcomes.

The project avoids emissions by halting planned deforestation and reducing peatland degradation. Estimated average annual GHG emission reductions are 6.7 million tCO₂e/year, totalling 402.6 million tCO₂e over the 60-year crediting period. In addition, rewetting contributes to carbon sequestration by reducing subsidence and restoring natural carbon dynamics.

The project has three integrated objectives:

- Climate: Prevent GHG emissions through avoided deforestation, peatland restoration, and fire prevention.
- Community: Improve livelihoods, health, education, and resilience through inclusive and participatory development.
- Biodiversity: Conserve high conservation value habitats and reduce threats to Critically Endangered and Endangered species, including the Bornean Orangutan (*Pongo pygmaeus*).

The project is located within a jurisdiction covered by Indonesia's national REDD+ strategy, and aligns with its objectives, but does not claim accounting credit under the jurisdictional REDD+ programme.

2 VALIDATION PROCESS

2.1 Audit Team Composition (VCS, 4.1; CCB Program Rules, 4.3.1)

Name	Position in the team
Adrián Vidal	Lead auditor until May 2026
Marta Múgica	Lead Auditor
Juan Carlos Gómez	Auditor
Abdul Syukur Ahmad	Auditor and local expert
Marcos Recio	Technical reviewer
Javier Cócera	Technical reviewer

Adrián Vidal holds a Master's degree in Forest Engineering from the Technical University on Madrid, and a Postgraduate Diploma in Climate Change from the National University of Quilmes and the National University of Jujuy. Adrián has over 8 years of professional experience in forestry and sustainability and currently works at the Climate Change Unit in AENOR, where he carries out audits of AFOLU projects under different standards (VCS, CCB, Gold Standard, Cercarbono, etc.) and jurisdictional REDD+ programs under different frameworks (FCPF, ART-TREES, REM, JNR, bilateral agreements, etc.). Prior to joining AENOR, he worked at the Basque Centre for Climate Change (BC3) carrying research in global governance, national policies, and modelling of Agriculture, Forestry and other Land Use (AFOLU) mitigation measures. He worked at the AFOLU Unit of the Transparency division of UNFCCC, providing support to the intergovernmental climate change process on issues related to land-use, land-use change and forestry (LULUCF), agriculture and REDD+. He also has worked in urban forestry, landscape forest restoration and environmental consultancy, and in the Global Forest Survey project of FAO. He speaks Spanish, English and Portuguese.

Marta Múgica holds a degree in Forestry and Natural Resources Engineering, as well as a Master of Science in Climate Change. She has five years of experience in project development, having worked for a Dutch foundation specialising in ecosystem restoration through afforestation, reforestation, and revegetation projects (ARR) in Europe. Since 2023, she has been involved in carbon projects, as a project proponent, developing an ARR project and a mangrove restoration in the Philippines. Marta joined AENOR in 2025 and since then, she is working on the validation and verification of different AFOLU projects.

Juan Carlo Gómez is a Forestry Engineer and holds a Master in Sustainable Development and Corporate Responsibility. He has more than 10 years of professional experience in climate change, 7 of which have been dedicated to nature-based carbon projects and REDD+ jurisdictional programs. He has worked in projects in Central and South America, Africa, and Southeast Asia.

Abdul Syukur Ahmad is a forestry engineer from Indonesia with more than 15 years of experience in forestry consultancy and auditing. He is expert in GHG carbon in forestry and forestry management systems under FSC and natural resources. Abdul has developed his career in Asian Countries working in forestry matters related to GHG projects for VCS, CCB but also in tasks related to monitoring and reporting of inventories in National Parks in his country (Indonesia) and others. Abdul has collaborated (is collaborating) with AENOR as validator/verifier in several projects in Indonesia and whole Asia, has a

good understanding of VERRA programs and has the appropriate skills to audit projects knowing how to focus on what is relevant both in the visit and in the documentary review of the PDDs and monitoring reports.

Marcos Recio has worked since finishing his university studies related to the environment and climate change. The main branch of his career has been energy efficiency and forest management. The other path of his career has been focused on renewable energies and integrated management systems. He has worked in different countries: Spain, Senegal, Paraguay and others. In AENOR he works with international projects, mainly in South America and Africa. Most of the projects he is working on are AFOLU and UNFCCC verifications and validations.

Javier Cócera is a forest engineer with a Master in forest management. He has developed his career focused to forest management. Mainly he has been working through sustainability in two ways: the main one is forestry consultancy, developing forest management plans, working with GIS and LiDAR both in the field and the office and getting experience of the forest resources. The second one was developing environmental footprint projects and sustainability reports. Currently Javier is working in AENOR as auditor focused on AFOLU projects. Javier participated in courses about ISO lead auditing and has performed audits in projects in Europe, LATAM, Africa and Asia.

According to point 4.3.1 of the CCB program rules, the team carrying out the audit must have experience in the following areas:

- 1) Proficiency in a relevant local or regional language for the project location: One member of the team has Bahasa as native language. Complementary, all members of the audit team are fluent in English. Bahasa and English were the languages used during the desk review and the onsite visit.
- 2) Relevant agriculture, forestry and/or other land use experience in the project country or region: all team members completed studies related to nature and environment as described in the previous paragraphs. All team members are forestry engineers or related disciplines, with most possessing master's degrees in environmental fields as well. In addition, all team members have experience working with audit processes, especially in climate change audits under VCS and CCB in LATAM, Europe, Asia, and Africa.
- 3) Relevant social and cultural expertise: all members of the audit team have carried out courses in Community Development and are fully experienced in conducting CCB audits. The members of AENOR travel internationally on a regular basis carrying out VCS and CCB audits, so they are fully aware of the socio-cultural aspects to be taken into account in each audit depending on the local context. Specifically, one team member is Indonesian (regional expert), having deep understanding of the social and cultural conditions of the project.
- 4) Relevant ecological and biodiversity expertise: all members of the audit team have forestry and/or environmental studies, with courses in Ecology, Botany and Zoology, which allows them to apply their knowledge in ecology and biodiversity issues to the projects they are auditing. The members of the audit team have worked on a wide range of projects and are well versed in the environmental and biodiversity conditions in the project area, as well as in other parts of the world where they conduct audits. Moreover, each of the audit team members have completed valuable certifications in relevant topics, such as climate change, biodiversity, governance, sustainable finance, GIS, and others relevant.

AENOR is accredited by ANAB to carry out the auditing activities under different standards such as VCS and CCB.

ANAB is the ANSI National Accreditation Board (ANAB) is the largest multi-disciplinary accreditation body in the western hemisphere, with more than 2,500 organizations accredited in approximately 80 countries. ANAB is a recognized global leader in accreditation and prides itself on world-class service while maintaining the highest level of quality. ANAB accredited certificates, inspections, reports, and persons drive confidence in the marketplace. ANAB-accredited laboratories and ANAB-accredited certification bodies (personnel, management systems, validation and verification, and products, processes and services) working in the industry can be trusted when certifying, testing, and/or inspecting those working in the industry.

AENOR passes accreditation exams and audits every year to maintain the required skills and ensure that its certifications are competent.

2.2 Method and Criteria (VCS, 4.1; CCB Program Rules, 4.3.1)

The re-assessment of the baseline was performed through a combination of in-depth document desk review, interviews with relevant stakeholders and on-site inspections, as discussed in Sections 2.4 through 2.5 of this validation report. At all times, the project was assessed for conformance to the criteria described in Section 1.2 of this report. As discussed in Section 2.7, findings were issued to ensure that the project fully conformed with all requirements.

Previous to the beginning of the auditing process, the Validation and Verification Body (VVB) developed an audit and sampling plan to guide the validation auditing process to ensure efficiency and effectiveness, and to obtain a general view of the audit, managing the times, the method and the criteria among other topics, and including the way in which the VVB is going to assess the different parts of the project. The purpose of the Validation and Sampling Plan was to present a risk assessment for determining the nature and extent of validation procedures necessary to ensure the risk of auditing error was reduced to a reasonable level. The Validation & Sampling Plan methodology was derived from all items in our validation process stated above. Specifically, the sampling plan utilized the VCS guidance documents and ISO 14064-3. Any modifications applied to the Validation and Sampling plan were made based on the conditions observed for monitoring in order to detect the processes with the highest risk of material discrepancy.

The validation activities in which risks were assessed were the evaluations of the quality of raw data, data sources, project pipeline, scripts and the calculations spreadsheet. AENOR reproduced and verified the R script were calculations have been carried out /3/ for the crediting period 01 November 2010 – 31 October 2070 for the Project Area (PA). The spatial boundaries of the Project and compliance with VM0007 methodology requirements on cartography for the monitoring period were 100% checked using the GIS-remote sensing data /4/, and the audit team visited the project area during an onsite visit. The carbon stock changes were also verified and cross-checked with values reported on the updated PD.

AENOR implemented several measures to ensure a clear understanding and accurate replicability of the carbon calculations developed in R. Every carbon-calculation figure in the project documents comes from

a single source, the data pipeline. The steps below show how the VVB satisfied itself that the pipeline applies the methodology correctly and reproduces the reported results.

First, the VVB and the Project Proponents (PP) held a two day in-person workshop at AENOR's offices in Bilbao to examine the R code. During this session, the VVB reviewed the documentation provided by the PP, assessed the required inputs, and executed the code. Several tests were conducted by modifying key parameters (e.g., emission factors and the number of hectares) to evaluate how such changes affected the emission results and to confirm that the model was correctly implemented. The pipeline carries more than 300 automated tests, many of them end to end, which hold the values reported in the PD as their expected results, including the total VCUs and the uncertainty estimates. The VVB ran and inspected these tests directly. Changing an input such as the deforestation rate made the affected tests fail and print the previous value, the new value and the difference, so the VVB could watch each result move in the expected direction and proportion.

To facilitate reproducibility and allow further testing, the PP also set up an online Docker environment containing the full code and multiple test folders. This environment enabled the VVB to independently run the model and replicate the results. Running this snapshot in the cloud, the VVB reproduced the reported figures and every test passed. The snapshot pins every system and R package dependency to a fixed version, so the pipeline will run unchanged at any future date with no need to reinstall packages. This removes the risk of dependency drift and keeps the calculations fully reproducible over time. The same snapshot sits in the evidence folders for the VVB or any third party to download and run, and a short video and an annex to the PD explain how to install it.

Subsequently, the VVB reviewed document Pipeline Code Documentation /4/, which compiles all pipeline segments organized by chapters. This document includes descriptions, keywords, and data extracts for each segment. It was assessed to verify that the methodological equations had been correctly translated into the R code, ensuring proper implementation. By reading this document the VVB could confirm that each methodological equation was coded correctly, without running the pipeline.

Finally, the PP developed Excel files to ensure traceability between the methodology and the implemented modules. AENOR reviewed these spreadsheets, which included validation checks linked to the pipeline, confirming that both the R code and the Excel-based calculations produced consistent results /3/. The 18 spreadsheets each draw their inputs from points along the pipeline and carry a final tab reproducing the pipeline's output exactly, giving a second independent check of the final values. The tables and figures in the PD are generated by the pipeline and then transferred into the document, and the VVB confirmed that the transferred values match the pipeline output. Taken together, the reproducible pipeline, the documented code, the matching Excel files and the live review in Bilbao gave the VVB four independent routes to the same figures, and the VVB found no material discrepancy between the values reported in the project documents and those produced by the pipeline.

. Based on the assessment carried out, AENOR confirms with a reasonable level of assurance that the estimated ex-ante emission reductions are free from material errors, omissions, or misstatements.

Section 2.5 of this VCS&CCB validation report shows an example of the schedule of activities proposed within the sampling plan. These activities include all the topics that the VVB planned to check during the visit, including the field assessment.

Based on these analyses and considering the requirements of the GHG program applied the following sampling was carried out:

- Project proponent, developers/management team, local team onsite (management capacity).
- Project boundaries.
- Project legal requirements.
- Public Comment Period and engagement.
- Project Dissemination & Grievance Mechanism.
- Financial analysis.
- Methodology used and deviations.
- Risk assessment. NPRR and NPR tool used.
- Baseline scenario, project scenario, leakage.
- Carbon calculations. Estimates and assumptions for determining GHG data. Remote sensing.
- Ex-ante Quantification of emission reductions.
- Monitoring procedures. Monitoring team and equipment.

AENOR confirms that sufficient evidence was presented for the ex-ante estimated net anthropogenic GHG emission reductions and that there is a clear audit trail that contains the evidence and records that validate the stated figure in this validation report since:

- Sufficient evidence available: The project participant has provided 100% of the data used in the calculations to achieve the final estimated amount of GHG emissions reductions.
- Nature of evidence: The raw data were collected from reliable sources. They are detailed in the project documents, provided to the validation team, and checked during the interviews.
- Cross-checked evidence: AENOR cross-checked the collected information through interviews with stakeholders and reproducing calculations.

Hence, AENOR confirms that the stated figures in the PD are correct and can certify the ex-ante net anthropogenic GHG emissions reductions based on verifiable and reliable evidence.

Finally, regarding the validation schedule and key milestones, the following are highlighted:

- Public Comment Period: 27th of June to 27th of July of 2025

- Kick-off Meeting (KOM) date: 27th of June 2025.
- NOVS delivery: 7th of July 2025.
- Audit Plan: 16th of July 2025.
- Technical Meeting (in-person): 23rd – 24th of July 2025
- Site visit: 3rd -9th of August, and 12th and 17th of September 2025
- Issuance of the 1st round of findings: 6th of October 2025
- Closure of findings: 28th November 2025

2.3 Document Review (VCS, 4.1, CCB Program Rules, 4.3.1)

A detailed review of all project documentation was conducted to ensure consistency with, and identify any deviation from VCS program requirements, CCB program requirements and the methodology (VM0007 REDD+ Methodology Framework (REDD+MF) version 1.8). The initial review focused on the PD and included an examination of the project details, baseline scenario, data and parameters, estimation of GHG emission reductions, GIS and remote sensing, uncertainty, etc.

Documents reviewed included calculation spreadsheets (ex-ante, financial analysis, baseline deforestation projection) /3,5,16,36/, GIS files and maps /4/, non-permanence risk analysis /36/, national laws and regulations /7/, SOPs-training-monitoring /22/ and others.

A complete list of all the supporting documents that were reviewed is included in Appendix 3 of this report. AENOR crosschecked and compared them with relevant sections of the VCS-CCB PD.

To address the corrective actions and clarification requests that arose from the desk review, the PP revised the VCS-CCB PD /1/. Responses to Corrective Action Requests (CARs) and Clarifications (CLs) can be found in Appendix 4.

The validation included a review of the VCS-CCB PD /1/, relative to the field conditions and on-site interviews with project management staff, project stakeholders, and beneficiaries (see Section 2.4 of this VCS-CCB validation report for more information).

The Project Proponent used the VCS AFOLU Non-Permanence Risk Tool v4.2 to assess overall project risk. The VVB reviewed the Non-Permanence Risk Report submitted to the Project Hub (a copy of the consolidated results was also shared with AENOR, similar to the pdf that can be downloaded by the audit team via the Project Hub), including all the attachments /36/ justifying the applied risk rating scores. The audit team can confirm that the project adheres to the VCS AFOLU Non-Permanence Risk Tool requirements. Each risk factor was thoroughly assessed for conformance. The final score was calculated to be 14%.

2.4 Interviews (VCS, 4.1, CCB Program Rules, 4.3.1)

The audit team conducted interviews to confirm selected information and crosscheck key information identified in the document review. After an initial review of the Project's documents, AENOR's audit team reached RMU and Permian Global to share the audit team's selection regarding the stakeholder groups to be interviewed to guarantee confidence, representativeness, and impartiality, based on the information collected from the Stakeholder Consultation Process and a requested list of community stakeholders. The selection was made based on relevance to the project, expected impacts by the project, distance to the project area, logistics and agenda availability.

The stakeholders were selected from an initial list of attendance to local consultations, in order to engage those directly impacted by the project implementation that could provide relevant information to safeguards, program implementation and its costs, risks and benefits. The individuals interviewed represented a diverse range of stakeholder groups, including the project proponent and partner, local government representatives, technical staff, and community members, among others. The full list of people interviewed by AENOR are gathered in the attendance lists of the on-site visit (Appendix 5) and the following table:

Name & Surname	Role/Profession/Stakeholder/Group	Date
Abdurrahman Hakim	Head of Technical Implementation Unit of Forest Management Unit (UPT KPHP) Mentaya Tengah – Seruyan Hilir	2025-08-03
Adie Heryawan	Forestry Instructure of Forest Management Unit (Penyuluh Kehutanan KPH)	2025-08-03
Taryono Darusman	GM and R&D Director – RMU	2025-08-03
Yani Saloh	Community – RMU	2025-08-03
Sarah Scriven	Biodiversity Tech Team – Permian	2025-08-03
Ibnu Nur Fikri	Biodiversity Manager	2025-08-03
Hirason H	Business Development Manager	2025-08-03
Yusef FH	Manager PMDH	2025-08-03
Herald GK	Head unit (Kasie) HR	2025-08-03
Brama M.H	Coordinator HSE	2025-08-03
A Kasyfull Anwar	Head unit (Kasie) PMKB	2025-08-03
Krisno	Head unit (Kasie) KARHUTLA	2025-08-03
I Gede Widyana	Head of Zone Mendawai	2025-08-03
Yohanes Taka	Head of Zone Seranau	2025-08-03
M. Galigo	Head of Zone Cempaga	2025-08-03
Dwi Winayanti	Human Resources and Development Manager	2025-08-03
Zidna Sabiila H	Research and Development	2025-08-03
Aryo Witono	Hydrology Manager	2025-08-03
Jeni Ricardo	Head Unit of Rewetting-Hydrology	2025-08-03
Desmon	Head Unit of Planning	2025-08-03
Andi Angga Kusuma	Head of Zone Pulau Hanaut	2025-08-03
Meyner Nusawalo	Consultant	2025-08-03

Name & Surname	Role/Profession/Stakeholder/Group	Date
Milena A.	HSE	2025-08-03
Suryadi	Biodiversity Field Staf	2025-08-03
Dian Kusumawati	Head of Unit Finance and Accounting	2025-08-03
Lingga	Logistic	2025-08-03
Ridho	Communication	2025-08-03
Suandri	Head of Zone Kamipang	2025-08-03
Herwin	Forest Protection (PPH) Manager	2025-08-03
Sonia	Consultant SDGs	2025-08-03
Siah	Trainee	2025-08-03
Sunarto	KMP BIOD	2025-08-03
Dwi Winayanti	HR Manager	2025-08-04
Taryono Darusman	GM and R&D Director	2025-08-04
Yani Saloh	PG-Community	2025-08-04
Dian Kusumawati	Head of Unit Finance and Accounting	2025-08-04
Herald G. K.	Head unit (Kasie) HR	2025-08-04
Yusef F. H.	Manager PMDH	2025-08-04
Brama Magrobi N.	Coordinator HSE	2025-08-04
Desmon	Head unit (Kasie) Planning	2025-08-04
Herwin	Forest Protection Manager	2025-08-04
Misran	RSA	2025-08-05
Wara Karma	RSA	2025-08-05
Trisia	Teacher	2025-08-05
Siti Hamdanah	Head Kader Health Unit (Posyandu)	2025-08-05
Abu Hanifah	Mantir	2025-08-05
Sudirman	Mantir	2025-08-05
Sabransyah	Batamad	2025-08-05
Rahman Hakim	Mantir Kec. Seranau	2025-08-05
Imam Baihaki	Karang Taruna (Youth organization)	2025-08-05
Ahmad Sabirin	Karang Taruna (Youth organization)	2025-08-05
Arlina Yanti	Head of PKBM	2025-08-05
Rosalia Petapa	Head unit (Kasie) PKD	2025-08-05
Reza Aji Maulana Abdi	Chief of Village (Lurah) Mentaya Seberang	2025-08-05
Subliansyah	Village Secretary (Sekdes)	2025-08-05
Ahmad Nopian Safari	RSA	2025-08-05
Zulkifli	Mantir	2025-08-05
Yanto	Damang	2025-08-05
Misfah	Kader Posyandu Balita	2025-08-05
Lilik Triwahyuni	Kader Posyandu Lansia	2025-08-05
Murniah	Kader Posyandu Balita	2025-08-05
Aswadi Syukur	Kepala Desa Terantang	2025-08-05
Sapna Pebi Nabila	Village staff (Perangkat desa)	2025-08-05
Cici Dwi Rianty	Chief of Village (Kepala Desa) Ganepo	2025-08-05
M. Fauji	KTH Humbang Hunyar	2025-08-05
Barin Abdul Fandi	Sekdes Terantang Hilir	2025-08-05
Abdul Muhid	Chief of Village (Kepala Desa) Terantang Hilir	2025-08-05
Eko Cahyono	RSA	2025-08-05
Andi Angga Kusuma	Head of Zone Pulau Hanaut-RMU	2025-08-06

Name & Surname	Role/Profession/Stakeholder/Group	Date
Agus	Rimba Makmur Utama	2025-08-06
Herwin	Forest Protection Manager PMK	2025-08-06
Krisno	RMU/Kasie PPHK	2025-08-06
Ahmad Sulaiman	RMU ZPHT	2025-08-06
Irmanto	RMU BINHUT	2025-08-06
Fernandes O.M	RMU/ KASI PPHP	2025-08-06
A.Nurhisyam	RMU/Administration HSE	2025-08-06
Donnal Setiawan	RMU/Vice Head Zona P.H	2025-08-06
Syahrul	RMU PMK	2025-08-06
Ridul	RMU/PMG	2025-08-06
Andre Winata	RMU/UMLOG	2025-08-06
Asykar	RMU/Communication	2025-08-06
Amrullah	RMU/ Communication	2025-08-06
Wardoyo	Ecosystem Restoration Manager /Pembinaan Hutan (PT. RMU)	2025-08-06
Irmanto	Head unit of ER / Kasie Pembinaan Hutan	2025-08-06
Cahyono	Field staff Nursery	2025-08-06
Heriyanto	Field staff Nursery	2025-08-06
Budi Jasa	Field staff Nursery	2025-08-06
Ahmad Rahmadi	Field staff Nursery	2025-08-06
Agustinus Leppe	Staff PMDH/Social Forestry Specialist	2025-08-06
Aryo Witono	Manager Hydrology	2025-08-07
Santoso	Hydrology	2025-08-07
Jeni Ricardo	Kasie Rewetting	2025-08-07
Radius	Hydrology	2025-08-07
Yan Sandi Chiqita	Head of Unit Monitoring Hydrology	2025-08-07
Ibnu Nur fikri	Biodiversity Manager	2025-08-07
Suryadi	Biodiversity staff	2025-08-07
Rantawan	Biodiversity staff	2025-08-07
A.Kasyful Anwar	Head of Unit Biodiversity	2025-08-07
Julkipli	Biodiversity staff	2025-08-07
Sarah Scriven	Biodiversity -PG	2025-08-07
Sunarto	Biodiversity KMP	2025-08-07
Aryo Witono	Manager Hydrology	2025-08-07
Yan Sandi Chiqita	Head of Unit Monitoring Hydrology	2025-08-07
Santoso	Hydrology	2025-08-07
Radius	Hydrology	2025-08-07
Jeni Ricardo	Head of unit Rewetting Hydrology	2025-08-07
Nurrahman/Kev	RND Consultant	2025-08-08
Hairil Candra	PTKL	2025-08-08
Jeprianor	Staff Logistic PH	2025-08-08
Muhamad Fazri	PTKL	2025-08-08
Sendi Prayitno	RND staff	2025-08-08
Agung	RND staff	2025-08-08
Beni. K	RND staff	2025-08-08
Junedi	Mendawai/Puskesmas (community)	2025-08-08
Lancar	Mendawai/Kades (community)	2025-08-08
Ragif Aspihani	Mendawai/Kec. Mendawai (community)	2025-08-08

Name & Surname	Role/Profession/Stakeholder/Group	Date
Muhtasar Al Muzni	Mendawai/SMKN 1 Mendawai(community)	2025-08-08
Sapril Fauzi	Mendawai/Pemdes Mendawai (community)	2025-08-08
Aliansyah	Mendawai/MPA (community)	2025-08-08
Hendra	Mendawai / RSA (community)	2025-08-08
Jambri	Mendawai/SMKN 1 Mendawai (community)	2025-08-08
Agus Panipasma	Mendawai/Kec. Mendawai (community)	2025-08-08
M. Yusni	Kampung Melayu/KTH. (community)	2025-08-08
Amansyah	Kampung-Melayu/Chief of KTH (community group)	2025-08-08
Rasydi	Mendawai/Chief of LPHD (community group)	2025-08-08
Nurul Budia	Perigi/Guru (community)	2025-08-08
Norsah	Mendawai/Chief of Simpan Pinjam Group (community group)	2025-08-08
Meliana	Perigi/Teacher (community)	2025-08-08
Yunha	Perigi/Kader (community)	2025-08-08
Ramadani	Kampung Melayu/Village Staf Linmas (community)	2025-08-08
M. Haris JM, S.Pd	Kampung Melayu /Teacher (community)	2025-08-08
Masyyana	Mendawai/Teacher (community)	2025-08-08
Sulami	Mendawai/ KSM member (community group)	2025-08-08
Rahmadinor	Mendawai/LPHD (community)	2025-08-08
Ikhtiarial	Mendawai/KSM member (community group)	2025-08-08
Madona Melly Melani	Mendawai /KSM Secretary (community group)	2025-08-08
Dian	Kampung Melayu/Masyarakat (community)	2025-08-08
Markasi	Kampung Melayu/Chief of Village Kampung Melayu (community)	2025-08-08
Nikolas Daniel	Head of Subdistrict (Camat)/Kecamatan Mendawai (community)	2025-08-08
Ibnu Nur Fikri	Biodiversity Manager	2025-09-12
Suryadi	Biodiversity staff	2025-09-12
Sarah Scriven	Biodiversity -Tech-Team	2025-09-12
Ahmad Kasyful Anwar	Head of Unit Biodiversity	2025-09-12
Julkipli	Biodiversity staff	2025-09-12
Meyner Nusalawo	Consultant	2025-09-12
Sunarto	Biodiversity Team	2025-09-12
Rantawan	Forest Protection Staff	2025-09-12
Sumber M	Chief of LPHD Tampelas (community)	2025-09-12
Juli Kurnain	LPHD member(community)	2025-09-12
Suprian	MPA member (community)	2025-09-12
Hariato	MPA member (community)	2025-09-12

Name & Surname	Role/Profession/Stakeholder/Group	Date
M. Herman	Village government of Tampelas (community)	2025-09-12
Lisa	Village government of Tampelas Tampelas (community)	2025-09-12
Rusidah	Kader Posyandu (community)	2025-09-12
Miliarni	Kader Posyandu (community)	2025-09-12
Tomie	Chief of Village Telaga/Desa Telaga	2025-09-13
M. Berau	Chief of BPD Village Talaga/Desa Talaga	2025-09-13
Ahmad Yani	Chief of LPHD Desa Telaga/Desa Telaga	2025-09-13
Metroyadi	Chief of KTH Kalaru Lestari /Ds. Telaga	2025-09-13
Suharjo	Treasure of KTH DS Telaga/DS Telaga	2025-09-13
Supardi	Village Secretary of Parupuk/DS Parupuk	2025-09-13
Yulia Sari	Kader Posyandu/ Parupuk village	2025-09-13
M. Jairudiansyah	MPA DS Telaga/Telaga village	2025-09-13
Dedi Karno	MPA DS Telaga/Telaga village	2025-09-13
Rahma Wati	Kader Posyandu Telaga/Telaga village	2025-09-13
Irnowati	Kader Posyandu Telaga/Telaga village	2025-09-13
Sri Ranti	School Head (Kepala Sekolah) of SMAS PGRI Telaga/Telaga village	2025-09-13
Heriyanto	Plot Measurement team	2025-09-13
Philip Ulok	Permian Global	2025-09-13
Zaidey Fulgentius	Permian Global	2025-09-13
Wardoyo	Plot Measurement team Chloris	2025-09-13
Irmanto	Plot Measurement team Chloris	2025-09-13
Cahyono	Plot Measurement team Chloris	2025-09-13
Budi Jasa	Plot Measurement team Chloris	2025-09-13
Ahmad Nur Amin	Plot Measurement team Chloris	2025-09-13
Sunarto	Permian Global	2025-09-13
Andi Pratama P	Support (HSE)	2025-09-13
Heriyanto	Plot Measurement team	2025-09-14
Philip Ulok	PERMIAN GLOBAL	2025-09-14
Zaidey Fulgentus	PERMIAN GLOBAL	2025-09-14
Wardoyo	Plot Measurement team Chloris	2025-09-14
Irmanto	Plot Measurement team Chloris	2025-09-14
Cahyono	Plot Measurement team Chloris	2025-09-14
Budi Jasa	Plot Measurement team Chloris	2025-09-14
Ahmad Nur Amin	Plot Measurement team Chloris	2025-09-14
Sunarto	Permian Global	2025-09-14
Andri Pratama P	Support (HSE)	2025-09-14
Heriyanto	Plot Measurement team	2025-09-15
Philip Ulok	PERMIAN GLOBAL	2025-09-15
Zaidey Fulgentus	PERMIAN GLOBAL	2025-09-15
Wardoyo	Plot Measurement team Chloris	2025-09-15
Irmanto	Plot Measurement team Chloris	2025-09-15
Cahyono	Plot Measurement team Chloris	2025-09-15
Budi Jasa	Plot Measurement team Chloris	2025-09-15
Ahmad Nur Amin	Plot Measurement team Chloris	2025-09-15
Sunarto	Permian Global	2025-09-15
Andri Pratama P	Support (HSE)	2025-09-15

Name & Surname	Role/Profession/Stakeholder/Group	Date
Heriyanto	Plot Measurement team	2025-09-16
Philip Ulok	PERMIAN GLOBAL	2025-09-16
Zaidey Fulgentius	PERMIAN GLOBAL	2025-09-16
Wardoyo	Plot Measurement team Chloris	2025-09-16
Irmanto	Plot Measurement team Chloris	2025-09-16
Cahyono	Plot Measurement team Chloris	2025-09-16
Budi Jasa	Plot Measurement team Chloris	2025-09-16
Ahmad Nur Amin	Plot Measurement team Chloris	2025-09-16
Sunarto	Permian Global	2025-09-16
Andri Pratama P	Support (HSE)	2025-09-16
Rezal Kusumaatmadja	President commissioner RMU N/A (community)	2025-09-17
Taryono Darusman	R&D Director & GM	2025-09-17
Asep Ayat	Planning Director	2025-09-17
Yani Saloh	Com RMU & PG	2025-09-17
Priyatno	Executive Director N/A (community)	2025-09-17
Michael Hutasoit	Staff IT	2025-09-17

AENOR's audit team defined a preliminary questionnaire to complement and support the desk review process as a starting point to interview each one of the stakeholders on-site. This questionnaire considered Verified Carbon Standards (VCS), Climate, Community and Biodiversity (CCB) criteria and Free, Prior and Informed Consent (FPIC) values based on the information compiled by AENOR's audit team about the project before the on-site visit, during the desk-review. The audit team complemented the questionnaire with additional inquiries, depending on the interviewee's answers, context and additional information that was gathered during the visit.

2.5 Site Visits (VCS, 4.1, CCB Program Rules, 4.3.1)

The objectives of the on-site inspections performed were mainly to cross-check the description provided in the PD, related to the VCS and CCB requirements implemented by the PP, including to:

- Ensure that the geographic area of the project, as reported in the CCB-VCS-PD and the accompanying KML/GIS files /4/, is in conformance with Section 3.10.2 of the VCS Standard.
- Perform a risk-based review of the project area to ensure that the project conforms to all other requirements of the VCS rules and the methodology, including eligibility requirements and the applicability conditions of the methodology.
- Observe the Project Proponent's evidence and collect and record data in order to assess whether data collection techniques conform to the monitoring plan and related documentation and to evaluate data quality control systems.
- Interview local authorities, communities and project employees to confirm that the project operates in accordance with current permits and authorizations, its relationship with local actors and communities and compliance with VCS and CCB Standards.

- Interview the key personnel involved in the forest protection.
- Validate REDD+ activities such as forest protection, fire prevention, etc.
- Forest patrolling and monitoring.
- Project activities implemented.
- Participatory mapping and use areas.
- Stakeholders' identification, trainings/benefits/satisfaction.
- Stakeholders' consultations, meetings and documents sharing.
- Stakeholders' rights, FPIC and safeguards.
- Project communication at the validation moment.
- Project conflicts, barriers or difficulties and grievances/complaints/conflicts.
- Community, validation of CCB community monitoring plan and benefits to the community.

Additional to the site inspection, meetings via teleconferences were carried out with project representatives and personnel in charge of carrying out the calculations, image processing-GIS-remote sensing, project baseline and additionality and project benefits.

Find the activities carried out during the field visit below:

Day	Date	Activity	Location	Description
1	03/08/2025	Kick Off Meeting	Mid Town Hotel	The auditor presented the audit plan, and RMU presented the safety procedures in the project area. Feedback from RMU staff to understand the purpose of audit plan was taken and responded from the auditor.
1	03/08/2025	Interview with local authorities	Mid Town Hotel	Interview with the Forest Management Unit (KPH) Mentaya Tengah Seruyan Hilir, as representative of local authorities at provincial level.
2	04/08/2025	Interview with the Project management	PT. RMU office at Sampit city	Interview with project management of Rimba Makmur Utama at Sampit office to gather information about management structure, management capacity, SOPs staff, anti-corruption, anti-discrimination, health and safety insurance, training and working zone of the project area.
3	05/08/2025	Interview with the Community	Mentaya Sebrang, Seranau zone	Interview with the community at Seranau zone with number of participants from Terantang village, Ganepo village, Terantang Hilir village, Seragam Jaya, Mentaya Sebrang, Batuah, and Seranau

Day	Date	Activity	Location	Description
				villages. The participants have supported by the project as RSA, Teacher, Health staff, and youth organization. The interview to gather information about FPIC process, Dissemination and consultation, Risk Cost and benefit, Benefit sharing mechanism, Grievance Redress Mechanism and Community Development Plan implementation.
4	06/08/2025	Interview with Nursery team	Nursery Unit I, Kerokan Hantipan	Visit the nursery site at Kerokan Hantipan nearby the central post and guard post. Interviewing the nursery team to gather information about nursery management, seed transportation, tree species and technology.
4	06/08/2025	Interview with Guard Post Fire Management	West Post	Visit the guard post of fire team at West post. Interviewing the fire team and demonstrating the fire management.
5	07/08/2025	Peat Measurement, Water table/hidrology, and Camera Trap	Central Post	At Central Post, the climate team demonstrating peat measurement and water table / hydrology. Interviewing the hydrology and peat measurement team during demonstration at the plot measurement. In the same day, continue to the camera trap plot with biodiversity team, interviewing the biodiversity team during demonstrating the camera trap. During demonstration, one Orang Utan showed up at the plot measurement.
6	08/08/2025	Interview with the community	Kampung Melayu	Interview with the community at Kampung Melayu village with participants come from KTH Kampung Melayu, Teacher, LPHD, Women group, Health staff, Mendawai village, Mendawai subdistrict. The interview to gather information about Dissemination and consultation, FPIC process, Grievance Redress Mechanism, Risk Cost and benefit, Benefit sharing mechanism, and Community Development Plan implementation
6	08/08/2025	Interview with Agroforestry team	Demonstration Plot of CSR Kampung Melayu	Visit the agroforestry demonstration plot at Kampung Melayu. This demplot is part of benefit sharing mechanism of the project or called it CSR (Cooperate Social Responsibility) to Kampung Melayu village. The village shares 5 hectares of land for agroforestry site.
7	09/08/2025	Interview with Biodiversity team	Central Post	Interviewing the biodiversity team to gather information about SOPs,

Day	Date	Activity	Location	Description
				methodology of vegetation and fauna, species and technology used.
8	12/09/2025	Interview with LPHD community group	LPHD office at Tampelas village	As the second visit, started to visit the Tampelas village and interview the LPHD Tampelas. LPHD is social forestry program and part of national program to support the village to manage their forest land. The LPHD (Village Forest Management Unit) manages their area in the project zone of the KMP project area. Interview to gather information about Dissemination and consultation, benefit sharing mechanism, Grievance Redress Mechanism, and LPHD implementation plan.
9	13/09/2025	Interview with the community	Telaga village	Interview the community village at Telaga village, to gather information about FPIC process, Risk Cost and benefit, Benefit sharing mechanism, Grievance Redress Mechanism and Community Development Plan implementation.
9	13/09/2025	Inspection Fire management	Kampung Melayu Zone	Inspection of the Fire management post at Guard Zone. Interviewing the fire team at Fire Warehouse to gather information about tools, equipment and technology.
9	13/09/2025	Plot measurement no.111	Kerokan Hantipan Canal	Visit non forest plot number 111 nearby the guard post with Climate team. The climate team explain the SOPs.
9	13/09/2025	Plot measurement no.112	Kerokan Hantipan Canal	Visit non forest plot number 112 with Climate team.
9	13/09/2025	Plot measurement no.113	Kerokan Hantipan Canal	Visit non forest plot number 112 with Climate team.
10	14/09/2025	Plot measurement no. 56	North Kerokan Hantipan Canal	Visit the plot measurement number 56 with climate team. Demonstrate the plot setting up and do remeasurement of tree DBH and Height.
10	14/09/2025	Plot measurement no.61	North Kerokan Hantipan Canal	Visit the plot measurement number 61 with climate team. Demonstrate remeasurement of tree DBH and Height.
10	14/09/2025	Plot measurement no. 69	North Kerokan Hantipan Canal	Visit the plot measurement number 69 with climate team. Demonstrate remeasurement of tree DBH and Height.
11	15/09/2025	Plot measurement no.52	South Kerokan Hantipan Canal	Visit the plot measurement number 52 with climate team. Demonstrate remeasurement of tree DBH and Height.
11	15/09/2025	Plot measurement no.62	South Kerokan Hantipan Canal	Visit the plot measurement number 62 with climate team. Demonstrate remeasurement of tree DBH and Height.

Day	Date	Activity	Location	Description
12	16/09/2025	Plot measurement no.79	South Kerokan Hantipan Canal	Visit the plot measurement number 79 with climate team. Demonstrate remeasurement of tree DBH and Height.
12	16/09/2025	Interview with climate team	Central Post	Interview the climate team to gather more information about management team, training and technology.
13	17/09/2025	Closing meeting	RMU office at Bogor, west java	Closing meeting has been conducted in hybrid. Permian Global and AENOR team attended the meeting via Zoom meeting, and RMU project management with auditor in offline at RMU office. AENOR team presenting observations and comments from the on-site visit and next steps.

2.6 Public Comments (VCS, 3.18; CCB Program Rules, 4.6)

The project was open for public comment from 27/06/2025 to 27/07/2025. No public comments were submitted during the public comment period, nor received after the public comment period.

Comments received	Actions taken by the project proponent	Evidence gathering activities, evidence checked, and assessment conclusion
N/A.	N/A.	N/A.

2.7 Resolution of Findings (VCS, 4.1, CCB Program Rules, 4.3.1)

Findings established during the validation represent a non-fulfilment of the criteria or an identified risk to fulfilling the project objectives. The findings could take the form of a Corrective Action Request (CAR), Forward Action Request (FAR) or Clarification Request (CL).

A Corrective Action Request (CAR) shall be raised if one of the following situations occurs:

- Non-compliance with the program requirements or applied methodology is found in the project description and/or has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient.
- Mistakes have been made in applying assumptions, data or calculations which will impact the number of GHG removals.

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

A Forward Action Request (FAR) is issued for actions if the project implementation, monitoring, and reporting require attention and/or adjustment for the following verification period.

As a result of this assessment, 29 findings were issued: 15 Corrective Action Requests (CARs) and 14 Clarification Requests (CLs). CAR and CLs were closed upon adequate responses from the project

proponents, which meet the applicable requirements. Findings were reassessed before their formal acceptance and closure. All results, including the issues raised, the responses from the project proponent and the conclusions, are contained in Appendix 4. All required changes are observable in the last version of the PDD /1/ and the relevant annexes.

Consequent to the resolution of findings, the audit team concluded that the PDD is accurate and complete and provides an understanding of the nature of the project and the project's baseline.

2.7.1 Forward Action Requests (VCS, 4.1; CCB Program Rules, 4.3)

No forward action requests have been raised for the benefit of subsequent project audits.

3 VALIDATION FINDINGS

3.1 General

3.1.1 Project Details

Not applicable due to being out of scope, as described in Section 1.2 of this report.

3.1.2 Benefits Assessment and Project Crediting Period (VCS, 3.9; CCB, G1.9)

Not applicable.

3.1.3 Physical Parameters (CCB, G1.3)

Not applicable.

3.1.4 Social Parameters (CCB, G1.3)

Not applicable.

3.1.5 Project Zone Map and Project Location (VCS, 3.11; CCB, G1.4-7, G1.13, CM1.2, B1.2)

Section 2.1.16 of the VCS-CCB PD includes maps in which the boundaries of the project zone are delimited, and which provide information regarding: i) Project area, ii) Project zone iii) Nearby communities, v) Other Stakeholders impacted by the project and vi) HCV.

Based on the information of the VCS-CCB PD, The Katingan Mentaya Project, located in the Mendawai and Kamipang sub-districts of Katingan and the Seranau, Pulau Hanaut, and Cempaga sub-districts of Kotawaringin Timur in Central Kalimantan, Indonesia, spans an ecosystem restoration concession (ERC) of 149,800 hectares with a perimeter of 254.12 km. The wider project zone covers 305,669 hectares, extending between the Mentaya and Katingan rivers and including 34 villages, selected for its ecological

and socio-economic significance. The area is divided into six management zones, with boundaries and High Conservation Value (HCV) areas detailed in supporting documentation. AENOR confirmed the information on the project area by reviewing the KML and shapefile files /4/ (including suitable and eligible areas, and project zone, but also the location of different activities implemented such as agroforestry, livestock, education, ect). AENOR's audit team visited the project area in August and September 2025, confirming the project boundaries by geolocation. Moreover, the audit team verified that the information on the maps and GIS files was consistent with geographic data from other sources (Google Earth, Google Hybrid). Additionally, AENOR verified the project's total area and that there is no direct overlapping with any other project in the country in their spatial boundaries.

Thus, it is the opinion of AENOR that the project zone map is accurate and complies with the requirements of the CCB Standard.

3.1.6 Project Activities and Theory of Change (CCB, G1.8)

Not applicable.

3.1.7 Implementation Schedule (CCB, G1.9)

Not applicable.

3.1.8 Benefit Permanence

3.1.8.1 Risks to the Project (CCB, G1.10)

Not applicable.

3.1.8.2 Benefit Permanence (CCB, G1.11)

Not applicable.

3.1.8.3 Financial Sustainability (CCB, G1.12)

Not applicable.

3.1.9 Management Capacity

3.1.9.1 Project Governance Structures (CCB, G4.1)

Not applicable.

3.1.9.2 Required Technical Skills (VCS, 3.19, CCB, G4.2)

Not applicable.

3.1.9.3 Management Team Experience (VCS, 3.19; CCB, G4.2)

Not applicable.

3.1.9.4 Project Management Partnerships and Team Development (VCS, 3.19; CCB, G4.2)

Not applicable.

3.1.9.5 Financial Health of Implementing Organization(s) (CCB, G4.3)

Not applicable.

3.1.9.6 Avoidance of Corruption and Other Unethical Behavior (VCS, 3.19; CCB, G4.3)

Not applicable.

3.1.9.7 Commercially Sensitive Information (VCS, 3.5.2 – 3.5.4; CCB Program Rules 3.5.13 – 3.5.14)

The following documents and information are commercially sensitive and not publicly available:

- 20-year financial projection model, carbon price assumptions, and revenue forecasts
- Copies of concession licenses, land tenure maps, and legal correspondence with government
- Exact GPS coordinates and maps of endangered species sightings

AENOR has checked the information and is able to confirm that it meets the VCS Program definition of commercially sensitive information, as written in “VCS Program Definitions” v4.5, and that it is not related to the determination of the baseline scenario, demonstration of additionality, and estimation and monitoring of GHG emission reductions and removals of the project. See the detailed assessment in Appendix 1 of this report.

3.1.10 Stakeholder Engagement & Safeguards

3.1.10.1 Stakeholder Identification (VCS, 3.18, 3.19; CCB, G1.5)

Not applicable.

3.1.10.2 Stakeholder Descriptions (VCS, 3.18, 3.19; CCB, G1.6, G1.13)

Not applicable.

3.1.10.3 Stakeholder Access to Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

According to section 2.3.3 of the VCS-CCB PD through the website all the documentation are provided in Indonesian and English which serves as the main hub for comprehensive project information and updates. Social media platforms such as Facebook, Instagram, and LinkedIn are also used to share progress and engage a wider audience. Additionally, critical documents are uploaded to online

repositories like the Verra Registry to maintain transparency and traceability with certification bodies. Regular newsletters, distributed both digitally and in print, keep stakeholders informed, especially in remote areas.

At the community level, the project emphasizes participatory engagement through formal and informal meetings, including village assemblies like Musrenbang and MusDes. Information is presented in accessible formats such as PowerPoint, notice boards in village halls, and printed handouts, while facilitators use visual and audio aids for stakeholders with limited literacy or digital access. Feedback is actively sought through discussions, visits, and focus groups, including women-only sessions to ensure inclusivity. All communication activities and participation records are logged to guarantee transparency and responsiveness to evolving stakeholder needs.

This information was verified by AENOR through the logged records of community activities /35/ as well as through the onsite visit, where all the communities were aware of the copies provided in village halls, and have been part of the different discussions.

The PD, monitoring reports and the baseline reassessment documentation in English has been and will be available on Verra's website. Informative boards, presentations, folders and different project dissemination materials in the Bahasa were observed by the audit team during the onsite visit to local communities. The project's website¹ was reviewed to confirm the publication of dissemination documents.

AENOR considers that the way in which the PP has shared information with communities and other stakeholders is correct. The information disseminated is truthful and accurate, and its content has been understood by all audiences, as other more informal means have been used to transmit the news when necessary.

3.1.10.4 Dissemination of Summary Project Documents (VCS, 3.18, 3.19; CCB, G3.1)

To meet G1.1-9 requirements, the project prepared summaries of key documents like the PDD and Monitoring Reports in Indonesian and English. These were shared online via the CCB sections of the website² and physically through community meetings, brochures, and notice boards. Visual aids, workshops, and Q&A sessions support understanding, while feedback is collected through forms and discussions. This multi-channel, multilingual approach ensures transparency, inclusivity, and continuous stakeholder engagement throughout the project lifecycle.

It was confirmed during the site visit by the different stakeholders that these reports have been received, and meetings to disseminate project materials have been carried out /35/. Interviewees explained that they are well aware about project activities and progress and that they feel involved as the documents also invite them to provide feedback and express their concerns. Therefore, AENOR considers that the

¹ [Katingan Mentaya Project | Katingan Mentaya Project | Home](#)

² [Katingan Mentaya Project | Katingan Mentaya Projects | Community](#)

dissemination of Summary Project documents is adequate and that a wide range of stakeholders have access to this information.

3.1.10.5 Informational Meetings with Stakeholders (VCS, 3.18, 3.19; CCB, G3.1)

Not applicable.

3.1.10.6 Risks from the Project and No-Net Harm (VCS, 3.18, 3.19)

Not applicable.

3.1.10.7 Community Costs, Risks and Benefits (CCB, G3.2)

Not applicable.

3.1.10.8 Information to Stakeholders on Validation and Verification Process (VCS, 3.18.6, 3.19; CCB, G3.3)

Not applicable.

3.1.10.9 Site Visit Information and Opportunities to Communicate with Auditor (VCS, 3.18.6; G3.3)

Not applicable.

3.1.10.10 Stakeholder Consultations (VCS, 3.18; CCB, G3.4)

Not applicable.

3.1.10.11 Continued Consultation and Adaptive Management (VCS, 3.18; CCB, G3.4)

Not applicable.

3.1.10.12 Stakeholder Consultation Channels (CCB, G3.5)

Not applicable.

3.1.10.13 Stakeholder Participation in Decision-Making and Implementation (VCS, 3.18, 3.19; CCB, G3.6)

Not applicable.

3.1.10.14 Anti-Discrimination Assurance (VCS, 3.19; CCB, G3.7)

Not applicable.

3.1.10.15 Feedback and Grievance Redress Procedure (VCS, 3.18.4; CCB, G3.8)

Not applicable.

3.1.10.16 Worker Training (VCS, 3.19; CCB, G3.9)

Not applicable.

3.1.10.17 Community Employment Opportunities (VCS, 3.19.13; CCB, G3.10)

Not applicable.

3.1.10.18 Occupational Safety Assessment (VCS, 3.19; CCB, G3.12)

Not applicable.

3.1.11 Additionality & Without-Project Scenario

3.1.11.1 Conditions Prior to Project Initiation and Land-Use Scenarios without the Project (VCS, 3.13; CCB, G2.1)

Not applicable.

3.1.11.2 Most-Likely Scenario Justification (CCB, G2.1)

Not applicable.

3.1.11.3 Community and Biodiversity Additionality (CCB, G2.2)

Not applicable.

3.1.12 Legal Status and Property Rights

3.1.12.1 National and Local Laws (VCS, 3.1, 3.6-7, 3.14, 3.18-19; CCB, G5.6)

The Katingan Mentaya Project has been designed and implemented in full compliance with Indonesia's national and regional legal frameworks governing forestry, land use, peatland management, climate change, and carbon trading. Section 2.5 of the PD describes all the legislation that the project follows. The project operates under a valid Forest Utilization Business Permit – Ecosystem Restoration Concession (PBPH-RE), granted by the Ministry of Forestry through Decrees SK 734/Menhut-II/2013 and SK No. 23/1/IUPHHK-RE/PMDN/2016 /7/, covering a total of 157,875 hectares. These permits form the legal foundation for ecosystem restoration activities within the concession area. Below is listed the main legislation relevant to the project:

National Legislation and International Commitments:

- Indonesia has ratified major climate agreements: UNFCCC (1994), Kyoto Protocol (2004), and Paris Agreement (2016).
- Key regulations include Presidential Regulation No. 98/2021 on carbon economic value and GHG control.
- Forestry and conservation laws: Law No. 41/1999 (Forestry), Law No. 5/1990 (Conservation), and ecosystem restoration guidelines.
- Carbon trading framework: Ministerial Regulation No. 7/2023 and OJK Regulation No. 14/2023.

Regional and Local Environmental Regulations:

- Presidential Instruction (INPRES) No. 10/2011 and subsequent renewals regarding Peatland Management
- Government Regulation PP No. 71/2014 on Protection and Management of Peatland Ecosystems
- Regional Regulation of Central Kalimantan Province No. 1/2020 on Forest Fire Control
- Ministry of Environment and Forestry Decree No. P.15/MENLHK/SETJEN/KUM.1/2/2017 on Water Table Measurement in Peat Ecosystems
- Ministry of Environment and Forestry Regulation No. 60/MENLHK/Setjen/Kum.1/10/2019 on Peat Ecosystem Management

Compliance Assurance (Katingan Mentaya Project):

- Audits & Monitoring: Internal and third-party checks for compliance.
- Carbon Reporting & Verification: Aligns with national carbon trading and NDC targets.
- Grievance & Impact Management: Mechanisms for addressing environmental concerns.
- Community Engagement: Training locals for forest management and fire prevention.

In this baseline reassessment, special emphasis has been put into the Environment and Forestry Regulation No. 60/MENLHK/Setjen/Kum.1/10/2019 significantly reshaped peatland management in Indonesia by introducing a new approach focus on the conservation of peat dome peaks within hydrological peat units. Under this regulation, industrial forestry concessions on peatlands must identify, protect, and restore areas designated as the “peak of the peat dome,” while allowing the conversion of natural forest outside these peaks into production areas. This policy replaces previous requirements that mandated setting aside fixed percentages of concession areas for forest conservation and native species, without specifying a minimum conservation area. At the project’s start, a conservation zone was delineated in compliance with earlier rules, and despite the regulatory change, this area will be maintained in the baseline scenario alongside the newly designated peat dome peak. Due to limited data on the implementation of this regulation across other concessions, a conservative approach has been

adopted, preserving all previously protected areas. Furthermore, any peat dome peak areas already cleared or converted must be restored, leading to the creation of a dedicated “restoration” stratum within the project design.

AENOR verified compliance through a comprehensive review process that included assessing concession permits /7/, legal references cited in the Project Design Document/1/, and internal compliance protocols /22/. In relation to the Environment and Forestry Regulation No. 60/MENLHK/Setjen/Kum.1/10/2019, AENOR has reviewed the Climate Annex /2/, PD /1/ and calculations /3/ and the baseline has been adjusted to comply with the legislation. During the onsite visit, AENOR confirmed that project activities align with ecosystem restoration objectives and meet legal requirements for peatland protection.

AENOR reviewed the Climate Annex /2/ to verify the demonstration of compliance with Ministerial Regulation Permen.LHK No. P.10/2019, which mandates to delineate the peak of the peat dome for conservation purposes. The audit team reviewed the decrees for the reactivation of the permit for the freezing of PT RMU for Units I and II (No.374 and 375) /35/, which provide the basis for further verification with government approval.

SRN PPI (by Ministry of Environment) - registry for carbon (CO₂e) accounting (SPE, national standard) RMU registration number is REG-11-PR-X-2025-6737, as stated in Section 2.5.1 of the PD. The audit team consulted the SRN-PPI Platform³ to confirm that the project is registered with the disclosed registration number. The audit team reviewed the evidence of project registration in Indonesia’s national registry system (SRN-PPI) /35/ including the description of the process and screenshots of the registry system displaying the project registration.

The Progress of PT RMU's activity registration by the SRN at the time of the audit was the following:

1. PTRMU has registered through SRN since 2018 up to the technical document status stage (stage III of 4 stages)
2. The Ministry of Environment is developing a Robust SRN (new Beta version) from the existing SRN to support the implementation of the Mutual Recognition Agreement (MRA) with Verra or other certifications (JCM, Gold Standard, Plan Vivo).
3. On August 25, 2025, the new SRN dashboard (Robust SRN) was launched and simulations were conducted. PT RMU has successfully logged in to the new dashboard, but data is awaiting migration from the existing SRN.

³ [SRN : Sistem Registri Nasional](#)

4. Following the signing of the MRA, Verra requires guidance for Project Developers/Proponents to ensure the MRA scheme can be implemented. The guidance document is currently being prepared.

AENOR reviewed the implications of the project's registration in the national registry, with particular attention to the potential for third parties to claim emission reduction results (ERRs). Projects registered under the SRN-PPI contribute to Indonesia's NDC through a centralized system that ensures transparency, traceability, and avoidance of double counting. The issuance and marketing of voluntary carbon units do not inherently result in double claiming, as all emission reductions are recorded in the national registry and subject to accounting rules. In particular, international transfers requiring use toward another country's NDC are governed by corresponding adjustment mechanisms to prevent double counting, while voluntary transactions without such adjustments are treated separately under Indonesia's regulatory framework."

The audit team could substantiate that Indonesia has introduced a new carbon trading framework through Presidential Regulation No. 110 of 2025, dated October 10, 2025, on the Implementation of Carbon Economic Value and National Greenhouse Gas Control ("PR 110/2025"). PR 110/2025 replaces the earlier framework under Presidential Regulation No. 98 of 2021 on the Implementation of Carbon Economic Value for Achieving Nationally Determined Contribution ("NDC") Targets and Greenhouse Gas Control in National Development ("PR 98/2021").

PR 110/2025 explicitly decouples voluntary carbon trading from the NDC timeline, allowing projects to generate and sell credits without waiting for national target fulfilment. All carbon credits, including those sold internationally, are recorded within the national system, and specific accounting measures (e.g., corresponding adjustments) determine whether emission reductions are transferred abroad or retained toward Indonesia's NDC.

On summary, Presidential Regulation No. 98 of 2021 established Indonesia's carbon governance framework, including the SRN-PPI as the national registry for climate actions and NDC tracking. Presidential Regulation No. 110 of 2025 replaces this regulation but does not replace the SRN-PPI; instead, it introduces a complementary registry, the SRUK, dedicated to carbon unit tracking and transactions. As a result, Indonesia now operates a dual-registry system in which SRN-PPI manages NDC-level accounting, while SRUK manages carbon market activities.

The VVB could substantiate through various sources⁴⁵ that the SRUK is non-operational at the time of this assessment, targeted to begin operations in July, as directed by the Coordinating Ministry for Food Affairs.

Therefore, AENOR confirmed that the project fully complies with Indonesian regulation and that exclusive rights to claim and transfer ERRs generated by the project remain with the Project Proponent (PP), with no risk of double claiming by third parties.

Stakeholder engagement records were examined to ensure that grievance mechanisms /35/ and community participation comply with Ministry of Forestry and MoEF regulations. Additionally, carbon accounting procedures were reviewed to confirm consistency with national MRV systems and carbon trading frameworks /35/. Local government representatives interviewed by the audit team declared that, to the best of their knowledge, the project complies with national, regional and local regulations, which were presented to them.

Based on these evaluations, AENOR concludes that the project demonstrates full compliance with applicable national and local laws and maintains an active compliance system that incorporates regular audits and updates to reflect regulatory changes, ensuring ongoing adherence to Indonesia's legal and policy frameworks.

3.1.12.2 Relevant Laws and Regulations Related to Worker's Rights (VCS, 3.18.2; CCB, G3.11)

Not applicable.

3.1.12.3 Human Rights (VCS, 3.19)

Not applicable.

3.1.12.4 Indigenous Peoples and Cultural Heritage (VCS, 3.18, 3.19)

Not applicable.

3.1.12.5 Statutory and Customary Property Rights (VCS, 3.18, 3.19; CCB, G5.1)

Not applicable.

3.1.12.6 Recognition of Property Rights (VCS, 3.7, 3.18-3.19; CCB, G5.1)

Not applicable.

3.1.12.7 Free, Prior and Informed Consent (VCS, 3.18; CCB, G5.1-G5.5)

⁴ [Indonesia opens trial for carbon registry ahead of July rollout - ANTARA News](#)

⁵ [SRUK Development Hits 90%, Indonesia Prepares Interoperable Carbon Registry with Global Linkages - Ecobiz Asia](#)

Not applicable.

3.1.12.8 Benefit Sharing Mechanisms (VCS, 3.18, 3.19;)

Not applicable.

3.1.12.9 Property Rights Protection (VCS, 3.18, 3.19; CCB, G5.3)

Not applicable.

3.1.12.10 Illegal Activity Identification (VCS, 3.19; CCB, G5.4)

Not applicable.

3.1.12.11 Ongoing Disputes (VCS, 3.18-3.19; CCB, G5.5)

Not applicable.

3.1.12.12 Approvals (CCB, G5.7)

Not applicable.

3.1.12.13 Project Ownership (VCS, 3.2, 3.7, 3.10; CCB, G5.8)

Not applicable.

3.2 Climate

3.2.1 Title and Reference of Methodology (VCS, 3.1)

The Katingan Mentaya Project applies the latest version of approved VCS methodology VM0007 REDD+ Methodology Framework (REDD+MF) (version 1.8), including all applicable modules:

- VMD0042 (BL-PEAT) → v1.1 → Estimation of baseline soil carbon stock changes and GHG emissions in peatland rewetting and conservation project activities
- VMD0016 (X-STR) → v1.2 → Methods for Stratification of the Project Area
- VMD0017 (X-UNC) → v2.2 → Estimation of Uncertainty for REDD+ Project Activities
- VMD0013 (E-BPB) → v1.3 → Estimation of greenhouse gas emissions from biomass and peat burning
- VMD0009 (LK-ASP) → v1.3 → Estimation of emissions from activity shifting for avoiding planned deforestation/forest degradation and avoiding planned wetland degradation
- VMD0044 (LK-ECO) → v1.1 → Estimation of emissions from ecological leakage
- VMD0046 (M-PEAT) → v1.1 → Methods for monitoring soil carbon stock changes and GHG emissions and removals in peatland rewetting and conservation project activities

- VMD0006 (BL-PL) → v1.3 → Estimation of baseline carbon stock changes and GHG emissions from planned deforestation/forest degradation and planned wetland degradation
- VMD0015 (M-REDD) → v2.3 → Methods for monitoring of GHG emissions and removals in REDD and CIW projects
- VMD0001 (CP-AB) → v1.2 → Estimation of carbon stocks in the above and belowground biomass in live tree and non-tree pools
- T-SIG → v1.0 → Tool for testing significance of GHG emissions in A/R CDM project activities
- VT0001 → v3.0 → Tool for the demonstration and assessment of additionality in VCS agriculture, forestry and other land use (AFOLU) project activities

3.2.2 Applicability (VCS, 3.1)

Section 3.1.2 of the VCS PD states all evidence used to demonstrate each condition of the applicable methodology and the modules and tools used. The assessment was carried out for each applicability criterion and include, among others, the review of evidence and sources provided in the PD, and the compliance check of the local project setting with the applicability conditions regarding to baseline and eligible project activities.

	Reference ID/Title	Applicability condition	Assessment and conclusion
1	REDD+-MF, 4.2.1 - REDD	Land in the project area has qualified as forest (following the definition used by VCS) at least 10 years before the project start date.	The audit team assessed through satellite imagery via Landsat 5 that the grouped project area has qualified as forest for at least 10 years prior to the project start date. AENOR assessed satellite images, GIS evidence /4/, onsite observations and stakeholder interviews among other information to confirm that the project complies with the VCS requirements.
2	REDD+-MF, 4.2.1 - REDD	Where land within the project area is peatland or tidal wetlands and emissions from the SOC pool are deemed significant, the relevant WRC modules (see Table 3) are applied alongside other relevant modules	The presence of peatlands within the project area was corroborated through the GIS files /4/, satellite imagery, the Tropical and Subtropical Wetlands Distribution Map (http://www.cifor.org/global-wetlands/) and tracking around the area during the onsite visit. AENOR verified that all relevant WRC modules were correctly applied to estimate emissions from peat soils.

	Reference ID/Title	Applicability condition	Assessment and conclusion
			The soil carbon pools were cross-checked against project documentation such as the PD /1/, and the assessment confirmed full compliance with the applicable requirements.
3	REDD+-MF, 4.2.1 - REDD	Baseline deforestation and forest degradation in the project area fall within either of the following categories: • Unplanned deforestation (VCS category AUDef); • Planned deforestation/degradation (VCS category APDef);	The audit team confirmed that the project meets the applicability condition regarding baseline deforestation and degradation, which falls under the category of planned deforestation/degradation (APDef), as referenced in Section 3.1.4 of the PD. This determination was supported through confirmation of deforestation drivers on the ground, direct observations of the area and the testimonies of the interviewed stakeholders during the onsite visit.
4	REDD+-MF, 4.2.1 - REDD	Leakage avoidance activities must not include: • Agricultural lands that are flooded to increase production (e.g., paddy rice); • Intensifying livestock production through use of “feed-lots” and/or manure lagoons.	It was assessed by the audit team observations during the field visit, and review of the GIS files /4/ and satellite imagery. No flooding agricultural lands or intensifying livestock production through use of feed-lots and/or manure lagoons is present in the project area.
7	REDD+-MF, 4.2.3 - APD	Conversion of forest lands to a deforested condition must be legally permitted.	The audit team reviewed the legislation framework (see Section 3.1.12 of this report) to substantiate that conversion of forest lands to a deforested condition are legally permitted.
8	REDD+-MF, 4.3.1 - WRC	Project activities that lower the water table, unless the project converts open water to tidal wetlands, or improves the hydrological connection to impounded waters, are not eligible.	No sign of project activities that lower the water table was observed during the on-site audit visit. Interviewed stakeholders confirmed this information.

	Reference ID/Title	Applicability condition	Assessment and conclusion
9	REDD+-MF, 4.3.1 - WRC	Changes in hydrology do not result in the accumulation or maintenance of SOC stock, noting that a) this pertains to projects that intend to sequester carbon through sedimentation and/or vegetation development and b) this does not pertain to projects that increase salinity to reduce CH ₄ emissions. Projects that aim to decrease CH ₄ emissions through increased salinity must account for any changes in SOC stocks.	The audit team confirmed that the project meets the applicability condition regarding hydrological changes. Any rewetting activities implemented under the project are designed to maintain or increase the water table depth, thereby preventing peat oxidation and ensuring the preservation of soil organic carbon (SOC) stocks. This conclusion was based on a review of the Project Description and direct observations during the on-site audit visit.
10	REDD+-MF, 4.3.1 - WRC	Hydrological connectivity of the project area with adjacent areas cannot lead to a significant increase in GHG emissions outside the project area.	The audit team reviewed Section 3.2.4.2 of the Project Description and onsite observations confirmed that hydrological connectivity within the project area does not result in increased GHG emissions outside the project boundaries.
11	REDD+-MF, 4.3.1 - WRC	Project activities cannot include the burning of organic soils.	Project activities do not include the burning of peat. The audit team reviewed the PD and observed while on site and no burning of peat is included in the project.
12	REDD+-MF, 4.3.1 - WRC	Nitrogen fertiliser(s), such as chemical fertiliser or manure, cannot be applied in the project area during the project crediting period.	This was verified through observations and stakeholder interviews during the on-site audit visit. The audit team found no sign of usage of nitrogen fertilisers.
16	REDD+-MF, 4.3.3 - CIW	Activities occur on project areas that meet the VCS definition of peatland.	The presence of peatlands within the project area was corroborated through the GIS files /4/, satellite imagery, the Tropical and Subtropical Wetlands Distribution Map (http://www.cifor.org/global-

	Reference ID/Title	Applicability condition	Assessment and conclusion
			wetlands/) and tracking around the area during the onsite visit, in accordance with the VCS definition (see Section 3.2.1.2 of the PD).
17	BL-PEAT	This module is applicable to RDP and CIW activities on project areas that meet the VCS definition for peatland. The scope of this module is limited to domed peatlands in the tropical climate zone.	The presence of peatlands within the project area was corroborated through the GIS files /4/, satellite imagery, the Tropical and Subtropical Wetlands Distribution Map (http://www.cifor.org/global-wetlands/) and tracking around the area during the onsite visit, in accordance with the VCS definition (see Section 3.2.1.2 of the PD).
18	BL-PEAT	It must be demonstrated by using the latest version of the CDM A/R methodological tool: “Tool for testing significance of GHG emissions in A/R CDM project activities” (T-SIG) that N ₂ O emissions in the project scenario are not significant, or it must be demonstrated that N ₂ O emissions will not increase in the project scenario compared to the baseline scenario, and therefore N ₂ O emissions need not be accounted for.	The audit team reviewed the applicable module and confirmed that the project meets the condition, as no N ₂ O emissions are generated under the project scenario. T-SIG was applied, and no significance calculations needed to be performed as carbon pools and sources of GHG emissions were only neglected where it was demonstrably conservative.
19	BL-PEAT	In the baseline scenario the peatland must be (partially) drained. At project start the peatland may still be undrained.	The presence of undrained peatlands within the project area at project start was corroborated through the GIS files /4/, satellite imagery, the Tropical and Subtropical Wetlands Distribution Map (http://www.cifor.org/global-wetlands/) and tracking around the area during the onsite visit, in accordance with the VCS definition (see Section 3.2.1.2 of the PD).

	Reference ID/Title	Applicability condition	Assessment and conclusion
20	X-STR	Any module referencing strata i must be used in combination with this module.	The audit team reviewed all modules referencing strata i and confirmed that the methodology applied is consistent with the requirements of module X-STR for stratification of the project area.
21	X-STR	In case of REDD, above-ground biomass stratification is only used for pre-deforestation forest classes, and strata are the same in the baseline and the project scenario. Post-deforestation land uses are not stratified. Instead, average post-deforestation stock values (e.g. “Simple” or “Historical area-weighted” approaches are used, as per Module BL-UP).	The audit team confirmed that the project meets the applicability condition for biomass stratification. Above-ground biomass for pre-deforestation forest classes has been mapped using a combination of LiDAR/4/, field carbon plots/24/, and remote sensing data /4/, as described in Section 3.2.1.5 of the Project Description. Average post-deforestation carbon stock values were also verified against Section 3.2.2.5.
22	X-STR	For peatland rewetting and conservation project activities this module must be used to delineate non-peat versus peat and to stratify the peat according to peat depth and soil emission characteristics, unless it can be demonstrated that the expected emissions from the soil organic carbon pool or change in the soil organic carbon pool in the project scenario is de minimis.	The audit team reviewed Section 3.2.1 of the X-STR tool and confirmed that peat within the project area has been correctly classified and stratified in accordance with the methodology requirements.
23	X-STR	In the case of peatland rewetting and conservation project activities, the project boundary must be designed such that the negative effect of drainage activities that occur outside the project area on the project GHG benefits are minimised.	The audit team confirmed that the project meets the applicability condition related to hydrology management. The project is taking significant steps to maintain hydrological integrity within the project area and restore disturbed areas affected by drainage. Additionally, monitoring is conducted in areas outside the project boundary to minimize potential negative

	Reference ID/Title	Applicability condition	Assessment and conclusion
			impacts on GHG benefits. This was verified through a review of the monitoring SOPs /22/ and interviews with project personnel during the on-site audit.
24	X-UNC	The module is mandatory when using VCS methodology VM0007. It is applicable for estimating the uncertainty of estimates of emissions and removals of CO₂-e generated from REDD and WRC project activities. The module focuses on the following sources of uncertainty: • Determination of rates of deforestation and degradation • Uncertainty associated with estimation of stocks in carbon pools and changes in carbon stocks • Uncertainty associated with estimation of peat emissions • Uncertainty in assessment of project emissions	The audit team confirmed that the project meets the applicability condition regarding uncertainty estimation. Module X-UNC was applied throughout to calculate uncertainties associated with the project, as detailed in Section 3.2.5.1 of the PD. All uncertainty calculations were reviewed and verified for consistency with the methodology requirements.
25	X-UNC	Where an uncertainty value is not known or cannot be simply calculated, then a project must justify that it is using an indisputably conservative number and an uncertainty of 0% may be used for this component.	The audit team confirmed that the project meets the applicability condition regarding uncertainty. In all cases where an uncertainty value was not known or could not be easily calculated, the project provided justification demonstrating that the value applied was indisputably conservative, as assessed in Sections 3.2.6 and 3.2.7 of this report. The audit team reviewed all uncertainty calculations/3/ and verified that the X-UNC module was consistently used in each instance.
26	X-UNC	Guidance on uncertainty – a precision target of a 95% confidence interval half-width equal to or less	The audit team confirmed that uncertainty requirements were fully incorporated into project planning

	Reference ID/Title	Applicability condition	Assessment and conclusion
		than 15% of the recorded value shall be targeted. This is especially important in terms of project planning for measurement of carbon stocks; sufficient measurement plots should be included to achieve this precision level across the measured stocks.	and carbon stock calculations, as outlined in Sections 3.2.5.1 and 3.2.5.4 of the PD. The sampling design and uncertainty calculations were reviewed, and it was verified that the project added sufficient plots to ensure the sample size met the guidance on uncertainty.
27	E-BPB	This module is applicable to REDD project activities with emissions from biomass burning and REDD-WRC project activities with emissions from biomass and/or peat burning. This module is also applicable to RWE and ARR-RWE project activities with emissions from peat burning.	The audit team confirmed that the project meets the applicability condition, as it falls under the category of APD, allowing for the use of the corresponding module. This determination was verified through a review of project documentation and methodology requirements.
28	LK-ASP	The module is applicable for estimating the leakage emissions due to activity shifting from forest lands that are legally authorised and documented to be converted to non-forest land, including activity shifting to forested wetland that is drained or degraded as a consequence of project implementation. The module is also applicable for estimating the leakage emissions due to activity shifting from non-forested wetlands that are legally authorised and documented to be converted and degraded. Under these situations, displacement of baseline activities can be controlled and measured directly by monitoring the baseline deforestation or wetland degradation agents or class of agents.	The audit team confirmed that the project meets the applicability condition outlined in Section 3.2.4 of the Project Description. The design includes appropriate measures for monitoring planned deforestation leakage. This was verified through a review of other concessions granted to acacia plantations in Indonesia and corroborated by on-site observations confirming that deforestation occurs on peatland.
29	LK-ASP	This tool must be used for projects in areas where planned deforestation happens on forested wetlands,	Verified, as substantiated by remote sensing data /4/.

	Reference ID/Title	Applicability condition	Assessment and conclusion
		regardless of the absence of wetland within the project boundaries.	
30	LK-ASP	The module is mandatory if Module BL-PL has been used to define the baseline, and the applicability conditions in Module BL-PL must be complied with in full.	Confirmed compliance. See #34 and #35 below.
31	LK-ECO	This module is applicable under the following condition: Leakage caused by hydrological connectivity is avoided by project design and site selection, as outlined in Chapter 5 (Procedures).	The audit team confirmed that the project meets the applicability condition regarding ecological leakage, as detailed in Section 3.2.4.2 and the application of module LK-ECO. During the on-site visit, it was verified that areas designated for rewetting are generally small, bordered by major waterways, and therefore highly unlikely to affect water tables in surrounding areas or cause ecological leakage.
32	M-PEAT	This module is applicable to RDP and CUPP activities as defined in the VCS Standard. The project area must meet the VCS definition for peatland. This module is limited to domed peatlands in the tropical climate zone.	Confirmed compliance. See #16 above.
33	M-PEAT	The following applicability conditions apply: • It must be demonstrated using tool T-SIG that N₂O emissions in the project scenario are not significant, or it must be demonstrated that N₂O emissions will not increase in the project scenario compared to the baseline scenario, and therefore N₂O emissions need not be accounted	Confirmed compliance. See #18 above. See also #19 above. The audit team confirmed that the project meets the applicability condition regarding ecological leakage, as referenced in Section 3.2.4.2. All measures have been implemented to ensure ecological

	Reference ID/Title	Applicability condition	Assessment and conclusion
		for. - In the baseline scenario the peatland must be (partially) drained. - At project start the peatland may still be undrained. - It must be demonstrated using Module LK-ECO that ecological leakage must not occur.	leakage remains zero, consistent with the application of module LK-ECO.
34	BL-PL	The module is applicable for estimating the baseline emissions on forest lands (usually privately or government owned) that are legally authorised and documented to be converted to non-forest land.	The audit team reviewed the legislation framework (see Section 3.1.12 of this report) to substantiate that conversion of forest lands to non-forest land are legally permitted/6/
35	BL-PL	Where, pre-project, unsustainable fuelwood collection is occurring within the project boundaries modules BL-DFW and LK-DFW shall be used to determine potential leakage.	Not applicable. Confirmed compliance, as the project does not avoid unsustainable fuelwood collection.
36	M-REDD	Strata as defined in the relevant baseline modules are fixed and may not be changed without baseline revision.	The audit team reviewed Section 3.2.2.3.2 of the Project Description and the PD Climate Annex, confirming that the applicability condition is met, evaluating stratification according to the methodology. Stratification may be revised during the next baseline renewal, in accordance with methodology provisions.
37	M-REDD	The module is mandatory for REDD, CIW-REDD, RWE-REDD and stand-alone CIW project activities.	Confirmed compliance, as the module is applied per the requirement.
38	M-REDD	Where selective logging is taking place in the project case: Emissions from logging may be	Confirmed compliance. Condition not applicable, as the project does not include timber harvesting.

	Reference ID/Title	Applicability condition	Assessment and conclusion
		omitted if it can be demonstrated the emissions are de minimis using T-SIG. • If emissions from logging are not omitted as de minimis, logging may only take place within forest management areas that possess and maintain a Forest Stewardship Council (FSC) certificate for the years when the selective logging occurs. • Logging operations may only conduct selective logging that maintains a land cover that meets the definition of forest within the project boundary. • All trees cut for timber extraction during logging operations must have a DBH greater than 30 cm. • During logging operations, only the bole/log of the felled tree may be removed. The top/crown of the tree must remain within the forested area. • The logging practices cannot include the piling and/or burning of logging slash • Volume of timber harvested must be measured and monitored.	
39	CP-AB	This module is applicable to all forest types and age classes.	The audit team reviewed the Project Description /1/ and confirmed that the applicability condition is met. This module has been applied in accordance with the methodology requirements.
40	T-SIG	The tool shall be used in the application of an A/R CDM approved methodology to an A/R CDM project activity: a) To determine which decreases in carbon pool and increases in emissions of the greenhouse gases	Not applicable, as the project is not categorised as afforestation, reforestation, and revegetation. The audit team reviewed the Project Description and confirmed that the applicability condition is met. T-SIG was applied; however, no

	Reference ID/Title	Applicability condition	Assessment and conclusion
		measured in CO ₂ equivalents that results from the implementation of the A/R project activity, are insignificant and can be neglected b) To ensure that it is valid to neglect decreases in carbon pools and increases GHG emission by source stated as being insignificant in the applicability conditions of an A/R CDM methodology	significance calculations were required, as carbon pools and sources of GHG emissions were only excluded where this approach was demonstrably conservative.
41	VT0001	AFOLU activities the same or similar to the proposed project activity on the land within the proposed project boundary performed with or without being registered as the VCS AFOLU project shall not lead to violation of any applicable law even if the law is not enforced.	The audit team reviewed the Project Description and confirmed that the applicability condition is met. Based on the document review and site visit, the auditors verified that no legislation has been violated, as assessed in Section 3.1.12 of this report.
42	VT0001	The use of this tool to determine additionality requires the baseline methodology to provide for a stepwise approach justifying the determination of the most plausible baseline scenario. Project proponent(s) proposing new baseline methodologies shall ensure consistency between the determination of a baseline scenario and the determination of additionality of a project activity.	The audit team reviewed the Project Description, confirming that the determination of the most plausible baseline scenario complied with the methodology. The baseline determination was conducted following the steps outlined in the VM0007 REDD Methodology Framework, as assessed in Section 3.2.4 of this report.

3.2.3 Project Boundary (VCS, 3.12)

The audit team reviewed the criteria provided by the PP to include or not the carbon pools, sinks, and reservoirs, and assessed them against the requirements identified in VM0007 methodology, confirming that the PP selection is in accordance with methodology requirements.

The audit team verified that the temporal boundaries of the project comply with Section 5.2 of the VM0007 REDD+ Methodology Framework (REDD+MF), Version 1.8.

For REDD, the historical reference period is the fixed time during which historical deforestation and forest degradation is analysed in the reference region to set the forward-looking baseline, the duration of which is set out in the VCS Methodology Requirements. Land in the project area has qualified as forest at least 10 years before the project start date, complying with VCS Methodology Requirements. As the project has started and a baseline update has been calculated (2021-2026), the historical reference period ends at the time at which the baseline is updated.

For WRC baselines, the audit team confirmed that the project referenced a period of at least 10 years to model a spatial trend in drainage, taking into account long-term (20-year) average climate variables, in accordance with procedures provided in Modules BL-PEAT and BL-TW.

The crediting period for the project is 01 November 2010 – 31 October 2070, complying with the project crediting period requirements for AFOLU projects of being between 20 and 100 years. The monitoring periods respect the minimum duration of a monitoring period of one year and the maximum duration of 10 years.

The audit team verified that the geographical boundaries of the project comply with Section 5.1 of the VM0007 REDD+ Methodology Framework (REDD+MF), Version 1.8. The audit team confirmed that the boundary of the REDD activity was clearly delineated, and the following information was provided per discrete area:

- Name of the project area /4/
- Unique ID for each discrete parcel of land /4/
- Map of the area (digital format) /4/
- Geographic coordinates of each polygon vertex along with the documentation of their accuracy (KML and shapefiles) /4/
- Total land area /4/
- Details of landholder and user rights /4/

Regarding the GHG sources, sinks and reservoirs, and considering the applicable methodology, the chosen carbon pools and GHG accounted are the following:

Carbon Pools in the Baseline and Project Scenario of REDD and WRC Project Activities:

Carbon pool	Included?	Assessment and conclusion
Aboveground tree biomass	Excluded	Covered under REDD. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Aboveground shrub biomass	Excluded	Covered under REDD. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Herbaceous biomass	Excluded	No ARR activities are included. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Belowground biomass	Included	This pool is not distinguished from the soil pool in WRC procedures. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Litter	Excluded	Covered under REDD. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Dead wood	Excluded	Covered under REDD. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Soil	Included	Procedures in Modules BL-PEAT, M-PEAT, BL-TW and M-TW account for emissions from the soil pool based on proxies and default factors. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
Wood products	Excluded	Covered under REDD. Confirmed compliance with Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.

GHG sources included in the REDD component:

	Source	Gas	Included?	Assessment and conclusion
Baseline	Deforestation	CO ₂	Yes	Carbon stock decreases as a result of deforestation are included. Confirmed compliance with the validated PD and pools included in Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.

Source	Gas	Included?	Assessment and conclusion
	Burning of woody biomass	CO ₂	Carbon stock decreases due to burning are accounted as a carbon stock change. Conservatively assumed zero. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		CH ₄	Non-CO ₂ gases emitted from woody biomass burning are conservative to exclude. Conservatively assumed zero. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		N ₂ O	Non-CO ₂ gases emitted from woody biomass burning are conservative to exclude. Conservatively assumed zero. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
	Combustion of fossil fuels	CO ₂	It is conservative to exclude. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		CH ₄	It is conservative to exclude. Potential emissions are negligible. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		N ₂ O	It is conservative to exclude. Potential emissions are negligible. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
	Use of fertilisers	CO ₂	Conservatively omitted. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		CH ₄	Conservatively omitted. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.

Source		Gas	Included?	Assessment and conclusion
Project		N ₂ O	No	Conservatively omitted. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
	Burning of woody biomass	CO ₂	Yes	The project has provisions for accounting burning woody biomass if it occurs in the project scenario, using IPCC combustion factors for CO ₂ . Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		CH ₄	Yes	The project has provisions for accounting burning woody biomass if it occurs in the project scenario, using IPCC combustion factors for CH ₄ . Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		N ₂ O	Yes	The project has provisions for accounting burning woody biomass if it occurs in the project scenario, using IPCC combustion factors for N ₂ O. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
	Deforestation	CO ₂	Yes	The project has provisions for accounting deforestation if it occurs in the project scenario, calculating the carbon stock change. Confirmed compliance with the validated PD and pools included in Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.
	Forest degradation	CO ₂	Yes	The project has provisions for accounting degradation if it occurs in the project scenario, calculating the carbon stock change. Confirmed compliance with the validated PD and pools included in Table 4 in Section 5.3.3 of VM0007 Methodology v1.8.

Source	Gas	Included?	Assessment and conclusion
	Combustion of fossil fuels	CO ₂	No Can be neglected if excluded from baseline accounting, according to the methodology. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		CH ₄	No Can be neglected if excluded from baseline accounting, according to the methodology. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		N ₂ O	No Can be neglected if excluded from baseline accounting, according to the methodology. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
	Use of fertilisers	CO ₂	No Excluded according to the methodology. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		CH ₄	No Excluded according to the methodology. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.
		N ₂ O	No Can be excluded if excluded from baseline accounting except in the situation where fertilizer use is enhanced as a leakage avoidance mechanism, according to the methodology. The audit team found no sign of usage of fertilisers in the project area. Confirmed compliance with Table 5 in Section 5.4.2 of VM0007 Methodology v1.8.

GHG sources included in the WRC component:

Source		Gas	Included?	Assessment and conclusion
Baseline / Project scenario	Microbial decomposition (Oxidation of drained peat)	CO ₂	Yes	As explained in section 3.2.2.4. of the VCS CCB PD, tier 2 emissions factors will be used in baseline and project scenarios to estimate emissions. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
		CH ₄	Yes	As explained in section 3.2.2.4. of the VCS CCB PD, tier 2 emissions factors will be used in baseline and project scenarios to estimate emissions. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
		N ₂ O	No	Excluded as per applicability condition in module BL-PEAT Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
	Water bodies	CO ₂	Yes	As explained in section 3.2.2.4.3. of the VCS CCB PD, CO ₂ waterborne “on-site” emissions will be accounted for using Tier 2 emission factors. Confirmed compliance with the validated PD.
		CH ₄	Yes	As explained in section 3.2.2.4.3. of the VCS CCB PD, CH ₄ waterborne “on-site” emissions will be accounted for using Tier 2 emission factors. Confirmed compliance with the validated PD.
		DOC	Yes	DOC degradation is assumed to be the only source of “off-site” waterborne emissions, following the guidance from the IPCC (2013). Emissions will be accounted for using Tier 2 emission factors as explained in Section 3.2.2.4.3. Confirmed compliance with the validated PD.
		N ₂ O	No	Conservatively omitted.

Source	Gas	Included?	Assessment and conclusion
			Confirmed compliance with the validated PD.
	Peat combustion	CO ₂	Yes Procedures provided in module E-BPB using IPCC combustion factors for both baseline and project scenario. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
		CH ₄	Yes Procedures provided in module E-BPB, using IPCC combustion factors for both baseline and project scenario. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
		N ₂ O	Yes Procedures provided in module E-BPB, using IPCC combustion factors for both baseline and project scenario. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
	Combustion of fossil fuels	CO ₂	No It is conservative to exclude, according to the methodology. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
		CH ₄	No Potential emissions are negligible. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
		N ₂ O	No Potential emissions are negligible, according to the methodology. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8. Confirmed compliance with Section 5.4.3 of VM0007 Methodology v1.8.
	Fertiliser application	CO ₂	No Conservatively omitted, according to the methodology. Confirmed compliance with the validated PD and Section 5.4.3 of VM0007 Methodology v1.8.
		CH ₄	No Conservatively omitted, according to the methodology.

Source	Gas	Included?	Assessment and conclusion
			Confirmed compliance with the validated PD and Section 5.4.3 of VM0007 Methodology v1.8.
	N ₂ O	No	Conservatively omitted, according to the methodology. Confirmed compliance with the validated PD and Section 5.4.3 of VM0007 Methodology v1.8.

3.2.4 Baseline Scenario (VCS, 3.13)

The VVB reviewed the PD Section 3.1.4 and Appendix 5 to assess compliance with VMD0006 Sections 5.1.1 and 5.1.2. The assessment included review of: (i) the identification of the most likely class of deforestation agent and most common purchaser of similar lands; (ii) the suitability of the project area for the projected land use; (iii) the legal permissibility of the projected conversion activity; (iv) evidence of documented intent to deforest; and (v) the rationale supporting the use of three baseline deforestation agents (Agents A, B and C). The assessment was based on review of the PD, Appendix 5, supporting spatial analyses, historical concession information, calculation workbooks, methodological memoranda, scientific literature, relevant Indonesian regulations and primary documentary evidence.

Most Likely Class of Agent of Deforestation and Most Common Purchaser of Similar Lands

The VVB reviewed the methodology used to define and analyse the similar-lands stratum. Review of the underlying spatial datasets confirmed that the analysis was based on lands sharing the principal characteristics of the project area, namely natural forest cover, peat soils, lowland conditions, near-flat slopes and accessibility through existing river and road networks. The assessment confirmed that the project area falls entirely within the identified similar-lands stratum and forms a single dominant stratum. The concession-intersection analysis undertaken using the national PBPH concession database and associated spatial analyses was reviewed/16.1/. Assessment of the distribution of concession classes within the similar-lands stratum demonstrated that industrial plantation concessions represented the dominant purchaser of comparable lands. The analysis further demonstrated that industrial timber plantations (HTI/PBPH) and oil-palm concessions together accounted for the largest share of comparable lands and exhibited substantially higher rates of forest loss than logging, ecosystem restoration or other concession classes /16.1/.

Assessment of Historical Deforestation Rates

Independent review of the historical deforestation analysis included assessment of the methodological memorandum *Using Global Forest Watch to Calculate Rates of Deforestation in Acacia Concessions, 2011–2020*. The VVB confirmed that the analysis relied on publicly available Global Forest Watch tree-cover extent and annual tree-cover-loss datasets, applying a 30% canopy-cover threshold and a year-2000 forest baseline. Review of the analytical procedure confirmed the use of concession polygon uploads to Global Forest Watch, extraction of annual tree-cover-loss data, reconstruction of annual forest-cover

trajectories and calculation of annual forest-loss rates using the previous year's remaining forest cover as the denominator. The methodology was found to be transparent, reproducible and consistently applied across concession classes.

The VVB reviewed the concession-intersection analysis conducted using the national PBPH concession database and the defined similar-lands stratum/16.1/. The assessment confirmed that industrial plantation concessions represent the dominant purchaser of comparable lands, with industrial timber plantations (HTI/Acacia) and oil-palm plantations together accounting for approximately 26.8% of the similar-lands stratum and exhibiting substantially higher annual forest-loss rates than other concession classes. The analysis further demonstrated that the project area's most likely conversion pathway is industrial peat-plantation development. Although oil-palm and industrial Acacia concessions occupy comparable proportions of similar lands, industrial Acacia plantations exhibit a slightly lower historical forest-loss rate and therefore represent the conservative choice for baseline modelling. Review of the applicable legal framework confirmed that industrial timber plantation licences (IUPHHK-HTI/PBPH) constitute the legally available plantation tenure within the project's Permanent Production Forest classification, whereas oil-palm development would require release from the forest estate and is therefore not a legally viable baseline scenario for the project area /16.1/.

Suitability for Conversion and Legal Permissibility

Evidence supporting the suitability of the project area for industrial *Acacia crassicaarpa* plantation development was reviewed. This included review of the biophysical characteristics of the project area and the scientific literature cited by the project proponent regarding the suitability of *Acacia crassicaarpa* on tropical peatlands, including Doran and Turnbull (1997), Griffin et al. (2011), Mendham et al. (2017), Hooijer et al. (2011) and Astiani et al. (2018). Based on the evidence reviewed, the VVB confirmed that the project area exhibits conditions comparable to areas historically converted to industrial Acacia plantations and that no material biophysical constraints to plantation development were identified.

The VVB additionally reviewed evidence relating to market access and financial feasibility, including CIFOR Working Paper No. 37 (Pirard and Cossalter, 2006), Subardin et al. (2018), vessel-tracking evidence reported by Mongabay and Global Fishing Watch, and the site-specific financial assessment presented in Appendix 5. The review also considered comparable plantation developments within Central Kalimantan, including PT Industrial Forest Plantation, PT Bumi Hijau Prima and the regional analysis identifying approximately 146,461 ha of Acacia plantation concessions. Taken together, the evidence supports the conclusion that the project area possessed suitable transportation access, market connectivity and economic conditions for industrial plantation development.

Independent review of the applicable legal framework included Forestry Law No. 41/1999, Law No. 19/2004, Permenhut P.19/Menhut-II/2007, Permenhut P.11/Menhut-II/2008 and Government Regulation (PP) No. 60/2012. This review confirmed that industrial timber plantation licences (IUPHHK-HTI/PBPH) represented a legally available land-use pathway within Production Forest areas during the baseline period. The VVB further confirmed that the project area does not contain HPK land and therefore conversion to oil palm would require an alternative legal pathway not available under the project area's land classification. Accordingly, industrial Acacia plantation operators were determined to represent the most likely legally permissible class of deforestation agent.

Assessment of Agent A

For deforestation agent A (PT Natural Wood Kencana), the validation team reviewed the original industrial plantation (IUPHHK HTI) application submitted to the Ministry of Forestry in October 2008, the associated district level technical consideration issued by the Kotawaringin Timur Forestry Service, and the Ministry's formal rejection letter inviting resubmission due to administrative incompleteness. These documents were independently assessed against the forestry licensing framework applicable at the time and the Ministry of Forestry's indicative land use maps, which confirmed that the proposed 50,000 ha fell within Permanent Production Forest legally eligible for acacia plantation development. The validation team further assessed the timing and procedural interaction between this application and the project proponent's own concession application, verifying that the issuance of first order approval to the project proponent in June 2009 legally precluded the processing of competing applications. This review allowed the validation team to independently confirm that, in the absence of the project, PT Natural Wood Kencana had a credible pathway to obtain a plantation license and undertake planned deforestation within the project area.

Assessment of Agents B and C

The VVB reviewed the rationale supporting projection of two additional industrial plantation operators within the remaining project area. This assessment included review of the 2009 Ministry Indicative HTI Reserve Map, national HTI statistics indicating approximately 249 HTI companies operating across approximately 10 million hectares by 2011, historical Ministry concession maps from 2007, evidence of adjacent plantation developments including PT Ceria Karya Pranawa and PT Persada Era Agro Kencana (PT PEAK), and evidence of comparable industrial plantation developments in Central Kalimantan, including PT Industrial Forest Plantation and PT Bumi Hijau Prima.

The VVB also reviewed the rationale provided regarding concession-size norms, historical licensing practices, administrative constraints associated with applications spanning multiple districts, government policies promoting HTI expansion, and observed patterns of multi-operator development on Indonesian peat domes. Particular consideration was given to the evidence that PT Kayu Alam Kencana's application covered approximately 50,000 ha, representing only a portion of the project footprint, and to the historical examples of multiple plantation operators occupying comparable peat landscapes. The evidence reviewed supports the plausibility that additional operators of the same class could have obtained concessions covering the remaining portions of the project area.

Based on this multi-step assessment, the validation team concludes that the selection of deforestation agents A, B, and C is supported by verifiable documentation, consistent regulatory and sectoral evidence, and observed regional patterns of plantation development. The rationales and assumptions underpinning the identification of these agents are therefore considered credible, reasonable, and sufficiently substantiated, and the baseline scenario appropriately represents what would most likely have occurred in the absence of the project.

AENOR has assessed the analysis of environmental and forestry regulations introduced in Indonesia after the project start date (2010) on the validity of the baseline scenario. The VVB confirms that the PP demonstrates that these regulatory developments do not invalidate the baseline scenario of conversion to industrial acacia plantation.

The introduction of the temporary moratorium in 2011 on new permits for primary forest and peatland conversion is assessed by the VVB as having limited relevance to the baseline scenario. The PP

demonstrates that applications submitted prior to the moratorium, including those supported by in-principal approvals, were exempt from its restrictions. In this context, the VVB confirms that the project proponent had already secured first-order approval in 2009, which legally precluded competing concession applications within the same area and effectively established priority rights over the concession. AENOR has assessed the documented evidence of third-party interest in developing acacia plantations within the project area (e.g. the 2008 application by PT Kayu Alam Kencana) /5/ which reinforces that, in the absence of the project, plantation applications would likely have proceeded prior to or irrespective of the moratorium.

The audit team substantiated through the review of a peer-reviewed study (Groom, Palmer & Sileci, 2022) that the regulation had limited practical impact on peatland deforestation, due to exemptions, revisions, and weak enforcement, as well as empirical findings showing negligible avoided deforestation in peatland areas. Consequently, the VVB agrees that the moratorium does not materially alter the plausibility of the baseline scenario.

Subsequent regulatory developments, particularly Government Regulation No. 57/2016 (amending PP No. 71/2014) and its implementing regulation MoEF P.10/2019, introduce specific protections for peat ecosystems, notably the requirement to designate peatlands deeper than 3 metres as protection function and the obligation to identify and conserve peat dome peak areas. The VVB confirms that these requirements do not prohibit plantation development across the entire project area but instead impose spatial restrictions and management obligations within concessions. In particular, areas outside the peat dome peak remain eligible for production use, while protected zones must be conserved or restored.

The VVB further notes that transitional provisions under MoEF Regulation P.8/2021 allow existing concession holders to continue management activities in certain protection function areas outside the peat dome peak until permit expiration, subject to maintaining hydrological function. The regulatory framework is operationalised through official zoning instruments, such as MoEF Decree SK.130/2017, which designates a significant portion of the project area as protection function. The VVB confirms that the PP has appropriately incorporated these spatial constraints into the baseline scenario in a conservative manner.

In addition, the VVB confirms that the PP has demonstrated consistency and legal clarity within the regulatory framework, supported by an independent legal opinion, indicating no conflict between general forestry regulations and peat-specific legislation.

Finally, the VVB notes that strong market drivers for pulpwood production and continued expansion of the acacia plantation sector further support the persistence of the baseline scenario despite regulatory changes. The VVB agrees with the PP's conclusion that plantation development, adapted to comply with updated peat protection requirements, would remain the most likely land-use pathway in the absence of the project.

Therefore, for all of the above, AENOR considers that the procedures for identifying the baseline scenario have been correctly followed by the PP and that the identified scenario reasonably represents what would have occurred in the absence of the project, deeming that the identified baseline scenario is justified.

3.2.5 Additionality (VCS, 3.14)

According to Section 3.14.1 of the VCS Standard v4.7, the project shall demonstrate regulatory surplus at validation and each project crediting period renewal.

As such, additionality was demonstrated in the validated PD and the project is therefore additional for its entire crediting period, not requiring a full additionality assessment for the baseline renewal.

3.2.6 Quantification of GHG Emission Reductions and Removals (VCS, 2.5, 3.2, 3.6, 3.15, 4.1, 4.3)

3.2.6.1 Quantification of baseline emissions.

3.2.6.1.1 Project Stratifications as per Module X-STR

The audit team assessed that the peatland stratification followed the guidelines in X-SRT (v1.3) to ensure the delineation of peat and non-peat areas were correctly carried out. The VVB also reviewed Congalton (1991) and Congalton et al. (2008) to confirm that best-practice methods in remote sensing were applied, as described in the X-STR module. Congalton (1991) introduced the standard approach for thematic map accuracy assessment using error matrices, overall accuracy, user's and producer's accuracy, and Kappa statistics. These methods have become a benchmark for evaluating classification performance. Congalton & Green (2008) expanded these principles, providing comprehensive guidance on sampling design, reference data collection, and statistical analysis for accuracy assessment. It aligns with current best-practice frameworks like CEOS and ISO standards.

The PP utilised a Digital Terrain Model (DTM) /14/ based on ICESat-2 and GEDI data, along with field depth measurements, to map peat thickness throughout the site, in accordance with Section 4.3.2 of X-SRT (v1.3). Peat zones were delineated based on thickness and drainage characteristics, applying a minimum threshold of 50 cm depth for peatland classification, in accordance with Section 4.3.1 of X-SRT (v1.3). Furthermore, the free drainage limit was adjusted dynamically to account for projected sea level rise, in accordance with Section 4.8 of X-SRT (v1.3). The VVB further confirms that the peat thickness map demonstrates satisfactory accuracy, with an MAE of 1.131 m and an RMSE of 1.784 m based on 423 observations, supporting its reliability for peat stratification purposes. Furthermore, the PP demonstrates that approximately 91% of the project area exceeds the 3 m peat depth threshold established under Government Regulation No. 57/2016, which is relevant for the designation of protection function; however, the VVB notes that the officially designated protection area (72%) reflects the application of additional regulatory criteria beyond peat depth alone. Additionally, the free drainage limit was adjusted dynamically to account for projected sea level rise, in accordance with Section 4.8 of X-SRT (v1.3).

This stratification allows the project to simulate the Peat Depletion Time (PDT) /14/ for each pixel of the peat thickness map year by year. The PDT calculations include factors such as subsidence, microbial decomposition, and peat combustion. To determine eligibility for carbon crediting, carbon stock depletion scenarios were compared between the baseline and the project.

To determine eligibility for carbon crediting, carbon stock depletion scenarios were compared between the baseline and the project using the Total Stock Approach. In accordance with the applied threshold, areas where the difference in carbon stocks between scenarios is less than 5% are classified as non-threatened and excluded from crediting. A conservative threshold ensures that only substantial peat areas with significant emission risk qualify for emission reduction accreditation, as assessed below. Within the WRC-eligible area, strata are further differentiated into APWD and RDP sub-activity zones, reflecting avoided degradation and active rewetting interventions, respectively.

AENOR confirms that based on the assessment of the different steps described below in detail, the design of the stratification is updated and correct. Furthermore, during the onsite visit, AENOR was able to crosscheck through satellite imagery and maps the difference between strata, confirming with checkpoints from the ground that the strata were correctly classified.

3.2.6.1.2 Digital Terrain Model

A Digital Terrain Model was developed by the PP in order to correctly mapped peat thickness.

Based on X-SRT (v1.3) procedures for mapping peat thickness in domed peatlands, a DTM was developed specific to the Katingan Mentaya Project area (Vernimmen and Hooijer, 2023). The PP employed a remote sensing-based approach, utilising satellite data, to create an elevation model for accurate peat thickness mapping. DTM can be derived from remote sensing data by processing vegetation height corrections and data interpolation.

The audit team reviewed Vernimmen et al. (2020) to confirm that this method has been applied on similar sites in the region and has been shown to reflect around 85% of the variation in LiDAR-derived surface elevation. Thus, the audit team verified that this approach also aligns with the DTM development.

AENOR confirmed that, when the final elevation map is compared to GEDI and ICESat-2 point data, 95% of values fall within 36.53 cm, below the accuracy threshold of 50 cm set out in Section 4.3.2 of X-SRT module (3.2.1.1 of the PD). The audit team reviewed the DTM Peat Thickness Report/⁶ to confirm that the procedures and methods are consistent and accurate.

Therefore, AENOR deems the method to be compliant with X-SRT module.

3.2.6.1.3 Peat Thickness

Peat thickness was estimated using elevation data, due to the strong linear relationship between elevation and depth that arises from the characteristic shape of the peat dome. The audit team reviewed related literature (Jaenicke et al. 2008; Rudiyanto et al. 2018; Vernimmen et al. 2020; and Vernimmen and Hooijer 2023a) to substantiate said correlation. Therefore, peat thickness can be defined as:

⁶ Vernimmen, R. & Hooijer, A. (2023). New LiDAR-based elevation model shows greatest increase in global coastal exposure to flooding to be caused by early-stage sea-level rise. *Earth's Future*, 11, e202EF002880. <https://doi.org/10.1029/2022EF002880>

$$\text{PeatThickness}_i = \text{DTM}_i - \text{DepthPeatBottom}_i \quad (3.1)$$

Where:

- PeatThickness_i = peat thickness at the stratum i
- DTM_i = elevation (m asl) at the stratum i
- DepthPeatBottom_i = the depth from the surface to the base of the peat layer at the stratum i

The PP first created a model of the flat peat bottom by processing the DTM and 757 peat depth field measurements /24/. Sampling points were systematically arranged to capture typical peat depths. The PP followed the module's suggestion of a conservative depth confirmation method to reduce sampling density when measurements consistently exceed 50 cm. Final thickness values were calculated as the difference between DTM and peat base (Equation 3.1). The audit team confirmed that this method aligns with peat zone delineation objectives (X-SRT v1.3).

Accuracy metrics by depth band are detailed in 3.2.1.2. of the PD. The peat thickness map within the project area demonstrates an overall MAE of 1.131 m, reflecting its alignment with observed data across varying depths. The RMSE is 1.784 m, based on 423 individual predictions, indicating the map's reliability for depth-based peat stratification. Furthermore, the PP demonstrates that approximately 91% of the project area exceeds the 3 m peat depth threshold defined under Government Regulation No. 57/2016, supporting its relevance for protection function classification. The audit team notes that the proportion of protection function formally designated through MoEF Decree SK.130/2017 (72% of the project area) reflects the application of additional regulatory criteria beyond peat depth alone.

The audit team confirmed that the model has an R^2 value of 0.588, indicating a good fit between the actual and predicted peat thickness values (**Error! No se encuentra el origen de la referencia.** of the PD). The intercept ($\beta_0 = 0.333$) does not differ from zero, and the slope ($\beta_1 = 0.935$) is significantly different from zero and close to 1, indicating a strong relationship between the actual and predicted peat thickness values.

Using a peat thickness threshold of 50 cm, areas below this value are classified as non-peat, covering 91.09 ha and representing 0.06% of the project area. The audit team confirmed that this proportion is below the 5% threshold specified by the methodology, which indicates that non-peat areas could remain included. However, to maintain conservative estimates in emissions accounting, these areas were excluded from peatland strata, ensuring the reliability of carbon stock assessments.

Therefore, AENOR deems the method to be compliant with X-SRT module.

3.2.6.1.4 Stratification According to Peat Depletion Time

Building on this classification, the PDT assessment provides a framework to estimate remaining peat reserves in drained peatlands, where depletion occurs at an accelerated rate (X-SRT v1.3). Its purpose is to determine how long the baseline can sustain adequate peat levels for carbon credit eligibility by setting clear boundaries for when peat in a specific area will be fully depleted due to oxidation, subsidence, or fire. The assessment ensures peat thickness remains above 50 cm throughout the simulation and considers the impacts of rising sea levels, which may rewet peat, alter decomposition rates, and increase combustion risk. Because free drainage and peat availability assumptions would be violated in areas affected by burning, emissions from these patches were excluded. Additionally, the method identifies the peat depth below which water can no longer drain freely.

The following conditions were applied to determine when a cell in the peat thickness map is considered depleted of peat:

- **Peat Deeper than 50 cm:** The module identifies the presence of peat by delineating peatlands using a 50 cm depth threshold. To maintain consistency, this criterion was applied for the PDT assessment, limiting the emissions that can be claimed by excluding depths below the threshold from the calculations. This approach minimises the risk of overestimating emissions (X-SRT v1.3).
- **Free drainage:** Areas where the peat is too saturated to allow free drainage should not be credited, as they limit carbon oxidation and the associated emissions. To ensure the accuracy of emissions estimates, the free drainage threshold was annually adjusted based on projected sea level rise data (NASA Sea Level Change Team 2021). This conservative approach accounts for future environmental changes, integrating the impact of climate change into the calculations (Vernimmen and Hooijer 2023b).

Thus, the audit team confirmed that these assumptions are deemed conservative, limiting the overestimation of emissions and accounting for climate change impacts.

The PP generated geospatial layers that map peat depth and drainage for each stratum i during year t of our simulation. This process excludes areas of peatland that no longer meet the criteria for emissions calculations on an annual basis. The first step was modelling subsidence caused by compression, microbial degradation, and the combustion of peat due to fire events, which determines the peat depth for each year. These sources of peat thickness reduction are defined as follows:

- **Compression:** As water levels in peatlands decrease, the weight of the overlying soil intensifies the pressure on the peat, leading to compression and subsidence. This process is simulated through a mechanistic model incorporating bulk density and consolidation effects by lowering the water table depth. The audit team confirmed that a minimum compression factor of 6.67%

(Hooijer et al., 2012) was applied to ensure conservative estimates as a safeguard against uncertainties.

- **Decomposition:** Peat decomposition occurs when organic material breaks down, primarily due to microbial activity. Oxygen is introduced when peatlands are drained, accelerating aerobic microbial decomposition. The emission of CO₂ and CH₄ under the baseline scenario is converted to depth loss and deducted from the peat thickness map.
- **Combustion:** During peat fires, the surface layer of peat combusts, reducing its depth, releasing carbon into the atmosphere, and leaving behind burn scars. The depth lost during these events in the simulation is directly deducted from the peat thickness map.

To estimate the average peat depth loss due to subsidence for stratum i in year t , the subsidence components are described in Equation 3.2 as follows:

$$S_{i,t} = S_{\text{compression}_i} + SM_{\text{decomp}_{i,t}} + SM_{\text{peatburn}_{i,t}} \quad (3.2)$$

Where:

- $S_{i,t}$ = Total subsidence in stratum i in year t (m)
- $S_{\text{compression},i}$ = Subsidence due to compression (m)
- $SM_{\text{decomp},i,t}$ = Subsidence due to microbial decomposition (m)
- $SM_{\text{peatburn},i,t}$ = Subsidence due to burning (m)

Calculating the annual decrease in peat depth allows to estimate the thickness of peat for each pixel in the project's model. This results in a simulated reduction in the peatland's elevation relative to sea level. Rising sea levels may also limit free drainage, narrowing the zone where compression, decomposition and combustion impacts apply.

The **free drainage limit** in peatlands determines the depth below which water cannot drain freely. It divides areas that can dry out from those that remain waterlogged. Specifically, free drainage limits affect the following factors:

- **Microbial decomposition:** Anaerobic conditions below the free drainage limit significantly reduce decomposition and emissions as microbial activity slows. To account for this, we conservatively exclude any areas that would be considered saturated from crediting.
- **Fire risk:** The high moisture content in saturated peatlands serves as a natural fire suppressant, resulting in negligible burn emissions. Therefore, areas that are too saturated to burn are excluded from emissions reduction credit eligibility.

Overall, rising sea levels can reduce drainage efficiency and flood previously dry areas, leading to waterlogged conditions. This decreases microbial activity, subsidence, and fire risk by limiting oxygen.

Sea-level rise projections were sourced from the nearest point to the project area using NASA's sea-level prediction tool. As the tool provides predictions for each decade, the data was interpolated to obtain annual values. Based on these sea level rise predictions under the SSP5-8.5 scenario, the analysis demonstrates that the region could experience an increase of circa 1 meter by the year 2109 (3.2.1.4 of the PD). Beginning with a 2020 free drainage limit layer, annual drainage restrictions were modelled by factoring in the predicted sea level rise from that year. By combining this interpolation with the reduction in peat thickness, the PP projected how the gradual increase in sea levels would affect drainage capacity. The intersection between the free drainage limit and the simulated peat depletion maps determines the exclusion zones (Equation 3.2).

Peatland drainage accelerates oxidation and subsidence, risking peat depletion before the crediting period concludes. The PDT signifies when the peat is either fully depleted or reaches a depth where further losses, such as oxidation, cease, typically at the average water table depth and is represented by Equation 3.3.

$$t_{PDT-BSL,i} = \frac{Depth_{peat-BSL,i,t0}}{Rate_{peatloss-BSL,i}} \quad (3.3)$$

Where:

- $t_{PDT-BSL,i}$ = Peat depletion time in the baseline scenario in stratum i in years elapsed since the project start (yr)
- $Depth_{peat-BSL,i,t0}$ = Average peat depth in the baseline scenario in stratum i at project start (m)
- $Rate_{peatloss-BSL,i}$ = Rate of peat loss due to subsidence and fire in the baseline scenario in stratum i ; a conservative (high) value must be applied that remains constant over the time from $t = 0$ to PDT ($m\ yr^{-1}$)
- $i = 1,2,3 \dots M_{BSL}$ strata in the baseline scenario

Table 3.11 of the PD show that the baseline scenario has sufficient peat to justify the carbon credits claimed to avoid converting most of the area into *Acacia crassicaarpa* concessions. The PDT assessment ensures carbon credits are grounded in cautious emissions reductions from peat oxidation. When $t_{PDT-BSL,i}$ occurs within the crediting period, it is excluded from emissions calculations related to peat microbial activity and burning. Emissions from residual mineral soils are not estimated or included, ensuring that any credits claimed are solely connected to peat oxidation, thereby maintaining caution in our emissions accounting.

For all the above, the audit team deems this method conservative.

3.2.6.1.5 Eligible for WRC crediting

The “Total Stock Approach” was selected to evaluate the project’s capacity to avoid significant carbon emissions from peatland degradation, in accordance with Section 4.4.1 of X-SRT (v1.3). Said approach was followed to compare organic soil carbon stock differences between the project and baseline scenarios and assess the impact and, therefore, eligibility for avoided emissions reductions.

- **Long-Term Nature:** The “Total Stock Approach” aligns with this project’s extended conservation timeline. Despite a 70-year licencing term, a 100-year carbon stock simulation is conducted to fully account for long-term peat oxidation and degradation processes, thus ensuring accurate eligibility assessment for carbon credits under X-SRT (v1.3). This approach permits thorough monitoring and evaluation of carbon stock changes and emissions mitigation potential across the project lifecycle.
- **Spatially aware and fine-grained:** The “Total Stock Approach” ensures the entire project’s carbon stock is tracked across multiple strata and time steps. By maintaining an overview of the overall carbon stocks across the project area at crucial time intervals, the approach accounts for both direct losses of soil organic carbon and indirect emissions through land-use transitions.
- **Leakage Adjustment Omission:** This project is not anticipated to leakage emissions through displacement (Section 3.24 of the PD). Therefore, the leakage adjustment is omitted from the carbon stock total stock approach.
- **Periodic Update Integration:** In line with the project renewal, updates to critical data layers were incorporated, including the DTM and peat thickness maps, and adjustments for projected sea level rise using on-site measurements and remote sensing data. This ensures that all relevant factors impacting carbon emissions and sequestration potential are continuously improved and accounted for.
- **Retroactive Updates:** To enhance accuracy, improved site knowledge was incorporated alongside results from the previous crediting period. Within the baseline scenario, peat loss calculated and claimed from 2010 to 2020 is deducted from the revised peat thickness map, ensuring that historical depletion is accurately reflected in current stock assessments.
- **Significant Impact:** The methodology stipulates a minimum 5% divergence in carbon stock between the project and baseline, ensuring that carbon benefits are conservative, credible, and distinct from those in baseline scenarios. This accounts for factors like carbon stock growth, peatland carbon retention, and emissions reductions from anti-conversion initiatives (X-SRT v1.3).

To calculate the difference, Equation 3.4 considers organic soil carbon stock growth, peatland retention, and soil emissions cuts from deforestation avoidance:

$$\sum_{i=1}^{M_{WPS}} (C_{WPS,i,t100} \times A_{WPS,i,t100}) \geq 1.05 \times \sum_{i=1}^{M_{BSL}} (C_{BSL,i,t100} \times A_{BSL,i,t100}) \quad (3.4)$$

Where:

- $C_{WPS,i,t100}$ is the soil organic carbon stock in the project scenario at $t = 100$ years for stratum i ,
- $A_{WPS,i,t100}$ is the area of the project stratum i at $t = 100$,
- $C_{BSL,i,t100}$ and $A_{BSL,i,t100}$ are the corresponding values for the baseline scenario.

The audit team confirmed that the project satisfies the 5% “Total Stock Approach” eligibility threshold (X-SRT v1.3), as by 2109, the carbon stock in the project scenario exceeded that of the baseline by 216.517 MtC, with baseline carbon stocks being 35.54% lower. The audit substantiated that the project-benchmark difference reached the 5% threshold by 2035, preceding crediting period completion by 35 years and eligibility end by 74 years, which demonstrates the project’s effectivity in maintaining peat carbon stocks compared to baseline losses due to acacia plantation expansion.

3.2.6.1.6 Aboveground Biomass in REDD Project Activities

Aboveground biomass within the project area was quantified by integrating vegetation plot data with multiple Earth Observation (EO) data streams. Annual wall-to-wall annual above-ground biomass density maps at 30-meter resolution have been generated for the project area, capturing the variability in forest dynamics in greater detail. The audit team acknowledged that by combining data from multiple sensors, the project created a completer and more reliable dataset for biomass estimation.

3.2.6.1.7 Forest Biomass Field Measurements

As part of the Baseline renewal process, vegetation within the concession area was re-surveyed to estimate Aboveground Carbon Density (ACD) in accordance with current standards, in order to generate accurate forest plot data to parameterise remote sensing datasets, enabling annual estimations of ACD growth and detecting potential degradation within the project area, while reducing the frequency of plot remeasurements.

To support this work, Chloris Geospatial's global ACD maps, which integrate the latest satellite and LiDAR technologies, was utilised. A stratified random sampling approach was applied, leveraging the Chloris ACD maps to capture the full range of biomass variability across the area. Within the Katingan Mentaya Project Forest reserve, 80 circular plots with a radius of 30m (0.28 ha) were established in 2023.

Within each plot, all stems with a diameter at breast height (DBH) ≥ 10 cm were recorded, totalling 14,788 trees /24/. To capture the variability in height ranges within the monitored plots and the broader forest ecosystem, tree height was measured for 2,515 living trees (17.0%). These measurements were conducted using an ultrasonic hypsometer, enhancing the accuracy of the recorded data. Additionally,

the heights of 556 standing dead trees were measured; however, this data was excluded from the diameter-height model. The audit team reviewed the final data corrected data in the “19112024Correction” spreadsheet /24/to confirm this information.

3.2.6.1.8 Data sources and processing

The project used data from several sources:

- GEDI spacebourne LiDAR
- Harmonized Landsat and Sentinel-2 (HLS)
- Sentinel-1 radar
- Chloris Geospatial’s Aboveground Biomass Map

Once all data had been processed, the following machine learning (ML) steps were carried out:

1. First GEDI data were used to train a total of 31 models to predict a range of GEDI-derived metrics from the HLS and Sentinel-1 data. These models were used to create continuous canopy structure estimates across the KMP, which were then used to enrich the information available for downstream locally optimized biomass mapping.
2. Plot data were then used to train a final model to predict biomass density from the HLS, Sentinel-1 and GEDI data.

This pipeline generated comprehensive forest structure maps that captured both spatial and temporal variation in forest structure characteristics across the KMP landscape, providing essential inputs for the subsequent biomass mapping workflow.

Following the generation of forest structure maps, the final biomass mapping workflow utilised the field plot data to train a localised model that integrated EO data with the GEDI-derived structure maps to produce high-resolution biomass estimates across the KMP landscape.

3.2.6.1.9 Eligible Area for REDD crediting

The validation team assessed the delineation of the REDD-eligible area as presented in PD Section 3.2.1.6, including the definition of forest at the project start date, the exclusion of non-eligible lands, and the determination of *Aplanned,i* in accordance with VMD0006, BL-PL Section 1.2.

The PD states that only forested areas at the project start date (2010) are considered eligible for REDD crediting, excluding non-forested areas and forest areas not subject to planned deforestation in the baseline scenario. This eligibility principle is consistent with VMD0006 requirements that *Aplanned,i*

comprises only land that is legally permissible, intended for conversion, and expected to be converted within the project lifetime under the baseline scenario.

The validation team reviewed the spatial stratification approach used to distinguish forest and non-forest areas at the project start date. The PD documents the use of multi-temporal Landsat imagery from 2010, supplemented with 2009 imagery to address cloud cover and Scan Line Corrector gaps, combined with ALOS PALSAR fully polarimetric and Fine Beam Double datasets. This multi-sensor approach is appropriate and strengthens classification robustness, particularly in peat swamp forest systems where optical data alone may be insufficient. The use of polarimetric SAR parameters (entropy and alpha angle) to characterize vegetation structure is technically sound and consistent with accepted remote sensing practice for forest structure discrimination. The validation team notes that the fully polarimetric PALSAR dataset was appropriately prioritized due to its higher classification accuracy. The identification of low pole forest and freshwater swamp forest within the project area is adequately justified and transparently incorporated into the forest stratification.

The validation team confirms that waterbodies were explicitly identified and excluded from carbon stock and emission reduction calculations, providing a conservative treatment consistent with VCS requirements.

Six land classes were excluded from REDD eligibility and from *Aplanned,i*. The validation team reviewed these exclusions and confirms that they are justified and conservatively applied. Water bodies and Non-REDD NonForest areas were correctly excluded due to the absence of eligible forest at the project start date. Forested areas legally or functionally protected in the baseline, namely the Central Conservation Area, peat dome peak areas delineated under MoEF Regulation P.10/2019 and riparian buffers designated under MoEF Regulation No. 8/2021 were conservatively treated as ineligible for planned deforestation. The validation team confirms that these exclusions are consistent with applicable legal constraints in the baseline scenario and reflect a conservative interpretation of *Aplanned,i*. The validation team confirmed that only forest areas subject to planned deforestation under the validated baseline scenario were included within *Aplanned,i*. The assessment of the most likely class of deforestation agent, the most common purchaser of similar lands, suitability for conversion, legal permissibility and documented intent to deforest is presented in Section 3.2.4. Based on that assessment, areas where conversion is not legally permissible, not intended, or not expected under the baseline scenario were excluded from *Aplanned,i*.

Based on the above stratification, the PD defines as REDD Forest 106,715.2 ha, representing 71.24% of the total project area, of which 23,928.4 ha are determined as land subject to planned deforestation in the baseline (*Aplanned,i*). The validation team confirms that this area corresponds exclusively to forested land subject to planned deforestation in the baseline scenario and excludes all areas where conversion is legally prohibited or not intended. This is consistent with VMD0006 BL-PL Section 1.2.

3.2.6.1.10 Validation of REDD and WRC Stratification

The validation team reviewed the combined REDD and Wetland Restoration and Conservation (WRC) stratification presented in PD Sections 3.2.1.6 and 3.2.1.7, including the assignment of REDD and WRC

activity types and their spatial intersection. The PD correctly identifies that VM0007 Section 4.2.1 requires the application of WRC accounting modules where the project area is peatland and soil organic carbon (SOC) emissions are significant. Given that the Katingan Mentaya Project predominantly comprises peat swamp forest, the validation team confirms that the inclusion of WRC activities alongside REDD accounting is appropriate and required.

Drainage status is derived from the presence of legacy canals that existed prior to the project start date, and the delineation of drainage influence zones through buffering of these canals represents a reasonable and conservative approach. Areas outside the drainage influence zones are classified as Conservation of Intact Wetlands (CIW / APWD), while areas within these zones are classified as Restoring Wetland Ecosystems (RWE / RDP). This classification framework is applied consistently across both REDD-eligible (Aplanned,i) and Non-REDD areas, ensuring comprehensive peat carbon accounting.

Section 3.2.1.8 of the PD and Section 8 of the PD Climate Annex /2/ elaborates on the delineation of the WRC accounting area and the overlap of 22,720.9 ha of peatland eligible for WRC accounting on Non-REDD areas. Specifically, the WRC area covers peatland at risk of drainage and degradation, which includes 2009 non-forest peat and waterbodies (4,470.6 ha) and 2009 forest (18,250.3 ha), of which compromise already-degraded peat under restoration (5,910.1 ha), waterbody (blocked canals, 165.2 ha), and forest that is protected from conversion but still exposed to drainage from the surrounding canal network (12,175.0 ha).

The PD states that canal networks in the baseline scenario drain peat across most of the concession, including the edge of the peat dome protection zones and Central Conservation Area, and riparian buffers where planned conversion is banned. Thus, some Non-REDD Forest areas face peat drainage in the baseline scenario without any deforestation threat. The validation team reviewed the underlying rationale of the risk of peat drainage in forest areas without risk of being converted to acacia plantation (18,250.3 ha of the project area in total), i.e.:

- a. Non-REDD drained forest stratum (12,175.0 ha): areas where planned conversion is banned but that remains at risk of being drained due to its adjacency to drained/acacia areas, in a 1 km drainage buffer along the canals network and drained areas.
- b. Restoration area stratum (5,910.1 ha): areas that would have been converted in the baseline during the first baseline period and that overlaps with new conservation area.
- c. Blocked Canal stratum (165.2 ha): canals that were dug during the first PD period but then are later blocked due to falling within the Restoration Areas.

The assumption for drainage risk of these areas is based on the drainage effect of canals and ditches network in the baseline scenario, applying a drainage buffer of 1 km on the canal network. The audit team assessed to sets of evidence to substantiate the assumption: i) for the 1 km drainage influence of canals on peatland, the field water-table regression and the steady-state model provided by the PP in Sections 9.1 and 11 of the PD Climate Annex /2/ and corroboration peer-reviewed scientific papers (Dadap et al. (2021), Hooijer et al. (2012), Hooijer et al. (2015), Ismail et al. (2021), Lim et al., (2018), and Ritzema et al. (2014)) /34/, and ii) for the baseline canal network, its parametrisation in Section 9.2 of the PD climate Annex /2/ supported by peer-reviewed literature (Aminuddin et al. (2016), Dadap et al.

(2021), Deshmukh, C.S. et al. (2023), Hooijer et al. (2012), Lim et al. (2018), and Ritzema et al. (2014)) /34/. It is the opinion of AENOR that the drainage risk due to the canal network in the baseline is properly substantiated and that the design of the network is coherent with common practice in the region of the project.

The validation team assessed the spatial intersection of REDD eligibility with WRC activity types in the GIS data /4/ and confirms that the resulting REDD+WRC and WRC-only subclasses are correctly assigned. AENOR also confirmed that the determination of REDD and Non-REDD areas used in the combined REDD and WRC stratification is consistent with the validated baseline scenario. As discussed in Section 3.2.4 REDD-eligible forest on intact peatland (CIW+REDD) and on drained peatland (RWE+REDD) appropriately account for both aboveground biomass and peat carbon, while Non-REDD areas subject to drainage are included in WRC accounting only. Areas excluded from both REDD and WRC accounting are clearly identified and justified. The combined REDD and WRC stratification is internally consistent, spatially exhaustive, and reconciles fully with the total project area. The validation team concludes that the combined stratification is methodologically sound, conservative, and compliant with VMD0006 and VM0007 requirements.

3.2.6.2 Baseline Emissions

3.2.6.2.1 General procedures and assumptions

In section 3.2.2.1 of the VCS CCB PD /1/ and PD Climate annex /2/ the PP has indicated how baseline has been assessed and how carbon stocks have been determined. Baseline emissions and carbon stock changes were calculated under the assumption that the project area would have been converted to industrial acacia plantations in the absence of the project. This assumption is supported by historical concession patterns, documented applications for acacia plantations within the area, and strong economic incentives from the pulp and paper industry /5/. The temporary moratorium introduced in 2011 would not have prevented these conversions because applications were already in process. Although subsequent regulations, such as Government Regulation No. 71/2014 and its revision PP No. 57/2016, introduced stricter peatland protection measures, these were later relaxed by Regulation P.10/MENLHK/SETJEN/KUM.1/3/2019/7/, which allowed conversion of peatland outside the peak of the peat dome. This regulatory context confirms that acacia plantation development remained legally permissible and economically viable throughout the baseline period. This is further supported by observed land-use patterns in nearby peatland concessions and by studies demonstrating continued conversion of Indonesian peat-swamp forests to industrial plantation landscapes through canal drainage, forest clearing and plantation establishment (Hergoualc'h & Verchot, 2011; Thorburn & Kull, 2015). Spatial analyses of nearby concessions reviewed by the validation team, including PT Persada Era Agro Kencana, PT Sumur Pandanwangi and PT Citra Agro Abadi, confirmed continued plantation expansion and forest conversion in comparable landscapes following implementation of the 2011 moratorium. The baseline model reflects standard plantation practices, including canal construction and drainage cycles, which lower the water table and accelerate peat decomposition.

Waterborne carbon emissions were treated according to IPCC guidelines, distinguishing between on-site emissions (CO₂ and CH₄ from drainage canals and water surfaces) and off-site emissions (dissolved organic carbon export), while excluding N₂O emissions. Emission calculations were based on VCS Module

M-PEAT, and water table depth was monitored using automatic loggers and manual dip wells. These procedures and assumptions ensure that the baseline scenario is conservative and realistic, reflecting legal eligibility for conversion, historical land-use trends, technical practices for peatland drainage, and the evolving regulatory framework governing peatland management in Indonesia.

3.2.6.2.2 Proxy area analysis

3.2.6.2.2.1 Proxy area selection

The validation team assessed the proxy area analysis presented in Section 3.2.6.2.2 of the PD and Section 4 of the Climate Annex to verify compliance with the requirements of module BL-PL under VMD0006 (v1.4). Particular attention was given to the ecological similarity criteria, application of the proximity hierarchy, treatment of concessions granted after 2010, and the representativeness of the selected proxy areas for the baseline conditions assumed for Agents A, B and C and for APWD areas exposed to drainage impacts /5//19/.

The assessment was based on a review of the PD /1/, the supporting *Proxy area suitability analysis* report /19/, and the associated spatial datasets, including concession boundaries, peatland distribution, vegetation cover, and elevation and slope data /19/. The validation team also reviewed the supporting calculations, spatial analyses and the stepwise filtering process used to identify suitable proxy areas /19/.

The validation team confirmed that the proxy area assessment follows a structured filtering process consistent with VMD0006 Section 5.1.3. Candidate concessions were screened using ecological similarity criteria including peat extent, forest cover, elevation and slope, and these parameters were compared against the characteristics of the project area. The ecological thresholds applied by the PP were reviewed and confirmed to be correctly derived from the methodology requirements and consistently applied across candidate concessions.

The ecological suitability assessment undertaken across the complete dataset of 304 industrial pulpwood concessions confirmed that concession establishment date was not used as an exclusion criterion during the screening process. Concessions established both before and after 2010 were assessed against the same ecological suitability requirements relating to peat extent, forest cover, slope and elevation. Assessment of all the concessions showed that their deforestation rates were comparable to, or higher than, those of the selected proxy areas. So, the inclusion of other proxy areas would therefore not result in a higher baseline deforestation rate than that derived from the selected proxy set, confirming that the retained proxy areas provide a conservative representation of deforestation behaviour for the identified class of agent.

Review of the ecological matching process confirmed that the selected proxy areas comprise industrial *Acacia* plantation concessions established on lowland peatlands sharing the principal environmental characteristics of the project area, including peat substrate, lowland topography, forest cover and suitability for plantation development. The suitability analysis identified 25 ecologically comparable candidate concessions prior to application of the methodology hierarchy and selection of the final proxy areas.

The stepwise filtering approach described in the PD was found to be transparent and reproducible. Application of the proximity hierarchy specified in VMD0006 Section 5.1.3 was also verified. As no concessions within the immediate project region satisfied all ecological matching criteria, the search was expanded to other parts of Kalimantan and subsequently to Sumatra, where suitable proxy areas were identified. This progression is considered consistent with the methodology requirements.

Representativeness of the selected proxy areas for Agents B and C was assessed against the baseline-agent analysis presented in Section 3.2.4. Agents B and C belong to the same class of agent as Agent A, namely industrial *Acacia* pulpwood plantation operators holding HTI/PBPH concessions and operate within the same dominant peatland stratum. The selected proxy areas are therefore considered representative of the conversion practices and forest-loss dynamics expected under the baseline scenario.

Evidence relating to the 2011 moratorium was also reviewed. The selected proxy areas capture deforestation occurring both before and after implementation of the moratorium, and supporting literature indicates that plantation development and forest conversion continued within comparable peatland landscapes following implementation of the moratorium (Sloan et al., 2012; Wijedasa et al., 2018). The proxy areas are therefore considered representative of baseline conditions applicable to Agents B and C regardless of whether *izin prinsip* approval was obtained before the moratorium.

As additional corroborative evidence, supplementary analyses of nearby oil-palm concessions established after 2011, including PT Persada Era Agro Kencana, PT Sumur Pandanwangi and PT Citra Agro Abadi, were reviewed /16.1/. Although these concessions do not satisfy all VMD0006 proxy-area requirements and were not used directly in the analysis, they demonstrate continued plantation expansion and forest conversion in comparable landscapes following implementation of the moratorium. Reported annual deforestation rates were substantially higher than the baseline rate applied by the project, further supporting the conservativeness of the selected proxy-area approach. Review of the supporting literature indicates that oil-palm and industrial *Acacia* plantations on Indonesian peatlands follow the same fundamental conversion pathway, including canal construction and drainage, mechanical forest clearing, timber removal, and residual biomass disposal, resulting in comparable forest removal and peatland disturbance processes (Hergoualc'h & Verchot, 2011; Thorburn & Kull, 2015; Harsono et al., 2012). The literature further shows that drainage impacts are driven primarily by the canal network rather than the specific plantation crop, with hydrological effects extending beyond concession boundaries into adjacent forest areas (Dadap et al., 2021; Evans et al., 2019; Ritzema et al., 2014). The reviewed oil-palm concessions exhibited annual deforestation rates of approximately 12.7–14.3%, substantially higher than the 3.95% baseline deforestation rate applied by the project. Given the similarity of the underlying forest-conversion process and the higher observed rate of forest loss, these concessions provide additional evidence that the selected proxy-area approach and resulting baseline deforestation rate are conservative.

Representativeness for APWD areas not expected to be converted but exposed to drainage impacts was also assessed. Review of the Climate Annex, supporting drainage analyses and relevant literature (Hooijer

et al., 2011; Hooijer et al., 2012; Hooijer et al., 2015; Dadap et al., 2021; Ritzema et al., 2014; Deshmukh et al., 2023) confirmed that industrial *Acacia* plantation concessions commonly contain retained forest areas that remain hydrologically connected to plantation drainage networks and that drainage effects extend beyond canal footprints into adjacent forested peatlands. The selected proxy areas are therefore considered representative of the peat-drainage processes affecting APWD areas under the baseline scenario.

Based on review of the supporting scripts, spatial datasets, concession boundaries, suitability analyses, supplementary concession assessments and supporting peer-reviewed literature, AENOR concludes that the proxy-area selection process, including treatment of concessions established after 2010, representativeness for Agents B and C and APWD areas, and application of the proximity hierarchy, is consistent with VMD0006 requirements and provides a representative and conservative basis for estimating baseline deforestation and associated peat-drainage impacts

Finally, the validation team confirmed that the selection of the final proxy areas appropriately considers continued suitability of previously used areas, availability of historical satellite imagery, and geographic proximity, ensuring a conservative and representative estimate of baseline deforestation.

The proxy areas are presented in the table 3.19 of the PD and reproduced below:

Reference Area	Total Area (ha)
Kalimantan Subur Permai	13,097.23
Seralas Abadis Utama	18,765.52
Suntara Gajapati	34,466.92
Bukit Batu Hutani Alam	32,627.48
Satria Perkasa Agung	77,471.81
Rimba Mandau Lestari	5,587.55
Esa Indah Timber	9,783.18
Alam Lestari	4,787.68

All the requirements and the scripts and input data of proxy areas have been reviewed. The shapefiles /19/ the suitability analysis presented proxy areas /19/ have been assed and the total areas are aligned with the ones provided in the PDD. Based on the above, AENOR concludes that the proxy area selection process, is consistent with VMD0006 requirements and adequately supported by technical and spatial evidence. The selected proxy areas are therefore considered appropriate for the estimation of historical deforestation rates.

3.2.6.2.2.2 Historical deforestation trend analysis

The deforestation trend analysis has been reviewed by the audit team to ascertain if the trends have changed during this period. The audit team assessed the PP's reasoning behind not using the historical annual forest loss, i.e. due to the legislation established in 2016 and then changed in 2019, a deforestation rate based on the trend of historical deforestation of the period 2000-2020 does not represent a real scenario. This has been statistically assessed and as the figure 3.21 in the PD shows, the low value of R^2 indicates that there is no historical correlation and therefore it won't be accurate to use this type of analysis. The use of the BL-PL module instead is deemed more accurate, and the evidence provided regarding deforestation rates (TheTreeMap, 2024, Statista, 2021, and CAGR) is deemed correct. Therefore, AENOR deems correct the analysis that the PP has developed claiming that deforestation is increasing but it does not present a historical trend analysis.

The validation team assessed the definition of the historical reference period applied to each proxy area. It was confirmed that the PP defined the start of the analysis (t_0) based on the concession grant date, or the closest cloud-free satellite imagery available following this date, and the end of the analysis (t_1) based on the most recent cloud-free imagery available. The VVB has reviewed link to the ministry website (<https://spatial.phl.kehutanran.go.id/spatialphi/>) where paper and pulp concessions shapefiles can be download /4/ to ensure there has not been concessions prior to this one in the project area. It is considered that including forest loss occurring prior to the concession grant date (e.g., from year 2000 onwards regardless of concession status) would not be methodologically appropriate, as these land cover changes would not necessarily be associated with the same baseline agent, land conversion practices, or legally authorised land-use dynamics required by VMD0006 and VM0007. Such earlier forest loss may instead reflect unrelated drivers, including illegal logging, informal land conversion, smallholder encroachment, or alternative land-use transitions not associated with planned acacia plantation development. Lastly, the inclusion of these unrelated forest changes could potentially result in a higher deforestation rate that would not be representative of the identified baseline deforestation agent and associated land conversion practices.

This approach ensures that the deforestation included in the analysis corresponds to legally authorised and planned deforestation associated with concession-based plantation development, excluding forest loss that may be attributable to unrelated drivers (e.g. illegal logging or smallholder expansion). The validation team confirms that this approach is consistent with the applicability conditions of VMD0006 v1.4, Section 5.1.3.

3.2.6.2.2.3 Satellite imagery analysis

The satellite imagery analysis followed three steps that were analysed by the audit team to ensure that the baseline deforestation rate analysis:

- a) Remote Sensing mapping and analysis platform - Google Earth Engine.

The annual deforestation rate for each proxy area was calculated using Google Earth Engine (GEE)/4/. This process involved developing a land cover classification script on the GEE platform (Gorelick et al., 2017) and conducting a comprehensive historical analysis of forest cover from the original reference period through the current reassessment year, spanning from 2000 to 2020.

b) Data acquisition – Satellite imagery

Satellite imagery from Landsat 5, 7, 8 and Sentinel-2 missions was sourced via Google Earth Engine, applying a cloud coverage threshold of $\leq 25\%$ to ensure image quality despite frequent cloudiness in the project area. Images were collected from Level-2 Surface Reflectance collections, with updated processing models from USGS, and underwent mission-specific cloud masking using QABits for Landsat and Cloud Probability layers for Sentinel-2. All pre- and post-processing steps were adapted to each sensor's technical characteristics, including spatial resolution and spectral range.

c) Land Cover Classification analysis

The land cover analysis involved two main steps: first, optical imagery was processed in Google Earth Engine to produce classification maps with six categories—forest, plantation, deforested, urban, cloud, and shadow. Second, the results were validated through ground-truthing, achieving over 90% accuracy for all classes. To further improve reliability, a Euclidean distance-weighted kernel smoothing using a 3×3 pixel moving window was applied to the classification maps.

AENOR has assessed the three steps that the PP developed to obtain and analyze the satellite images for proxy area selection /19/. The scripts used in Google Earth Engine were checked /4/ to confirm that satellite imagery from Landsat missions (5, 7, 8) and Sentinel-2 was employed at Level-2 surface reflectance, applying the specified cloud filters and masking algorithm. The supervised classification was performed using the Random Forest algorithm with a 70/30 split between training and validation, and that accuracy metrics were calculated, achieving an overall accuracy above 90%. With the maps developed /4/ the classification was also checked during the visit and the land cover analysis classification was consistent with the results observed on the ground.

```

51- /*
52 // Landsat 8 - Cloud Mask
53
54 // Define a function that scales and masks Landsat 8 surface reflectance images.
55 function prepSrl8(image) {
56 // Develop masks for unwanted pixels (fill, cloud, cloud shadow).
57 var qaMask = image.select('QA_PIXEL').bitwiseAnd(parseInt('11111', 2)).eq(0);
58 var saturationMask = image.select('QA_RADSAT').eq(0);
59
60 // Apply the scaling factors to the appropriate bands.
61 var getFactorImg = function(factorNames) {
62   var factorList = image.toDictionary().select(factorNames).values();
63   return ee.Image.constant(factorList);
64 };
65 var scaleImg = getFactorImg([
66   'REFLECTANCE_MULT_BAND_', 'TEMPERATURE_MULT_BAND_ST_B10']);
67 var offsetImg = getFactorImg([
68   'REFLECTANCE_ADD_BAND_', 'TEMPERATURE_ADD_BAND_ST_B10']);
69 var scaled = image.select('SR_8..|ST_B10').multiply(scaleImg).add(offsetImg);
70
71 // Replace original bands with scaled bands and apply masks.
72 return image.addBands(scaled, null, true)
73   .updateMask(qaMask).updateMask(saturationMask);
74 }
75
76
77
78 // Sentinel 2 - Cloud Mask
79
80 function maskS2clouds(image) {
81   var qa = image.select('QA60');
82
83   // Bits 10 and 11 are clouds and cirrus, respectively.
84   var cloudBitMask = 1 << 10;
85   var cirrusBitMask = 1 << 11;
86
87   // Both flags should be set to zero, indicating clear conditions.
88   var mask = qa.bitwiseAnd(cloudBitMask).eq(0)
89     .and(qa.bitwiseAnd(cirrusBitMask).eq(0));
90
91   return image.updateMask(mask).divide(10000);
92 }
93 */
94

```

3.2.6.2.2.4 Deforestation rate

The baseline deforestation rate was calculated using the equation:

$$D\%_{\text{planned},i,t} = \frac{\sum_{pn=1}^n \left(\frac{D\%_{0pn}}{\text{Yrs}_{pn}} \right)}{n} \quad (3.9)$$

- $D\%_{\text{"planned"},i,t}$ = Projected annual proportion of land that will be deforested in stratum i during year t . If actual annual proportion is known and documented (e.g., 25% per year for 4 years), set to proportion; %
- $D\%_{\text{"pn"}}$ = Percent of deforestation in land parcel pn of a proxy area as a result of planned deforestation; %
- $[\text{"Yrs"}]_{\text{"pn"}}$ = Number of years over which deforestation occurred in land parcel pn in proxy area; years
- n = Total number of land parcels examined
- pn = Land parcels examined in proxy area (1, 2, 3, ..., n)
- i = Strata (1, 2, 3, ..., M)

The deforestation rate for the baseline period, calculated using the previous equation, is 3.95%.

The validation team assessed the calculation of the proxy deforestation rate ($D\%_{pn}$) and confirms that it has been calculated using the total concession area as the reference denominator, in accordance with VMD0006 requirements, thereby avoiding overestimation associated with normalisation to initial forest area only. The validation team also verified that differences in the duration of deforestation (Yrs_{pn}) across proxy areas reflect the full operational timelines of the concessions and that conservative assumptions were applied, including the use of the earliest available t_0 and latest available t_1 where necessary. This assessment was supported by the review of proxy-specific spatial data and official concession boundaries, including the official shapefile of pulp and paper concessions /4/ and the official website of the ministry (<https://spatial.phl.kehutanan.go.id/spatialphl/>).

The calculation of deforestation rates was independently reviewed using supporting evidence, /19/ and the imagery dataset and classification records /4//19/. The validation team confirmed that forest areas at t_0 and t_1 were derived from satellite-based analysis (Landsat and Sentinel datasets) and that deforestation rates were calculated as annualised forest loss over the analysis period. The PP carried a stratified analysis to separately determine the deforestation rates of peat soil areas (Peat soil stratum) and non-peat soils (Non-Peat soil stratum), which was reviewed by the audit team using the supporting dataset /10/ /19/. Proxy-specific deforestation rates for the Peat soil stratum range from approximately

2.1% to 5.7%, with an overall average of 3.95%. For the Non-Peat soil stratum, the PP determined an average proxy specific deforestation of 2.89%.

Considering the low representation of non-peat areas within both the proxy sample (non-peat areas were present in only 3 proxy concessions and represented a very small proportion of the total monitored area, accounting for 2.29% of the monitored area at T0 and 2.47% at T1) and the project area (mineral soils constitute only 0.01% of the total project area, i.e. 91 ha), the PP concluded that the derived non-peat deforestation rate is not sufficiently representative to support a robust, independent estimate of historical deforestation behaviour for this stratum. Consequently, the peat deforestation rate was applied across the entire project area, which is overwhelmingly dominated by peat soils and therefore provides the most representative estimate of baseline deforestation conditions.

Given that non-peat soils represent a negligible proportion of the project area, the validation team confirms that the application of a single deforestation rate derived from peat areas is justified, representative, and conservative.

AENOR has reviewed the calculation of the proxy deforestation rate, the definition of the historical reference period, the stratification analysis, and the supporting datasets provided by the PP. Based on the assessment of the PD, supporting spreadsheets, satellite imagery outputs, and official concession data, the validation team confirms that the approach is transparent, and consistent with the requirements of VMD0006 v1.4 and the VCS Standard 4.7.

3.2.6.2.2.5 Likelihood of deforestation

The audit team has checked the evidence that demonstrates the pulpwood plantation concessions are not in government control /5/. Therefore, it is deemed correct that the “L-Di” is assumed to be equal to 100%.

3.2.6.2.2.6 Risk of abandonment

The audit team reviewed the KML /19/ of the seven final proxy areas, all of which showed clear signs of continued deforestation and plantation activities. This was also confirmed by the audit team through interviews with the local authorities onsite. This confirms that none of the proxy areas were abandoned. Therefore, the BL-PL module can be applied to this project.

3.2.6.2.2.7 Area of deforestation

The annual area of deforestation in the baseline is calculated using equation 3.10.

$$AA_{\text{planned},i,t} = (A_{\text{planned},i} \times D\%_{\text{planned},i,t}) \times L - D_i \quad (3.10)$$

Where:

- $AA_{\text{planned},i,t}$ is the annual area of baseline planned deforestation for stratum i at time t , measured in hectares.

- $D_{\text{planned},i,t}^{\%}$ represents the projected annual proportion of land deforested in stratum i during year t .
- $A_{\text{planned},i}$ is the total area of planned deforestation over the baseline period for stratum i .
- L represents the likelihood of deforestation, adjusted by D_i which accounts for specific stratum characteristics.

For all the steps above, AENOR deems that the proxy area analysis has been carried out correctly and in accordance with VM0007 v1.8 Methodology.

3.2.6.2.3 Baseline Modelling

Once the annual deforestation area was extracted from the baseline deforestation rate (3.9%), the PP allocated this area across the project area to obtain the detailed spatial maps for the baseline period.

3.2.6.2.3.1 Quantification of baseline emissions

This section presents a summary of the different components of the baseline model. The project proponent has developed an R script to run in Docker desktop where all the input data, assumptions, emissions factors, equation of modules and methodology have been included to make more transparent, clear and easy to replicate process.

With regards to the comprehension of the R Scripts and the external work carried out by the PP to develop the calculations and figures explained above, AENOR had different technical meetings with the PP in order to assess the Katingan Pipeline, as well as to clarify several doubts regarding the R scripts and parameter assumptions in order to trace the data included and replicate the results. The different meetings can be summarized as follows:

In-person technical session in AENOR's office in Bilbao: Prior to the site visit, Permian and AENOR staff carried out a 2-day technical session in which the PP presented the updates to the previous baseline, as described in the PD and PD Climate Annex. The audit team asked for clarifications when needed and took notes to follow the calculation workflow. After, the PP presented the project's pipeline and executed specific parts of the script to demonstrate how it runs, and the outputs produced. Next, the audit team tried to reproduce the project pipeline locally in Docker, following the PD Climate Annex guidelines. The PP provided clarifications to the audit team in the process, but the complete pipeline could not run locally on the VVB's laptops due to the huge amount of drive space demanded. As a result of this, the PP decided to set up an online container capable of run the project's pipeline and provided the audit team with the credentials in order to access it for review. This online container was closed as the PP has now created a package with code documentation /3/ a short video of how to run the Docker /3/ and a zip folder with all the pipeline documentation needed /3/

Online technical meetings: Fourteen workbooks in Excel format with the specific GHG emissions and uncertainty were obtained, to ensure that the carbon accounting explained in the PD was correct and that the GHG estimations were correct:

Baseline emissions:	AAPlannedApplication.xlsx
	SoilEmissionFactors.xlsx
	WRCStrataAreaBSL.xlsx
	WRCBurnEmissionsBSL.xlsx
	WRCSoilDitchEmissionsBSL.xlsx
	WRCUncertaintyBSL.xlsx
	REDDEmissionsBSL.xlsx
	REDDUncertaintyBSL.xlsx
Project emissions:	WRCStrataAreaWPS.xlsx
	WRCSoilDitchEmissionsWPS.xlsx
	WRCUncertaintyWPS.xlsx
	REDDEmissionsWPS.xlsx
Leakage	ActivityShiftingLeakagePD.xlsx
ERR:	NetERRandVCUsPD.xlsx

AENOR reproduced the R script and the calculations spreadsheets /3/ to achieve the same results and deems they are depicted clearly and correctly in the provided sheets. The audit team was able to trace them directly from the data sources, for example the R scripts /3/ and it was supported with the technical calls between AENOR and Permian. Formula used are in compliance with the applied methodology and the PD, as well as the default values used to determine the parameters. Thus, the net amount of VCUs to be issued is considered accurate and realistic. Assumptions used by PP were appropriately cross-checked and assessed with requested evidence, being considered conservative.

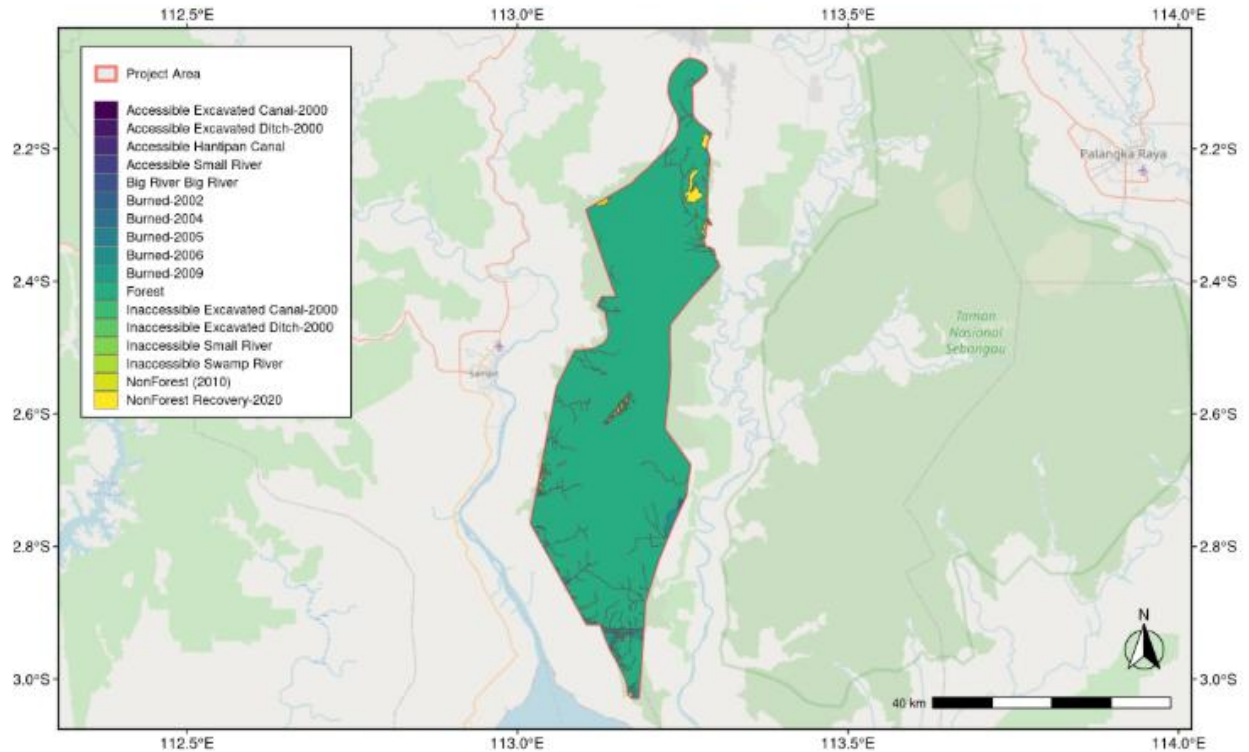
In order to calculate the above terms, the PD details the data and parameters used during the process. For each of them, AENOR checked its accuracy, consistency and reliability by reproducing the spreadsheets calculations /3/, verifying the correctness of formulae and methods used and crosschecking the data values with sources. AENOR carried out a deep review of the PD Climate Annex/2/ and the calculations and others provided by the PP that feed data values.

3.2.6.2.3.2 Baseline features updates

The baseline updates have been made according to the regulatory amendments by the Ministry of Forestry, /7/ and emissions factors have been re-evaluated and updated according to new research /11/.

Key landscape variables were updated:

- Peat thickness map (combining satellite LiDAR and new field data) /14/.
- Refined water body mapping that distinguishes natural vs. man-made canals /16/.
- New non-forest categorization with an explicit burned-area stratification to better quantify fire-related emissions /6/.



AENOR have assessed all the evidence regarding geospatial updates /16/ and the baseline features updated are deemed correct.

3.2.6.2.3.3 Baseline stratification

The updated stratification approach provides a more detailed and dynamic map of the landscape compared to the original baseline. It integrates new strata and refines existing ones by incorporating updated hydrological and ecological data. Following regulatory and model updates, the landscape was first mapped for core features, which were then classified into strata according to land use, soil, drainage and water body. A hierarchical overlay was used to capture temporal dynamics and produce annual simulation maps. The area was divided into six land use strata — Acacia Plantation, Basecamp, Community Crops, Protected Area, Restoration Area and Baseline Canal — each with specific parameters and transformation timelines. During the onsite visit, AENOR verified that the stratification was accurate.

Further soil/land cover details follow. Originally, the baseline used a simpler classification of forest, non-forest, and water bodies. The updated version employs a master map intersecting all features and transformation criteria, enabling annual strata maps that reflect dynamic changes. New transition variables (e.g., blocked_year, rewetted_year, burned_year) were added to capture restoration and disturbance processes, making the simulation more realistic and regulation-compliant.

AENOR verified the new classification analysing the methodologies to develop the stratification through the Climate Annex /2/ as well as the input data to the model /8-19/ and the final map generated/19/. The model was run and the outputs on areas and emissions factors have been compared to the excel

sheets generated as outputs /16/and all the current new areas area aligned with the ones provided in the PD and the Climate annex.

```
example-scripts.R baseline-plan-target.R index-marta.R index-adrian.R
1 baseline_plan_target <- Utils::inject_data(
2   "data/stratification/acacia-plantation_2010.gpkg",
3   "data/stratification/agent-management-zones.gpkg",
4   "data/stratification/basecamp_2010.gpkg",
5   "data/stratification/baseline_2010.gpkg",
6   "data/stratification/community-crops_2010.gpkg",
7   "data/stratification/conservation-forest_2010.gpkg",
8   "data/stratification/primary-canal_2010.gpkg",
9   "data/stratification/secondary-canal_2010.gpkg",
10  targets = list(
```

A summary of the changes for all strata is described below:

Scenario	Transition Variable	Description
Project & Baseline	blocked_year	This variable indicates when canals are closed to aid restoration efforts.
	burned_year	This variable records the year of the most recent fire in a given area, superseding any earlier fire dates within the exact location. It categorises burned strata based on their recovery time since the last fire.
	conservation_buffer	This variable delineates conservation buffers based on river type. Buffer widths are specified as 100 m, 200 m, and 50 m for big, swamp, and small rivers, respectively, overriding agroforestry strata in the baseline simulation.
	deforested_year	This variable records the year deforestation occurred, marking the land transition to a target stratum. It captures key changes such as conversion to other land uses, including activities like canal construction.
	drainage_zone	This variable refers to the drained extent of rivers and canals. It is established by generating a buffer around each feature, the size of which corresponds to the range of hydrological impact.
	drained_year	This variable specifies the year in which an area within the project boundary is drained to lower the water table. This is typically done to enable land use changes such as agricultural development or plantation establishment, transitioning the area to a drier stratum.
	recovered_year	This variable specifies the year marking the transition from a previously non-forested state to a forested one. It indicates the point at which regeneration or restoration efforts result in the establishment of forest cover within the affected area.
	rewetted_year	This variable records the year drainage activities within a 'drainage_zone' are reversed by canal blocking.

Scenario	Transition Variable	Description
Project	disturbed_year	This variable identifies the year a natural disturbance was detected, shifting the classification from 'Forest' to 'NonForest.'
	logged_year	This variable specifies the year when unauthorised logging was detected within the project area, resulting in a shift in the area's classification from 'Forest' to 'NonForest.'
Baseline	dredged_year	This variable indicates the year in which tertiary canals dredge a convertible area. It determines when an initial stratum is prefixed with 'Dredged' during the block cycle, where areas are drained before conversion to the baseline strata.
	license_year	This variable specifies the year a license for operation or development in the area is valid. The baseline scenario allocates it to the respective management agent's extent.
	protected_year	This variable records the year in which an area within the baseline simulation was classified as protected due to either legal requirements (as in the case of the peat dome conservation area) or the maintenance of a previously designated conservation zone (riverine buffers and the central conservation area).

3.2.6.2.3.4 Soil strata

The eligibility criteria for the WRC part of the project depends on the peat availability on the soil and the drainage system. Therefore, peat thickness and drainage status needs to be evaluated.

Soil types: In section 3.2.6.1.3 of this report, it is described the data processing. This new peat thickness model has been assessed, and it is aligned with the data process explained in section (3.2.6.1.3) and scientific literature (Vernimmen and Hooijer 2023).

Drainage status: Agriculture and forestry use drainage to convert peatlands for their activities, with plantations maintaining water tables below 80 cm for growth (Hooijer et al., 2012; Astiani et al., 2018). In the Baseline simulation, drainage is defined by its timing and spatial extent. Drainage infrastructure in conversion areas depends on baseline deforestation rates, while the impact area relates to water features.

AENOR has reviewed the model and the scientific literature evidence, to ensure that the layers soil strata was correctly categorised. These layers are later included in the land use management plan /16/ and areas with not enough peat are removed from the baseline. The R script have also been reviewed to ensure this eligibility criteria has been taken into account, and this deems correct.

```
# == Adjusted strata area with WRC logic ==
tar_load(wrc_strata_area_bsl)

# Plot for "NonPeat" strata (affected by compaction & sea level rise)
wrc_strata_area_bsl |>
  filter(strata == "NonPeat") |>
  ggplot(aes(x = year, y = area_ha)) +
  geom_line() +
  theme_bw()
```

3.2.6.2.3.5 Land Cover strata

Acacia plantation: The original baseline projected 102,256 ha (68.26%) for acacia plantations; the updated plan reduces this to 95,730 ha (63.91%), mainly due to peat dome conservation and river buffer zones. Conversion timelines extend to 2032, and emission factors were revised downward (CO₂ from 73.3 to 70.4 tCO₂e/ha/yr; CH₄ from 0.08 to 0.021), reflecting more conservative estimates /16,11/.

Basecam: Previously labeled as “Infrastructure,” this stratum is now “Basecamp.” Area increased slightly from 290.43 ha to 302.35 ha due to waterbody adjustments. Emission factors rose significantly (CO₂ from 19.4 to 78.5 tCO₂e/ha/yr), but the overall impact remains minor given the small area. Conversion years were updated to align with revised deforestation schedules /16,11/.

Community crops: The area expanded marginally from 11,028 ha to 11,894 ha (7.79% → 7.94%) due to buffer zone adjustments. Conversion slows, extending to 2032. Emission factors decreased substantially (CO₂ from 51.3 to 36.7 tCO₂e/ha/yr; CH₄ from 0.2 to 0.06), reducing estimated emissions by ~28%. /16,11/

Restoration areas: This is a new stratum introduced to comply with peat dome conservation regulations. It covers 5,949 ha, converting previously drained plantation areas back to peat forest. Emission factors are much lower than plantations (CO₂ = 42.9; CH₄ = 2.08 tCO₂e/ha/yr), and water table depth improves to -24.5 cm, simulating rewetting. /16,11/

Baseline canal: The area for primary and secondary canals remains constant in the new baseline simulation, with 317.50 ha and 246.49 ha, respectively. The original baseline projected 3,110 ha for tertiary canals; the updated plan reduces this to 2,980 ha (-4.2%) due to restoration zones. Tertiary canals are now modeled as fractional raster layers instead of explicit vectors, simplifying simulation. Emission factors for canals remain high (CO₂ = 89.5; CH₄ = 23.8 tCO₂e/ha/yr). /16,11/

Forest: Forest conservation expands under the updated baseline due to new peat dome and river buffer zones. Convertible forest declines to zero by 2032, while protected forest stabilizes at 32,643 ha (21.8%).

Emission factors for drained forest decrease (CO_2 from 19.4 to 7.9), and rewetted forest is introduced with near-neutral CO_2 but higher CH_4 emissions. /16,11/

- Protected areas

Protected zones in the baseline are defined to reflect legal and environmental conservation requirements within plantation concessions. While the original baseline followed Minister of Forestry Decree No. SK.70/Kpts-II/95 (as amended), the current framework is based on PP No. 57/2016 jo. PP No. 71/2014, implemented through MoEF Regulation P.10/2019 and complemented by MoEF Regulation P.8/2021. Despite these regulatory updates, the original conservation areas are retained in the baseline as a conservative approach due to uncertainty in practical implementation. These areas are grouped into three categories: river buffer zones, central conservation areas, and peat dome conservation areas.

River buffer zones are delineated under MoEF Regulation No. 8/2021, applying differentiated buffer widths by river type and prohibiting forest conversion, using updated river mapping data.

The Central Conservation Forest is retained in the baseline as a conservative measure based on earlier regulations (Ministerial Decree No. SK.70/Kpts-II/95), ensuring a larger protected area than currently required and serving as a proxy for biodiversity conservation obligations under MoEF Regulation P.8/2021.

The Peat-Dome Conservation Area, established under Ministerial Regulation Permen LHK No. P.10/2019, aims to protect peat dome peaks within specific elevation bands.

- Conversion area

The initial phase of this process involves deforestation of areas primarily classified as “Forest” and “Drained Forest”. Canals are dug to drain the land, making it suitable for agricultural and infrastructural development. Conversion takes place following a two or four-year cycles, transforming “Forest” into “Drained Forest,” and establishing tertiary canals that occupy around 2.196% of the allocated conversion area. Non-Forest: Originally grouped as a single category, non-forest areas are now split into undrained, drained, and rewetted variants. Emission factors were recalibrated (CO_2 for drained non-forest drops from 19.4 to 10.4). Total non-forest extent remains small (<1% of area), but classification changes improve emission accuracy /16,11,6/.

Burned: Burned areas were previously lumped into non-forest; now they are stratified by recovery stage (Fresh, Young, Recovering, Historical) and drainage status. This adds eight new strata, enabling differentiated emission factors (e.g., Fresh Burn CO_2 = 40.7 vs. Historical Burn = -9.4). This refinement significantly improves fire-related emission modeling /16,11/.

Waterbody: The original baseline treated all water bodies uniformly. The update introduces detailed subcategories (Big River, Small River, Swamp River, Legacy Canal, Blocked Canal) and accessibility classes. Conservation buffers (50–200 m) are applied per river type, reducing convertible land and improving compliance with MoEF regulations /16,11/.

AENOR has checked the emissions factors on the R script (the numbers below have the uncertainty included) and they are aligned with the PP description.

```

21 tar_load(soil_emission_factors)
22 head(soil_emission_factors)
23
24
25 tar_load(ditch_emissions_df_bsl)
26 head(ditch_emissions_df_bsl)
27
28
29 # == Load pipeline metadata ==
30 tar_meta()$name # List all completed targets
31

```

	Drained Forest	Drained Forest	-23.098531283	7.889742128	-2.53507897	18.32304624
Drained NonForest	Drained NonForest	-23.098531283	10.393298258	6.26089456	14.53166385	
Drained Recovering Burn	Drained Recovering Burn	-23.098531283	25.708504159	11.62389526	39.55812430	
	co2_half_width	ch4_ef	ch4_lwr	ch4_upr	ch4_half_width	
Forest	10.44513473	1.181420328	0.3360267224	2.658973690	1.16147348	
NonForest	6.29067522	1.236731147	-0.1034369065	7.303420022	3.70342846	
Young Burn	10.11199902	11.306400000	11.306400000	11.306400000	0.00000000	
Drained Forest	10.42906260	0.127688228	-0.0702035956	0.460612684	0.26540814	
Drained NonForest	4.13538464	0.127688228	-0.0702035956	0.460612684	0.26540814	
Drained Recovering Burn	13.96711452	11.306400000	11.306400000	11.306400000	0.00000000	

The emissions factors have been checked to be aligned with literature and IPCC data and that have been correctly imported in the model.

```

" id_paper", "study", "gas", "location", "major_class", "ef_class", "method", "wtd", "ef", "units"
2, "Inubushi et al., 2003", "co2", "South Kalimantan", "Cropland", "C_Deep_drained_SRC", "chamber", -15.1, 36.3, "tCO2e/ha/yr"
2, "Inubushi et al., 2003", "co2", "South Kalimantan", "Cropland", "C_Shallow_drained_SRC_Paddy", "chamber", 2.1, 29.3, "tCO2e/ha/yr"
2, "Inubushi et al., 2003", "co2", "South Kalimantan", "Degraded Forest", "DF_Drained", "chamber", -10, 13.18, "tCO2e/ha/yr"
3, "Chimmer and Ewel 2004", "co2", "Micronesia", "Degraded Forest", "DF_Selectively_logged_PSF", "chamber", NA, 1.62, "tCO2e/ha/yr"
3, "Chimmer and Ewel 2004", "co2", "Micronesia", "Cropland", "C_Deep_drained_SRC", "chamber", NA, 17.55, "tCO2e/ha/yr"
4, "Furukawa et al., 2005", "co2", "Jambi", "Degraded Forest", "DF_Drained", "chamber", -18.1, 45.16, "tCO2e/ha/yr"
4, "Furukawa et al., 2005", "co2", "Jambi", "Cropland", "C_Deep_drained_SRC", "chamber", -23.5, 64.3, "tCO2e/ha/yr"
4, "Furukawa et al., 2005", "co2", "Jambi", "Cropland", "C_Shallow_drained_SRC_Paddy", "chamber", -13, 40.64, "tCO2e/ha/yr"
4, "Furukawa et al., 2005", "co2", "Jambi", "Cropland", "C_Shallow_drained_SRC_Paddy", "chamber", 5.2, -2.58, "tCO2e/ha/yr"
5, "Hadi et al. 2005", "co2", "South Kalimantan", "Degraded Forest", "DF_Drained", "chamber", NA, 77.03, "tCO2e/ha/yr"
5, "Hadi et al. 2005", "co2", "South Kalimantan", "Cropland", "C_Shallow_drained_SRC_Paddy", "chamber", NA, 25.53, "tCO2e/ha/yr"
5, "Hadi et al. 2005", "co2", "South Kalimantan", "Cropland", "C_Deep_drained_SRC", "chamber", NA, 74.03, "tCO2e/ha/yr"
6, "Jauhiainen et al. 2005", "co2", "Central Kalimantan", "Degraded Forest", "DF_Selectively_logged_PSF", "chamber", NA, 5.24, "tCO2e/ha/yr"
8, "Melling et al. 2005b", "co2", "Sarawak", "Degraded Forest", "DF_Drained", "chamber", NA, 39.45, "tCO2e/ha/yr"
8, "Melling et al. 2005b", "co2", "Sarawak", "Cropland", "C_Shallow_drained_SRC_Paddy", "chamber", NA, 12, "tCO2e/ha/yr"
8, "Melling et al. 2005b", "co2", "Sarawak", "Oil Palm", "OP_Industrial_plantation", "chamber", NA, 37.93, "tCO2e/ha/yr"
9, "Ali et al., 2006", "co2", "Jambi", "Degraded Forest", "DF_Drained", "chamber", -25.3, 6.97, "tCO2e/ha/yr"

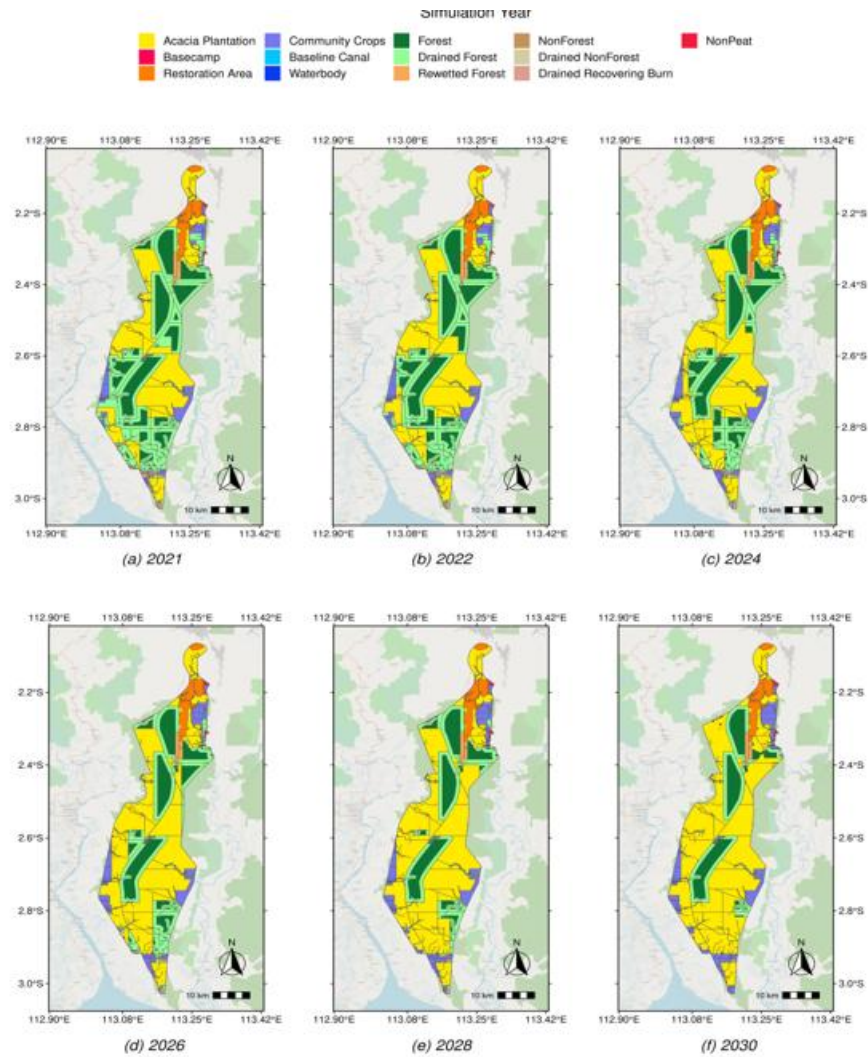
```

	column 1	column 2	column 3	column 4	column 5	column 6	column 7
1	id_paper	study	gas	location	major_class	ef_class	method
2	2	Inubushi et al., 2003	co2	South Kalimantan	Cropland	C_Deep_drained_SRC	chambe
3	2	Inubushi et al., 2003	co2	South Kalimantan	Cropland	C_Shallow_drained_SRC_Paddy	chambe
4	2	Inubushi et al., 2003	co2	South Kalimantan	Degraded Forest	DF_Drained	chambe
5	3	Chimmer and Ewel 2004	co2	Micronesia	Degraded Forest	DF_Selectively_logged_PSF	chambe
6	3	Chimmer and Ewel 2004	co2	Micronesia	Cropland	C_Deep_drained_SRC	chambe
7	4	Furukawa et al., 2005	co2	Jambi	Degraded Forest	DF_Drained	chambe
8	4	Furukawa et al., 2005	co2	Jambi	Cropland	C_Deep_drained_SRC	chambe
9	4	Furukawa et al., 2005	co2	Jambi	Cropland	C_Shallow_drained_SRC_Paddy	chambe
10	4	Furukawa et al., 2005	co2	Jambi	Cropland	C_Shallow_drained_SRC_Paddy	chambe
11	5	Hadi et al. 2005	co2	South Kalimantan	Degraded Forest	DF_Drained	chambe
12	5	Hadi et al. 2005	co2	South Kalimantan	Cropland	C_Shallow_drained_SRC_Paddy	chambe
13	5	Hadi et al. 2005	co2	South Kalimantan	Cropland	C_Deep_drained_SRC	chambe
14	6	Jauhainen et al. 2005	co2	Central Kalimantan	Degraded Forest	DF_Selectively_logged_PSF	chambe
15	8	Melling et al. 2005b	co2	Sarawak	Degraded Forest	DF_Drained	chambe
16	8	Melling et al. 2005b	co2	Sarawak	Cropland	C_Shallow_drained_SRC_Paddy	chambe
17	8	Melling et al. 2005b	co2	Sarawak	Oil Palm	OP_Industrial_plantation	chambe
18	9	Ali et al., 2006	co2	Jambi	Degraded Forest	DF_Drained	chambe
19	9	Ali et al., 2006	co2	Jambi	Fern Scrub	FS_Scrub_dominated_peatland	chambe

AENOR has also compared the information of the last PD and has been compared with the new baseline renewal PD /1/ and the shapefile generated /4,16/ and the stratification carried out in the renewal deems correct. New layers have been generated specially with the drainage systems and canals.

3.2.6.2.3.6 Baseline scenario map

The Baseline Scenario Map/16/ organizes the project area into predefined land strata and allocates annual conversion lots for “Acacia Plantation” and “Community Crops” based on a 3.95% deforestation rate /17/applied to remaining forest. It is important to highlight changes from the last baseline due to the 2019 legislation regarding the peat dome peak. In the new baseline with the 2019 legislation, it is stated, that any area that overlaps the pick of the pick dome that has already been converted must be restored by the plantation company from acacia to rewetted forest. These areas are called 'restoration areas' and can be see below in an orange colour.



AENOR has verified all the input data /8-19/. The image above shows all the variables that are incorporate in the R script to generate the baseline maps. It has been ensured that all the variables were included and the model runed providing the final map /16/. This table shows the areas of the stratification of the new baseline.

```

9 tar_load(revised_plan_bsl)
10 names(revised_plan_bsl)
11
12 # Load pipeline metadata ===
13 tar_meta()$name # List all completed targets
14
15 # Load and explore ADI ===
16 tar_load(bsl) # Load ADI vector

```

PROBLEMS 0 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

to_strata recovered_year burned_year deforested_year blocked_year (and 13 more)
<chr> <num> <int> <num> <num>
Acacia Plantation NaN NA 2019 Inf
Acacia Plantation NaN NA 2018 Inf
Acacia Plantation NaN NA 2017 Inf
> tar_load(revised_plan_bsl)
> names(revised_plan_bsl)
[1] "from_feature" "from_category" "from_strata" "to_feature"
[5] "to_category" "to_strata" "recovered_year" "burned_year"
[9] "deforested_year" "blocked_year" "conservation_buffer" "drainage_zone"
[13] "dredged_year" "protected_year" "district" "license_year"
[17] "agent" "will_be_blocked" "will_be_open" "v_index"
[21] "h_index" "drained_year" "rewetted_year"

```

```

14
15 tar_load(wrc_strata_area_bsl)
16

```

PROBLEMS 3 OUTPUT DEBUG CONSOLE TERMINAL PORTS

```

> tar_load(wrc_strata_area_bsl)
> wrc_strata_area_bsl
# A tibble: 1,157 × 4
  xyear strata area_ha year
<chr> <chr> <dbl> <int>
1 X2021 Acacia Plantation 51195. 2021
2 X2021 Basecamp 210. 2021
3 X2021 Baseline Canal 1997. 2021
4 X2021 Community Crops 6371. 2021
5 X2021 Drained Forest 51293. 2021
6 X2021 Drained NonForest 473. 2021
7 X2021 Drained Recovering Burn 1533. 2021
8 X2021 Forest 28611. 2021
9 X2021 NonForest 15.6 2021
10 X2021 NonPeat 301. 2021

```

3.2.6.2.3.7 Baseline emissions from soil (peat) and water bodies (WRC)

The project quantifies GHG emissions from peat decomposition, peat burning, and water bodies using a spatially and temporally explicit approach. Annual baseline maps simulate land-use changes over time, calculating the area of each stratum and applying corresponding emission factors. These factors are Tier 2, derived from a predictive model that integrates water table depth and land-use class, improving accuracy compared to traditional broad-category methods.

The model uses fixed and random effects and peer-reviewed data (up to Sept 2023). It predicts emissions based on water table depth and can incorporate management practices or above-ground conditions. Emission factors are calculated at the mean water table depth for each stratum but can be updated dynamically as new data becomes available, ensuring adaptability and precision.

The PP provided 50 scientific papers and peer-reviewed studies /39/ covering the sources of the emission factors. The audit team reviewed a spreadsheet /40/, linking the papers to the raw values to confirm the accuracy and adequateness of the applied values.

Gaps in traceability were covered by the fully reproducible data pipeline written in R were data cleaning analysis and prediction of EFs originate. The PP provided a complete code-documentation pdf /3//39-41/ with all code in an accessible form to review emission factors values in the spreadsheet with raw data values and pipeline results.

AENOR reviewed the CodeDocumentation.pdf /3//39-41/ and PD Climate Annex /2/ for written methods used to replicate the analysis combined with code supplements detailing the logic in the pipeline.

AENOR has run the model /3/ to ensure that the baselines emissions from the soil peat and water bodies were correct. Emissions stated in the PD are aligned with the Excel sheets obtained from the model. AENOR execution of the data pipeline was consistent with those values used in the WRC calculations.

```

1 soil_emissions_target <- list(
2   Utils::tar_scenario_map(
3     list(area_ha_df = Utils::tar_expand_scenarios(wrc_strata_area, suffix = c("bsl", "wps", "mr", "with_nd_mr")),
4     target_name = c("bsl", "wps", "mr", "with_nd_mr"),
5     tar_target(soil_emissions_df, {
6       soil_area_mat <- area_ha_df |>
7       dplyr::select(xyear, strata, area_ha) |>
8       tidyr::pivot_wider(
9         names_from = "xyear",
10        values_from = "area_ha",
11      ) |>
12      dplyr::filter(!str_detect(strata, "Water|Canal|NonPeat")) |>
13      arrange(strata) |>
14      tibble::column_to_rownames("strata") |>
15      as.matrix()
16    })
17    soil_area_mat[is.na(soil_area_mat)] <- 0
18  }
19  soil_efs <- soil_emission_factors |>
20
21  soil_efs <- soil_emission_factors |>
22  dplyr::filter(strata %in% rownames(soil_area_mat)) |>
23  arrange(strata) |>
24  dplyr::select(ends_with("ef")) |>
25  rename_with(~ str_c(str_replace(., "_ef$", ""), "_decomp")) |>
26  as.matrix()
27
28  as.data.frame(t(soil_area_mat) %*% soil_efs)

```

The net CO₂-equivalent emissions from the peat (microbial decomposition and burning) and water bodies were estimated following Equation 3.11 from module BL-PEAT (v1.1):

$$GHG_{BSL-PEAT} = \sum_{t=1}^{t^*} \sum_{i=1}^M (A_{peatsoil-BSL,i,t} \times GHG_{peatsoil-BSL,i,t} + A_{ditch-BSL,i,t} \times GHG_{peatditch-BSL,i,t} + A_{peatburn-BSL,i,t} \times GHG_{peatburn-BSL,i,t}) \quad (3.11)$$

Where:

- $GHG_{BSL-PEAT}$ = Net GHG emissions in the WRC baseline scenario on peatland up to year t^* (t CO₂e)

- $GHG_{\text{peatsoil-BSL},i,t}$ = GHG emissions from the peat soil within the project boundary in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{\text{peatditch-BSL},i,t}$ = GHG emissions from water bodies in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{\text{peatburn-BSL},i,t}$ = GHG emissions from burning of peat in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $A_{\text{peatsoil-BSL},i,t}$ = Area of peatland (not open water, not burnt) in stratum i in year t in the baseline scenario (ha)
- $A_{\text{ditch-BSL},i,t}$ = Area of ditch and other open water in stratum i in year t in the baseline scenario (ha)
- $A_{\text{peatburn-BSL},i,t}$ = Area of peat burnt in stratum i in year t in the baseline scenario (ha)

For all strata i where the project duration exceeds the peat depletion time (PDT or t_{PDT}), for $t > t_{\text{PDT-BSL},i}$, the following applies:

$$GHG_{\text{peatsoil-BSL},i,t} = 0$$

$$GHG_{\text{peatditch-BSL},i,t} = 0$$

$$GHG_{\text{peatburn-BSL},i,t} = 0$$

Where:

- $t_{\text{PDT-BSL},i}$ = Peat Depletion Time in the baseline scenario in stratum i in years elapsed since the project start; estimated in Module X-STR (yr)
- $GHG_{\text{peatsoil-BSL},i,t}$ = GHG emissions from the peat soil within the project boundary in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{\text{peatditch-BSL},i,t}$ = GHG emissions from water bodies at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{\text{peatburn-BSL},i,t}$ = GHG emissions from burning of peat in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $i = 1, 2, 3 \dots M_{\text{BSL}}$ strata in the baseline scenario (unitless)
- $t = 1, 2, 3, \dots t^*$ time elapsed since the project start (yr)

The audit team reviewed the sources of ditch emission factors /41/ and spreadsheet detailing ditch emission factor (EF) calculations /42/, with explanatory text added to Section 7.2 of the PD Climate Annex, to confirm the accuracy and adequateness of the applied values.

During document and pipeline review, an error was identified in DOC emission factor application, as the DOC EF must be applied to catchment area rather than water surface area (Prijać et al. (2022)). Delineating catchment areas for all canals across the baseline peatland proved impractical. Consequently, the project proponent has conservatively excluded DOC from calculations, accounting only for on-site CH₄ and CO₂ emissions from waterbodies. This approach is conservative because the baseline scenario contains significantly more canals than the project scenario; excluding DOC therefore results in lower baseline emissions. This exclusion has been reported in Section 3.1.6 of the PD as a PD deviation from the original PD validated at project registration, and assessed in Section 3.7.2.1 of this report.

The PP also corrected a secondary error: different emission factors had been mistakenly applied to natural waterbodies. Following VMD0042 guidance, all waterbodies present in the project area at the project start date (included natural water bodies) have been removed from GHG accounting. A new stratum, "Project Canal," has been introduced in the project scenario to capture any canals illegally constructed after the project start date and has been included in calculations.

Total emissions from peat (from microbial decomposition, water bodies and peat burning) and the following sub-sections explain how they were calculated.

Vintage Year	Baseline GHG Emission Components (tCO ₂ e)			
	Soil Microbial Decomposition	Ditch	Burned	Total
2021	4,485,015.5	220,376.8	1,464,908.7	6,170,301.1
2022	4,727,173.5	220,374.8	1,514,603.6	6,462,151.8
2023	4,985,047.0	239,141.2	1,382,674.7	6,606,862.9
2024	5,224,656.3	239,113.6	1,522,003.8	6,985,773.7
2025	5,470,716.2	262,325.1	1,526,105.9	7,259,147.1
2026	5,712,145.3	262,298.9	1,464,135.3	7,438,579.6
Total	30,604,754	1,443,630	8,874,432	40,922,816

3.2.6.2.3.8 Baseline emissions from microbial decomposition of peat

Emissions from microbial decomposition are calculated using Equation 3.12 defined by the VCS methodology VM0007 module BL-PEAT (v1.1):

$$GHG_{\text{proxy-BSL},i,t} = GHG_{\text{proxy-CO}_2,i,t} + GHG_{\text{proxy-CH}_4,i,t} \quad (3.12)$$

Where:

- $GHG_{\text{proxy-BSL},i,t}$ = GHG emissions in relation to the chosen proxy in the baseline scenario in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{\text{proxy-CO}_2,i,t}$ = Emission of CO₂ in relation to the chosen proxy in stratum i at year t (t CO₂e ha⁻¹ yr⁻¹)
- $GHG_{\text{proxy-CH}_4,i,t}$ = Emission of CH₄ in relation to the chosen proxy in stratum i at year t ; can conservatively be omitted in the baseline scenario (t CO₂e ha⁻¹ yr⁻¹)
- $i = 1, 2, 3 \dots M_{\text{BSL}}$ strata in the baseline scenario (unitless)
- $t = 1, 2, 3, \dots t^*$ time elapsed since the project start (yr)

For each stratum, the CO₂ emissions from microbial decomposition of the peat within the project boundary were estimated as follows:

$$E_{\text{peatsoil-BSL,CO}_2,i,t} = A_{i,t} \times EF_{\text{CO}_2,i,t} \quad (3.13)$$

Where:

- $E_{\text{peatsoil-BSL,CO}_2,i,t}$ = CO₂ emissions from the peat soil within the project boundary in the baseline scenario in stratum i at year t (t CO₂ yr⁻¹)
- $EF_{\text{CO}_2,i,t}$ = Emission factor for CO₂ emissions corresponds to each stratum i , as provided by IPCC (t CO₂ ha⁻¹ yr⁻¹)
- $A_{i,t}$ = Area of stratum i at time t (ha)
- $i = 1, 2, 3 \dots M_{\text{BSL}}$ strata in the baseline scenario (unitless)
- $t = 1, 2, 3, \dots t^*$ time elapsed since the project start (yr)

For each stratum, the CH₄ emission from the peat soil within the project boundary were estimated as follows:

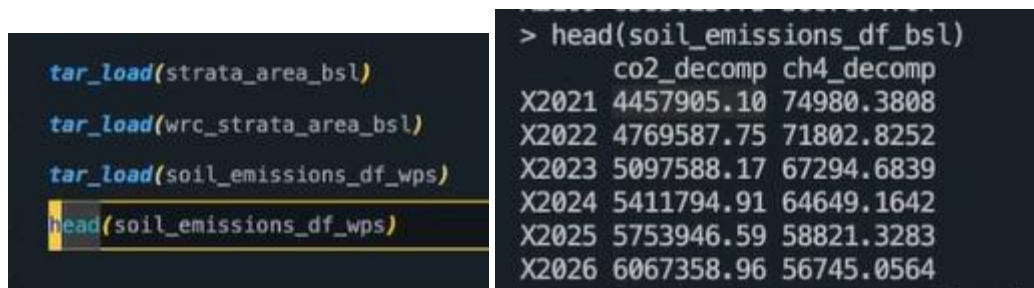
$$E_{\text{peatsoil-BSL,CH}_4,i,t} = A_{i,t} \times GWP_{\text{CH}_4} \times EF_{\text{CH}_4,i,t} \quad (3.14)$$

Where:

- $E_{\text{peatsoil-BSL,CH}_4,i,t}$ = CH₄ emissions from the peat soil within the project boundary in the baseline scenario in stratum i at year t (t CO₂ yr⁻¹)
- $EF_{\text{CH}_4,i,t}$ = Emission factor for CH₄ emissions corresponds to each stratum i , as provided by IPCC (t CO₂ ha⁻¹ yr⁻¹)
- $A_{i,t}$ = Area of stratum i at time t (ha)
- GWP_{CH_4} = Global Warming Potential for CH₄
- $i = 1, 2, 3 \dots M_{\text{BSL}}$ strata in the baseline scenario (unitless)
- $t = 1, 2, 3, \dots t^*$ time elapsed since the project start (yr)

Vintage Year	Baseline Soil Microbial Decomposition (tCO ₂ e)		
	CO ₂	CH ₄	Total
2021	4,431,725.7	53,289.8	4,485,015.5
2022	4,675,727.6	51,445.9	4,727,173.5
2023	4,938,959.6	46,087.4	4,985,047.0
2024	5,181,113.4	43,542.9	5,224,656.3
2025	5,429,673.6	41,042.6	5,470,716.2
2026	5,673,019.8	39,125.5	5,712,145.3
Total	30,330,220	274,534	30,604,754

AENOR has reviewed that the script and the equations have been correctly incorporated into the model. The inputs such as emissions factors /11/, areas /14-16/ and years have been correctly included in the model and therefore the total emissions are deemed correct. These results are aligned with the excel sheets that the VVB has obtained running the model with the raw data /3/ /9-19/.



```
tar_load(strata_area_bsl)
tar_load(wrc_strata_area_bsl)
tar_load(soil_emissions_df_wps)
head(soil_emissions_df_wps)

> head(soil_emissions_df_bsl)
      co2_decomp ch4_decomp
X2021 4457905.10 74980.3808
X2022 4769587.75 71802.8252
X2023 5097588.17 67294.6839
X2024 5411794.91 64649.1642
X2025 5753946.59 58821.3283
X2026 6067358.96 56745.0564
```

3.2.6.2.3.9 Baseline Emissions from Peat Burning

Indonesia's peatlands are major carbon stores but highly vulnerable to fires driven by deforestation, canal drainage, and El Niño droughts (Konecny et al. 2016; Wösten et al. 2006; Hościło et al. 2011, Chandra et al. 2009; Arisanty et al. 2021). These fires cause significant GHG emissions. The project applies the E-BPB (v1.3) module to simulate emissions from unintentional peat burning in non-forested strata, while conservatively excluding:

- Above-ground biomass burning.
- Intentional burning scenarios (illegal under Indonesian law).
- Non-peat areas (<0.5 m depth), water-saturated zones, waterbodies, canals, and forest/restoration strata.

The focus is on uncontrolled peat fires in drained non-forest zones, calibrated using historical proxy data (2012–2021) from MODIS hotspots and land-use maps:

- Burn fraction: 0.041 of non-forest area.
- Average fires: 2.444 per agent/year.

IPCC default emission factors for CO₂, CH₄, and N₂O are applied. Fire baselines will be reassessed every 10 years. This conservative approach ensures credible emission reduction estimates while capturing the main source of peat fire emissions.

The baseline fire simulation allocates annual burnt areas for each agent by multiplying 0.041 (burn fraction) with the non-forested area. Fire counts per year are drawn from a Poisson distribution, and burnt patches are grown iteratively to match target size and spatial criteria (continuous, non-fragmented, distinct).

GHG emissions from peat burning are calculated using updated burn scar depth values from Konecny et al. (2016). AENOR has checked the Konecny et al. (2016) source and deems it correct to use this reference, as on-site experiments similar to those in the project have been carried out to obtain these values. These values are also more conservative than IPCC defaults:

- Burned once: 0.17 m
- Twice: 0.10 m

- Thrice: 0.06 m
- Multiple burns: 0.02 m

These values reflect reduced peat loss with successive fires and align with recent studies using LiDAR and satellite imagery. The cumulative impact of burns across project phases is applied to estimate peat mass loss and emissions using VCS methodology (VM0007, E-BPB v1.3). Only parcels meeting peat depth (≥ 0.5 m) and free drainage criteria are included, ensuring conservative and accurate emission estimates.

Vintage Year	Peat burn CO ₂ emissions (tCO ₂ e)			Total
	CO ₂	CH ₄	N ₂ O	
2021	1,064,518.7	366,258.4	34,131.6	1,464,908.7
2022	1,100,630.8	378,683.2	35,289.5	1,514,603.6
2023	1,004,760.9	345,698.2	32,215.6	1,382,674.7
2024	1,106,008.5	380,533.4	35,461.9	1,522,003.8
2025	1,108,989.4	381,559.0	35,557.4	1,526,105.9
2026	1,063,956.7	366,065.1	34,113.6	1,464,135.3
Total				8,874,432.0

AENOR has reviewed the input of the E-BPB (v1.3) module in the R script.

```
avg_burn_scar_summary_df |>
  # Average mass of peat burnt for stratum_i in year_t (t d.m. ha-1) E-BPBv1.3 eq4
  mutate(mass_loss = depth * avg_bulk_density * 1e4) |>
  mutate(co2_burn = mass_loss * 1 * 1e-3 * 1.58 * area_ha) |>
  mutate(ch4_burn = mass_loss * 28 * 1e-3 * 0.0068 * area_ha) |>
  mutate(n2o_burn = mass_loss * 265 * 1e-3 * 2e-4 * area_ha)
}),
tar_target(peatburn_emissions_df_bsl, {
  peatburn_emissions_by_poly_df_bsl |>
    group_by(xyear) |>
    summarise(
      co2_burn = sum(co2_burn),
      ch4_burn = sum(ch4_burn),
      n2o_burn = sum(n2o_burn)
    ) |>
})
```

All the assumptions made to ensure a conservative approach in the GHG calculations from peat burning have been also checked ensuring all the variables have been correctly included in the R script. The input

data of fire predictions have also been reviewed /12/. AENOR has run the model and the excel sheets obtained are aligned with the results of the model /3/.

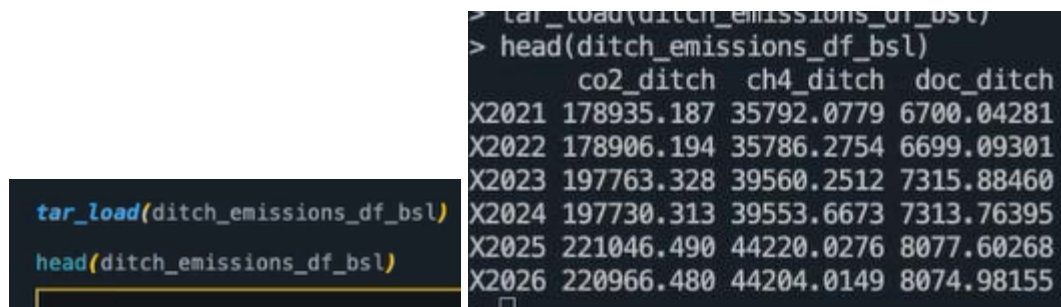
3.2.6.2.3.10 Baseline Emissions from water bodies in peatlands

In the baseline scenario, open water bodies are limited to natural rivers and drainage canals, organized into two strata: Waterbody, which remains constant and includes pre-existing rivers and canals, and Baseline Canal, whose area varies annually as drainage canals are constructed. The Baseline Canal stratum comprises primary, secondary, and tertiary canals, with primary and secondary canals completed in the first baseline period and tertiary canals continuing to be dug according to conversion rates. Canal construction follows typical cycles: two years for acacia plantations and four years for rubber/community crops. Greenhouse gas emissions from water bodies are treated per IPCC guidance, distinguishing on-site emissions (CO_2 and CH_4 from canal surfaces) from off-site emissions (CO_2 from DOC degradation downstream), while excluding N_2O and direct CO_2/CH_4 export to avoid double counting.

During document and pipeline review, an error in DOC emission factor application was identified. The DOC EF must be applied to catchment area rather than water surface area (Prijac et al. (2022). Delineating catchment areas for all canals across the baseline peatland proved impractical. Consequently, the project proponent has conservatively excluded DOC from calculations, accounting only for on-site CH_4 and CO_2 emissions from waterbodies. This approach is conservative because the baseline scenario contains significantly more canals than the project scenario; excluding DOC therefore results in lower baseline emissions.

Vintage Year	Baseline Ditch Emissions (tCO ₂ e)		
	CO ₂	CH ₄	Total
2021	173,865.8	46,511.1	220,376.8
2022	173,864.2	46,510.6	220,374.8
2023	188,669.9	50,471.3	239,141.2
2024	188,648.1	50,465.5	239,113.6
2025	206,960.7	55,364.3	262,325.1
2026	206,940.1	55,358.8	262,298.9
Total	1,138,949	304,682	1,443,630

AENOR has checked the input data, such as the emissions factors and areas for the emissions in water bodies/16/. At the same time the outputs of the workbooks generated have been compared with the PD table, and the values were confirmed to be aligned.



```

tar_load(ditch_emissions_df_bsl)
> head(ditch_emissions_df_bsl)
  co2_ditch ch4_ditch doc_ditch
X2021 178935.187 35792.0779 6700.04281
X2022 178906.194 35786.2754 6699.09301
X2023 197763.328 39560.2512 7315.88460
X2024 197730.313 39553.6673 7313.76395
X2025 221046.490 44220.0276 8077.60268
X2026 220966.480 44204.0149 8074.98155

```

3.2.6.2.3.11 Baseline emissions from REDD activities

Annual baseline emissions from deforestation are calculated based on carbon stock losses from converting forest to acacia plantations (49,088.62 ha), rubber plantations (5,973.13 ha), and infrastructure areas, such as basecamps (92.26 ha) and drainage canals (1,236.31 ha), driven by three deforestation agents. The conversion rate is derived from the average annual deforestation rate in the proxy area (3.95%) and applied to compute yearly planned deforestation. Drainage system design and density depend on deforestation rates, hydro-topographic conditions, and standard acacia cultivation practices, with primary and secondary canals established in the first baseline period and tertiary canals continuing to be added. For modelling purposes, tertiary canals are assumed to cover 2.196% of the raster area without specific mapping.

As defined by BL-PL (v1.4), net carbon stock changes in the baseline are calculated by subtracting the pre-deforestation stock from the long-term average carbon stock associated with the post-deforestation land uses, namely *Acacia crassiparpa* and rubber plantations, as detailed in Equation 3.17.

$$\Delta C_{AB,tree,i} = C_{AB,tree,bsl,i} - C_{AB,tree,post,i} \quad (3.17)$$

Where:

$\Delta C_{AB,tree,i}$ = Baseline carbon stock change in aboveground tree biomass in stratum i ; t CO₂-e ha⁻¹

$C_{AB,tree,bsl,i}$ = Forest carbon stock in aboveground tree biomass in stratum i ; t CO₂-e ha⁻¹

$C_{AB,tree,post,i}$ = Post-deforestation carbon stock in aboveground tree biomass in stratum i ; t CO₂-e ha⁻¹

Pre-deforestation carbon stocks, based on 2020 AGB maps, average 73.10 tC/ha, slightly below typical literature values (100–150 tC/ha), making estimates conservative. Long-term averages for plantations are calculated as 15.14tC/ha for acacia (5-year rotation) and 36.6 tC/ha for rubber (25-year rotation). The audit team reviewed the provided Post-Deforestation Carbon Stocks: Evidence Summary/3/ and the LTA calculation spreadsheet /3/ and crosschecked them with the peer-reviewed studies used as sources for carbon stock values.

First, the audit team deemed that the studies are appropriate sources, as the study site of Ardiansyah et al. (2005) is an industrial acacia plantation on peatland in Sumatra, and Sone et al. (2014) via Blagodatsky et al. (2016) and Guillaume et al. (2018) studies are from Sumatra, representing lowland

tropical rubber monoculture systems comparable to the post-deforestation land uses assumed for the Katingan project area.

Second, the audit team assessed which pools are included in these values, substantiating that the values for both acacia and rubber represent aboveground biomass (AGB) only. Belowground biomass (BGB) is excluded from the post-deforestation carbon stock calculation because BGB is accounted for within the peat component under module BL-PEAT (as described in PD Section 5.1.1: “Belowground (tree and non-tree) biomass is not required for inclusion in the project boundary). The project scenario tree biomass is also AGB only. BGB is included in the peat component in areas subject to REDD+WRC and conservatively excluded in area subject to ARR+WRC.”). This pool definition is applied consistently to both post-deforestation land use classes. For rubber, as the source studies report AGB+BGB combined, the BGB component was removed using the allometric relationship from Blagodatsky et al. (2016): BGB as a fraction of total biomass = $39.25 \times \text{age}^{-0.297}$, evaluated at the median rotation age. This gives BGB fractions of 19.8% (Sone, median age 10 yr) and 16.1% (Guillaume, median age 20 yr), yielding AGB-only values of 33.7 and 39.4 tC ha⁻¹ respectively.

Third, the audit team confirmed the Mean Dry Biomass (kg/ha) values in Ardiansyah et al. (2005), Table 1 for acacia; and Reported taCs (tC/ha) values in Sone et al. (2014) via Blagodatsky et al. (2016) and Guillaume et al. (2018) for rubber; being found consistent with the values inputted in the LTA calculation spreadsheet /3/.

Therefore, AENOR confirmed that the LTA calculations of post-deforestation classes are accurate and correct.

Emissions are calculated by subtracting carbon plantation from forest values, assuming immediate conversion, while excluding fertilizer and fire-related emissions.

Emissions from deforestation in the project area with the baseline period (2021-2026) are the following (Strata keys AC = Acacia Plantation, CC = Community Crops (rubber), IF = Infrastructure (Basecamp & Baseline Canal)):

Year	Agent A			Agent B			Agent C			Total
	AC	CC	IF	AC	CC	IF	AC	CC	IF	
2021	189,911	-15,934	13,717	215,709	22,743	13,775	348,365	-2,601	19,436	805,119.5
2022	269,731	-17,874	-	227,163	8,618	-	343,417	-786	-	830,269.0
2023	241,448	-16,331	15,380	242,325	5,758	13,289	337,174	-647	19,231	857,627.6
2024	300,620	-11,792	-	250,769	6,659	-	353,237	-483	-	899,010.6
2025	278,022	2,931	15,920	172,100	8,914	14,604	377,207	14,048	21,973	905,719.0
2026	230,235	4,478	-	253,358	19,952	-	356,398	3,237	-	867,658.3
Total										5,165,404.0

AENOR has reviewed that the conversion of the remaining forest to Acacia plantation, community crops and infrastructure has been calculated correctly. Input data such as vegetation analysis /15/ was reviewed to verify the calculations. On the other hand, the equations describe above have correctly been inputted in the R script. These values have also been compared with the excel workbook obtained running the model. Therefore, the GHG emissions in the REDD activities is deemed correct.

```
#### Baseline emissions from aboveground biomass (REDD) You, 4 weeks ago • Refactor baseline emissions ...
```{r #tbl-bsl_detailed_redd_emissions}

tar_read(bsl_redd_emissions_by_strata_df) |>
 dplyr::filter(year %in% tar_read(mr_years)) |>
 Utils::table_theme() |>
 flextable::add_header_row(
 values = c(
 "Vintage\\nYear",
 rep(c("Acacia Plantation", "Community Crops", "Infrastructure"), each = 3),
 "Total"
),
 colwidths = rep(1, 11)
) |>
 flextable::add_header_row(
 values = c(
 "Vintage\\nYear",
 rep("Baseline REDD Emissions (tCO2e)", each = 10)
```

### 3.2.6.3 Project Emissions

As with the baseline emissions, the project emissions were also calculated using an R script. AENOR assessed the baseline and project emissions simultaneously and using the same method. This involved in-person and online technical meetings with the PP, which allowed the team to replicate the R script and generate Excel workbooks. This ensured that the values provided had been calculated correctly.

Project scenario:      WRCStrataAreaWPS.xlsx  
                              WRCSoilDitchEmissionsWPS.xlsx  
                              WRCUncertaintyWPS.xlsx  
                              REDDEmissionsWPS.xlsx

#### 3.2.6.3.1 General procedures and assumptions

Emissions in the project scenario that are accounted result from:

- Above ground biomass stock changes due to REDD activities
- Peat microbial decompositions
- Water bodies in peatlands

As described in Sections 3.2.2.3.1 (Baseline Feature Update) of the PD and the Climate Annex (Stratification), the baseline renewal process enabled a comprehensive reassessment and update of both baseline and project scenario stratification. The availability of updated scientific literature, improved spatial datasets, and accumulated historical field data collected since project inception allowed a reinterpretation of the original strata to better represent land cover and soil conditions within the project area, thereby improving the accuracy of emissions estimations.

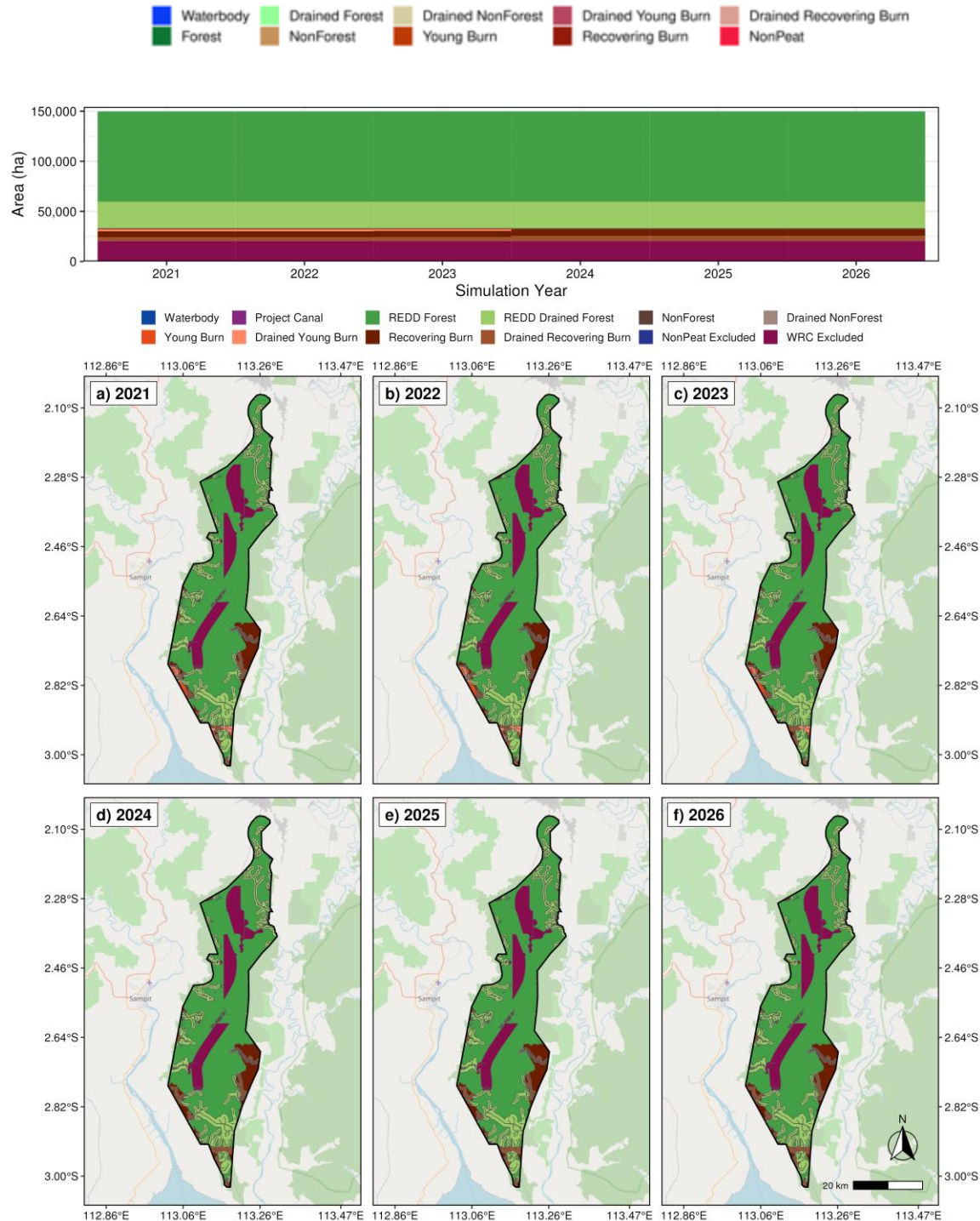
The updates focused on the revision of peatland extent, water bodies, non-forest areas, burned areas, and forest delineation. In particular, two changes are of relevance for the project scenario: (i) the re-stratification of burned areas and (ii) the update of forest area classification.

Burned areas, previously grouped with non-forest areas, were reclassified into four recovery-based categories (fresh, young, recovering, and historical burns) to better reflect post-fire carbon dynamics in tropical peatland ecosystems. This approach allows differentiated emission factors to be applied over time using a “burned\_year” variable, improving the representation of recovery processes in both baseline and project simulations.

Forest stratification was also updated using advances in remote sensing and biomass modelling, including high-resolution annual Aboveground Biomass (AGB) maps. This resulted in a re-delineation of forest areas and a revised approach to degradation monitoring, replacing the previously used PRA method with wall-to-wall AGB-based assessments. Areas previously classified as intensively degraded or non-forest were reassessed using time-series biomass data, satellite imagery, and field information; some areas showing sustained regeneration were reclassified as forest for modelling purposes. These areas remain ineligible for REDD crediting, as they were non-forest at the project start date.

Overall, these updates improve the spatial representation of land cover dynamics and ensure greater consistency and transparency in emissions modelling for both baseline and project scenario.

**The project scenario** was stratified into six strata using a Combination-Elimination process based on land cover (forest/non-forest), drainage status (drained/undrained), water bodies, and burned areas. A project scenario map was then developed through five steps: (1) delineating land cover strata at the baseline renewal date, (2) updating water bodies (rivers and canals), (3) mapping drained and undrained areas using EO data and field information, (4) reclassifying burned areas into four recovery categories, and (5) overlaying all delineations to produce the final map .



The project maps above illustrate land use changes in the project area from 2021 to 2026, maintaining a total area of 149,800 ha. Subfigures (a)–(f) show the spatial distribution of land use categories at different time points during the baseline renewal period, highlighting how areas evolve over time. Most strata remain static as intended, with minor variations related to the temporal application of burned strata.

AENOR has reviewed the model /3/ and checked the difference between baseline and project scenario to compare the strata distribution. The areas for each stratum have been calculated and compared to with the .gpk information provided and deems correct.



The revised PD includes Rewetting of Drained Peatland (RDP) solely as a non-credited restoration activity under the Wetland Restoration and Conservation (WRC) component of the project. RDP is described for contextual and transparency purposes only, to reflect on-the-ground restoration measures implemented within areas that were already drained at the project start date. No greenhouse gas emission reductions or removals are claimed from RDP activities, and RDP is not included within the scope of credited activities under the VCS programme for this project.

The carbon accounting boundary, eligibility analysis, and quantification remain strictly limited to the validated REDD-APWD/APWD activities. Replanting and rewetting interventions associated with RDP are explicitly excluded from crediting, and no emission factors, strata, or ERR calculations associated with rewetted areas are applied in the current verification period. References to potential future stratification of rewetted areas are presented as forward-looking methodological considerations only and do not affect current eligibility, crediting, or issuance.

### 3.2.6.3.2 Project emissions from soil (peat) and waterbodies

Greenhouse gas (GHG) emissions from microbial decomposition in peatlands and water bodies were quantified using the same model as the baseline scenario. Annual project scenario maps were created to show expected land cover changes /3/, which are minimal compared to the baseline, mainly due to planned rewetting and reforestation activities. It is assumed that no fires will occur, so emissions from peat burning are set to zero. For each year, the area of each stratum is calculated, and corresponding emission factors are applied.

For each monitoring period, the area of each stratum will be recalculated to reflect changes or disturbances, and emissions will be updated following modules M-REDD and M-PEAT (v1.1). Areas classified as drained in 2020 may shift to “rewetted” strata if canal-blocking efforts significantly raise water tables, verified through monitoring before reclassification. Similarly, areas that are successfully reforested or naturally regrow will move from non-forest to forest strata, adopting forest emission factors. These changes will be documented in monitoring reports or future baseline renewals. No emission reductions from aboveground biomass will be credited, as ARR is not included in the project.

Vintage Year	Project GHG Emission Components (tCO <sub>2</sub> e)			
	Soil Microbial Decomposition	Ditch	Burned	Total
2021	371,909.6	29.5	0	371,939.1
2022	371,909.6	29.5	0	371,939.1
2023	377,815.6	29.5	0	377,845.1
2024	411,780.2	29.5	0	411,809.7
2025	411,780.2	29.5	0	411,809.7
2026	411,780.2	29.5	0	411,809.7
<b>Total</b>	<b>2,356,975</b>	<b>177</b>	<b>0</b>	<b>2,357,153</b>

### 3.2.6.3.3 Project emissions from microbial decomposition of peat

Emissions of Peat soil in project scenario are calculated as the baseline data the total GHG emissions for the project scenario are the following:

Vintage Year	Project Soil Microbial Decomposition (tCO <sub>2</sub> e)		
	CO <sub>2</sub>	CH <sub>4</sub>	Total
2021	127,121.1	244,788.4	371,909.6
2022	127,121.1	244,788.4	371,909.6
2023	133,027.1	244,788.4	377,815.6
2024	166,991.7	244,788.5	411,780.2
2025	166,991.8	244,788.5	411,780.2
2026	166,991.8	244,788.5	411,780.2
<b>Total</b>	<b>888,245</b>	<b>1,468,731</b>	<b>2,356,975</b>

AENOR has reviewed the changes in the land use changes /3/ and the correct input of the equations in the R script to calculate the project soil microbial decomposition. The model has been run and the calculations are accurate, presenting the same results as the workbook obtained by the VVB.

```
tar_load(strata_area_bsl)
tar_load(wrc_strata_area_bsl)
tar_load(soil_emissions_df_wps)
head(soil_emissions_df_wps)
```

```
> head(soil_emissions_df_wps)
 co2_decomp ch4_decomp
X2021 64481.5618 273764.817
X2022 64481.5618 273764.817
X2023 70382.6065 273764.817
X2024 105208.2139 273719.124
X2025 105208.2139 273719.124
X2026 105207.1998 273715.547
```

### 3.2.6.3.4 Project emissions from peat burning

AENOR has reviewed the rewetting actions /29/ and fire-prevention actions /25/ of the project and it is deemed correct to assume that no burning will occur in the project scenario.

### 3.2.6.3.5 Project emissions from water bodies in peatlands

The project scenario includes a single water body stratum ("Waterbody"), which consists of rivers and canals. Changes in this stratum will be monitored and reported throughout the project. As part of ongoing rewetting efforts, canals will be blocked during the project lifetime, and no new canals are expected to be created. The calculation of emissions from water bodies uses the same equations as the baseline scenario:

Vintage Year	Project Ditch Emissions (tCO <sub>2</sub> e)		
	CO <sub>2</sub>	CH <sub>4</sub>	Total
2021	23.2	6.2	29.5
2022	23.2	6.2	29.5
2023	23.3	6.2	29.5
2024	23.3	6.2	29.5
2025	23.3	6.2	29.5
2026	23.3	6.2	29.5
<b>Total</b>	<b>140</b>	<b>37</b>	<b>177</b>

AENOR has reviewed the changes in the land use changes /3/ and the correct input of the equations in the R script to calculate the project ditch emissions. The model has been run, and the calculations are accurate, presenting the same results as the workbook obtained by the VVB.

### 3.2.6.3.3 Project emissions form aboveground biomass

#### **Project emissions from deforestation**

The project assumes no deforestation will occur due to strong preventive measures. Annual monitoring using high-resolution remote sensing will detect any land cover changes, and aboveground carbon in deforested areas will be calculated if needed.

AENOR has reviewed the measures to prevent deforestation /25-30/ and forest degradation /29/ in the project area and the assumptions of no deforestation in the project scenario are deemed correct. Nonetheless, continuous monitoring will detect any land use change and report it every verification event, accounting for any possible emissions due to deforestation.

#### **Project emissions from uncontrolled burning**

Uncontrolled burning is assumed to be absent during the project period due to planned rewetting and fire-prevention activities, meaning no GHG emissions are expected. However, a major fire occurred in 2015, burning 8,368.93 ha of forest and 1,326.25 ha of non-forest vegetation. Field observations and drone data confirmed that non-tree vegetation combusted completely, while affected trees were killed but not fully combusted. Consequently, emissions from non-tree biomass were calculated using E-BPB procedures, assuming instantaneous CO<sub>2</sub> release, while tree biomass emissions were estimated based on gradual decomposition over time. Dead wood emissions from this event have been reported annually, following BL-PL guidance with a decay rate of one-tenth per year over ten years.

Vintage Year	Dead Wood Decay	
	tC	tCO <sub>2</sub> e
2021	14,105.9	51,721.6
2022	14,105.9	51,721.6
2023	14,105.9	51,721.6
2024	14,105.9	51,721.6
2025	14,105.9	51,721.6
2026	14,105.9	51,721.6
<b>Total</b>	<b>84,635</b>	<b>310,330</b>

AENOR has reviewed the field data from the burning event /24/ and deems accurate to use the E-BPB procedures assuming a decay rate per year. It has been checked that the equations have been correctly input into the model and the tCo2e calculated for this event is acceptable.

### **Project emissions from forest degradation**

No degradation is expected due to preventive measures. The PP has put in place strong measures (see table in section 2.1.19 of the PD) such as fire prevention, forest restoration, hydrology restoration workshops as well as Carbon MRV. Monitoring will use annual biomass loss maps derived from wall-to-wall aboveground biomass mapping.

AENOR has reviewed the measures to prevent forest degradation /25-29/ in the project area and the assumptions of no deforestation in the project scenario deems correct

### 3.2.6.4 Leakage Emissions

Applicable leakage modules were identified based on the VCS methodology VM0007 REDD+ MF. Since the baseline activity involves planned deforestation and peatland drainage for conversion to industrial acacia plantations, the project is classified as a combination of Avoiding Planned Deforestation (APD), Conservation of Undrained and Partially Drained Peatland (CUPP), and Rewetting of Drained Peatland (RDP). Potential leakage sources include displacement of planned deforestation and ecological leakage from changes in mean annual water table depth in adjacent areas. These are addressed through modules LK-ASP and LK-ECO, which have been selected for quantifying total leakage emissions.

Module	Applicability	VVB assesment
Estimation of emissions from activity shifting for avoiding planned deforestation and planned degradation (LK-ASP)	<b>Applicable.</b> The project may cause activity shifting of avoided planned deforestation.	The Predicted total area of PBP HHT concessions date has been reviewed /3/ and a new annual deforestation rate with no leakage has been calculated.   No leakage has been accounted during the previous baseline period therefore it is assumed that no leakage will occur.   AENOR has reviewed al the evidence provided /3/ and deems correct that no leakage emissions will be assumed in this baseline renewal.
Estimation of emissions from activity shifting for avoiding unplanned deforestation (LK-ASU)	<b>Not applicable.</b> The project is not categorised as avoiding unplanned deforestation.	Not applicable

Estimation of emissions from displacement of fuelwood extraction (LK-DFW)	<b>Not applicable.</b> The project is not categorised as avoiding unsustainable fuelwood extraction.	Not applicable
Estimation of emissions from market-effects (LK-ME)	<b>Not applicable.</b> The project does not reduce the production of timber, fuelwood, or charcoal.	Not applicable
Estimation of emissions from ecological leakage (LK-ECO)	<b>Applicable.</b> The project is categorised as WRC and may cause ecological leakage.	No ecological leakage is expected because rewetting activities are limited to small, pre-existing canals surrounded by undrained peatland, minimizing hydrological impacts outside the project area.  AENOR have reviewed the rewetting activities that will take place and deems correct that no ecological leakage will take place.
Estimation of emissions from displacement of pre-project agricultural activities (LK-ARR)	<b>Not applicable.</b> The project is not categorised as afforestation, reforestation, and revegetation.	Not applicable

The project assesses activity-shifting leakage (LK-ASP) in accordance with Section 5 of VMD0009.

According to Section 5.1 of VMD0009, when a specific deforestation agent is identified, leakage must be measured by estimating the total area of deforestation across all the lands managed by the baseline deforestation agent.

However, said section also states: “Where the specific deforestation agent can be identified, leakage does not need to be considered where it can be demonstrated that the management plans and/or land-use designations of the deforestation agent’s other lands (which must be identified by location) have not materially changed as a result of the project (e.g., the deforestation agent has not designated new lands as timber concessions, increased harvest rates in lands already managed for timber, cleared intact forests for agricultural production or increased fertilizer use to enhance agricultural yields).

In this case, PT Natural Wood Kencana (PT Kayu Alam Kencana) was identified as an agent of deforestation based on its application for an industrial timber plantation (HTI) concession of 50,000 hectares within the project area. However, the application was unsuccessful. The audit team reviewed the government rejection of concession permit application for industrial forestry plantation (HTI) by PT Kayu Alam Kencana /5/ to confirm this fact.

The audit team reviewed official concession databases maintained by the Ministry of Environment and Forestry (KLHK), including the 2022 PHL-KLHK dataset of forestry license holders (PBPH / IUPHHK-HTI)<sup>7</sup>, and PT Kayu Alam Kencana was not identified among licensed concession holders. As these databases represent the official registry of legally authorized forestry operations in Indonesia, the absence of this entity substantiates that it did not obtain an operational concession.

As such, no links were identified between PT Kayu Alam Kencana and any established forestry or plantation group. Consequently, no associated concessions, subsidiaries, or alternative landholdings could be attributed to this actor or any parent entity. As a result, there is no basis to spatially monitor potential activity-shifting leakage associated with this company.

Therefore, the project quantifies activity-shifting leakage applying the procedures described in Section 5.2 of VMD0009, where only a class of deforestation agents can be identified, namely industrial acacia plantation developers. The audit team notes that this procedure is also consistent with the criteria applied for determining the baseline validity period.

The estimation follows Approach 1 (Section 5.2.1) of the LK-ASP module, using national concession data and regression analysis (2011–2020) to project future plantation expansion. A conservative assumption is applied whereby 75% of licensed concession areas are converted, combined with a baseline deforestation rate of 3.95% derived from proxy analysis. This allows the calculation of expected deforestation outside the project area in the absence of leakage. Although no activity-shifting leakage was observed during the previous baseline period, the project will continue to monitor deforestation within licensed plantation areas using official data and *Global Forest Watch* and will quantify leakage if it occurs. Ecological leakage (LK-ECO) is assessed as negligible due to both site conditions and project design, in accordance with Section 5 of module VMD0044. The majority of the project area consists of intact peat swamp forest that does not require intervention, with rewetting activities limited to small, previously drained areas (notably along the Hantipan canal). These areas are hydrologically isolated by surrounding undrained peatlands and major rivers (Katingan and Mentaya), which exert a stronger influence on water levels than local interventions. Canal blocking is implemented using conservative engineering designs (e.g. cascade systems and spillways) to prevent unintended downstream hydrological effects and to maintain local community uses. These assertions were substantiated through the review of a peer-reviewed study (Ritzema et al., 2014)<sup>8</sup>, which shows that canal blocking in tropical peatlands produces localized increases in water tables confined to the immediate vicinity of canals, with effects strongly dependent on local site conditions and not propagating across the wider landscape. Additional factors—such as historical drainage impacts, natural water table variability driven by rainfall and tidal influence, and low-risk surrounding land use—further reduce the likelihood of off-site impacts. The study further demonstrates that peatland hydrology is primarily controlled by broader factors such as rainfall, landscape configuration, and natural drainage, indicating that regional drivers outweigh the influence of small-scale rewetting interventions. This supports the conclusion that rewetting activities

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<sup>7</sup> [OneMap - PHL KLHK](#)

<sup>8</sup> Henk Ritzema, Suwido Limin, Kitso Kusin, Jyrki Jauhiainen, Henk Wösten, 2014, Canal blocking strategies for hydrological restoration of degraded tropical peatlands in Central Kalimantan, Indonesia, CATENA, Volume 114, 2014, Pages 11-20, ISSN 0341-8162, <https://doi.org/10.1016/j.catena.2013.10.009>.

limited to small, previously drained areas are unlikely to induce displacement effects beyond the project boundary.

The audit team confirmed that monitoring systems are established to confirm the absence of ecological leakage during each verification, including water table monitoring through wells and staff gauges along transects extending inside and outside the project boundary. Monitoring is conducted at regular intervals and focuses on areas with potential hydrological connectivity. Overall, the project demonstrates that ecological leakage risks are minimal and adequately managed through design, site characteristics, and ongoing monitoring.

### 3.2.6.5 Estimated GHG Emission Reductions and Carbon Dioxide Removals (VCS, 3.15, 4.1)

#### 3.2.6.5.1 Uncertainty Analysis

The uncertainty for the project has been calculated through the Calculated following in X-UNC module (which has been made to estimate uncertainty in the estimation of emissions and removals in REDD and WRC project activities).

The following equation has been used:

$$NER_{\text{REDD+ ERROR}} = \frac{\sqrt{U_{\text{REDD BSL},t^*}^2 + U_{\text{REDD WPS}}^2 + U_{\text{WRC BSL},t^*}^2 + U_{\text{WRC WPS},t^*}^2}}{\Delta C_{\text{BSL-REDD},t^*} + \Delta C_{\text{WPS-REDD},t^*} + GHG_{\text{BSL-WRC},t^*} + GHG_{\text{WPS-WRC},t^*}} \quad (3.27)$$

Where:

- $NER_{\text{REDD+ ERROR}}$ : Cumulative uncertainty for the REDD+ (REDD and WRC) project activities up to year  $t^*$  (%).
- $Uncertainty_{\text{REDD BSL},t^*}$ : Cumulative uncertainty in the REDD baseline scenario up to year  $t^*$  (%).
- $Uncertainty_{\text{REDD WPS}}$  = Total uncertainty in the REDD project scenario (%).
- $Uncertainty_{\text{WRC BSL},t^*}$  = Cumulative uncertainty in the WRC baseline scenario up to year  $t^*$  (%).
- $Uncertainty_{\text{WRC WPS},t^*}$  = Cumulative uncertainty in the WRC project scenario up to year  $t^*$  (%).
- $\Delta C_{\text{BSL-REDD},t^*}$  = Net GHG emissions in the REDD baseline scenario up to year  $t^*$  (t CO<sub>2</sub>e).
- $\Delta C_{\text{WPS-REDD},t^*}$  = Net GHG emissions in the REDD project scenario up to year  $t^*$  (t CO<sub>2</sub>e).
- $GHG_{\text{BSL-WRC},t^*}$  = Net GHG emissions in the WRC baseline scenario up to year  $t^*$  (t CO<sub>2</sub>e).

- $GHG_{WPS-WRC,t^*}$  = Net GHG emissions in the WRC project scenario up to year  $t^*$  (t CO<sub>2</sub>e).
- $t^*$ : Time elapsed since the project start (year).

The uncertainty for the Baseline and project scenario is the following:

	Total GHG emissions (tCO <sub>2</sub> e)	Absolute Uncertainty (tCO <sub>2</sub> e)	Relative uncertainty (%)
<b>BSL-WRC</b>	423,057,149.7	7,197,255.8	1.7
<b>WPS-WRC</b>	10,200,596.2	7,741,279.2	75.9
<b>BSL-REDD</b>	11,649,593.2	2,544,500.9	21.8
<b>WPS-REDD</b>	517,216.2	-	-

The X-UN module indicates: ‘Guidance on uncertainty – a precision target of a 95% confidence interval half-width equal to or less than 15% of the recorded value must be targeted’

The total uncertainty error in the project was calculated to be 2.44%. Considering the 15% uncertainty threshold, no VCU deductions were made due to uncertainty.

AENOR has reviewed the REDD Uncertainty BSL Workbook /3/ where the detailed annual uncertainty calculations for the REDD baseline scenario, including error propagation methodology, are provided. At the same time the R script was checked, and the uncertainty value deems accurate.

### 3.2.6.5.2 Total net GHG emission reductions of the REDD project activity

GHG emission reductions from REDD project activities are calculated by subtracting project emissions and emissions due to leakage from baseline. Equation 2 of the VM0007 v1.8 is used to calculate emissions reductions and Verified Carbon Units (VCUs) based on the components of baseline, project, and leakage emissions

$$NER_{REDD} = GHG_{BSL-REDD} - GHG_{WPS-REDD} - GHG_{LK-REDD} \quad (2)$$

Where:

$NER_{REDD}$  = Total net GHG emission reductions of the REDD project activity up to year  $t^*$  (tCO<sub>2</sub>e)

$GHG_{BSL-REDD}$  = Net GHG emissions in the REDD baseline scenario up to year  $t^*$  (tCO<sub>2</sub>e)

$GHG_{WPS-REDD}$  = Net GHG emissions in the REDD project scenario up to year  $t^*$  (tCO<sub>2</sub>e)

$GHG_{LK-REDD}$  = Net GHG emissions due to leakage from the REDD project activity up to year  $t^*$  (tCO<sub>2</sub>e)

Vintage Year	Estimated baseline emissions (tCO <sub>2</sub> e)	Estimated project emissions (tCO <sub>2</sub> e)	Estimated leakage emissions (tCO <sub>2</sub> e)	Estimated emission reductions (tCO <sub>2</sub> e)
2021	805,119.5	51,721.6	-	753,397.8
2022	830,269.0	51,721.6	-	778,547.4
2023	857,627.6	51,721.6	-	805,906.0
2024	899,010.6	51,721.6	-	847,289.0
2025	905,719.0	51,721.6	-	853,997.4
2026	867,658.3	51,721.6	-	815,936.6
<b>Total</b>	<b>5,165,404</b>	<b>310,330</b>	<b>-</b>	<b>4,855,074</b>

AENOR has reviewed the R script to ensure the equation have been correctly input in the model. The total of baseline emissions and estimated project emissions are aligned with the numbers in previous sections and the calculation deems correct. Therefore, the estimated emissions reductions for the REDD activities for the baseline validity period (2021-2026) are a total of 4,855,074 tCO<sub>2</sub>e.

### 3.2.6.5.3 Total net GHG emission reductions of the WRC project activity

Net GHG emission reductions from WRC project activities are calculated by subtracting project emissions and emissions due to leakage from baseline emissions. Equation 5 of the VM0007 v1.8 is used to calculate emissions reductions and Verified Carbon Units (VCUs) based on the components of baseline, project, and leakage emissions.

$$NER_{WRC} = GHG_{BSL-WRC} - GHG_{WPS-WRC} - GHG_{LK-WRC} \quad (5)$$

Where:

$NER_{WRC}$  = Total net GHG emission reductions in the WRC project up to year  $t^*$  (tCO<sub>2</sub>e)

$GHG_{BSL-WRC}$  = Net GHG emissions in the baseline scenario up to year  $t^*$  (tCO<sub>2</sub>e)

$GHG_{WPS-WRC}$  = Net GHG emissions in the project scenario up to year  $t^*$  (tCO<sub>2</sub>e)

$GHG_{LK-WRC}$  = Net GHG emissions due to leakage from the WRC project activity up to year  $t^*$  (tCO<sub>2</sub>e)

Net GHG emission reductions from WRC project activities are calculated by subtracting project emissions and emissions due to leakage from baseline emissions.

Vintage Year	Estimated baseline emissions (tCO <sub>2</sub> e)	Estimated project emissions (tCO <sub>2</sub> e)	Estimated leakage emissions (tCO <sub>2</sub> e)	Estimated emission reductions (tCO <sub>2</sub> e)
2021	6,170,301.1	371,939.1	-	5,798,362.0
2022	6,462,151.8	371,939.1	-	6,090,212.7
2023	6,606,862.9	377,845.1	-	6,229,017.8
2024	6,985,773.7	411,809.7	-	6,573,964.0
2025	7,259,147.1	411,809.7	-	6,847,337.3
2026	7,438,579.6	411,809.7	-	7,026,769.8
<b>Total</b>	<b>40,922,816</b>	<b>2,357,153</b>	<b>-</b>	<b>38,565,664</b>

AENOR has reviewed the R script to ensure the equation have been correctly input in the model. The total of baseline emissions and estimated project emissions are aligned with the numbers in previous sections and the calculation deems correct. Therefore, the estimated emissions reductions for the WRC activities for the baseline validity period (2021-2026) are a total of 38,565,664 tCO<sub>2</sub>e.

#### 3.2.6.5.4 Calculation of Verified Carbon Units

State the non-permanence risk rating (%)	14%
Has the non-permanence risk report been attached as either an appendix or a separate document?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
For ARR and IFM projects with harvesting, state, in tCO <sub>2</sub> e, the Long-term Average (LTA).	n/a
Has the LTA been updated based on monitored data, if applicable?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No 6,709,662.85 tCO <sub>2</sub> e
State, in tCO <sub>2</sub> e, the expected total GHG benefit to date.	37,949,291 tCO <sub>2</sub> e
Is the number of GHG credits issued below the LTA?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Annual GHG average issued (01/11/2010 - 31/12/2020) = 3,735,166.43 (below LTA)

AENOR has reviewed the NPRA of the Verra hub and confirmed that the assigned risk rating of 14% is appropriate. The supporting evidence provided to justify this rating has been thoroughly evaluated /36/.

Net GHG emission reductions from REDD+ project activities are calculated by subtracting project emissions and emissions due to leakage from baseline emissions. Net GHG emission reductions from REDD and WRC activities are calculated using Equation 17 of the VM0007 v1.8.

$$NER_{\text{REDD+}} = NER_{\text{REDD}} + NER_{\text{WRC}} \quad (17)$$

Where:

$NER_{\text{REDD}}$  = Total net GHG emission reductions of the REDD project activity up to year  $t^*$  (tCO<sub>2</sub>e)

$NER_{\text{WRC}}$  = Total net GHG emission reductions of the WRC project activity up to year  $t^*$  (tCO<sub>2</sub>e)

Vintage Year	Estimated baseline emissions (tCO <sub>2</sub> e)	Estimated project emissions (tCO <sub>2</sub> e)	Estimated leakage emissions (tCO <sub>2</sub> e)	Estimated buffer pool allocation (tCO <sub>2</sub> e)	Estimated reduction VCUs (tCO <sub>2</sub> e)	Estimated removal VCUs (tCO <sub>2</sub> e)	Estimated total VCU issuance (tCO <sub>2</sub> e)
2021	6,975,420	423,661	-	917,246	5,634,513	-	5,634,513
2022	7,292,421	423,661	-	961,627	5,907,134	-	5,907,134
2023	7,464,491	429,567	-	984,889	6,050,034	-	6,050,034
2024	7,884,784	463,531	-	1,038,975	6,382,278	-	6,382,278
2025	8,164,866	463,531	-	1,078,187	6,623,148	-	6,623,148
2026	8,306,238	463,531	-	1,097,979	6,744,728	-	6,744,728
<b>Total</b>	<b>46,088,220</b>	<b>2,667,482</b>	<b>-</b>	<b>6,078,903</b>	<b>37,341,835</b>	<b>-</b>	<b>37,341,835</b>

AENOR has checked the R script to ensure the equation was correctly input and can confirmed that a total of 37,341,835 VCU are estimated to be issued over the baseline validity period.

AENOR verified the consistency and accuracy of each parameter detailed in Sections 3.3.1 and 3.3.2 of the PD, and in the Climate Parameters spreadsheet /1,2/, as assessed in detail in Section 3.2.8. of this report. AENOR verified that the list is complete and in compliance with the applicable methodology and the PD. For each parameter, references to the tables where they are applied are provided. The audit team checked the parameter values, reproduced the calculations in the spreadsheets /3/ and crosschecked them with the GIS package /4/, not finding inconsistencies between them after the closing of issued CARs and requested CLs (Appendix4).

Therefore, AENOR deems that values reported for the parameters are accurate and consistent. Information was deemed accurate and consistent taking into account sources used. Other default values used are from sources well accredited and validated at validation stage. The values and estimates presented in the VCS-CCB PD /1/ are considered reasonable based on the documentation reviewed, further references and the result of the interviews during the on-site visit.

Based on the information reviewed, it can also be confirmed that the sources used are correctly quoted and interpreted in the VCS-CCB PD /1/ and supporting documents. All assumptions and data indicated in the VCS-CCB PD /1/ and all relevant sources were checked and confirmed and are listed in the VCS-CCB PD /1/ including their references and sources. In essence, the methodology was correctly applied following the requirements. All values in the VCS-CCB PD /1/ are considered accurate and verifiable in the context of the proposed VCS project activity. Data sources are quoted correctly. Hence, the calculation of baseline emissions, project emissions, leakage emissions and the net GHG emission reductions are considered correct.

### 3.2.7 Methodology Deviations (VCS, 3.20)

The project applied a deviation to the VM0007 methodology, which recommends that above ground biomass is estimated based on field measurements in sample fixed area plots or sample points established across the project area to generate a representative sample of the forest biomass across ecological gradients and forest strata.

Instead, the PP created wall-to-wall high resolution biomass maps to account for variability in forest dynamics in both space and time. The audit team reviewed page 13 of version 2.2 of VMD0015 (M-REDD) to confirm that a footnote on the module encourages Project proponents to use techniques that are suitable to their specific situation and that have been published in peer-reviewed papers (e.g. a multi-temporal set of remotely sensed data). The audit team reviewed several peer-reviewed studies (Asner et al., 2018; Baccini & Asner, 2013; Jha et al., 2021; Johnson et al., 2022; Jucker et al., 2018), to confirm that this approach is widely used in scientific literature.

The VVB assessed the demonstration of conservativeness provided in the PD and confirms that the applied approach does not negatively impact the conservativeness of GHG ERR quantification. Spatial cross-validation results presented in the PD show a consistent and systematic negative mean bias of  $-2.32 \text{ Mg ha}^{-1}$ , indicating that above-ground biomass is underestimated relative to field observations. As biomass stocks are conservatively underestimated, the resulting estimates of emissions reductions are also conservative. Furthermore, the PD demonstrates that the wall-to-wall mapping approach increases the accuracy of biomass estimation by capturing spatial heterogeneity and temporal dynamics that cannot be represented using the prescribed plot-averaging method. Therefore, AENOR concludes that this deviation complies with the VCS Standard provisions for methodology deviations, as it either maintains or increases conservativeness while demonstrably increasing accuracy.

The project does not use the Participatory Rural Appraisal (PRA) method from M-REDD to delineate the area subject to degradation (*ADegW,i*), but delineate that buffer by measuring the distance to the areas of detected illegal logging from the closest access point. These areas of deforestation are detected by the land cover analysis which is performed each year using high resolution multispectral data, specifically PlanetLab PSB.SD imagery. The degradation within this area will be directly measured using biomass maps as described in Section 3.3.3.4 of the PD.

The project does not use the M-REDD Participatory Rural Appraisal (PRA) method to define area subject to degradation (*ADegW,i*). Instead, it delineates a buffer based on the distance from detected illegal logging sites to the nearest access point. Deforestation areas are identified annually through land cover analysis using high-resolution PlanetLab PSB.SD multispectral imagery. Degradation within these areas is measured directly using biomass maps, as described in Section 3.1.3.3.2 of the MR.

The VVB assessed the conservativeness of this approach and confirms that it does not risk understating anthropogenic degradation. The PD demonstrates that degradation detected within the buffer zone is treated as emissions against the project, meaning that increased degradation results in fewer ERRs being claimed. The approach captures all biomass losses within the degradation zone and applies a spatial control by subtracting background biomass changes observed in non-accessible interior areas, thereby isolating anthropogenic degradation without excluding any detected losses. Statistical safeguards applied to biomass change detection further reduce the risk of noise being misinterpreted as degradation. AENOR concludes that this deviation maintains conservativeness and improves the accuracy of degradation monitoring relative to the prescribed stump-survey approach, while remaining compliant with VCS Standard requirements for methodology deviations.

The audit team substantiated that the distance to the detected illegal logged areas from the nearest access point on the same year is significantly larger than the distance that the PRA results, resulting in more conservative estimates.

Therefore, AENOR considers that this deviation will not negatively impact the conservativeness of the quantification of GHG emission reductions.

### 3.2.7.1 PD Deviations

The VVB has reviewed the updated Project Description (PD) submitted as part of the baseline renewal process and assessed the material changes relative to the original PD. The VVB confirms that the PP has transparently described the modifications to project activities and crediting areas, including the justification and implications for GHG accounting.

#### Removal of ARR Activity and Reallocation of Areas:

The PP has removed Afforestation/Reforestation (ARR) as a project activity due to the inapplicability of VM0007 for ARR under current requirements. The original ARR-designated area (4,227 ha) has been treated conservatively:

- Where spatial overlap exists with the WRC crediting area, these areas have been retained within the WRC boundary.
- Where no overlap exists (e.g., non-peat areas), ARR areas have been excluded from crediting calculations.
- No ARR areas have been transferred to the REDD crediting area.

AENOR confirms that the PP clearly explains how and why areas initially considered eligible for ARR no longer qualify under ARR methodology requirements and have instead been either excluded or incorporated into WRC where eligibility criteria are met (i.e. peat presence and hydrological relevance). This ensures consistency with REDD-APD and AWPD eligibility definitions, which are derived from current methodological applicability and biophysical conditions rather than historical classification. The VVB further notes that, as no ERRs were previously claimed for ARR, this change has no impact on historical accounting.

#### Changes in REDD Crediting Area:

The eligible REDD crediting area has decreased from 114,689.64 ha to 106,708.5 ha. The PP justifies this reduction by demonstrating that an increased portion of the project area is now classified as protected under updated regulatory frameworks in the baseline scenario. The VVB confirms that the PP adequately explains that these areas are no longer eligible for REDD-APD as they do not meet additionality requirements and therefore must be excluded.

#### Changes in WRC Crediting Area:

The eligible area for WRC crediting increased from 127,713 ha to 129,515.63 ha (+1.4%). The VVB confirms that the PP provides a clear and substantiated explanation for this change, including:

- Improved delineation of peat extent and hydrological conditions based on updated DTM and peat thickness data; /38/
- Revised conservation areas and buffers due to updated regulatory requirements; /38/
- Updated fire regime analysis in the baseline scenario; /38/
- Refined delineation of water bodies and drainage buffers. /38/

The VVB considers that these updates result in a more accurate identification of areas meeting AWPD/WRC eligibility criteria.

#### Exclusion of DOC from Accounting:

The PP has excluded dissolved organic carbon (DOC) emissions from WRC accounting due to methodological and practical constraints in delineating catchment areas in a heavily drained peatland system. The VVB confirms that the PP provides a conservative justification: since the baseline scenario includes a denser drainage network, excluding DOC emissions biases results conservatively against the

project. On-site emissions from water bodies continue to be accounted for using applicable emission factors.

Overall, AENOR confirms that the PP adequately explained how and why areas previously considered eligible for ARR are no longer included under ARR and, where applicable, now fall within REDD-APD or AWPD (WRC) eligible areas based on updated methodological applicability, regulatory context, and improved spatial data. The changes are transparently documented through the PD\_BSL and the kml provided /38/, these changes are conservatively applied, and do not result in overestimation of emission reductions.

### 3.2.8 Monitoring Plan (VCS, 3.16, 3.20)

The monitoring plan is presented in Section 3.3.3 of the PD. All of the required data and parameters relevant to the validation are provided in Section 3.3.1 of the PD and all data and parameters to be monitored are provided in Section 3.3.2 of the PD. A full list of all relevant data and parameters are further provided in the PD Climate Annex /2/. All of the monitoring equipment and procedures specified in the monitoring plan are applicable and eligible per VCS requirements and the requirements of the methodology.

The audit team checked all parameters presented in the monitoring plan against the requirements of the methodology. For the monitoring of carbon stock changes, the requirements and parameter list of the applied methodology and associated tools were followed.

The following table compiles the data/parameters available at validation, and the sources assessed to confirm the correctness of each value:

Data/Parameter available at validation	Value	VVB Assessment
$\Delta C_{BSL, planned}$ Net greenhouse gas emissions in the baseline from planned deforestation	Table 3.32 in the PD Section 3.2.2.5.	Reviewed in the PD Section 3.2.2.5. Confirmed compliance with module BL-PL.
$GHG_{BSL-WRC}$ Net GHG emissions in the WRC baseline scenario up to year $t^*$	Table 3.24 in the PD Section 3.2.2.4.	Reviewed in the PD Section 3.2.2.4. Confirmed compliance with module BL-PL.
$GHG_{peatburn-BSL,i,t}$ GHG emissions from burning of peat in the baseline scenario in stratum $i$ at year $t$	PD Table 3.28 in the PD Section 3.2.2.4.2.	Reviewed in the PD Section 3.2.2.4.2 and the output table "BurnEmissions" /11,3/ to confirm the values. Confirmed compliance with module E-BPB.
$GHG_{peatditch-CO2,i,t}$ Emission of CO <sub>2</sub> from ditch and open water stratum $i$ at year $t$	Table 3.30 in the PD Section 3.2.2.4.3.	Reviewed in the PD Section 3.2.2.4.3. Confirmed compliance with module BL-PEAT.

Data/Parameter available at validation	Value	VVB Assessment
GHG <sub>peatditch-CH<sub>4</sub>,i,t</sub> Emission of C H <sub>4</sub> from ditch and open water stratum <i>i</i> at year <i>t</i>	Table 3.30 in the PD Section 3.2.2.4.3.	Reviewed in the PD Section 3.2.2.4.3. Confirmed compliance with module BL-PEAT.
A <sub>peatsoil-BSL,i,t</sub> Area of peatland (not open water, not burnt) in stratum <i>i</i> in year <i>t</i> in the baseline scenario	Table 3.9 in the PD Section 3.2.1.3 (area eligible for WRC)	Reviewed in the PD Section 3.2.1.3. Confirmed compliance with module X-STR. Reviewed the output table "bsl_wrc_soilditch_emissions" /3/ to confirm the values.
A <sub>ditch-BSL,i,t</sub> Total area of ditch and other open water stratum <i>i</i> in year <i>t</i> in the baseline scenario	Table 3.29 in the PD Section 3.2.2.4.3.	Reviewed in the PD Section 3.2.2.4.3. and PD Climate Annex 5.11. Confirmed compliance with module X-STR.
t <sub>PDT-BSL,i</sub> Peat depletion time (PDT) in the baseline scenario in stratum <i>i</i> in years elapsed since the project start	Figure 3.13 in the PD Section 3.2.1.4.	Reviewed in the PD Section 3.2.1.4 and the tiff file (PD Climate Evidence Folder, PD Maps) /1,2/. Confirmed compliance with module X-STR.
D <sub>peatburn,i,t</sub> The peat fire depth, or fire scar depth per year	Burned Once: 0.17 Burned Twice: 0.10 Burned Thrice: 0.1 Burned Multiple: 0.02 (Table 3.26 in Section 3.2.2.4.2 of the)	Reviewed in the PD Section 3.2.2.4.2 and Konecny et al. (2016) to confirm the value. Confirmed compliance with module E-BPB.
CC Carbon concentration of the peat	0.515 (Carbon fraction in Table 13.1 in the PD Climate Annex Section 13.2)	Reviewed in the PD Climate Annex Section 13.2. Confirmed compliance with module M-PEAT.
A <sub>PA</sub> Total area of peat in the project area	149,800 ha	Reviewed peat map /14/ and in the PD Section 3.2.1.2. Confirmed compliance with module BL-PEAT.
A <sub>peatburn-BSL,i,t</sub> Area of peat burnt in stratum <i>i</i> in year <i>t</i> in the baseline scenario	Spreadsheet "WRCBurnEmissionsBSL", tab "Calc_Burned_Mass_Loss"	Reviewed in the PD Climate Annex Section 6 and "WRCBurnEmissionsBSL" Spreadsheet, tab "Calc_Burned_Mass_Loss" /3/.
GHG <sub>peatsoil-BLS,i,t</sub> GHG emissions from microbial decomposition of the peat soil within the project boundary in the baseline scenario in stratum <i>i</i> in year <i>t</i>	Table 3.25 in the PD Section 3.2.2.4.1	Reviewed in the PD Section 3.2.2.4.1. Confirmed compliance with modules BL-PEAT and M-PEAT. Reviewed the output table "bsl_wrc_soilditch_emissions" /3/ to confirm the values.
A <sub>BLS,i,t</sub> Area of baseline stratum <i>i</i> in year <i>t</i>	Table 3.22 in the PD Section 3.2.2.4	Reviewed in the PD Section 3.2.2.4 and PD Climate Annex Sections 7 and 8.

Data/Parameter available at validation	Value	VVB Assessment
		Reviewed the output table “bsl_wrc_soilditch_emissions” /3/ to confirm the values. Reviewed the shapefile “wrc_landscape_sims_bsl” /4/ to confirm the values. Confirmed compliance with modules M-REDD, X-STR, and M-PEAT.
Depth <sub>peat-WPS,i,t0</sub> and Depth <sub>peat-BLS,i,t0</sub> Average peat depth in the baseline scenario and the project scenario in stratum <i>i</i> at project start	PD Section 3.2.1.2. Average values were not applied.	Reviewed in the PD Section 3.2.1.2 and the peat thickness map /14/. Confirmed compliance with module X-STR and M-PEAT.
Sub <sub>initial-BLS,i,t</sub> Subsidence in the initial years after drainage in stratum <i>i</i>	$S_{\text{compres},i} = 6.67\% \times T_i$ Where: $S_{\text{compres},i}$ = Subsidence due to compression of peat in stratum <i>i</i> (m); $T_i$ = Initial peat thickness of stratum <i>i</i> (m);	Reviewed in the PD Climate Annex Section 14 and Hooijer et al. (2012) /34/ to confirm the value. Confirmed compliance with module X-STR.
A <sub>planned,i</sub> Total area of planned deforestation over the fixed baseline period for stratum <i>i</i>	23,928.4 ha (total forest lost in the baseline between 2021 and 2026). Table 3.31 in PD Section 3.2.2.5.	Reviewed in the PD Section 3.2.2.5. Confirmed compliance with modules BL-PL, M-REDD, LK-ASP.
D <sub>%planned,i</sub> Projected annual proportion of land that will be deforested in stratum <i>i</i> at year <i>t</i>	3.95%	Reviewed in the PD Section 3.2.2.2 and the “Deforestation_Rate_Verra20Years_V2_Final_Adjusted” spreadsheet /19/ to confirm the value. Confirmed compliance with modules M-REDD and LK-ASP.
L-D <sub>i</sub> Likelihood of deforestation in stratum <i>i</i>	100 % (for strata Acacia Plantation, Basecamp, Baseline canal, Community Crops)	Reviewed in the PD Section 3.2.2.2.5. Confirmed compliance with module BL-PL.
C <sub>AB_tree,i</sub> Carbon stock in aboveground biomass in trees in the baseline in stratum <i>i</i>	Extracted from biomass map (spatially specific). The average value is 73.1 (PD Section 3.2.2.5)	Reviewed in the PD Sections 3.2.1.5 and 3.2.2.5, PD Climate Annex Section 16, and wall-to-wall high resolution AGB maps /3,4/. Confirmed compliance with modules BL-PL, M-REDD, and E-BPB.
CF <sub>j</sub> Carbon fraction of biomass for tree species <i>j</i>	0.47	Reviewed in Table 4.3 in Volume 4 of the 2006 IPCC Guidelines, confirming the IPCC default for aboveground tree biomass. Confirmed compliance with module M-REDD.

Data/Parameter available at validation	Value	VVB Assessment
$D_j$ Basic wood density in t d.m. m <sup>-3</sup> for species $j$	Average wood density values were estimated for each genus using the Global Wood Density Database (Chave et al. 2009).	Reviewed in the Global Wood Density Database (Chave et al. 2009) to confirm the applied values.
$f_j(X,Y,...)$ Allometric equation for species $j$ linking measured tree variable(s) to aboveground biomass of living trees, expressed as t d.m. tree <sup>-1</sup>	$AGB = 0.0673 \times (WD \times H \times DBH^2)^{0.976} / 1000$	Reviewed in the PD Climate Annex Section 16.2.1.5 and Chave et al. (2014) to confirm the applied equation.
$C_{BSL,i}$ Carbon stock in all pools in the baseline in stratum $i$	Map in PD Climate Evidence folder (PD Maps)	Reviewed in the PD Sections 3.2.1.5 and 3.2.1.4, and the carbon stock map /3/ in PD Climate Evidence folder (PD Maps). Confirmed compliance of peat carbon stock calculations with module BL-PEAT and AGB carbon stock calculations with module CP-AB.
$A_{planned\ i,OP}$ Total area of planned deforestation outside the project boundaries over the entire project lifetime for stratum $i$	See leakage spreadsheet. Calculated as 75% of the predicted area to be licensed as pulp and paper concessions.	Reviewed in the PD Section 3.2.4.1 and leakage spreadsheet /3/. Confirmed compliance with module LK-ASP.
$D\%_{planned,i,t,OP}$ Projected annual proportion of land that will be deforested outside the project boundaries in stratum $i$ in year $t$	3.95%	Reviewed in the PD Section 3.2.4.1. Confirmed compliance with module LK-ASP.
$G_{gi}$ Emission factor for stratum $i$ for gas $g$	CO <sub>2</sub> : 1702.9 CH <sub>4</sub> : 21.0 N <sub>2</sub> O: 0.20 g kg <sup>-1</sup> d.m. burnt (Table 12.7 in PD Climate Annex Section 12)	Reviewed in the PD Climate Annex Section 12, IPCC Wetlands 2013 Ch.2 Table 2.7 and VCS E-BPB Appendix II to confirm the values. Confirmed compliance with module E-BPB.
$GWP_g$ Global warming potential for gas $g$	CO <sub>2</sub> : 1.0 CH <sub>4</sub> : 27.9 N <sub>2</sub> O: 273.0 (Table 12.7 in PD Climate Annex Section 12)	Reviewed in the PD Section 3.2.2.4.2, PD Climate Annex Section 12.3 (Burn Emission Factors) and the IPCC AR6 Ch.7 Table 7.SM.7 to confirm the values. Confirmed compliance with module E-BPB.
$BD_{upper,i}$ Bulk density of the upper peat layer in stratum $i$	118.77 g cm <sup>-3</sup> (Table 13.1 in PD Climate Annex Section 13)	Reviewed in Table 13.1 in PD Climate Annex Section 13. Confirmed compliance with module E-BPB.

Data/Parameter available at validation	Value	VVB Assessment
$G_{peat,i}$ Emission factor of peat for gas $g$ for stratum $i$	Table 3.22 in PD Section 3.2.2.4.	Reviewed in the PD Section 3.2.2.4 and PD Climate Annex Section 12. Confirmed compliance with module E-BPB.
$E_{REDD,BSL,SS,i,pool\#}$ Carbon stock or GHG sources (eg, trees, dead wood, soil organic carbon, emission from fertilizer addition, emission from biomass burning etc.) in the REDD baseline scenario	First column in Table 3.46 in PD Section 3.2.5.1.	Reviewed in the PD Section 3.2.5.1. Confirmed compliance with modules BL-PL, M-REDD, and E-BPB.
$U_{REDD,BSL,SS,i,pool\#}$ Percentage uncertainty (expressed as 95% confidence interval as a percentage of the mean where appropriate) for carbon stocks and greenhouse gas sources in the REDD baseline scenario (1, 2...n represent different carbon pools and/or GHG sources)	Third column in Table 3.46 in PD Section 3.2.5.1.	Reviewed in the PD Section 3.2.5.1. Confirmed compliance with module X-UNC.
$U_{*,i,t}$ Uncertainty in parameter $*$ in stratum $i$ in year $t$	In spreadsheets "REDDUncertainty BSL", "WRCUncertaintyBSL" and "WRCUncertainty WPS", in tab "Parameters"	Reviewed in spreadsheets "REDDUncertainty BSL", "WRCUncertaintyBSL" and "WRCUncertainty WPS", in tab "Parameters" /3/. Confirmed compliance with module X-UNC.
$E_{REDD,WPS,SS,i,pool\#}$ Carbon stock or GHG sources (eg, trees, dead wood, soil organic carbon, emission from fertilizer addition, emission from biomass burning etc.) in the REDD project scenario	First column in Table 3.46 in PD Section 3.2.5.1.	Reviewed in the PD Section 3.2.5.1. Confirmed compliance with modules BL-PL, M-REDD, and E-BPB.
$U_{REDD,WPS,SS,i,pool\#}$ Percentage uncertainty (expressed as 95% confidence interval as a percentage of the mean where appropriate) for carbon stocks and greenhouse gas sources in the REDD project scenario (1, 2...n represent different carbon pools and/or GHG sources)	Third column in Table 3.46 in PD Section 3.2.5.1.	Reviewed in the PD Section 3.2.5.1. Confirmed compliance with module X-UNC.
$Yrs_{pn}$ Number of years over which deforestation occurred in land parcel $pn$ in proxy area	20	Default value. Confirmed compliance with module BL-PL.

The audit team assessed the list of parameters to be monitored:

Monitoring Parameters	Value	VB Assessment
$\Delta C_{WPS-REDD}$ Net GHG emissions in the REDD project scenario up to year $t^*$	To be determined at each monitoring period	Reviewed in the MR Sections 3.1.3.3.1, 3.1.3.3.2 and 3.2.2.3. Confirmed compliance with VM0007 methodology.
$\Delta C_{LK-AS,planned}$ Net greenhouse gas emissions due to activity shifting leakage for projects preventing planned deforestation	To be determined at each monitoring period	Reviewed in the MR Section 3.2.3.1 Confirmed compliance with module LK-ASP.
$GHG_{WPS-WRC}$ Net GHG emissions in the WRC project scenario up to year $t^*$	To be determined at each monitoring period	Reviewed in the MR Sections 3.2.2.4, 3.1.3.3.3 and 3.1.3.3.4. Confirmed compliance with module M-PEAT.
$GHG_{LK-ECO}$ Net GHG emissions due to ecological leakage from the WRC project activity up to year $t$	To be determined at each monitoring period	Reviewed in the MR Section 3.2.3.2. Confirmed compliance with module LK-ECO.
$GHG_{peatburn-WPS,i,t}$ GHG emissions from burning of peat within the project boundary in the project scenario in stratum $i$ in year $t$	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.5. Confirmed compliance with modules M-PEAT and E-BPB.
$A_{peatsoil-WPS,i,t}$ Area of peatland (not open water, not burnt) in stratum $i$ in year $t$ in the project scenario	To be determined at each monitoring period	Reviewed in the PD Section 3.2.1.2. Confirmed compliance with module M-PEAT.
$A_{ditch-WPS,i,t}$ Area of ditch and other open water in stratum $i$ in year $t$ in the project scenario	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.4. Confirmed compliance with module M-PEAT.
$A_{peatburn-WPS,i,t}$ Area of peat burnt in stratum $i$ in year $t$ in the project scenario	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.5. Confirmed compliance with modules M-PEAT and E-BPB.
$GHG_{peatditch-CO2-WPS,i,t}$ Emission of CO <sub>2</sub> from ditches and open water stratum $i$ at year $t$ in the project scenario	To be determined at each monitoring period	Reviewed in the MR Section 3.2.2.4.3. Confirmed compliance with module M-PEAT.
$GHG_{peatditch-CH4-WPS,i,t}$ Emission of CH <sub>4</sub> from ditches and open water stratum $i$ at year $t$ in the project scenario	To be determined at each monitoring period	Reviewed in the MR Section 3.2.2.4.3. Confirmed compliance with module M-PEAT.
$A_{WPS,i,t}$ Area of project stratum $i$ in year $t$	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.1. Confirmed compliance with module M-PEAT.
$GHG_{peatsoil-CO2-WPS,i,t}$ CO <sub>2</sub> emissions from microbial decomposition of the peat soil in stratum $i$ in year $t$	To be determined at each monitoring period	Reviewed in the MR Section 3.2.2.4.1. Confirmed compliance with module M-PEAT.
$GHG_{peatburn-CO2-WPS,i,t}$ CO <sub>2</sub> emissions from burning of peat within the project boundary in the project scenario in stratum $i$ in year $t$	To be determined at each monitoring period	Confirmed compliance with modules M-PEAT and E-BPB.

Monitoring Parameters	Value	VVB Assessment
$A_{REDD,WPS,i,u,t}$ Area of recorded deforestation in the project area in stratum $i$ converted to land use $u$ in year $t$	To be determined at each monitoring period	Reviewed in the MR Climate Annex Section 3.1.3.3.1. Confirmed compliance with module M-REDD.
$A_{DEG,i}$ Area potentially impacted by degradation processes in stratum $i$	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.2.8. Confirmed compliance with module M-REDD.
$A_{ND,i}$ Area impacted by natural disturbance in the project stratum $i$	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.1. Confirmed compliance with module M-REDD.
$A_{SP}$ Area of sample plots in ha	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.2. Confirmed compliance with module CP-AB.
$DBH_j$	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.2, MR Climate Annex Section 3 and SOP for carbon plots /22/. Confirmed compliance with module CP-AB. Reviewed the complete scanned datasheets /22,24/ and crosschecked it with plot measurements during the onsite visit /24/.
$H_j$ Total height of tree	To be determined at each monitoring period	Reviewed in the MR Section 3.1.3.3.2, MR Climate Annex Section 3 and SOP for carbon plots /22/. Confirmed compliance with module CP-AB. Reviewed the complete scanned datasheets /22,24/ and crosschecked it with plot measurements during the onsite visit /24/.
$A_{LKASP,i,t}$ The total area of deforestation by the baseline agent or class of agent of the planned deforestation in stratum $i$ in year $t$	To be determined at each monitoring period	Reviewed in the MR Section 3.2.3.1. Confirmed compliance with module LK-ASP.
$C_{AB\_tree,i}$ Carbon stock in aboveground biomass in trees in stratum $i$	To be determined at each monitoring period	Reviewed in the PD Climate Annex Section 16. Confirmed compliance with modules BL-PL, M-REDD, and E-BPB.

The audit team reviewed the Vegetation Field Plot protocol (SOP) /22/ to ensure that vegetation field plot surveys followed good practices. During the onsite visit, the monitoring team was asked to re-measure a sample of plots in order to assess both the consistency of the captured variables and the compliance with SOPs. As a result, of this 1 CAR was issued, and subsequently resolved.

The audit team reviewed the complete scanned datasheets /22,24/ and crosschecked it with plot measurements taken during the onsite visit /24/, revealing some discrepancies in species identification, DBH, or both. This was caused by differences in vernacular names of the same species, transposition errors or species identification errors by the monitoring team. The PP clarified the causes and

implemented appropriate corrective actions (update the amendments documents, trainings, QA/QC procedures, etc.).

The audit team review the “Data cleaning and preparation report” /24/ to verify QA/QC procedures carried out for monitored data. The report compiles and documents those incidents and changes addressed during the cleaning and preparation of field data obtained during the Above Ground Biomass (AGB) fieldwork campaign developed between October 2023 and February 2024 in the Katingan Mentaya Project, detailing the main incidents found, as well as the resolution of each of them. The audit team confirmed that all incidents found (human errors in transcription, missing variables, tree species identification, etc.) were appropriately solved.

Thus, the monitoring plan is in compliance with the applicable methodology. The monitoring plan provides means for internal data review and quality control, and the data presented by the PP included the results of these internal assessments. AENOR considers that the information provided is sufficient and the quality of that information is appropriate to determine the GHG emission reductions.

### 3.2.9 Dissemination of Monitoring Plan and Results (VCS, 3.18; CCB, CL4.2)

Section 3.3.4 of the PD describes different channels used to disseminate the Monitoring plan and results. The main ones are the following:

- **Permian Global and RMU Websites:** AENOR has checked the Permian Global (<https://permianglobal.com/projects/katingan-mentaya-project/>) and RMU (<https://rimbamakmurutama.com/projects/katingan-mentaya-project/>) websites and confirmed that these platforms host general updates and monitoring results over time. Additionally, stakeholder interviewees recognized to know that several project documents are found in such webpage.
- **Social Media Platforms:** different social networks such as LinkedIn or Instagram are used. The VVB can confirm that the various results and achievements are regularly posted on Instagram and LinkedIn, allowing many people to access this content. The interviewees also acknowledged that they could access these posts via KMP Instagram page (@katinganmentayaproject).
- **Localized materials:** Permian produces materials in Bahasa language, in an accessible manner. These materials can be found in the HQ but also, they are shared in the communities. AENOR reviewed the evidence of such materials /35/, but also confirmed the presence of those materials onsite, and confirmed with local stakeholders that indeed, these materials are distributed in the communities. The audit team confirmed that in every village, village officials and local people were invited to attend a formal meeting/socialisation to explain the PD and monitoring results through the review of record of these meetings in the form of minutes, photos and an attendees’ list /35/.

All of the interviewees recognized to know about the process and got access to the documents and summaries of the monitoring plan. In opinion of AENOR the monitoring plan and the results were disseminated in accordance with the validated monitoring plan. AENOR confirms that the languages of

document sharing were English and Bahasa through the information gathered from the interviews. Hence, AENOR confirms that the climate monitoring results were disseminated in accordance to the PD.

### 3.2.10 Non-Permanence Risk Analysis (VCS, 3.15)

The project applied the AFOLU Non-Permanence Risk Tool 4.2 to assess the project's risk according to internal risk, external risk, natural risk, and any mitigation measures for minimizing them. The audit team reviewed the Non-Permanence Risk Report submitted on the Verra Project Hub and additional documentation /36/, following VCS Standard v4.7 Section 3.2.10 and confirmed that the project adheres to the requirements set out in the VCS AFOLU Non-Permanence Risk Tool.

At all levels, the audit team evaluated the rationale, appropriateness, and justifications of risk ratings chosen by the PP. Each risk factor was thoroughly assessed for conformance.

It is important to note that AENOR's audit team requested the PP that for all NPR risk factors, to make sure the report provides explanations, justifications and/or documental evidence in accordance with Project Hub instructions. Instructions will be included in table below for each type of sub-group risk.

This way, the PP explained the VVB that for some questions in the NPR tool that are non-applicable, the online tool does not allow a way to indicate the question is "N/A", therefore the responses to such questions were automatically left empty. For each case where the PP did not include a response to a non-applicable question in the Project Hub, the PP has updated the word document NPRR v4.2 with its justification and shared it with the audit team /36/.

AENOR has checked that information provided in the NPRR is consistent with supporting documents provided. The assumptions and justifications provided to determine the risk rating of each risk factor are elaborated and they are based on provided documents using conservative assessments. AENOR deems that information provided is reliable and appropriate from reliable sources. Thus, the overall risk rating of 14% is credible and realistic.

Internal Risk (1)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
<b>Project Management</b>	Q1:   Does the project have an adaptive management plan in place that includes a monitoring plan? If No, the project fails the risk assessment. If Yes, proceed to Q2.	YES	The Project's Adaptive Management Plan /36/ identifies, assesses, and creates mitigation plans for potential risks and obstacles to the project implementation and continuity.   For more information about monitoring see section 3.3.3, 4.4.1 and 5.5.1 of the VCS CCB PD.   Therefore, AENOR's audit team assessed this information throughout onsite interviews, in which the interviewees recognized that during several meetings these methods were stipulated to be the ones carried out during the project process.
	Q2:   Do any of the following project management risks apply to the project? The PP indicated that none of them apply (a-g) to them. However, as expressed in the previous page, the PP shared an additional support document /54/ in where they demonstrated that (a-g) risk factors do not apply to them (see the demonstration below).	NO	Assessed below.
	a) Species planted (where applicable) associated with more than 25 percent of the stocks on which GHG credits have previously been issued are not native nor proven to be adapted to the same or similar agro-ecological zone(s) as the project area.	0	Not applicable, as the project does not carry planting activities.
	b) Ongoing enforcement to prevent encroachment by outside actors is required to protect more than 50 percent of stocks on which GHG credits have previously been issued.	0	Not applicable.

	c) Management team does not include individuals with significant experience in all skills necessary to successfully undertake the project activities (i.e., any area of required experience is not covered by an individual with at least five years' experience in that area).	0	The project proponent has a multidisciplinary team with 20 years of experience in forest carbon accounting and in the development and implementation of REDD+ projects. In order to confirm the management experience, the VVB substantiated the experience of key personnel through the review of CVs /23,36/ and site visit interviews to learn about their background.
	d) Management team does not maintain a presence in the country or is located more than one day of travel from the project site, considering all parcels or polygons in the project area.	0	The project proponent has offices in Indonesia. The management team is located less than one day of travel from the project site, as verified during the onsite visit.
	e) Management team has previously failed to submit a loss report within two years of detecting a loss event.	0	Not applicable.
	f) ALM projects: Some or all of the farmers participating in the project have not received training on the improved ALM practices implemented as part of the project or the monitoring and reporting procedures implemented during the crediting period.	0	Not applicable.
	g) ALM projects: Some or all of the farmers participating in the project are unaware of the potential for yields to decrease temporarily due to the transition to improved agricultural practices	0	Not applicable.
	Q3:  Do any of the following mitigations apply to the project?	YES	Assessed below.

	h) Mitigation: Management team includes individuals with significant (i.e., more than five years) experience in AFOLU project design and implementation, carbon accounting, and reporting (e.g., individuals who have successfully managed projects through validation, verification, and issuance of GHG credits) under the VCS Program or other approved GHG programs.	-2	The project proponent has a multidisciplinary team with 20 years of experience in forest carbon accounting and in the development and implementation of REDD+ projects. In order to confirm the management experience, the VVB substantiated the experience of key personnel through the review of CVs /23,36/ and site visit interviews to learn about their background.
	i) Mitigation (ALM projects): A comprehensive training plan for all farmers participating in the project is in place, covering implementation of planned ALM practices, monitoring and reporting obligations and their potential costs.	0	Not applicable.
<b>Total Project Management (PM): (a + b + c + d + e + f+h+i): 0</b> Total shall not be less than zero.			

In AENOR's opinion, total project management risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool: VCS V4.2.

Internal Risk (2)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
<b>Financial Viability</b>	Q1: How long is the project's payback period (i.e., how many years will it take to breakeven)?	e	<b>See answers below (a-e).</b>
	a) The payback period is greater than 20 years from the current risk assessment.	0	Project cash flow breakeven point is 4 years or less from the current risk assessment.
	b) The payback period is greater than 10 years from the current risk assessment, but less than or equal to 20 years.	0	Project cash flow breakeven point is 4 years or less from the current risk assessment.
	c) The payback period is greater than seven and up to and	0	Project cash flow breakeven point is 4 years or less from the current risk assessment.

Internal Risk (2)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
	including 10 years from the current risk assessment.		
	d) The payback period is greater than four and up to and including 7 years from the current risk assessment.	0	Project cash flow breakeven point is 4 years or less from the current risk assessment.
	e) The payback period is four years or less from the current risk assessment.	0	A Financial Model has been provided showing that the project has adequate financial resources.  AENOR has reviewed the financial analysis spreadsheet /36/ and confirmed that the initial capital investment made before 2017 has been fully recovered and ongoing investments are recovered within one year of being made.
	Q2: What percentage of funding has the project secured to cover the total cash out required before the project reaches breakeven?	i	<b>See answers below (f-i).</b>
	f) Project has secured less than 15 percent of funding needed to cover the total cash out required before the project reaches breakeven.	0	Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven.
	g) Project has secured 15 percent to less than 40 percent of the funding needed to cover the total cash out required before the project reaches breakeven.	0	Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven.
	h) Project has secured from 40 percent to less than 80 percent of the funding needed to cover the total cash out required before the project reaches breakeven.	0	Not applicable. Project has secured 80% or more of funding needed to cover the total cash out before the project reaches breakeven.
	i) Project has secured 80 percent or more of the funding needed to cover the total cash	0	A Financial Model has been provided to demonstrate the financial health of the implementing organizations. The project has been active for more than 10 years operating without interruptions because

Internal Risk (2)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
	out before the project reaches breakeven.		of the financial sustainability obtained through the sale of VCUs over the years.  AENOR has reviewed the financial analysis spreadsheet /36/ and substantiated that the project has generated 38 million carbon credits from 2010 to 2021, confirming that the revenue from these sales covers more than 80% of the required funding.
	Q3: Does the following mitigation apply to the project?	YES	<b>See the answer below.</b>
	j) Mitigation: Project has available, as callable and secured financial resources, at least 80 percent of total cash out before the project reaches breakeven.	-2	A Financial Model has been provided to demonstrate the financial health of the implementing organizations. The project has been active for more than 10 years operating without interruptions because of the financial sustainability obtained through the sale of VCUs over the years.  AENOR has reviewed the financial analysis spreadsheet /36/ and substantiated that the project has generated 38 million carbon credits from 2010 to 2021, confirming that the revenue from these sales covers more than 80% of the required funding.
<b>Total Financial Viability (FV) = [as applicable, ((b, c, d or e) + (f, g, h or l + j))] = 0</b> Total shall not be less than zero and the sub-total for question two with the mitigation j shall not be less than zero (note: the mitigation only applies to Q2)			

Then, in AENOR's opinion, total financial viability risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool: VCS v4.2.

Internal Risk (3)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
<b>Opportunity Cost</b>	Q1   Are the baseline activities subsistence-driven? If No, proceed to Q2. If Yes, proceed to Q3.	NO	The baseline scenario activities are industrial acacia plantations, as justified in Section 3.1.4 of the PD.   AENOR has reviewed the response of the PP in the NPRT as well as the information on the PD. This is crosschecked with the general auditing process documents and other supporting evidence.   Complementary, the audit team, assessed through direct observations and onsite testimonies that the information about the baseline activities of the project is deemed correct and accurate according to the information provided.
	Q2:   What is the NPV of the most profitable alternative land use activity compared to the NPV of the project activity? A response is only required if the answer to Q1 is No.	f)	Assessed below.
	a) Net present value (NPV) of the most profitable alternative land use activity is expected to be at least 100 percent more than that of the project activities.	0	Not applicable.
	b) NPV of the most profitable alternative land use activity is expected to be greater than 50 percent and up to 100 percent more than that of project activities	0	Not applicable.
	c) NPV of the most profitable alternative land use activity is expected to be greater than 20 percent and up to and including 50 percent more than that of project activities.	0	Not applicable.
	d) NPV of the most profitable alternative land use activity is	0	Not applicable.

Internal Risk (3)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
	expected to be 20 percent or less than that of project activities.		
	e) NPV of project activities is expected to be greater than 20 percent and up to 50 percent more profitable than that of the most profitable alternative land use activity.	0	Not applicable.
	f) NPV of project activities is expected to be over 50 percent more profitable than that of the most profitable alternative land use activity.	-4	AENOR has reviewed the financial analysis spreadsheet /36/ and substantiated that NPV of Acacia Plantation per ha is 1,142 and NPV of project activities is 2,242. Therefore, it is more than 50% of the most profitable alternative activity.
	Q3: Does the project have net positive community impacts? A response is only required if the answer to Q1 is Yes.	-	Not applicable.
	g) Net positive community impacts of project activities are not demonstrated.	0	Not applicable.
	h) Net positive community impacts of project activities are demonstrated.	0	Not applicable.
	Q4: Do any of the following mitigations apply to the project?	YES	See mitigation factor i below.
	i) Mitigation: Project is protected by a legally binding agreement to continue management practices that protect the credited carbon stocks over the duration of the project crediting period.	-2	The Katingan Mentaya Project is implemented inside a government-issued Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama. An ERC is a legally binding concession to manage a state forest area for ecosystem restoration (not conversion), issued for 60 years (renewable), that can be extended once for 30 years, with management obligations set by the license and

Internal Risk (3)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
			enforceable under Indonesian law.   Therefore, the legally binding agreement extends 30 more years beyond 2070 (i.e., to 2105).   This was confirmed through the revision of the IUPHHK-RE and the Government Regulation No.3 2008 Article 52 (1) /36/ which specifically states “IUPHHK of ecosystem restoration inside natural forest in the production forest ... may be granted for a period of 60 (sixty) years and may be extended to another term of 30 (thirty) years.”   AENOR verified this information by reviewing the concession document /37/ and confirmed by an external legal opinion that supported the feasibility of the renewal of another 30 years /36/ crosschecked it through onsite interviews.
	j) Mitigation: Project is protected by legally binding agreement to continue management practices that protect the credited carbon stocks for at least 100 years.	0	Not applicable.
	k) Mitigation: Where there is a potential for revenue loss compared to the most profitable alternative land use activity, project is a not for profit or has additional financial support (e.g., via grants, government funding, ecosystem services payments or SD VSta assets) to overcome expected revenue loss.	0	Not applicable.
<b>Total Opportunity Cost (OC) = [as applicable, (a, b, c, d, e, f, g or h) + (i or j) + k]: 0</b> Total shall not be less than zero.			

Then, in AENOR's opinion, total opportunity cost risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.2.

Internal Risk (4)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
<b>Project Longevity</b>	Q1: Did the project request registration on or after 1 January 2024?	NO	AENOR reviewed the validated PD to confirm this information.
	Q2: Does the project have a legally binding agreement that covers at least a 100-year period from the project's start date? If Yes, the project is given a zero score for this risk category. If No, proceed to Q3.	NO	Not applicable.
	Q3: What is the project longevity in years? If you answered Yes to Q1 and the project longevity is less than 40 years, the project fails the risk assessment. If you answered No to Q1 and the project longevity is less than 30 years, the project fails the risk assessment. Please note that projects with project longevity of less than 40 years will be ineligible for the Core Carbon Principles label.	90 years	The project is located inside an Ecosystem Restoration Concession (IUPHHK-RE) that runs 60 years and can be extended once for 30 years. AENOR reviewed the letter of approving the licence of the Ecosystem Restoration Concession /37/ to confirm this information.
	Q4: Does the project have a management, financial and monitoring plan for the entire project longevity? If No, the project fails the risk assessment. If Yes, proceed to Q5.	YES	AENOR verified that the revised PD /1/ and the Adaptive Management Plan /36/ includes a management, financial and monitoring plan for the entire project longevity.
	Q5: Is the project an ARR or IFM project with harvesting? If No, proceed to Q7. If Yes, proceed to Q6.	NO	Not applicable. The project is a REDD+ project.

Internal Risk (4)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
	Q7:   Does the project have a legal Agreement or requirement to continue the management practice(s)?   If No, proceed to a. If Yes, proceed to b.	NO	Assessed below.
	a) Without legal agreement or requirement to continue the management practice.	7	The Katingan Mentaya Project is implemented inside a government-issued Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama. An ERC is a legally binding concession to manage a state forest area for ecosystem restoration (not conversion), issued for 60 years (renewable), with management obligations set by the license and enforceable under Indonesian law.   AENOR verified this information by reviewing the concession document /37/ and crosschecked it through onsite interviews.
	b) With legal agreement or requirement to continue the management practice.	0	Not applicable
<b>Total Project Longevity (PL): 7</b>   Total shall not be less than zero. Any project with a legally binding agreement that covers at least 100 years from the project start date will be assigned a score of zero. Any project that requests registration on or after 1 January 2024 with a project longevity of less than 40 years fails the risk assessment. Any project that requests registration before 1 January 2024 with a project longevity of less than 30 years fails the risk assessment. The selected project longevity shall be supported by a management, financial and monitoring plan.			

The project lifetime is 90 years. Then, in AENOR's opinion, Total Project Longevity risk rating (7) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.2.

Therefore, **total internal risk rating** is calculated as the sum of (PM + FV + OC + PL), totalling 7 (according to the NPR tool the total may not be less than zero).

External Risk (1)	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
<b>Land and Resource tenure</b>	Q1:   Has due process been undertaken to discover any disputes over ownership and land, resource access, or use rights? If No, the project fails the risk assessment. If Yes, proceed to Q2.	YES	The Katingan Mentaya Project set up several processes specifically to identify and surface disputes over ownership, land and resource access/use:       • Participatory community mapping &amp; village planning (a “tenure-based” process): the project maps village boundaries, cultivated lands and other land uses, ground-truths data with communities, and even produced “boundary settlement” maps—explicitly to clarify rights and reduce conflicts.     • Formal grievance &amp; redress procedure: a documented mechanism to receive, assess and resolve complaints, aimed at preventing conflicts and handling any reported cases; includes escalation to neutral mediation if needed.       AENOR verified this information through the review of the Grievance Mechanism /36/ and community stakeholder interviews.
	Q2:   Has the project executed a binding legal agreement(s) (such as a contract) securing the legal right to control and operate project activities over the entire project area with all entities that have verified ownership claims or verified land, resource access or use rights (such as customary rights holders)? If No, the project fails the risk assessment. If Yes, proceed to Q3.	YES	The Katingan Mentaya Project is implemented inside a government-issued Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama. An ERC is a legally binding concession to manage a state forest area for ecosystem restoration (not conversion), issued for 60 years (renewable), with management obligations set by the license and enforceable under Indonesian law.   AENOR verified this information by reviewing the concession document /37/ and crosschecked it through onsite interviews.
	Q3:   Do the same or different entities hold land ownership and resource access or use rights?	-	Assessed below.
	a) Ownership and resource access or use rights are	0	Not applicable.

External Risk (1)	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	held by the same entity(ies).		
	b) Ownership and resource access or use rights are held by different entity(ies) (e.g., the government own the land, and the project proponent holds a lease or concession).	2	The Katingan Mentaya Project is implemented inside a government-issued Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama.  AENOR verified this information by reviewing the concession document /37/ and crosschecked it through onsite interviews.
	Q4: Is the project in a country/jurisdiction with a history of national, sub-national, or local government ("Government") intervention in land or resource use?	-	See answer e) below.
	c) Government has previously expropriated significant areas of land (i.e., 10% or more) in the project area in the past 20 years.	0	Not applicable.
	d) Government has previously changed land rights in the project's jurisdiction (e.g., cancelled, or blocked land titles, expropriated land or issued overlapping land titles) in the past 20 years.	0	Not applicable.
	e) No instances of Government intervention in the past 20 years or specific instances of expropriation and government intervention in land rights in the project area have been conclusively resolved	0	The audit team reviewed a third-party publication produced by CIFOR <sup>9</sup> and carried out diverse stakeholder interviews to substantiate that there are no instances of government intervention in the past 20 years.  AENOR found no signs of expropriation or government intervention in land rights in

<sup>9</sup> <https://www.cifor-icraf.org/knowledge/publication/5278/>

External Risk (1)	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
	against the government in a court of competent jurisdiction.		the project area that resulted in resolutions against the government in a court of competent jurisdiction.
	Q5: What percent of the project area is affected by disputes over land tenure or ownership?	-	See answer h) below.
	f) Disputes exist in more than 5 percent of the project area.	0	Not applicable. See answer h) below.
	g) Disputes exist in up to and including 5 percent of the project area.	0	Not applicable. See answer h) below.
	h) No disputes exist.	0	The Katingan Mentaya Project activities have been designed and implemented in full participation with project-zone communities following FPIC principles. PT RMU is the sole concession holder.   The audit team reviewed the Grievance mechanism inquiries /36/ to verify that no disputes over land tenure or ownership are unresolved.   This information has been crosschecked with the interviews between AENOR and different stakeholders such as local authorities or community members. The interviewees recognized not to be aware of any type of disputes in the territory.
	Q6: What percent of the project area has disputes over access or use rights?	-	See answer k) below.
	i) Disputes exist in more than 5 percent of the project area.	0	Not applicable.
	j) Disputes exist in up to and including 5 percent of the project area.	0	Not applicable.
	k) No disputes exist.	0	The Katingan Mentaya Project activities have been designed and implemented in

External Risk (1)	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
			full participation with project-zone communities following FPIC principles. PT RMU is the sole concession holder.   The audit team reviewed the Grievance mechanism inquiries /36/ to verify that no disputes over land tenure or ownership are unresolved.   This information has been crosschecked with the interviews between AENOR and different stakeholders such as local authorities or community members. The interviewees recognized not to be aware of any type of disputes in the territory.
	Q7:   Have the risks of upstream and sea impacts undermining the carbon stocks of a WRC project been demonstrated as insignificant or effectively mitigated for the ten years that follow the risk assessment?	-	m)
	l) Potential upstream and sea impacts are not demonstrated to be insignificant or effectively mitigated.	0	Not applicable.
	m) Potential upstream and sea impacts are demonstrated to be insignificant or effectively mitigated.	0	Katingan Mentaya protects an ombrogenous (rain-fed) peat dome—generally perched above normal river flooding—so direct tidal/saltwater reach into the core is limited; the concern is edge effects and long-run SLR pressure toward the south. Therefore, upstream and sea impacts are insignificant.   Nonetheless, mitigation measures such as canal-blocking/rewetting and fire-management reduce hydrologic drawdown and ignition risk are implemented to mitigate any potential risks.

External Risk (1)	Risk Factor and/or Mitigation Description	Risk Rating	DOE Assessment
			The audit team reviewed the research article Hapsari et al. (2022) <sup>10</sup> to verify this information. The implementation of mitigation measures was verified with direct observations during the onsite visit.
	Q8: Do any of the following mitigations apply to the project?	Yes	Assessed below.
	n) Mitigation: Project area is protected by a legally binding commitment (e.g., a license, conservation easement, conservation servitude, or protected area) to continue management practices that protect carbon stocks for the duration of the project crediting period.	-2	The Katingan Mentaya Project is implemented inside a government-issued Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama.  AENOR verified this information by reviewing the concession document /37/ and crosschecked it through onsite interviews.
	o) Mitigation: Where disputes over land tenure, ownership or access or use rights exist, documented evidence is provided that demonstrates the project is taking action to try to resolve the disputes or clarify overlapping claims.	0	Not applicable.
	<b>Total Land Tenure (LT) = [as applicable, ((a or b) + (c, d, or e) + (f, g or h) + (i, j or k) + (l or m) + n + o)] = 0</b> Total shall not be less than zero.		

Then, in AENOR's opinion, total land tenure risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.2.

<sup>10</sup> Hapsari KA, Jennerjahn T, Nugroho SH, Yulianto E, Behling H. Sea level rise and climate change acting as interactive stressors on development and dynamics of tropical peatlands in coastal Sumatra and South Borneo since the Last Glacial Maximum. Glob Chang Biol. 2022 May;28(10):3459-3479. doi: 10.1111/gcb.16131. Epub 2022 Mar 21. PMID: 35312144.

External Risk (2)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
<b>Stakeholder Engagement</b>	Q1: Are local populations, including those living in the project area or within 20 km of the boundary of the project area, reliant on the project area? If No, the risk rating for stakeholder engagement is zero and you can proceed to political risk. If Yes, proceed to Q2.	Yes	There are local populations within 20 km of the boundary of the project area, that benefit from the ecosystem services provided by the project area, such as water regulation as well as accessibility through the concession. The audit team verified this information by interviewing different communities during the onsite visit.
	Q2: Have more or less than 50 percent of stakeholders living within and reliant on the project area been consulted?	-	b)
	a) Less than 50 percent of stakeholders living within the project area and who are reliant on the project area have been consulted.	0	Not applicable.
	b) More than 50 percent of stakeholders living within the project area and who are reliant on the project have been consulted.	0	From 2020 to 2023, 904 consultation meetings were conducted, with an average attendance rate of more than 30 community members, 60% of whom were female.  The audit team confirmed this information by reviewing the stakeholder consultation data /36/ and interviewing different communities during the onsite visit.
	Q3 (as identified in the Project Hub) states that: Have more or less than 20 percent of stakeholders living outside the project area within 20 km of the project area, and who are reliant on the project area been consulted?	-	d)
	c) Less than 20 percent of stakeholders living outside the project area	0	Not applicable.

External Risk (2)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
	within 20 km of the project area, and who are reliant on the project area have been consulted.		
	d) More than 20 percent of stakeholders living outside the project area within 20 km of the project area, and who are reliant on the project area have been consulted.	0	From 2020 to 2023, 904 consultation meetings were conducted, with an average attendance rate of more than 30 community members, 60% of whom were female.  The audit team confirmed this information by reviewing the stakeholder consultation data /36/ and interviewing different communities during the onsite visit.
<b>Total Stakeholder Engagement [as applicable, (a or b) + (c or d)]: 0</b> Total shall not be less than zero			

During the on-site visit, the VVB could confirm that local stakeholders participated in the different workshops and consultations carried out by project proponent. Then, in AENOR's opinion, total community engagement risk rating (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.2.

External Risk (3)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
<b>Political Risk</b>	Q1: What is the governance score for the country?	-0.08	c)
	a) Governance score of less than -0.79	0	Not applicable.
	b) Governance score of -0.79 to less than -0.32	0	Not applicable.
	c) Governance score of -0.32 to less than 0.19.	2	The audit team reviewed the "Worldwide Governance Indicators (WGI)" Database <sup>11</sup> to confirm that the average value for the "Governance

<sup>11</sup>Daniel Kaufmann and Aart Kraay (2023). Worldwide Governance Indicators, 2023 Update (www.govindicators.org). Available at: <https://www.worldbank.org/en/publication/worldwide-governance-indicators>

External Risk (3)	Risk Factor and/or Mitigation Description	Risk Rating	VVB Assessment
			score” is -0.08 for the last 5-year period.
	d) Governance score of 0.19 to less than 0.82.	0	Not applicable.
	e) Governance score of 0.82 or higher.	0	Not applicable.
	Q2: Does the following mitigation apply to the project?	-	Assessed below.
	f) <i>Mitigation: The project is in a country that: 1) is party to the Paris Agreement and has submitted an NDC to the UNFCCC Secretariat in the last five years, 2) includes AFOLU commitments (conditional or unconditional) in its NDC, and 3) has a documented and active climate change plan that includes the project activity.</i>	-2	Indonesia signed the Paris Agreement on 22 Apr 2016 and ratified on 31 Oct 2016 (Party status confirmed by UNFCCC). It also submitted an Enhanced NDC on 23 Sep 2022 (i.e., within the last five years).   Indonesia’s NDC explicitly covers Forestry and Other Land Use (FOLU) and agriculture; in the Enhanced NDC (2022) it raises the national target to 31.89% (unconditional) and 43.20% (conditional) below BAU by 2030, with FOLU a core sector for delivery.   Indonesia has a published FOLU Net Sink 2030 policy with an Operational Plan led by the Ministry of Environment &amp; Forestry—targeting – 140 MtCO<sub>2</sub>e by 2030 via reduced deforestation, peatland restoration, mangrove rehab, and sustainable forest management (i.e., the same activity family as peatland/forest conservation projects). There’s also Presidential Regulation No. 98/2021 establishing the national carbon-pricing framework to implement the NDC.   The audit team reviewed the submitted NDC /36/ and Indonesia’s Climate Actions Towards 2030 /36/ to confirm this information.
<b>Total Political (PC) ((a, b, c, d or e) + f): 0</b> Total may not be less than zero.			

AENOR confirmed the governance score against the Worldwide Governance Indicators Database of the World Bank, in which the average indicator was calculated for the last 5 years. Then, in AENOR's opinion, total political risk (0) is properly justified and in accordance with the AFOLU Non-Permanence Risk Tool, v4.2.

Therefore, **total external risk rating** is calculated as the sum of (LT + SE + PC), totalling 0.

Natural Risk	Score (LS)	Mitigation	Affected by climate change	VVB Assessment
Fire	5	0.5	Yes	The PPs carried out a Fire Management and Mitigation analysis of the project area.   AENOR's team reviewed the Fire Management and Mitigation report document /36/ and the Fire Information for Resource Management System (FIRMS)<sup>12</sup> platform of Nasa to substantiate any hotspots over the project area and confirm that this information is correct, in addition to on-site visit observations and interviews.   According to this information, the significance of fire is deemed to be Minor (5 percent to less than 25 percent loss of carbon stocks) and the likelihood of an extreme event in the Project Area is more than once every 10 years. Thus, the likelihood score (LS) for Fire is "5".   Regarding the mitigation activities, the project has implemented fire prevention and fighting measures and has demonstrated effective implementation of them, including training, monitoring, active firefighting and community awareness, among multiple measures.   The audit team witnessed during the site-visit that all these measures are in place to prevent fire and are already being implemented, aiming to reduce fires over the years.
Pest and Disease Outbreaks	1	0.5	Yes	The significance is deemed insignificant (less than 5 percent loss of carbon stocks) or transient (full recovery of lost carbon stocks expected within 10 years of any event), as the peat layer, which is the major carbon pool, may be affected much less than above ground carbon stock.   Pest and disease outbreaks are extremely rare in natural peat swamp forests in Indonesia, with only one historical case reported in Brunei that had no known harmful impact. Therefore, the

<sup>12</sup> [NASA | LANCE | FIRMS](#)

Natural Risk	Score (LS)	Mitigation	Affected by climate change	VVB Assessment
				risk to natural forests in the project area is considered very low. In contrast, outbreaks are more common in monoculture plantations, especially with introduced species. Since replanting in the project will use mixed native species, the likelihood and impact of such outbreaks remain very low. The audit team reviewed several publications (Wiryo, 2013; Anderson, 1961 in Nair, 2000; Barber, 2004; Nair &amp; Sumardi 2000; Rimbawanto 2005; Purnomo 2006; Hardi et al 1996) to crosscheck this information.   According to this information, the Historical Likelihood is considered “Once every 100 years or less frequently, or risk is not applicable to the project area”. Thus, the likelihood score (LS) for Pest and disease outbreaks is “1”.   Regarding the mitigation actions, the project implements continuous monitoring through field operations and remote sensing. In addition, restoration activities implemented allow the peat swamp forest ecosystem to maintain the natural equilibrium. The audit team witnessed during the site-visit that all these measures are in place.
<b>Extreme weather</b>	3	0.5	Yes	Peat swamp forests maintain a shallow water table year-round, even during dry seasons, typically not dropping below 80 cm. Extreme drought may cause minor moisture deficits, but tree mortality is only linked to wildfires, not dryness. Fire risk exists only if an external trigger occurs. Carbon stock impact from drought is negligible. The project area, being a rain-fed water storage ecosystem, is unaffected by flooding; heavy rainfall is beneficial as it keeps water tables high, reducing oxidation and fire risk. Overall, flooding has a net positive impact on the project area.   The audit team reviewed several publications (Andriess, 1988; Wosten et.al., 2006a; Wosten et.al., 2006b; Ritzema and Wosten, 2002; Wosten, et. al. 2006b) to crosscheck this information.   Regarding the mitigation activities, the project has implemented community-based fire brigades, health programmes, and early warning systems. The audit team witnessed

Natural Risk	Score (LS)	Mitigation	Affected by climate change	VVB Assessment
				during the site-visit that all these measures are in place.
<b>Geological Risk</b>	1	1	No (as this is not affected by climate change, it is computed separately from the other 3 risks)	The project area in southern Borneo is geologically stable and unaffected by volcanoes, earthquakes, or tsunamis. It lies on the Eurasian tectonic plate, far from active plate boundaries. Borneo has no active volcanoes and no historical records of major earthquakes. A minor tectonic earthquake (magnitude 4.3–4.5) occurred in central Kalimantan in 2023, classified as light intensity, with no impact on carbon stock or project conditions.   The audit team reviewed several publications (Simkin &amp; Siebert, 1994; Hamilton &amp; Warren, 1974) to crosscheck this information.
<b>Total Natural Risk (as applicable, F + PD + W + G + ON): 4.5</b> Determined by $LS \times M$ .				

Then, in AENOR's opinion, **total natural risk rating** (4.5) is properly justified and in accordance with AFOLU Non-Permanence Risk Tool, v4.2.

Future climate impact: Regarding the AFOLU Non-Permanence Risk Tool, the project area is located within the following reference region: S.E. Asia (100%). Moreover, the selections made by the PP in the NPR Verra Project Hub tool for assessment of future climate impact risks are deemed conservative, as the assumptions were that there will be negative impacts in all areas affected by future climate risks.

Adaptative capacity: The project demonstrates at least 5 criteria of adaptative capacity. These criteria are:

- Variety
- Learning capacity
- Room for change
- Leadership
- Resources
- Fair governance

Regarding AFOLU Non-Permanence Risk Tool v4.2, the Sea Level Rise (SLR) risk shall be assessed where the project is in a coastal zone using the AFOLU Non-Permanence Risk Assessment Calculation Tool. The project area is not located in a coastal zone, so this SLR risk is not applicable to this project (as identified in the table below).

Below is the assessment for the future climate impact on natural risk:

Future Climate Impact on Natural Risk	Aggregated Subtotal Risk	Future Impact Factor	Total
Natural risk associated with climate change impact (NR-c)	4.5 <sup>13</sup>	1.18	5.31
Natural risk NOT associated with climate change impact (NR-nc)	1 <sup>14</sup>	1	1
Sea Level Rise (SLR)	N/A (as indicated in the Verra Project Hub Total Natural Risk Summary)	N/A (as indicated in the Verra Project Hub Total Natural Risk Summary)	0
<b>Total Natural Risk</b>	<b>6.31</b>		

Risk Category	Rating
a) Internal Risk	7
b) External Risk	0
c) Natural Risk	6.31
<b>Overall Risk Rating (a + b + c) <sup>15</sup></b>	<b>14</b>

AENOR has checked that information provided in the Non-Permanence Risk Report through the Project Hub, as well as supporting documents complementary to the NPR tool in the Verra Hub. The assumptions and justifications provided to determine the risk rating of each risk factor are developed and they are based on provided documents using conservative assessments. AENOR deems that information provided is reliable and appropriate from official sources, thus, the overall risk rating is credible and realistic.

### 3.2.11 Optional Gold Level: Regional Climate Change Scenarios (CCB, GL1.1)

Not applicable.

<sup>13</sup> It refers to Fire, Pests and Disease Outbreaks and Extreme Weather.

<sup>14</sup> It refers to Geological Risk (not affected by climate change).

<sup>15</sup> The overall risk rating shall be rounded up to the nearest whole percent, being 12% the minimum rating, according to Non-Permanence Risk Tool v4.2.

### 3.2.12 Optional Gold Level: Climate Change Impacts (CCB, GL1.2)

Not applicable.

### 3.2.13 Optional Gold Level: Measures Needed and Designed for Adaptation (CCB, GL1.3)

Not applicable.

## 3.3 Community

### 3.3.7 Descriptions of Communities at Project Start (CCB, CM1.1)

Not applicable.

### 3.3.8 Interactions between Communities and Community Groups (VCS, 3.19; CCB, CM1.1).

Not applicable.

### 3.3.9 High Conservation Values (CCB, CM1.2)

Not applicable.

### 3.3.10 Without-Project Scenario: Community (CCB, CM1.3)

Not applicable.

### 3.3.11 Expected Community Impacts (CCB, CM2.1)

Not applicable.

### 3.3.12 Negative Community Impact Mitigation (VCS, 3.19; CCB CM2.2)

Not applicable.

### 3.3.13 Net Positive Community Well-Being (VCS, 3.19; CCB, CM2.3, GL1.4)

Not applicable.

### 3.3.14 High Conservation Values Protected (CCB, CM2.4)

Not applicable.

### 3.3.15 Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.1)

Not applicable.

### 3.3.16 Mitigation of Negative Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCBM CM3.2)

Not applicable.

### 3.3.17 Net Impacts on Other Stakeholders (VCS, 3.18, 3.19; CCB, CM3.3)

Not applicable.

### 3.3.18 Community Monitoring Plan (CCB, CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

Not applicable.

### 3.3.19 Monitoring Plan Dissemination (CCB, CM4.3)

Not applicable.

### 3.3.20 Optional Gold Level: Exceptional Community Criteria (CCB, GL2.1)

Not applicable.

### 3.3.21 Optional Gold Level: Short-term and Long-term Community Benefits (CCB, GL2.2)

Not applicable.

### 3.3.22 Optional Gold Level: Community Participation Risks (CCB, GL2.3)

Not applicable.

### 3.3.23 Optional Gold Level: Marginalized and/or Vulnerable Community Groups (CCB, GL2.4)

Not applicable.

### 3.3.24 Optional Gold Level: Net Impacts on Women (CCB, GL2.5)

Not applicable.

### 3.3.25 Optional Gold Level: Benefit Sharing Mechanisms (CCB, GL2.6)

Not applicable.

3.3.26 Optional Gold Level: Benefits, Costs, and Risks Communication (VCS, 3.18; CCB, GL2.7)

Not applicable.

3.3.27 Optional Gold Level: Governance and Implementation Structures (CCB, GL2.8)

Not applicable.

3.3.28 Optional Gold Level: Smallholders/Community Members Capacity Development (CCB, GL2.9)

Not applicable.

## 3.4 Biodiversity

3.4.7 Existing Conditions (VCS, 3.19; CCB, B1.1)

Not applicable.

3.4.8 High Conservation Values (CCB, B1.2)

Not applicable.

3.4.9 Without-project Scenario: Biodiversity (CCB, B1.3)

Not applicable.

3.4.10 Expected Biodiversity Changes (VCS, 3.19; CCB, B2.1)

Not applicable.

3.4.11 Mitigation Measures (VCS, 3.19; B2.3)

Not applicable.

3.4.12 Net Positive Biodiversity Impacts (CCB, B2.2, GL1.4)

Not applicable.

### 3.4.13 High Conservation Values Protected (CCB, B2.4)

Not applicable.

### 3.4.14 Species Used (VCS 3.19; CCB B2.5, B2.6)

Not applicable.

### 3.4.15 Invasive Species (VCS, 3.19; CCB, B2.5)

Not applicable.

### 3.4.16 GMO Exclusion (CCB, B2.7)

Not applicable.

### 3.4.17 Inputs Justification (VCS, 3.19; CCB, B2.8)

Not applicable.

### 3.4.18 Waste Products (VCS, 3.19; CCB, B2.9)

Not applicable.

### 3.4.19 Negative Offsite Biodiversity Impacts (CCB, B3.1) and Mitigation Measures (CCB, B3.2)

Not applicable.

### 3.4.20 Net Offsite Biodiversity Benefits (VCS, 3.19; CCB, B3.3)

Not applicable.

### 3.4.21 Biodiversity Monitoring Plan (CCB, B4.1, B4.2, GL1.4, GL3.4)

Not applicable.

### 3.4.22 Biodiversity Monitoring Plan Dissemination (CCB, B4.3)

Not applicable.

### 3.4.23 Optional Gold Level: High Biodiversity Conservation Priority Status (CCB, GL3.1)

Not applicable.

#### 3.4.24 Optional Gold Level: Trigger Species Population Trends (CCB, GL3.2, GL3.3)

Not applicable.

## 4 VALIDATION OPINION

### 4.2 Validation Summary

As required by VCS requirements, it is important to highlight that the GHG statement is the responsibility of the Project Proponent. AENOR has performed validation activities for the baseline reassessment of the Katingan Mentaya Project in Indonesia, assessing compliance with all requirements and criteria of VCS (VCS Standard v4.7) and CCB (CCB Standards Third Edition). The conclusions of this report showed that the project, as it was described in the Project Description, is in line with all applicable criteria for the validation.

It is the opinion of AENOR, with a reasonable level of certainty, that the reasonableness of assumptions, the described limitations, the methods that supported each one of the claims about the outcome of future activities and the claimed estimated ex-ante emission reductions are free from major errors, omissions, or inaccuracies. The audit team has no restrictions or uncertainties with respect to the compliance of the project with the validation criteria. The validation of the estimated ex-ante emissions reductions of the Katingan Mentaya Project has been conducted by AENOR in accordance with ISO 14064-3:2019.

Hence, the audit team concludes that the project complies with all the requirements set by the VCS Standard v4.7 and the Third Edition CCB Standards (CCB v3.1). AENOR confirms that the project has been validated for the Climate, Community and Biodiversity Gold distinctions in accordance with the Third Edition CCB Standards.

### 4.3 Validation Conclusion

AENOR has carried out validation activities to reassess the baseline whether the Katingan Mentaya Project is in compliance with the Verified Carbon Standard version 4.7 and the CCB Standards Third Edition without qualifications or limitations.

The validation consisted of the following three phases: i) a desk review of the project baseline and Monitoring Plan; ii) follow-up interviews with project staff and stakeholders and on-site visit; iii) the resolution of outstanding issues and the issuance of the final Validation Report and opinion. All corrective actions and clarifications raised in the course of the validation process have been successfully closed, as explained in the validation protocol annexed to this report (Appendix 3 of this report).

The methodology used for the Katingan Mentaya Project is VM0007 REDD+ Methodology Framework (REDD+MF) version 1.8, which was applied to determine the net GHG net anthropogenic emission reductions generated from avoiding planned deforestation initiated by a variety of agents and drivers of deforestation, as described in the VCS-CCB PD. The GHG net anthropogenic emissions reductions attributable to the project are additional to any that would occur in the absence of the project activity.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; and the subsequent background investigation, follow-up on-site interviews, technical meetings and review of comments by parties have provided AENOR with sufficient evidence to validate the fulfilment of the stated criteria.

In detail, the conclusions can be summarized as follows:

- The project is in line with all criteria of the VCS Standard v4.7 and the CCB Standard v3.1.
- The project additionality is sufficiently justified in the VCS-CCB PD.
- The Monitoring Plan is transparent and adequate.
- The analysis of the baseline emission, project emissions and leakage emissions has been carried out in a transparent and conservative manner.
- The project start date is 01-November-2010 and will have a lifetime and crediting period of 60 years, until 31-October-2070. During the baseline validity period (2021–2026), the GHG emissions reductions of 37,341,835 tCO<sub>2e</sub> are expected to be achieved through the implementation of project activities, after buffer discount. The project is likely to achieve these emissions reductions during its lifetime.
- The project has demonstrated to be able to achieve climate, community, and biodiversity benefits, including Gold Level Exceptional Climate, Community, and Biodiversity Benefits.

AENOR considers that the project will likely achieve the estimated GHG emission reductions and the community and biodiversity benefits stated throughout the Project Description and this Validation Report. Nonetheless, it must be noted that actual results may vary, since data and information supporting the GHG statement assertion were projected in nature, as they are ex-ante estimates, and therefore, based on assumptions that are subject to changes in the future.

It is the opinion of AENOR, with a reasonable level of certainty, that the reasonableness of assumptions, the described limitations, the methods that supported each one of the claims about the outcome of future activities and the claimed estimated ex-ante emission reductions are free from major errors, omissions, or inaccuracies.

Madrid, 06 July 2026.



Marta Múgica  
Lead Auditor

**Crediting period:** From 01-November-2010 to 31-October-2070

**Validated estimated GHG emission reductions and carbon dioxide removals for the project  
baseline validity period:**

The non-permanence risk rating (%)	14%
If applicable, the long-term average, whether it has been properly updated, and if it has been reached.	N/A.

Vintage period	Estimated baseline emissions (tCO <sub>2</sub> e)	Estimated project emissions (tCO <sub>2</sub> e)	Estimated leakage emissions (tCO <sub>2</sub> e)	Estimated buffer pool allocation (tCO <sub>2</sub> e)	Estimated reductions VCUs (tCO <sub>2</sub> e)	Estimated removals VCUs (tCO <sub>2</sub> e)	Estimated total VCU issuance (tCO <sub>2</sub> e)
01-Jan-2021 to 31-Dec-2021	6,975,420	423,661	-	917,246	5,634,513	-	5,634,513
01-Jan-2022 to 31-Dec-2022	7,292,421	423,661	-	961,627	5,907,134	-	5,907,134
01-Jan-2023 to 31-Dec-2023	7,464,491	429,567	-	984,889	6,050,034	-	6,050,034
01-Jan-2024 to 31-Dec-2024	7,884,784	463,531	-	1,038,975	6,382,278	-	6,382,278
01-Jan-2025 to 31-Dec-2025	8,164,866	463,531	-	1,078,187	6,623,148	-	6,623,148
01-Jan-2026 to 31-Dec-2026	8,306,238	463,531	-	1,097,979	6,744,728	-	6,744,728
<b>Total</b>	<b>46,088,220</b>	<b>2,667,482</b>	<b>-</b>	<b>6,078,903</b>	<b>37,341,835</b>	<b>-</b>	<b>37,341,835</b>

# APPENDIX 1: COMMERCIALLY SENSITIVE INFORMATION

Section	Information	Justification	Assessment method and conclusion
Financial Appendices (referenced in G1.12)	20-year financial projection model, carbon price assumptions, and revenue forecasts	Highly sensitive commercial data that could affect negotiations with buyers and investors	The audit team considers that its disclosure could reasonably be expected to result in a material financial loss or gain, prejudice the outcome of contractual or other negotiations or otherwise damage or enrich the person or entity to which the information relates.   The audit team verified that it meets the “Commercially Sensitive Information” definition as written in “VCS Program Definitions” v4.5.
2.5 – Legal Status and Property Rights	Copies of concession licenses, land tenure maps, and legal correspondence with government	Includes legal identifiers and potentially sensitive state-level contractual information not for public distribution	The audit team considers that its disclosure could reasonably be expected to result in a material financial loss or gain, prejudice the outcome of contractual or other negotiations or otherwise damage or enrich the person or entity to which the information relates; and undermine or negatively affect the development and implementation of the project.   The audit team verified that it meets the “Commercially Sensitive Information” definition as written
5.2.4 – Habitats for Rare, Threaten	Exact GPS coordinates and maps of endangered	Sharing precise locations could expose these species to poaching, illegal trade, or unregulated ecotourism. This information is	The audit team considers that its public disclosure could reasonably be expected to undermine or negatively affect the

ed, and Endanger ed Species	species sightings (e.g., orangutan nests, ramin tree clusters, hornbill nesting zones)	protected to preserve biodiversity and comply with wildlife protection regulations.	development and implementation of the project.  The audit team verified that it meets the “Commercially Sensitive Information” definition as written in “VCS Program Definitions” v4.5.
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## APPENDIX 2: PROJECT RISKS TABLE

Not applicable.

## APPENDIX 3: LIST OF EVIDENCE

	Category	Name of the document
1	PD	Project description
2	PD	PDClimateAnnex
		Climate parameters.xlsx
<b>Climate</b>		
3	Script R. Carbon calculations	CodeDocumentaiton
		Code Documentation 2026-06-27
		Katingan Pipeline
		Running data Pipeline in docker
		agbd-pis-predict-2020
		agbd-change -2020-2023
		ConcessionsPBPHHT_2304
		Leakage-PD.xlsx
		AAPlannedApplication.xlsx
		ActivityShiftingLeakageMR.xlsx
		ActivityShiftingLeakagePD.xlsx
		NetERRandVCUsMR.xlsx
		NetERRandVCUsPD.xlsx
		REDEmissionsBSL.xlsx
		REDEmissionsMR.xlsx
		REDEmissionsWPS.xlsx
		REDUncertaintyBSL.xlsx
		SoilEmissionFactors.xlsx
		WRCBurnEmissionsBSL.xlsx
		WRCSoilDitchEmissionsBSL.xlsx
		WRCSoilDitchEmissionsMR.xlsx
		WRCSoilDitchEmissionsWPS.xlsx
		WRCStrataAreaBSL.xlsx
		WRCStrataAreaMR.xlsx
		WRCStrataAreaWPS.xlsx
		WRCUncertaintyBSL.xlsx
		WRCUncertaintyMR.xlsx

		WRCUncertaintyWPS.xlsx
		Post-deforestation-CarbonStocks-evaluation
		Post-deforestation-LTA-calculation
4	GIS	AGBplotlocations
		KMP_ProjectArea_BoundingBoxCoordinates.R
		KMP_PA_BoundingBox.xlsx
		New final project area_rev2.shp
		New final project zone_Rev2.shp
		KMP_villages.shp
		CentralKalimantan_boundaries. shp
		Indonesia boundaries.shp
		Kalimantan boundaries.shp
		GEE_code
		wrc_landscape _BSL
		wrc_Detailedlandscape_ MR
		wrc_landscape_WPS
		NonPeatExclusionZone.shp
		REDDProjectArea.shp
		REDDConservationClassProjectArea.shp
		REDD_WRCProjectArea.shp
		WRCSUBCatProjectArea.shp
		DigitalTerrainModel250m.tif
		NetCarbonStockBSL.tif
		NetCarbonStockWPS.tif
		PeatThickness250m.tif
		REDD-CStockBSL.tif
		REDD-CStockWPS.tif
		WRC-CStockBSL.tif
		WRC-CStockWPS.tif
		Indonesia_wood_fiber_concessions.zip
		PBPHHT_IndoGov_PulpPaperActiveConcessions.zip
5	Managed forest concessions	Logging_Concessions_CentralKalimantan.shp
		Logging_Concessions_Indonesia.shp
		HTI_Concessions_CentralKalimantan.shp
		HTI_Concessions_Kalimantan.shp

		KMPBaseline_ConcessionArea_Analysis
		20081126 Surat Dephut Penolakan aplikasi perijinan PT Kayu Alam Kencana (1)
6	Non forest to Forest Areas	PD_NonForToForest_Map
7	Peat of the peat dome	Analisis Kubah Gambut dan Water Balance (en)
		Permen LHK P.10 TAHUN 2019 Pengelolaan puncak kubah gambut berbasis KHG Kesatuan Hidrologi Gambut
		RMU_Porosity and soil moisture
Pipeline input data		
8	Biomass	Biomass. compiled-vegetation-data.csv
9	Bulkdensity	soil_params_2010
11	Emissions	burn-scar-params_2021.cvs
		combustion-params_2021.cvs
		ditch-ef-literature-review.cvs
		emission-factors_2010.cvs
		gwp-params_2021.cvs
		soil-ef-literature-review.cvs
12	Fire predictor	Proxy landuses- 1990-201;2016;2018; Porxy areas.gpkg
		burn-scar-depth-konecny_2016
		burn-scar-depth-literature-review-table
13	Free drainage limit	FDL_20cmperkm.tif
		Rivers_Coast_WL_interpolated_30km.tif
		sea-level-rise-ssp585
14	Peat map	contourlines_1m_250m.gpkg
		gedi_bbox.gpkg
		icesat2_bbox.gpkg
		peat-thickness_2023-04-17.gpkg
		waterbody_2022-12-16.gpkg
		peat_depletion_time_bsl
15	Soil survey	soil-properties-data
		wtd-forest.csv
		wtd-nonforest.csv

		wtd-transects.csv
16	Stratification	acacia-plantation_2010.gpkg
		management-management-zones.gpkg
		basecamp_2010.gpkg
		baseline_2010.gpkg
		burned_2021.gpkg
		community-crops_2010.gpkg
		conservation-forest_2010.gpkg
		illegal-logged_2020.gpkg
		non-forest_2010.gpkg
		illegal-logged_2020.gpkg
		non-forest_2010.gpkg
		non-forest_2021.gpkg
		non-forest_2022.gpkg
		non-forest_2023.gpkg
		non-forest-recovery_2020.gpkg
		peat-dome-refined.gpkg
		primary-canal_2010.gpkg
		secondary-canal_2010.gpkg
		transformation-criteria-desc.csv
		water-body_2024-03-06.gpkg
		waterbody-desc.csv
16.1	Baseline	GFWDdeforestation rate- Acacia palm oil
		Plygons-Acacia Palm oil
		ConcesionesAcaciaOil_V2
		Financial Viability Table
		Indicative Map of Proposed Utilisation of Production Forest 2009 with project boundaries
		Map of Proposed Utilisation of Production Forest 2010
		SK_Menhu3706
		PIPIB_Rev6_Kali
17	Uncertainty	proxy-deforestation-rates
18	Others	fire sequence_2010.csv
		vcus_2010-2020.csv
19	Proxy areas	KMP_LCC_TO_BinaSilva.jpg
		KMP_LCC_TO_Bukit.jpg
		KMP_LCC_TO_Kalimantan.jpg
		KMP_LCC_TO_RimbaMandau.jpg

	KMP_LCC_T0_SatriaNorth1.jpg
	KMP_LCC_T0_SatriaNorth2.jpg
	KMP_LCC_T0_SatriaSouth.jpg
	KMP_LCC_T0_SeralasNorth.jpg
	KMP_LCC_T0_SeralasSouth.jpg
	KMP_LCC_T0_Suntara.jpg
	KMP_LCC_T1_BinaSilva.jpg
	KMP_LCC_T1_Bukit.jpg
	KMP_LCC_T1_Kalimantan.jpg
	KMP_LCC_T1_RimbaMandau.jpg
	KMP_LCC_T1_SatriaNorth1.jpg
	KMP_LCC_T1_SatriaNorth2.jpg
	KMP_LCC_T1_SatriaSouth_V1.jpg
	KMP_LCC_T1_SeralasNorth.jpg
	KMP_LCC_T1_SeralasSouth.jpg
	KMP_LCC_T1_Suntara.jpg
	KMPvsProxies_MasterSuitabilityAnalysis_PD2.xlsx
	NewConcessions_Vegetation_ProxyCheck.xlsx
	Deforestation_Rate_Verra20Years_V2_Final_Adjusted
	KMP_PRR_Peat_NonPeat_DeforestationRate_Final
	KMP_PRR18_ProxyDefRate_Imagery
	Proxy suitability analysis maps
	PBPHHT_IndoGov_PulpPaperActiveConcessions:
	Indonesia_wood_fiber_concessions
	KMP_AllConcessions_Proxy.jpg
	KMP_ElevationCriteria_Proxy.jpg
	KMP_FinalSuitable_Proxy.jpg
	KMP_PeatlandCriteria_Proxy.jpg
	KMP_ProxyAreas_GFW_PD2_V3_PRR.png
	KMP_SlopeCriteria_Proxy.jpg
	KMP_VegetationCriteria_Proxy.jpg
	Proxy_areas_Suitability analysis_PRR17_Final
	Deforestation rates indo Palm Oil concessions.xlsx

20	Climate change adaptation benefits	Erosion.mpk
		Precipitation.mpk
		Runoff_m3.mpk
		Temperature.mpk
		WaterBalance.mpk
21	Scientific references	climate-risk-country-profile-indonesia.pdf
		Davies-Barnard_2023_Environ._Res._Lett.18....pdf
		Hartanto_et_al_2003.pdf
		Kiely_et_al_2021_Assessing-costs-of-Indonesian-fires.pdf
		Lawrence_et_al_2022_The-unseen-effects-of-deforestation.pdf
		Neumann_et_al_2015_Future-Coastal-Population-Growth.pdf
		Paltan_2018_Environ._Res._Lett._13_094003.pdf
		References_PD_Katingan_031224.xlsx
		Russo_et-al-2014-Magnitude-extreme-heat-waves-in....pdf
		triana_wahyudi_2020_Sea-Level-Rise-in-Indonesia.pdf
		Bange et al. 2019.pdf
		Jauhiainen & Silvennoinen, 2012.pdf
		Kent 2019.pdf
		Manning et al. 2019.pdf
		Muller et al 2015.pdf
		Somers et al. 2023.pdf
		Waldron et al. 2019.pdf
		Ardiansyah-2005SEAG.pdf
		kosei_2014_carbon_sequestration_tree.pdf
		Carbon costs and benefits of Indonesian rainforest conversion to plantations.pdf
		KMP_FieldPlotVegetation_QA_Plots_Bilingual....docx
		Pocket Book Protocol Vegetasi Chloris INA ver1.pdf

22	Field SOP	PROTOCOL VEGETATION V4-AA EDIT.docx
		Protocols For GPS Survey.docx
		a_Katingan_FieldTeamsIndormation2023.docx
		Alyansyah - Consultant Agreement 2024_Signed.pdf
23	Field team information	Galih Setya Jati Pambudi - Consultant Agreement 2024_....pdf
		Harry Wibowo - Consultant Agreement 2024_Signed.pdf
		Perjanjian Kerjasama Jasa Konsultan (Harry Wibowo).pdf
		Perjanjian Kerjasama Konsultan (Alydansyah).pdf
		Perjanjian Kerjasama Konsultan (Galih Setya).pdf
		Perjanjian Kerjasama Konsultan (Lorenzo Elton Meo).pdf
		Perjanjian Kerjasama Konsultan (M Abdul Aziz).pdf
		Perjanjian Kerjasama Konsultan (Sonny AM).pdf
		19112024Correction.xlsx
24	Data	compiled-vegetation-data-6-Dec-24_CDP.csv
		Amendment documents_Final.pdf
		Flight images_27.02.16
		Flight images_16.02.16
		Flight images_27.02.16
Katingan-Mentaya-Fire-Management-and-Mitigation-Report-Final-		
Biodiversity		
25	Fires	Sample_Lembar Data Kuesioner Pemanfaatan Satwa (Perburuan)
		Comas et al 2015 Imaging Tropical Peatlands Biogeosciences
26	Hunting	Drusman 2017 Laporan Penelitian Pendahuluan Hutan Gambut DAS mentaya DAs Katingan
27	Disemination	Harrison et al. (Outrop) 2012 Ecological Monitoring Position Report

		Data Summary Orangutan for PD
		KMP Seedling Planted for Intensive Restoration for PD
28	Flagship species	Rewetted Area_Canal_Blocking_Permanent for PD
29	Replanting	HCV 1234 Map
30	Rewetting	HCV 5 Map
31	HCV	HCV 6 Map
		PDD HCV Assessment
		SOP_Camera-Trap_RMU
		Summary of Flora Exploration and Monitoring for PD
32	RTE Species	Trigger Species RTE List & Status for KMP PD Update 20250715 - for submission
		KMP All Species List for PD Update Fauna 2020
		KMP All Species List for PD Update Flora 2020
33	Species list	Comas, X., Terry, N., et al. (2015). Imaging tropical peatlands in Indonesia using ground-penetrating radar (GPR) and electrical resistivity imaging (ERI): Implications for carbon stock estimates and peat soil characterization. Biogeosciences, 12, 2995–3007.
		Darusman, T. (2017). Penelitian pendahuluan kondisi vegetasi hutan gambut di wilayah Kota Waringin Timur (DAS Mentaya) dan Katingan (DAS Katingan) paska tebang pilih pada tahun 2002. Bali: Starling Resources.
34	Scientific articles used	Aminuddin, Z.A.Z., Suhardi, A., Khoo, K.C. and Saifuddin, Z. (2016). Best management practices for sustainable development of oil palm planting on peat: TH Plantations Berhad's experience. Proceedings of the 15th International Peat Congress, Sarawak, Malaysia, pp. 46–50.
		Balittanah. (2006). Sifat fisik tanah dan metode analisisnya.
		Dadap, N.C. et al. (2021). Drainage canals in Southeast Asian peatlands increase carbon emissions.
		Deshmukh, C.S. et al. (2023). Net greenhouse gas balance of fibre wood plantation on peat in Indonesia. Nature, 616, 740–746.
		Edwards, D. P. (2010). Wildlife-friendly oil palm plantations fail to protect biodiversity effectively.
		Fikri, I. N., & Nuslawo, M. (2017). Survei mamalia karnivora di hutan gambut tropis Kalimantan Tengah. PT Rimba Makmur Utama. Konferensi Konservasi Karnivora Indonesia, Banyuwangi.
		Harrison, M. E., Hendri, et al. (2010). Baseline biodiversity and ape population assessment and preliminary monitoring protocol in the Katingan peat swamp, Central Kalimantan, Indonesia. Palangka Raya: PT. Rimba Makmur Utama / PT. Starling Asia.

	Harrison, M. E., et al. (2020). Tropical forest and peatland conservation in Indonesia.
	HCV Network. (2018). Common guidance for the management and monitoring of HCVs.
	Hooijer, A., et al. (2012). Subsidence and carbon loss in drained tropical peatlands
	Hooijer, A., et al. (2015). Assessment of impacts of plantation drainage on the Kampar Peninsula peatland, Riau.
	Hooijer, A., et al. (2024). Benefits of peatland rewetting in Southeast Asia.
	Ismail, A.T. et al. (2021). Water table variations on different land use units in a drained tropical peatland island of Indonesia.
	Langhammer, P., et al. (2007). IUCN key biodiversity areas.
	Lim, K.H., Lim, S.S., Parish, F. and Suharto, R. (eds.) (2018). RSPO Manual on Best Management Practices (BMPs) for Existing Oil Palm Cultivation on Peat, Volume 1. Roundtable on Sustainable Palm Oil, Kuala Lumpur.
	Marchant, N. C., Harrison, M. E., Hendri, T., & Husson, S. J. (2014). Environmental safeguards: Development of ecosystem restoration strategies for the regeneration of degraded areas in the Katingan peat swamp, Central Kalimantan, Indonesia. Palangka Raya: Orangutan Tropical Peatland Project for PT. Mazars Bali.
	Novalina, N. (2023). An assessment of agri-environmental schemes for peatland restoration.
	Nusalawo, M. (2014). Pesona alam liar Sungai Bakumin. Sampit: PT RMU.
	Philipson, C., et al. (2020). Active restoration for carbon science.
	Ritzema, H.P., Limin, S., Kusin, K., Jauhiainen, J. and Wösten, H. (2014). Canal blocking strategies for hydrological restoration of degraded tropical peatlands in Central Kalimantan, Indonesia. Catena, 114, 11–20. DOI: 10.1016/j.catena.2013.10.009
	Rossita, A., Witono, A., et al. (2018). Water table depth fluctuations during ENSO phenomenon on different tropical peat swamp forest land covers in Katingan, Indonesia. IOP Conference Series: Earth and Environmental Science, 129.
	Senior, R. A., et al. (2019). Climate connectivity and deforestation.
	Simon, M., et al. (2019). Orangutan re-survey 2002–2017 Sabah.
	Stouffer, P. C., et al. (2009). Twenty years of understory bird extinctions from Amazonian rain forest.
	Tata, H. L., et al. (2015). Jelutung rawa: Teknik budidaya dan prospek ekonominya.
	Taufik, M., et al. (2023). Peatland rewetting and fire in Indonesia.
	Tawatao, N., et al. (2014). Leaf litter ants in fragments.
	Vogel, E. R., et al. (2011). Bornean orangutans on the brink of protein bankruptcy.
	Wong, W., et al. (2024). Changes in tropical terrestrial vertebrate communities. Biotropica.
	Yule, C. M. (2008). Ecosystem functioning and biodiversity in peatlands. Biodiversity and Conservation.
	Yuwati, D., et al. (2021). Peatland restoration: Indonesia review.
	Yule, C. M. (2008). Ecosystem functioning and biodiversity in peatlands. Biodiversity and Conservation.
	Doran, J. C., & Turnbull, J. W. (1997). <i>Australian trees and shrubs: Species for land rehabilitation and farm planting in the tropics</i> . Canberra, Australia: Australian Centre for International Agricultural Research (ACIAR).

	Griffin, A. R., Midgley, S. J., Bush, D., Cunningham, P. J., & Rinaudo, A. T. (2011). Global uses of Australian acacias—Recent trends and future prospects. <i>Diversity and Distributions</i> , 17(5), 837–847.
	Mendham, D. S., et al. (2017). Growth and productivity of <i>Acacia crassicarpa</i> plantations on tropical peatlands.
	Astiani, D., Burhanuddin, Gusmayanti, E., Widiastuti, T., & Taherzadeh, M. J. (2018). Enhancing water levels of degraded, bare, tropical peatland in West Kalimantan, Indonesia: Impacts on CO <sub>2</sub> emission from soil respiration. <i>Biodiversitas Journal of Biological Diversity</i> , 19(2).
	Pirard, R., & Cossalter, C. (2006). <i>The revival of industrial forest plantations in Indonesia's Kalimantan provinces</i> . CIFOR Working Paper No. 37. Center for International Forestry Research (CIFOR).
	Subardin, M., et al. (2018). Economies of scale and efficiency of the pulp industry in Indonesia. <i>International Journal of Economics and Financial Issues</i> , 8(4), 284–289
	Busch, J., et al. (2015). Reductions in emissions from deforestation from Indonesia's moratorium on new oil palm, timber, and logging concessions. <i>Proceedings of the National Academy of Sciences</i> , 112(5), 1328–1333.
	Enrici, A., & Hubacek, K. (2016). Business as usual in Indonesia: Governance factors affecting the acceleration of the deforestation rate after the introduction of REDD+. <i>Energy, Ecology and Environment</i> , 1(4), 283–295.
	Jauhiainen, J., Hooijer, A., & Page, S. E. (2012). Carbon dioxide emissions from an <i>Acacia</i> plantation on peatland in Sumatra, Indonesia. <i>Biogeosciences</i> , 9, 617–630.
	Margono, B. A., Potapov, P. V., Turubanova, S., Stolle, F., & Hansen, M. C. (2014). Primary forest cover loss in Indonesia over 2000–2012. <i>Nature Climate Change</i> , 4, 730–735.
	Miettinen, J., Hooijer, A., Shi, C., et al. (2012). Extent of industrial plantations on Southeast Asian peatlands in 2010 with analysis of historical expansion and future projections. <i>GCB Bioenergy</i> , 4(6), 908–918.
	Murdiyarso, D., Dewi, S., Lawrence, D., & Seymour, F. (2011). <i>Indonesia's forest moratorium: A stepping stone to better governance?</i> CIFOR Working Paper No. 76.
	Sloan, S., Edwards, D. P., & Laurance, W. F. (2012). Does Indonesia's REDD+ moratorium on new concessions spare imminently threatened forests? <i>Conservation Letters</i> , 5(3), 222–231.
	Thorburn, C. C., & Kull, C. A. (2015). Peatlands and plantations in Sumatra, Indonesia: Complex realities for resource governance, rural development and climate change mitigation. <i>Asia Pacific Viewpoint</i> , 56(1), 153–168.
	Turubanova, S., Potapov, P. V., Tyukavina, A., & Hansen, M. C. (2018). Ongoing primary forest loss in Brazil, Democratic Republic of the Congo, and Indonesia. <i>Environmental Research Letters</i> , 13, 074028
	Groom, B., Palmer, C., & Sileci, L. (2022). Carbon emissions reductions from Indonesia's moratorium on forest concessions are cost-effective yet contribute little to Paris pledges. <i>Proceedings of the National Academy of Sciences</i> .
	Mongabay (2026). Articles documenting timber transport from Central Kalimantan plantations to APRIL's RAPP mill using Global Fishing Watch vessel-tracking data.
	Global Fishing Watch (2026). Vessel-tracking data used to corroborate plantation wood transport routes between Central Kalimantan and Sumatra.
	Evans, C. D., Williamson, J. M., Kacaribu, F., Irawan, D., Suardiwerianto, Y., Hidayat, M. F., Laurén, A., & Page, S. E. (2019). <i>Rates and spatial variability of</i>

		peat subsidence in Acacia plantation and forest landscapes in Sumatra, Indonesia. Geoderma, 338, 410–421.   Harsono, S. S., Prochnow, A., Grundmann, P., Hansen, A., &amp; Hallmann, C. (2012). <i>Energy balances and greenhouse gas emissions of palm oil biodiesel in Indonesia</i>. GCB Bioenergy, 4(2), 213–228   Hergoualc'h, K., &amp; Verchot, L. V. (2011). <i>Stocks and fluxes of carbon associated with land use change in Southeast Asian tropical peatlands: A review</i>. Global Biogeochemical Cycles, 25(2), GB2001.
Community		
35	Communities	Annex Section 2.3.12 Community Tracker_17 Jan 2025....docx
		Deklarasi - Anti korupsi, gratifikasi dan konflik kepentingan.pdf
		HRD RMUCompany Regulation.pdf
		Kebijakan Anti Korupsi dan Gratifikasi.pptx
		KMP Theory of Change and MRV.pdf
		MRV Community Trackers 2020.xlsx.xlsx
		2022 01 Newsletter Kisah KaTaNya September.pdf
		Poster KMP 0718 A1.pdf
		Evidence of project registration SRN-PPI.docx
		SK Pencabutan Pembekuan PBPH RE RMU 2025 Unit I.pdf
		SK Pencabutan Pembekuan PBPH RE RMU 2025 Unit II.pdf
		FINAL DATA GRIEVANCE 2020-2023.xlsx
		New Community Tracker_17 Jan 2025_DPL.xlsx
		FINAL DATA GRIEVANCE 2020-2023.xlsx
		2023 Management and Leadership RMU KMP.pdf
NPRR		
36	NPRR	Buku MONEV BUM Desa.pdf
		FINAL DATA GRIEVANCE 2020-2023.xlsx
		financial analysis.xlsx
		Global Change Biology - 2022 - Hapsari - Sea level rise and climate change acting as interactive stressors on deve...pdf

	Indonesia_s_Climate_Actions_Towards_2030.pdf
	Indonesia_Second NDC_2025.10.24.pdf
	KMP Fire report finalv4-compressed.pdf
	KMP Grievance Procedure 2023.png
	KMP_Climate Change Management Report.docx
	MoU PKK RMU KMP 2015-2023.docx
	MoU PKK with Villages Gov & Kecamatan RMU KMP 2015-2023.docx
	new_final_project_area_rev2.dbf
	new_final_project_area_rev2.prj
	new_final_project_area_rev2.shx
	NPRR_Katingan_2025.docx
	Permian Global Technical Expertise.docx
	Project Management (Q1)_Adaptive Management Plan_Katingan_202518906282120.docx
	S.442_Menhut-VI.2009 - Surat Perintah UKL UPL PTRMU 2009.pdf
	SDG Report MR7 KMP 2020-2023 ver 0727 2025.pdf
	08.RMU.X._2008-Permohonan IUPHHK RE PTRMU 2008.pdf
	S.442.Menhut-VI.2009-Surat Perintah UKLUPL PTRMU 2009.pdf
	522.185.EK-Dukungan Calon Areal IUPHHK-RE RMU_2010.pdf
	Government regulation No3 2008.pdf
	Lampiran SK_IUPHHK-RE No. 23_1_PMDN_2016-Kab. Kotim-Kalteng (reduced) .pdf
	SK.734_Menhut-II_2013_IUPHHK-RE PT. RMU.pdf
	SK_IUPHHK-RE No. 23_1_PMDN_2016_PT RMU-Kab. Kotim-Kalteng (reduced) .pdf
	Adaptive Management Plan_Katingan 2025.pdf
	08.RMU.X_2008-Permohonan IUPHHK RE PTRMU 2008.pdf
	23.1.IUPHHK-RE.PMDN.2016 RMU Unit II Kotim-Kalteng.pdf

		Legal opinion on the renewability of the pt rimba makmur utama ecosystem restoration concession and the legal basis for a 90-year project longevity claim
37	Legal status	198.MENLHK.SETJEN.HPLO PBPH RMU Unit I.pdf
		SK.1099.MENLHK.SETJEN.HPLO.11.2021 RMU Unit I.pdf
		442.Menhut-VI.2009-Surat Perintah UKLUPL PTRMU 2009.pdf
		522.185.EK-Dukungan Calon Areal IUPHHK-RE RMU_2010.pdf
		660.89.II.BLH.2012-UKL UPL Izin Usaha IUPHHK RE RMU.2012.pdf
		5.104.Menhut-VI.BRPUK.2012-Penerbitan Peta Areal Kerja (WA) IUPHHK-RE PT RMU Provinsi Kalimantan Teng.pdf
		S320.VII-WP3H.2012-Penyampaian Peta Areal Kerja IUPHHK RE RMU 2012.pdf
		SK.734.Menhut-II.2013.IUPHHK-RE RMU Unit I.pdf
		522.1.200.2159.Dishut-Permohonan IUPHHK RE RMU 2014.pdf
38	Project Area	new_final_project_area_rev2.kml
		REDDProjectArea.shp
		REDDConservationClassProjectArea.shp
		REDDSUBClassProjectArea.shp
		REDD-WRCProjectArea.shp
		WRCProjectArea.shp
		WRCSUBCatProjectArea.shp
		NonPeatExclusionZones.shp
		DigitalTerrainModel250m.tif
		NetCarbonStockBSL.tif
		NetCarbonStockWPS.tif
		PeatThickness250m.tif
		REDD-CStockBSL.tif
		REDD-CStockWPS.tif
		WRC-CStockBSL.tif
		WRC-CStockWPS.tif
		001_Inubushi_et_al_1999.pdf
		002_Inubushi_et_al_2003.pdf
39		004_Furukawa_et_al_2005.pdf

	Soil Emission Factors Sources	005_Hadi_et_al_2005.pdf
		006_Jauhiainen_et_al_2005.pdf
		007_Melling_et_al_2005a.pdf
		009_Ali_et_al_2006.pdf
		012_Jauhiainen_et_al_2008.pdf
		013_Hirano_et_al_2009.pdf
		016_Basuki_et_al_2012.pdf
		017_Jauhiainen_et_al_2012a.pdf
		019_Sundari_et_al_2012.pdf
		020_Adji_et_al_2014.pdf
		022_Hirano_et_al_2014.pdf
		023_Husnain_et_al_2014.pdf
		027_Astiani_et_al_2015.pdf
		029_Rumbang_2015.pdf
		032_Novita_2016.pdf
		033_Basuki_et_al_2017.pdf
		034_Hergoualch_et_al_2017.pdf
		036_Ishikura_et_al_2017.pdf
		037_Itoh_et_al_2017.pdf
		039_Wakhid_et_al_2017.pdf
		040_Astiani_et_al_2018.pdf
		042_Saragi-Samito_et_al_2018.pdf
		043_Swails_et_al_2018.pdf
		044_Dhandapani_et_al_2019.pdf
		045_Murdiyarsoet_al_2019.pdf
		048_Hoyt_et_al_2019.pdf
		051_Lupascu_et_al_2020.pdf
		052_Akhtar_et_al_2021.pdf
		054_Luta_et_al_2021.pdf
		055_Swails_et_al_2021.pdf
		056_Darusman_et_al_2022.pdf
		057_Lau_et_al_2022.pdf
		059_Astiani_et_al_2023.pdf
		060_Busman_et_al_2023.pdf
		061_Jovani-Sancho_et_al_2023.pdf
		062_Swails_et_al_2023.pdf
		063_Asyhari_et_al_2024.pdf
		065_Tang_et_al_2020.pdf

		067_Deshmukh_et_al_2023.pdf
		068_Hirano_et_al_2024.pdf
		071_Hooijer_et_al_2012.pdf
		073_Hooijer_et_al_2014.pdf
		074_Khasanah_and_Nordwijk_2019.pdf
		075_Evans_et_al_2019.pdf
		078_Imran_et_al_2022.pdf
		079_Astiani_et_al_2023.pdf
		080_Hooijer_et_al_2024.pdf
		SoilEmissionFactors.xlsx
		Bange et al. 2019.pdf
40	Soil Emission Factors	Jauhiainen & Silvennoinen, 2012.pdf
41	Ditch Emission Factors Sources	Kent 2019.pdf
		Manning at al. 2019.pdf
		Muller at al 2015.pdf
		Somers at al. 2023.pdf
		Waldron et al. 2019.pdf
		Bange et al. 2019.pdf
		ditch emission factors.xlsx

# APPENDIX 4: LIST OF FINDINGS

## NON CONFORMITIES (NCS)/CORRECTIVE ACTION REQUEST (CARS)

NC/CAR id.	01	Date: 06/10/2025
NC/CAR description		
In the PD, there are several non-compliances with the VCS CCB PD Template:       1. <u>Throughout the PD</u>: Template instructions have not been deleted (e.g. in Sections 2.3.5, 2.4.4, and 4.5; Biodiversity sections, Appendices, etc.)     2. <u>Title page</u>: Validation/verification body is incorrect. The PP must correct the organization and contact name with email address and phone number of VVB.     3. <u>Title page</u>: the expected verification schedule: has not been completed.     4. <u>Table of contents</u>: a generic Appendix X is included.     5. <u>Section 1.1</u>: Section reference of outcome 5 is missing on the table.     6. <u>Section 2.1.2</u>: current verification period is missing on the Audit History table.     7. <u>Section 4.5.2</u>: Section has been divided in Sections 4.5.2 and Sections 4.5.3.     8. <u>Sections 4.5.2-4.5.9</u>: numeration of these sections has been altered (<u>4.5.2-4.5.10</u>) as a result of the previous point.     9. <u>Appendix 4</u>: an unrelated list of references is included at the end.		
Project Proponent's Response		Date: 15/10/2025
1. All template instructions throughout the PD have now been deleted, including those in Sections 2.3.5, 2.4.4, 4.5, the Biodiversity sections, and all Appendices. The document has been fully reviewed to confirm no instructional text remains.     2. The VVB information has been corrected to reflect the accurate organization and contact details, including the contact name, email address, and phone number of the VVB.     3. Expected verification schedule included as 1 September t2025     4. Table of contents has been updated     5. Outcome 5 has been included.     6. The current verification period has been added to the Audit History table in Section 2.1.2.     7. Numbering was corrected as per the CCB &amp; VCS PD template.     8. Numbering was corrected as per the CCB &amp; VCS PD template.     9. These references have been incorporated into the reference list in section 3 (Climate).		
Documentation provided by the project proponent		
Updated PD		
VVB's evaluation		Date: 14/11/2025
1. Several template instructions are still included in the PD.     2. The information is now corrected.		

3. The information is now corrected.     4. The table of contents of PD document has been updated and provided, however the generic page number is incorrect, appendix 1 is in page 339, appendix 2 is page 340, appendix 3 is page 342, appendix 4 is page 345, all of number are different with table of contents.     5. The information has been updated.     6. The information has been updated. However, the name of VVB is incorrect.     7. The numbering is corrected and deemed closed.     8. The numbering is corrected and deemed closed.     9. The information is corrected and deemed closed.       Therefore, CAR 01 is not closed.	
<b>Project Proponent's Response</b>	<b>Date: 17/11/2025</b>
1. Instructions in sections 2.1.13, 2.5.13, 2.6.2, 5.1.1, 5.1.2, 5.2.1, 5.2.8, 5.3.1, 5.5.2 were deleted. Please note that some instructions in section 2.5 were intentionally left to provide context to the information provided.     4. The table of contents was updated. Please note that the current version is in track change and the page numbers may not be displayed correctly. The final and clean version will ensure consistency in the table of contents and corresponding sections.     6. VVB name was corrected in section 2.1.2	
<b>Documentation provided by the project proponent</b>	
Updated PD	
<b>VVB's evaluation</b>	<b>Date: 28/11/2025</b>
1. Template instructions have been deleted now.     4. The table of contents have been updated, and the explanation is deemed correct.     6. The PD has been updated and deemed correct.       Therefore, CAR 01 is closed.	

NC/CAR id.	02	Date: 06/10/2025
NC/CAR description		
In the PD, there are several incorrect statements or typos:       1. <u>Section 2.1.9</u>: "... and conform with the current VCS Standard Version 4.5." Applicable VCS Standard Version is not correct.     2. <u>Section 2.1.9</u>: "...to conduct forest and protection, restauration and management activities". Typo on "restoration".     3. <u>Section 2.2.2</u>: "...PD Section 3.2.3 has been updated with the implementations of the new datasets, project stratification and ex-project emissions". Typo on "ex-ante project emissions".     4. <u>Section 2.5.12</u>: Decree/Approval No. 10 (522/0212/PTSP) appears in red text.     5. <u>Section 3.2.5</u>: "The annual buffer withholding has been split proportionally between the estimated reductions and removals (Table 3.41)." Said split proportion does not apply, as the project does not have any removals.     6. <u>Table 3.27</u>: the area column is incorrectly labelled as BSL Area (ha), while the values are referring to With-Project Scenario area (WPS Area).     7. <u>Section 4.5.2</u>: "Inclusion of Marginal Groups" text is highlighted in yellow.     8. <u>Sections 4.5.2 and 4.5.3</u>: both sections are redundant, with the same title.     9. <u>Section 4.5.2</u>: "focus group discussions (FDG)", the acronym has a typo.		
Project Proponent's Response		Date: 15/10/2025
1. The applicable VCS Standard version reference in Section 2.1.9 has been corrected. The text now cites the <b>Verified Carbon Standard (VCS) Version 4.7</b>, which is the most recent version issued by Verra.     2. The typo in Section 2.1.9 has been corrected, "restauration" has been changed to <b>"restoration"</b>.     3. This typo was found in the MR section 2.2.2 and was amended.     4. The red text in Section 2.5.12 has been corrected to match the standard formatting.     5. Section 3.2.5: The line has been eliminated from the document.     6. Table 3.27: BSL has been replaced by WPS.     7. The yellow highlighting in Section 4.5.2 ("Inclusion of Marginal Groups") has been removed.     8. Numbering was corrected, also addressed in previous CAR     9. This has been corrected as we re-wrote section 4.5.2		
Documentation provided by the project proponent		
Updated PD		
VVB's evaluation		Date: 14/11/2025
1. The issue has been updated and is deemed closed.     2. The issue has been updated and is deemed closed.     3. The issue has been updated and is deemed closed.		

4. The issue has been updated and is deemed closed.
5. The issue has been updated and is deemed closed.
6. The issue has been updated and is deemed closed.
7. The information is properly updated and is deemed closed.
8. The section numbering has been updated and is deemed closed.
9. The issue has been clarified and is deemed closed.

Therefore, CAR 02 is closed.

NC/CAR id.	03	Date: 06/10/2025
NC/CAR description		
In the MR, there are several non-compliances with the VCS CCB MR Template, or other errors:       1. <u>Throughout the MR</u>: Template instructions have not been deleted (e.g. in Sections 2.3.4, 4.2.2, 4.4; Biodiversity sections, Appendices, etc.)     2. <u>Title page</u>: The email address of the Validation/verification body is incorrect.     3. <u>Table of contents</u>: Page of Appendix 5 is missing.     4. <u>Section 2.1.2</u>: current verification period is missing on the Audit History table.     5. <u>Section 2.1.7</u>: the CCB Benefits assessment period has not been included.     6. <u>Section 2.1.12</u>: Description is longer than 100 words.     7. <u>Section 2.1.12</u>: The content does not fit the requirements: "Identification of which SD contributions described in Table 1 of this report contribute to achieving any nationally stated sustainable development priorities, including any provisions for monitoring and reporting these."     8. <u>Section 2.1.12</u>: Section refers to Appendix 5 for the Sustainable Development table, which is missing.     9. <u>Section 2.2.1</u>: Table 2.2 does not display the Total Lost GHG Emissions (%) for the Total Deforested Area.     10. <u>Section 2.2.7</u>: Identified risks are not completed in the corresponding column of the table.     11. <u>Section 2.3.9</u>: stakeholder consultations tables do not fit the format and content required by the template.     12. <u>Section 4.2.2</u>: section has not been completed.     13. <u>Section 5.1.2</u>: Natural Resource Agency (BKSDA), typo for "Natural Resources Conservation Agency".     14. <u>Section 5.1.3</u>: This requirement has not been demonstrated: "For projects validated at the Gold Level for climate change adaptation benefits: demonstrate how the project activities assist biodiversity to adapt to the probable impacts of climate change."     15. <u>Appendix 4</u>: MR indicator column is incomplete for multiple activities.		
Project Proponent's Response		Date: 17/10/2025
1. All template instructions throughout the Monitoring Report, including those in Sections 2.3.4, 4.2.2, 4.4, the Biodiversity sections, and Appendices, have been deleted.     2. The email address of the Validation/Verification Body on the title page has been updated with the accurate contact information.     3. Appendix 5 has been included in the table of contents.     4. Current verification period is now included.     5. VCS and CCB Benefits assessment period have been included.     6. Content has been summarized in 100 words.     7. Section 2.1.12 has been revised to fully comply with the requirement. We prepared a new version of Table 1 that explicitly identifies how each Sustainable Development (SD) contribution described in the report aligns with Indonesia's nationally stated sustainable development priorities (RAN-TPB and RPJMN). Each row now links the relevant SDG target and indicator to the corresponding national policy priority, and includes clear provisions for monitoring and reporting through the SIRETA platform, national SDG indicators (Bappenas/BPS), and relevant ministries (e.g., MoEF, MoH, MoA). This ensures full traceability		

and alignment with Indonesia's national SDG framework. Please note that these indicators were not previously monitored as the previous MR templates did not include this requirement. Therefore the column "Contributions over project lifetime" is similar to the "Current project contributions"       8. Appendix 5 is included at the end of the document.     9. Total Lost Emissions (%) is calculated as the percentage of emissions lost to deforestation and degradation relative to the total emission reductions per year. The total was initially omitted, as it was thought to be unnecessary; however, it has now been included.     10. The table in Section 2.2.7 has been completed with clear and specific Identified Risks for each entry.     11. This has been corrected – the stakeholder consultation tables in Section 2.3.9 have been reformatted to align with the required template structure and now include all mandatory fields and content, ensuring full compliance with the reporting guidelines.     12. The section demonstrating that the project activities have not resulted in net negative impacts on the well-being of other stakeholders has now been completed.     13. The typo has been addressed in the document.     14. We have revised Section 5.1.3 to explicitly demonstrate how the project assists biodiversity in adapting to the probable impacts of climate change, in line with the CCB Gold Level requirement for climate change adaptation benefits.     15. The MR indicator column in Appendix 4 has been completed for all activities to ensure consistency and alignment with the approved monitoring framework.	
<b>Documentation provided by the project proponent</b>	
Updated MR	
<b>VVB's evaluation</b>	<b>Date: 14/11/2025</b>
1. The issue has been updated.     2. The information is now updated.     3. The information is now updated.     4. The information has been updated.     5. The information is included and updated.     6. The description has been updated.     7. The table has been updated, however in row 14 the number of GHG emissions reductions with of this period do not align with the GHG emissions reductions calculated for this MR.     8. The information has been included.     9. The issue has been updated.     10. The information is updated and correctly.     11. The issues have been updated.     12. The information is now included.     13. The information is now updated.     14. The information is now updated.     15. The information is now included.       Therefore, CAR 03 is not closed.	
<b>Project Proponent's Response</b>	<b>Date: 17/11/2025</b>

- 7. The row 14 in table from section 2.1.12 is now consistent with the reported GHG results.

**Documentation provided by the project proponent**
**VVB's evaluation**
**Date:** 28/11/2025

7. Section 2.1.12 has been updated and deemed correct.  
Therefore, CAR 03 is closed.

NC/CAR id.	04	Date: 06/10/2025
NC/CAR description		
In the MR, there are several non-compliances with the VCS CCB MR Template and the VCS Standard, in relation to climate, community or biodiversity changes to project design:       1. <u>Section 2.2.4</u>: The MR did not document any community or biodiversity changes to project design not requiring a project description deviation that occurred during the monitoring period compared with the validated project description. Include justification for the changes and demonstration that the changes are in conformance with the requirements of the Climate, Community &amp; Biodiversity Standards criteria, and indicators.     2. <u>Section 2.2.5</u>: The MR did not document and justify the updates in the Project Description in relation to the baseline renewal, including switching to a new methodology version, in accordance with VCS Section 3.21.2.     3. <u>Section 2.2.6.1</u>: The MR did not identify any new communities that have been included in the project since the last CCB and/or VCS validation or verification. Explain the process of stakeholder identification and analysis (identified in the project description) that was used to identify these communities.     4. <u>Appendix 1</u>: the appendix has not been completed with new stakeholders, compared to previous monitoring periods.		
Project Proponent's Response		Date: DD/MM/YYYY
1. Section 2.2.4 has been updated to clarify that the Monitoring Report is fully consistent with the updated Project Description (PD), which includes the renewed baseline and revised indicators. No substantive changes to community or biodiversity project design occurred during the monitoring period beyond those incorporated in the updated PD. The differences between the MR and the previously validated PD are due to the transition from the older PD template to the current standardized format, which required updates to indicators and terminology. These adjustments are administrative and methodological, not deviations, and remain fully in conformance with the Climate, Community &amp; Biodiversity Standards criteria and indicators.     2. Section 2.2.5 has been revised to document and justify the updates made in the Project Description as part of the baseline renewal process. The project has transitioned to a new methodology version in accordance with VCS Section 3.21.2 to ensure consistency with current best practices and improved accuracy in baseline and monitoring calculations. The Monitoring Report reflects these updates, harmonizing indicators and reporting structure with the renewed PD. The differences observed compared to the last validated PD result from these methodological and baseline updates, not from any modification to project activities or objectives, ensuring continued alignment with VCS and CCB requirements.     3. No new communities have been added during the 2020–2023 monitoring period. The project continues to engage the same 34 villages identified during validation across Mendawai, Kamipang, Bengkurung, Seranau, and Pulau Hanaut sub-districts. Stakeholder identification followed the participatory process outlined in the validated Project Description, using social mapping, participatory rural appraisals, and consultations to confirm that all relevant communities were included. Continuous engagement and monitoring verified that no new settlements or stakeholder groups have emerged within or adjacent to the project area.		

4. There are no new stakeholders, that is why Appendix 1 (which is optional) has not been completed.	
<b>Documentation provided by the project proponent</b>	
Updated MR	
<b>VB's evaluation</b>	<b>Date: 14/11/2025</b>
1. The information has been updated properly.     2. The information has been revised correctly.     3. The information is updated.     4. The issue has been clarified. However, template instructions and the table in Appendix 1 have not been deleted, as per template requirements.       Therefore CAR 04 is not closed.	
<b>Project Proponent's Response</b>	<b>Date: 17/11/2025</b>
• 4. Template instructions and the entire table have been deleted as it is not required. A note indicating that there are no new project areas neither stakeholders during the reporting period is included.	
<b>Documentation provided by the project proponent</b>	
Updated MR	
<b>VB's evaluation</b>	<b>Date: 28/11/2025</b>
4. Appendix 1 has been updated and deemed correct.   Therefore CAR 04 is closed.	

NC/CAR id.	05	Date: 06/10/2025
<b>NC/CAR description</b>		
<u>PD and MR Climate Annex:</u>   The Word files present some errors throughout the document, most likely due to an incorrect export from the <u>Summary – Katingan Pipeline</u> webpage. The PP is requested to revise exhaustively the whole PD and MR Climate Annex documents, to correctly address the following points:       1. Table references are missing. E.g. Page 38 of the PD Climate Annex: "...and increased GHG emissions". Other examples in Page 40, 42, 75, 84 and throughout the document.     2. Figure references are missing. E.g. Page 45 of the PD Climate Annex: "...canals increases until the final portion is converted in 2031".     3. Some Figure references are displayed incorrectly. E.g. Page 109 of the PD Climate Annex: "Scatter plots of predicted vs. observed heights (?@fig-tree-height-model-cv)".     4. Table numeration is incorrect, as all tables are displayed as Table 1.1.     5. Some displayed values are not correct. E.g. Page 49 of the PD Climate Annex (Section 5.8.3): "The forest areas assigned for conversion have been reduced to 0 ha. Peat forested areas in protected zones now dominate the forest class, covering a total of 0 ha." Other example in Page 51 of the PD Climate Annex (Section 5.9.1): "The "Drained NonForest" strata covers a total of 0 ha (0%), and the "NonForest" strata covers 0 ha (0%) of the area."     6. Section 9.3: Typo: "@IPCC2014_Firth_Assessment_Report".     7. Section 14 and 15 of the PD Climate Annex: table of tables and figures have not been generated.		
<b>Project Proponent's Response</b>		Date: 17/10/2025
We acknowledge the issues identified in the PD and MR Climate Annex files and appreciate the auditor's detailed review. The errors arose during the DOCX rendering process, which affected internal references, numbering, and certain displayed values.   <b>1.Reference and Layout Corrections</b> Some table and figure references were not rendered correctly following layout adjustments. The documents contain approximately 40 tables and 30 figures, and modifications to their layout caused a few references to point to the wrong elements. All incorrect or missing references have now been corrected. We apologise for this oversight.   <b>2 &amp; 3. Figure References Using "@" Syntax</b> A number of figure references displayed using the "@" syntax were the result of how cross-referencing is handled within the Quarto rendering system. Missing figure references (displayed as "?@fig:...") occurred when multi-panel figures were consolidated into single figures for improved rendering in Word format. We have reviewed all affected sections, removed obsolete references, and relabelled figures accordingly. This restructuring ensures all references are now valid and correctly displayed.   <b>4. Table Numbering Issues</b> We also noted that some tables appeared with identical numbering (e.g., "Table 1.1"). This occurred due to a misfire in Word's native cross-referencing engine during rendering. All table numbering has now been verified and corrected. Should this issue reoccur when viewing the document in Word, please right-click on the "List of Tables" at the end of the document and select Update Field → Update entire table. This will refresh and correctly cascade all table numbers.   <b>5.Displayed Values and Strata Data</b> The comment regarding "forest areas assigned for conversion reduced to zero hectares" (page 49) is		

correct. By 2032, all areas planned for conversion have been completed, resulting in zero remaining convertible forest. The zero value displayed is therefore accurate.

That said, a few other displayed values were temporarily incorrect due to an outdated function collecting area data for rendering. This issue has now been resolved, and the correct values are displayed.

#### 6. Citation and Typographical Corrections

The citation error in Section 9.3 (@IPCC2014\_Fifth\_Assessment\_Report) has been corrected. We have also reviewed all in-text and table citations to ensure they render properly in Word format.

#### 7. List of Tables and Figures

Comprehensive “List of Tables” and “List of Figures” sections have now been generated (Sections 14 and 15). These were previously missing due to a rendering omission during export to DOCX.

#### Verification and Quality Assurance

Both the PD and MR Climate Annex documents have undergone a full review to ensure all cross-references, numbering, and displayed values are accurate. All corrected versions have been uploaded to the evidence folders and can be made publicly available at Verra’s discretion.

In addition to the above, the following changes were made to improve the quality of the calculations and documents:

- The field measurement methods for all assessed soil properties, peat thickness, and water table depth have been added to the PD Climate Annex, as we realised that these details had not been previously included.

- We found a typo in the code; the carbon fraction for above ground biomass is 0.47 but in the code was 0.48. This has been amended, which means that all AGB numbers and total emission/Vcus numbers have changed. All affected tables have been updated in the documents.

- The ecological leakage sections of both the PD and MR have been edited with more up to date information. Water table depth data for the Sekawan canal has been used, evidence is available too.

#### Documentation provided by the project proponent

- Updated PD Climate Annex (in word and pdf)
- Updated MR Climate Annex (in word and pdf)

#### WB’s evaluation

**Date:** 14/11/2025

1. The issues have been clarified and updated, is deemed closed
2. The issues have been clarified and updated, is deemed closed
3. The issues have been clarified and updated. However, @syntax is still displayed in the document. E.g. page 44.
4. The issue has been resolved and tables have been updated
5. Issues have been solved and typos have been updated
6. Issue have been solved
7. List of tables and figures have been updated

Therefore CAR 05 is not closed.

#### Project Proponent’s Response

**Date:** 17/11/2025

We have fixed 2 invalid cross-reference (internal chapter and reference within a table) in the PD Climate Annex document.

Documentation provided by the project proponent	
Updated PD Climate Annex.	
VVB's evaluation	Date: 28/11/2025
PD Climate Annex has been updated and deemed correct. Therefore CAR 05 is closed.	

<b>NC/CAR id.</b>	<b>06</b>	<b>Date: 06/10/2025</b>
<b>NC/CAR description</b>		
Section 2.5.2 of the PD: Section does not include all applicable laws and regulations. There are number of law and regulation missing, such as: job creation/omnibus law, environmental law, PBPH regulations, forest protection, land management and forest fires, etc.		
<b>Project Proponent's Response</b>		<b>Date: 17/10/2025</b>
As per CCB&amp;VCS template, section 2.5.2 requests to "List all relevant laws and regulations covering worker's rights in the host country...". Therefore, the environmental law, PBPH regulations, forest protection, land management and forest fires and other related laws and regulations are already included in section 2.5.1. In addition to that, a detailed list of relevant laws and regulations was included in section 2.5.1   The omnibus law was included in Section 2.5.2 as it is the only one that is relevant to worker's rights.		
<b>Documentation provided by the project proponent</b>		
Updated PD		
<b>VVB's evaluation</b>		<b>Date: 14/11/2025</b>
The information has been clarified to be included.   Therefore, CAR 06 is closed.		

<b>NC/CAR id.</b>	07	<b>Date:</b> 06/10/2025																																													
<b>NC/CAR description</b>																																															
<u>Section 3.2.2 of the PD:</u>   Baseline strata values in Table 3.16 of the PD does not match the provided shapefile "wrc_landscape_sims_bsl.shp".   See the following table for the year 2021:  <table border="1" style="width: 100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th style="background-color: #d3d3d3;">Strata</th> <th style="background-color: #d3d3d3;">Area GIS (ha)</th> <th style="background-color: #d3d3d3;">Area PD (ha)</th> </tr> </thead> <tbody> <tr><td>Acacia Plantation</td><td>52310.9857</td><td>51,194.90</td></tr> <tr><td>Basecamp</td><td>209.7401</td><td>209.9</td></tr> <tr><td>Baseline Canal</td><td>557.7238</td><td>1,997.30</td></tr> <tr><td>Community Crops</td><td>6510.3032</td><td>6,371.50</td></tr> <tr><td>Drained Forest</td><td>51395.8143</td><td>51,293.40</td></tr> <tr><td>Drained NonForest</td><td>472.9195</td><td>472.7</td></tr> <tr><td>Drained Recovering Burn</td><td>1543.4932</td><td>1,532.80</td></tr> <tr><td>Forest</td><td>28592.3388</td><td>28,610.70</td></tr> <tr><td>NonForest</td><td>15.6328</td><td>15.6</td></tr> <tr><td>NonPeat</td><td>300.9744</td><td>301.2</td></tr> <tr><td>Restoration Area</td><td>6053.1118</td><td>5,924.60</td></tr> <tr><td>Rewetted Forest</td><td>1587.4809</td><td>1,588.60</td></tr> <tr><td>Waterbody</td><td>153.6553</td><td>286.8</td></tr> <tr><td><b>Total</b></td><td><b>149704.1738</b></td><td><b>149800</b></td></tr> </tbody> </table>  <u>Note:</u> the GIS area of the table was obtained by the audit team by adding the area field in the attribute table of the "wrc_landscape_sims_bsl.shp". The table was exported in excel to calculate the total area by stratum.			Strata	Area GIS (ha)	Area PD (ha)	Acacia Plantation	52310.9857	51,194.90	Basecamp	209.7401	209.9	Baseline Canal	557.7238	1,997.30	Community Crops	6510.3032	6,371.50	Drained Forest	51395.8143	51,293.40	Drained NonForest	472.9195	472.7	Drained Recovering Burn	1543.4932	1,532.80	Forest	28592.3388	28,610.70	NonForest	15.6328	15.6	NonPeat	300.9744	301.2	Restoration Area	6053.1118	5,924.60	Rewetted Forest	1587.4809	1,588.60	Waterbody	153.6553	286.8	<b>Total</b>	<b>149704.1738</b>	<b>149800</b>
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<b>Project Proponent's Response</b>		<b>Date:</b> 15/10/2025																																													
<b>Issue Description</b>   The audit team identified discrepancies between strata areas calculated from the shapefile wrc_landscape_sims_bsl.shp and the areas reported in Table 3.16 of the Project Description:   <b>1. Area Calculation Methodology: Geodesic vs. Planar</b>   The approximately 96 hectare discrepancy in total project area (149,704 ha versus 149,800 ha) stems from a fundamental distinction in spatial analysis methodology: planar versus geodesic area calculation. This difference is inherent to the choice of computational method rather than any inconsistency in the underlying spatial data.   <b>Methodology</b>   All area calculations in the Katingan pipeline employ the Landscaper::calc_area_ha() function, which utilises sf::st_area() for geodesic area computation. This approach is standard practice in geographic information systems, accounting for Earth's curvature through spherical geometry calculations based on the WGS84 ellipsoid.   This difference is readily verifiable using the project data:																																															

```
> tar_load(wrc_landscape_sims_bsl)
> # Using terra function with transform to planar projection
> sum(terra::expanses(wrc_landscape_sims_bsl, unit = "ha", transform = TRUE))
[1] 149704.179
> # Using terra function without transform to planar projection
> sum(terra::expanses(wrc_landscape_sims_bsl, unit = "ha", transform = FALSE))
[1] 149800.008
> # Using Landscaper function (wrapper around sf::st_area)
> Landscaper::calc_area_ha(wrc_landscape_sims_bsl, sum)
[1] 149800.008
> # Using sf::st_area with set_units
> sum(units::set_units(sf::st_area(sf::st_as_sf(wrc_landscape_sims_bsl)), ha))
149800.008 [ha]
```

The results demonstrate that `terra::expanses()` with planar transformation yields 149,704 ha, whilst geodesic methods (both `sf::st_area()` and `terra::expanses()` without transformation) yield 149,800 ha.

Geodesic calculations account for Earth's curvature through spherical geometry, following the OGC Simple Features standard for geographic coordinates. The distinction between these methods is straightforward: planar calculations treat geographic coordinates as if they were projected onto a flat surface, whilst geodesic calculations account for Earth's spherical geometry. The `terra::expanses()` function's behaviour depends on the transform parameter—when set to TRUE, it applies planar calculations; when FALSE, it employs geodesic methods consistent with `sf::st_area()`.

At the Katingan project location (2°S latitude), this methodological difference represents less than 0.1% of total area. Geodesic calculations are employed throughout the project to ensure consistency with international standards (OGC, ISO) and reproducibility across GIS platforms. This pattern—a ~96 hectare difference between planar and geodesic methods—would be evident when examining any of the project's spatial datasets.

## 2. Strata Area Discrepancies

The discrepancies between individual strata areas in the spatial data and tabulated values result from a tertiary canal adjustment that has been documented extensively throughout the project materials and explained in multiple communications with the audit team. This methodology—which adjusts certain strata areas by a tertiary canal proportion of 2.196%—is detailed across multiple chapters of the Project Description Annex, referenced in the main Project Description, and implemented transparently in the code repository provided to the audit team.

### Documentation in Project Description and Annexes

The tertiary canal adjustment methodology is documented in the following sections:

- **PD Annex, Stratification: Baseline Canal chapter** — This chapter provides a comprehensive explanation of the fractional modelling approach for tertiary canals. It details the rationale for transitioning from explicit canal mapping to a proportional allocation method, the calculation of the tertiary canal fraction from the original baseline plan, and the application of this fraction to multiple strata (Acacia Plantation, Community Crops, Dredged areas, and Restoration Areas).
- **PD Annex, Stratification: Acacia Plantation chapter** — This chapter explains the context of tertiary canal excavation within the biennial drainage cycles that precede deforestation and plantation establishment, providing the operational basis for the fractional allocation approach.
- **PD Annex, Stratification: Community Crops chapter** — Similar context is provided for community agricultural development, where tertiary canals follow comparable drainage patterns.
- **PD Annex, Deforestation and Coupe Allocation: Determining Coupe Sizes section** — This section explains how the tertiary canal fraction is incorporated into the system of linear equations used

to determine actual coupe sizes, accounting for the space occupied by canal excavation in the conversion sequence.

- **Main Project Description: GHG Deforestation Emissions section** – References to the tertiary canal adjustment methodology and its implications for emission calculations.

### Code Implementation

The tertiary canal adjustment is implemented transparently in the project's code repository:

- **pipe-segments/management-plan/baseline-plan-target.R (lines 76-89)** – Calculates the tertiary canal proportion (0.02196) by extracting tertiary canal and agroforestry areas from the original baseline plan (areas labelled “Kanal Tersier” and “AC|CA”) and computing their ratio. This calculation is documented in the code with detailed comments.
- **pipe-segments/management-plan/scenarios-target.R (lines 167-189)** – Implements the three-step adjustment process detailed below.

### Adjustment Methodology

The adjustment process consists of three steps, implemented in scenarios-target.R.

#### Step 1: Extract Tertiary Canal Areas

In the first step, 2.196% of the area from the Acacia Plantation, Community Crops, and Dredged strata is extracted to form a new stratum called Tertiary Canal. This represents the proportion of tertiary canal areas within these baseline land-use types.

#### Step 2: Extract Blocked Tertiary Canal Areas

Next, 2.196% of the area from the Restoration Area stratum is extracted to create the Blocked Canal stratum. These represent tertiary canals that will be blocked due to the application of the new peat dome conservation area.

#### Step 3: Reduce Source Strata Areas

Finally, the source strata—Acacia Plantation, Community Crops, Dredged, and Restoration Area—are reduced by 2.196%, corresponding to the proportion reallocated to the canal strata. The remaining 97.804% of each source stratum is retained, and the newly created Tertiary Canal and Blocked Canal strata are added to the dataset.

This adjustment accounts for the small drainage canals (approximately 2 metres wide) that were explicitly mapped in the original Project Design document. However, given their high density and uniform distribution across the Acacia and Crops strata, maintaining explicit representations was deemed unnecessarily complex for updates to the conversion sequence. Instead, the canals were modelled as a proportional fraction of these areas, avoiding spatial complications that would arise from repeatedly recalculating drainage years and dynamically resizing drained areas based on deforestation rates from proxy regions. This approach maintains methodological consistency while ensuring efficient and transparent spatial processing.

### Documentation provided by the project proponent

NA

### WB's evaluation

Date: 14/11/2025

The explanation provided for the area difference is deemed correct. The PP is requested to provide a short explanation in the Climate Annex of the geodesic calculation of the area, so these differences are clarified and allow for third-party's reproducibility.

Therefore, CAR 07 is not closed.

<b>Project Proponent's Response</b>	<b>Date: 17/11/2025</b>
We have added a new section to the Stratification Chapter in the PD Climate Annex.docx called "Area Calculation"	
<b>Documentation provided by the project proponent</b>	
Updated PD Climate Annex	
<b>VVB's evaluation</b>	<b>Date: 28/11/2025</b>
PD Climate Annex has been updated and deemed correct. Therefore CAR 07 is closed.	

NC/CAR id.	08	Date: 06/10/2025
NC/CAR description		
The PP must ensure minimum information is made public on the ERR calculations to comply with Section 3.5.4 of the VCS Standard v4.7.   The PP may provide a public PDF version of the calculation walkthrough (the updated PD, PD Climate Annex and MR Climate Annex) in the Verra Registry, in addition to providing the VVB with an Excel summary or splitting the R code into different Excel tabs to enable a third party to reproduce the calculations.		
Project Proponent's Response		Date: 14/10/2025
We acknowledge the requirement under Section 3.5.4 of the VCS Standard v4.7 to ensure that minimum information on the Emission Reduction and Removal (ERR) calculations is made publicly available.   To address this, we have developed a comprehensive documentation package that provides transparent, auditable, and technically sound access to the full modelling and calculation process.   <b>Public Documentation (PDF Format)</b>   Our Public PDF documentation—comprising Section 3 of the Project Description, the PD Climate Annex, and the MR Climate Annex—presents a detailed methodological account of all ERR-related calculations. Together, these documents transparently describe the baseline (REDD and WRC), project, leakage, and monitoring scenarios, outlining data sources, parameters, and model structures.   These files provide a clear, step-by-step description of the full modelling framework, allowing independent readers to understand and, where desired, reproduce the analytical process.   <b>Excel Workbooks for Calculation Transparency</b>   To enhance accessibility for reviewers and non-technical stakeholders, we have prepared nine Excel workbooks translating the R-based calculation pipeline into auditable spreadsheet form. These cover all key emission components—Soil, Ditch, Burn, and Deforestation Emissions and associated Uncertainty—across the Baseline (BSL), With-Project (WPS), and Monitoring (MR) scenarios.   Each workbook includes:       • <b>Parameter Sheets</b> – All input data, parameter values, and source references.     • <b>Calculation Sheets</b> – Step-by-step computations following the Verra methodology, with visible formulas.     • <b>Results Sheets</b> – Scenario summaries aligned with the PD and MR documentation.     • <b>README and Documentation Tabs</b> – Notes on data provenance, parameterisation, and calculation logic.       These workbooks provide a clear audit trail of the non-spatial calculation steps within the pipeline, ensuring that key results can be reviewed and verified independently.   <b>Supporting Technical Documentation (Code Walkthroughs)</b>   Upstream data processing steps—such as GIS analyses, raster operations, and model preparation—cannot be represented meaningfully in Excel. To ensure transparency for these stages, we have provided seven additional PDF documents that present the corresponding R code in a readable format. These show the precise computational instructions, data transformations, and dependencies used within the modelling system.   Together, these materials provide a fully traceable account of how input data are prepared, processed, and integrated into the emissions and uncertainty calculations.   <b>Compliance and Availability</b>   All materials described above have been uploaded to the evidence folders and can be made publicly		

available on the Verra Registry at Verra's discretion. These actions collectively ensure full compliance with Section 3.5.4 of the VCS Standard v4.7 by making the methodological basis and key calculations transparent and reproducible while maintaining a format suitable for public review.

#### Documentation provided by the project proponent

- Code Docs & Workbooks
- PD Climate Annexes and MR Climate Annexes in PDF

#### WB's evaluation

**Date:** 14/11/2025

The information has been provided and deemed correct.

Therefore, CAR 08 is closed.

<b>NC/CAR id.</b>	<b>09</b>	<b>Date: 06/10/2025</b>
<b>NC/CAR description</b>		
The Climate Parameters spreadsheet provided as an Annex does not contain all applicable parameters, according to the VM0007 Methodology and modules applied002E   The PP is requested to:       1. Update the file with all applied parameters for the ER calculations.     2. Ensure all parameters are correctly classified under “Available at validation” or “To be monitored”.     3. Specify all the applied parameter values and their source. In case the parameter has a single value (e.g. CF), it must be included in the table. If the parameter has multiple values per year and stratum, the file should reference the table and the document (PD, MR or Climate Annexes) in which each parameter is described for clarity and traceability.     4. Made public on the Climate Parameters to comply with Section 3.5.4 of the VCS Standard v4.7.		
<b>Project Proponent's Response</b>		<b>Date: 17/10/2025</b>
1. New parameters lists have been produced which substitute the spreadsheet previously provided. All data and parameters have been presented in tables as per the template. These have been added to both PD Climate Annex and MR Climate Annex.     2. There are different sections for “Available at validation” and another for those “To be monitored” in the climate annexes.     3. All values have been either included in the table (in the cases when it refers to a single number) or full references have been included (document section and table number, spreadsheet and tab names or location in evidence folders in the case of tiff files).     4. The full list of climate parameters is included in the MR and PD climate annexes to be uploaded to Verra registry for them to make publicly available.		
<b>Documentation provided by the project proponent</b>		
PD Climate Annex and MR Climate Annex (see files in folder labelled CAR 4)		
<b>VVB's evaluation</b>		<b>Date: 14/11/2025</b>
1. Applied parameters have been added to the PD Climate Annex and MR Climate Annex. However, the nomenclature of several parameters differs between the Annexes and Sections 3.1.1 and 3.1.2 of the MR (e.g. GHGREDD_WPS / <math>\Delta C_{WPS-REDD}</math> , LKASP / <math>\Delta C_{LK-AS,planned}</math> ,etc.). The PP is requested to standardize the nomenclature in accordance with the methodology for consistency.     2. Parameters have been correctly classified under “Available at validation” or “To be monitored”.     3. Parameters values or full references have been included in their corresponding tables. However, parameters “To be monitored” in the PD Climate Annex include values for the present monitoring period, instead of “To be determined at each monitoring period”.     4. Applied parameters have been added to the PD Climate Annex and MR Climate Annex, which will be uploaded to the Verra Registry.       Therefore, CAR 09 is not closed.		

Project proponent's response		Date:17/11/2025
<b>Consistent Parameter Nomenclature</b>   We have reviewed the parameter nomenclature and fixed 9 discrepancies. Where misaligned, we have updated the parameter names with correct underscores, or commas as subscript separators where needed. Removed spaces within subscripts and ensured consistent comma-separated format through e.g. "REDD,BSL,SS,i,pool#" not "REDD_BSL SS,i,pool#"   <b>Parameter Values for the Present Monitoring Period:</b>   In the PD Climate Annex.docx we have switched out the monitored parameter value with the text "To be determined at each monitoring period". In the MR Climate Annex, the monitored parameter value is rendered.		
Documentation provided by the project proponent		
Updated PD and MR Annexes		
VVB's evaluation		Date: 28/11/2025
1. Nomenclature of the applied parameters has been standardized consistently.     3. Parameters values have been updated correctly. Several editorial inconsistencies remain that have been noted as observations.       Therefore, CAR 09 is closed.		

NC/CAR id.	10	Date: 06/10/2025
<b>NC/CAR description</b>		
The NPRR has not been provided to the VVB.   The project must provide access to the NPRT in the Verra Hub and provide supporting documentation in order to assess the adequacy of each rating and the overall 12% rating.		
<b>Project Proponent's Response</b>		Date: 14/10/2025
The NPRR and corresponding evidence was provided. It was uploaded to the Vera project hub and access granted to the auditors.		
<b>Documentation provided by the project proponent</b>		
NPRR uploaded to the project hub and an additional word version was provided with additional information and corresponding evidence.		
<b>VVB's evaluation</b>		Date: 14/11/2025
The NPRR tool has been uploaded to the Verra Hub.   However, several evidence are missing:       1. <u>Internal Risks/ Project Management</u>: The Adaptative management plant provided to the VVB has not been uploaded to the Verra Hub     2. <u>Internal Risks / Opportunity cost / Q2</u>: The PP have selected option f: "NPV of project activities is expected to be over 50 percent more profitable than that of the most profitable alternative land use activity". However, the financial viability excel does not show that the NPV of the project is over the 50%.     3. <u>Internal Risks / Opportunity cost/ Q4</u>: the agreement that proves the Katingan Mentaya Project is implemented inside a government-issued Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama has not been uploaded to the Hub.     4. <u>Internal Risks /Project longevity</u>: evidence of the project longevity has not been uploaded to the Hub.     5. <u>External Risks / Land tenure and access / Impacts</u>: Provide evidence and upload it to the Verra Hub that there are no disputes over land tenure / ownership or over access / use rights.     6. <u>External risks/ Political Risk</u>: Provide evidence (link or document) in the Hub of the explanation provided of the involvement of Indonesia on the Paris Agreement, the submission of its NDC, their AFOLU commitments and its climate change plan.     7. <u>Natural risks/ NR.c</u>: In the adaptative capacity section in order to demonstrate the capacity criteria, the project hub requires evidence that have not been provided.       E.g. Variety: A document or report of policies identified at the national or subnational level or internally to address climate change. A role-activity matrix within an adaptive management plan that indicates the staff who will lead the climate change mitigation actions.   Learning capacity: A document, report, or internal communication consolidated into an adaptative management plan in which the project explores and explains how it plans to learn from and adapt to climate events.		

Leadership: report, sustainability agenda, agreements, cooperative agreements, research proposals, consultancies, or other supporting documents in which the project proponent alone or in collaboration has communicated its performance and impacts on a wide range of sustainability topics, including climate change and the risks and opportunities facing the organization.   Therefore, CAR 10 is not closed.	
Project Proponent's Response	Date: 18/11/2025
1. The adaptation plan was previously uploaded to the Verra hub. Nonetheless, it was removed and uploaded again.     2. The financial analysis in the summary tab shows the following information: NPV of Acacia Plantation per ha= 1,142 and NPV of project activities is 2,242, therefore it is more than 50% of the most profitable alternative activity.     3. The government-issued letter confirming the Ecosystem Restoration Concession (IUPHHK-RE) held by PT Rimba Makmur Utama has been uploaded to the Hub.     4. The project hub does not provide the option for uploading evidence of project longevity. The following explanation was provided in a separate document shared with the auditor "The project sits inside an Ecosystem Restoration Concession (IUPHHK-RE) that runs 60 years and can be extended once for 35 years. Practically, that means 35 more years beyond 2070 (i.e., to 2105)". The letter of approving the licence of the Ecosystem Restoration Concession is provided as evidence.     5. Evidence of PT RMU as the sole concession holder and results of the implementation of the Grievance Mechanism are provided as evidence that there are no disputed over land tenure/ownership or over access / use rights     6. Indonesia's second NDC and Indonesia's Climate Actions that include the AFOLU Commitments were uploaded to the Verra Hub.     7. The following evidence was uploaded in the adaptive capacity section:      - Variety: Climate Change Management Report: A document or report of policies identified at the national or subnational level or internally to address climate change. It includes a role-activity matrix within an adaptive management plan that indicates the staff who will lead the climate change adaptation actions.     - Learning capacity: Katingan Mentaya Adaptive Management Plan which explains how the project plans to learn from and adapt to climate events.     - Room for change: KMP Climate Change Management plan that include analysis of climate information at different scales, adaptive responses to climate events. Evidence also includes project response to forest fires increasing as a result of increased temperatures and reduced precipitation.     - Leadership: The SDG report provides information on performance and impacts on a wide range of sustainability topics implemented by the project in collaboration with different stakeholders and the long-term commitment of the project to address climate change. Evidence of collaboration with stakeholders also includes the MOU and Yearly working agreement with village and Sub-District Government around project area     - Resources: Evidence of climate change expertise includes summaries of RMU and PG experts and the financial model demonstrates availability of financial resources to implement climate change oriented-actions	

- Fair Governance: Report of participatory monitoring and evaluation of the Village-Owned Enterprise (BUM Desa) supported by the project as a sustainable, professional village-scale economic institution to increase resilience of communities to climate change as well as the SDG report which includes evidence of the policies, practices, and behaviours that address climate change effectively.	
<b>Documentation provided by the project proponent</b>	
- Letter of approving the licence of the Ecosystem Restoration Concession.     - Evidence of the implementation of the Grievance Mechanism     - Documents of Indonesia's second NDC and Indonesia's Climate Actions that include the AFOLU Commitments     - KMP Climate Change Management Plan     - KMP Fire report     - SDG Report and MOU and Yearly working agreement with village and Sub-District Government around project area     - BUM Desa Participatory Monitoring and Evaluation Report	
<b>VWB's evaluation</b>	<b>Date: 28/11/2025</b>
1. The adaptation plan has been uploaded to the Verra hub and deemed correct.     2. The financial analysis supports that the NPV of the project activities is more than 50% of the most profitable alternative activity.     3. The evidence has been provided and deemed correct.     4. The evidence has been provided and deemed correct.     5. The evidence has been provided and deemed correct.     6. The evidence has been provided and deemed correct.     7. The evidence has been provided and deemed correct.       Therefore, CAR 10 is closed.	

NC/CAR id.	11	Date: 06/10/2025
NC/CAR description		
The audit team reviewed the complete scanned plot datasheets and crosschecked them with plot measurements carried out during the onsite visit.   Some plot-remeasurements during the onsite visit revealed some discrepancies in species identification (e.g. tree n° 02 in plot 79, trees n° 13 and 139 in plot 69, tree n° 05 in plot 62), DBH (tree n° 142 in plot 69) or both (trees n° 25, 61 and 66 in plot 56, tree n° 79 in plot 61)   The PP is requested to:       1. Clarify the causes of these discrepancies (e.g. differences in vernacular names of the same species, transposition errors or species identification errors by the monitoring team).     2. Implement appropriate corrective actions (updating the amendments documents, trainings, QA/QC procedures, etc.).     3. Ensure and demonstrate that no material errors affected the AGB estimations and the GHG calculations.		
Project Proponent's Response		Date: 20/10/2025
<b>Clarification of discrepancies</b>   <b><u>DBH</u></b>   We have carefully reviewed each of the DBH discrepancies identified during the audit and cross-checked them against our original field measurements. This initial assessment shows that, among the five trees with noted differences, two exhibit growth increments that are reasonable and consistent with the time elapsed between measurements. This leaves three trees (4.4% of those checked during the audit) with unexplained differences. Of these, one tree appears to have been underestimated in our dataset. The two remaining trees show lower DBH values in the audit dataset suggesting potential overestimation.   Following this initial assessment, we reviewed all trees with similar tag numbers, checking by species and other relevant attributes. Similarities observed among trees with comparable numbering reinforced the possibility that some discrepancies may have resulted from data transcription errors or misreading of tree tags. To confirm and further understand the causes behind the observed differences, our field team conducted a verification campaign on 18–19 October, revisiting the specific trees flagged during the audit to document any potential errors.   Findings from this field verification confirmed that most discrepancies were indeed due to misreads of tree tags. Only one tree (Plot 69 – T142) was found to have been measured incorrectly during the audit, likely due to taking the DBH at a different Point of Measurement (POM). Upon re-measurement, the team verified that the DBH recorded in our final dataset was correct, confirming there was no significant error and no impact on the Above-Ground Biomass (AGB) calculations. A detailed report from the post-audit field verification work with supporting information and photographic evidence will be provided to the VVB.   Overall, the discrepancies affect only a very small proportion of the sample (1 tree - 1.48% potential underestimates). The combined effect of minor over- and underestimations is expected to balance out, remaining well within the uncertainty bounds of the biomass estimates. Therefore, we are certain that no material impact on AGB or GHG calculations is expected.		

Nevertheless, we take these findings seriously and will use them to strengthen our QA/QC procedures. The following corrective actions will be implemented:

- **Field verification:** Our team has rechecked the specific trees identified during the audit to document the causes of the differences.
- **Procedural improvement:** The field protocol will be updated to include marking the exact DBH measurement point on each tree with paint to improve repeatability.
- **Capacity building:** A focused training and calibration session will be conducted before the next measurement round to reinforce correct procedures and minimize observer bias.

These steps will ensure that future measurements maintain consistency and traceability while keeping potential measurement uncertainty within acceptable limits.

### 3.2.7 Botanical questions

Following the same approach as for the DBH verification, we have reviewed all cases highlighted by the audit team and acknowledge that some discrepancies in species identification were observed between the audit remeasurements and our original records. In most instances, these differences can be explained by the use of multiple vernacular names referring to the same botanical species.

To verify this, the field team, during the post-audit verification campaign, examined the botany of each tree recorded with the VVB. The field report provides a detailed explanation for each case, confirming that the majority of discrepancies stem from the use of different local names for the same genus. Comprehensive information and supporting evidence for each instance are included in the field report submitted to the VVB. While a small number of observer identification errors cannot be completely ruled out, the overall impact on biomass estimates is expected to be negligible, as these cases represent a very small share of the total sample.

#### **Corrective actions (updating the amendment documents, trainings, QA/QC procedures, etc.):**

- **Field verification (targeted):** The field team has revisited the trees noted by the auditors to recheck diagnostic characters and document evidence (photos of leaves, bark, and fruits/flowers where available). These reports are appended to the projects records and logged ready for the next field measure.
- **General botany training:** Before the next measurement round, all monitors will complete a general botanical skills course emphasizing: (i) diagnostic features and use of keys, (ii) reliable identification to family/genus first, and (iii) conservative recording (using sp. or cf. where appropriate) rather than over-specifying uncertain species.
- **QA/QC protocol updates:**
  - Require voucher photographs (leaf, fruit/flower when present) for any uncertain IDs.
  - Update the project area's standardized vernacular–scientific name glossary under the supervision of a botanical expert to reduce synonym confusion; team briefings will reinforce consistent usage.

- Add an uncertainty flag in data collection forms and a clear decision rule for how uncertain IDs are treated in analysis (e.g., defaulting to genus- or family-level parameters when appropriate).
- 
- **Documentation:** Update the field manual, QA/QC checklist, and vernacular glossary accordingly. Amendments to species records will only be made where verification shows a clear error, and all changes will be traceable.

These measures strengthen identification consistency, reduce vernacular-name confusion, and ensure that any residual uncertainty is handled conservatively within our QA/QC system.

#### Additional actions

To further strengthen knowledge sharing and ensure a clear understanding of the vegetation measurement objectives and procedures among the field team, a new Questions & Answers (Q&A) document has been developed. This document compiles questions raised by the field team, along with key issues identified during training campaigns and the audit process. It is intended to serve as a living document that will be continuously updated to address new questions or topics related to this subject (The document has been added to the Standards Operating Procedure (SOPs) within the PD-Climate evidence folder). Additionally, a Bahasa Indonesia translation of the Field Plot Measurement SOP was previously developed and added to the same evidence folder, ensuring that all team members can easily access and understand the procedures.

#### **Documentation provided by the project proponent**

Post-Audit Field verification report, Q&A field campaign document and Translated Field Plot Measurement SOPs have been added to Audit 'CAR10' evidence folder.

#### **VVB's evaluation**

**Date:** 14/10/2025

The PP has clarified why there have been inconsistencies in the data provided for this MR and the measurements taken during the field audit.

The explanation provided is reasonable, and QA/QC methods will be implemented to minimise this type of mistake.

Therefore, CAR 11 is closed.

NC/CAR id.	12	Date: 06/10/2025
NC/CAR description		
<u>Section 2.2.3 of the PD:</u>   It is stated: “These activities are not required under any national or sub-national regulation, and there are no alternative government programs providing similar services in the project zone.”   During the site visit, information was gathered from local community groups, particularly a Forest Farmer group, who have Social Forestry license from the government and are following the Social Forestry government program under Indonesia Forestry Ministry. Please clarify in this section, as it is stated that no alternative government programs exist.   Section 2.5.1 of the MR must be also updated accordingly.		
Project Proponent's Response		Date: 17/10/2025
The statement was deleted to avoid misunderstandings between existing government programmes providing similar services to project activities.		
Documentation provided by the project proponent		
VVB's evaluation		Date: 14/11/2025
Section has been updated and deemed correct.   Therefore, CAR 12 is closed.		

NC/CAR id.	13	Date: 06/10/2025
<b>NC/CAR description</b>		
<u>Section 1.2 of the MR:</u>   Values in the table for the Achievements during the Project Lifetime are not correct.   As described in the template instructions, said column must be completed with cumulative achievements since the project start date, not achievements for the full crediting period as in the PD.		
<b>Project Proponent's Response</b>		Date: 17/10/2025
The discrepancy in Section 1.2 arose because the previous Monitoring Report template used during earlier verification periods did not include a cumulative "Achievements during the Project Lifetime" table. Instead, data were reported per crediting period, consistent with the format and guidance available at that time.   With the adoption of the updated MR template, cumulative values since the project start date will be progressively integrated going forward. However, because earlier reports did not compile results in this format, it is not possible to retroactively provide fully cumulative figures with precision. Nonetheless, the values were corrected to include cumulative amounts for the Achievements during the Project Lifetime		
<b>Documentation provided by the project proponent</b>		
Updated MR		
<b>VVB's evaluation</b>		Date: 14/11/2025
An explanation for the discrepancy has been provided and deemed reasonable. Section has been updated and deemed correct.   Therefore, CAR 13 is closed.		

NC/CAR id.	14	Date: 06/10/2025
NC/CAR description		
<u>Section 4.3 of the MR:</u>   According to CCB, GL2.3: “Identify, through a participatory process, risks for the smallholders/community members to participate in the project, including those related to trade-offs with food security, land loss, loss of yields and short-term and long-term climate change adaptation. Explain how the project is designed to avoid such trade-offs and the measures taken to manage the identified risks. Include indicators of risks for smallholders/community members in the monitoring plan.”   The content in the section is unclear in responding to the GL2.3 requirements. Update the section specifying particularly: risks for community related to trade-offs with food security, land loss etc., and indicators of risks for stakeholder/community members in the monitoring plan.		
Project Proponent’s Response		Date: 17/10/2025
The section has been updated to include a detailed explanation of how risks for smallholders and community members were identified and managed through participatory processes. It now specifies potential trade-offs related to food security, land access, and yield reduction, and outlines the adaptive measures implemented to mitigate these risks. Indicators of community risk, such as household income, food availability, productivity, and grievance records, have been integrated into the monitoring plan to ensure ongoing assessment and management.		
Documentation provided by the project proponent		
Updated MR		
VWB’s evaluation		Date: 14/11/2025
The information has been included and deemed correct.   Therefore, CAR 14 is closed.		

NC/CAR id.	15	Date: 14/11/2025
NC/CAR description		
In Section 3.2 of the VCS CCB PD, some incongruences have been found between the tables provided in the PD and the tables on the Excel sheets.		
<b>Regarding Baseline Calculations:</b>		
1. In table 3.18 Baseline annual Carbon emissions from Peat Burned do not present the same values as the Excel sheet.		
	PD	Excel
2021	<a href="#">1,325,136.3</a>	1.031.088,80
2022	<a href="#">1,388,061.1</a>	1.080.050,63
2023	<a href="#">1,538,258.8</a>	1.195.363,11
2024	<a href="#">1,598,547.2</a>	1.242.273,69
2025	<a href="#">1,674,387.7</a>	1.302.825,87
2026	<a href="#">1,878,172.8</a>	1.461.406,62
2027	<a href="#">1,973,565.7</a>	1.535.631,82
2028	<a href="#">1,845,462.8</a>	1.435.954,83
2029	<a href="#">1,903,021.7</a>	1.480.741,54
2030	<a href="#">2,158,911.9</a>	1.678.293,57
2. In table 3.18 Baseline annual carbon emissions from soil and ditch do not present the same values as the Excel sheet Soil + Ditch		
	PD	Excel
Vintage Year		
2021	4.765.816,50	4.754.312,79
2022	5.074.295,50	5.062.782,14
2023	5.422.291,40	5.409.522,32
2024	5.733.818,40	5.721.041,82
2025	6.100.442,10	6.086.112,04
2026	6.411.681,90	6.397.349,49
2027	6.760.382,80	6.744.794,89
2028	7.071.020,40	7.055.427,20
2029	7.420.276,90	7.403.350,84
2030	7.678.717,40	7.661.785,85

3. Numbers in table 3.19 for carbon emissions from peat soil are not aligned with numbers from peat soil in table 3.18.

4. In Table 3.21 peat burned emissions present different values to the ones in the Excel sheet.

PD:

Vintage Year	Peat burn CO <sub>2</sub> emissions (tCO <sub>2</sub> e)			Total
	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	
2021	<u>982,948.9</u>	<u>331,312.3</u>	<u>30,875.0</u>	<u>1,325,136.3</u>
2022	<u>1,008,675.1</u>	<u>347,044.9</u>	<u>32,341.1</u>	<u>1,388,061.1</u>
2023	<u>1,116,367.1</u>	<u>384,097.4</u>	<u>35,794.0</u>	<u>1,536,258.6</u>
2024	<u>1,160,177.6</u>	<u>399,170.9</u>	<u>37,198.7</u>	<u>1,596,547.2</u>
2025	<u>1,216,728.2</u>	<u>418,627.7</u>	<u>39,011.9</u>	<u>1,674,367.7</u>
2026	<u>1,364,829.1</u>	<u>469,583.3</u>	<u>43,760.5</u>	<u>1,878,172.8</u>
2027	<u>1,434,149.1</u>	<u>493,433.5</u>	<u>45,983.1</u>	<u>1,973,565.7</u>
2028	<u>1,341,059.3</u>	<u>461,405.0</u>	<u>42,998.3</u>	<u>1,845,462.6</u>
2029	<u>1,382,886.2</u>	<u>475,796.0</u>	<u>44,339.4</u>	<u>1,903,021.7</u>
2030	<u>1,567,383.0</u>	<u>539,274.0</u>	<u>50,254.9</u>	<u>2,156,911.9</u>

Excel:

Year	Burnable Area (ha)	CO <sub>2</sub> Emissions (tCO <sub>2</sub> e)	CH <sub>4</sub> Emissions (tCO <sub>2</sub> e)	N <sub>2</sub> O Emissions (tCO <sub>2</sub> e)	Total Emissions (tCO <sub>2</sub> e)
2021	61.406,25	893.451,96	107.666,62	29.970,22	1.031.088,80
2022	66.618,75	935.878,03	112.779,23	31.393,38	1.080.050,63
2023	71.793,75	1.035.797,80	124.820,19	34.745,12	1.195.363,11
2024	77.118,75	1.076.446,43	129.718,61	36.108,65	1.242.273,69
2025	82.175,00	1.128.915,69	136.041,49	37.868,69	1.302.825,87
2026	87.575,00	1.266.327,99	152.600,54	42.478,09	1.461.406,62
2027	92.587,50	1.330.645,10	160.351,16	44.635,56	1.535.631,82
2028	97.831,25	1.244.273,68	149.942,85	41.738,29	1.435.954,83
2029	102.806,25	1.283.081,95	154.619,50	43.040,09	1.480.741,54
2030	107.225,00	1.454.263,37	175.247,94	48.782,25	1.678.293,57

5. Table 3.22 shows that the total emissions from 2021 to 2030 are 17,277,505.6. However, the Excel sheet number is 13,443,630.47.

6. In table 3.24 CH<sub>4</sub> baseline ditch emissions present different values to the ones in the Excel sheet.

PDD

Excel

Vintage Year	CH <sub>4</sub>	
2021	<u>47,552.3</u>	35.792,08
2022	<u>47,544.6</u>	35.786,28
2023	<u>52,558.6</u>	39.560,25
2024	<u>52,549.9</u>	39.553,67
2025	<u>58,749.5</u>	44.220,03
2026	<u>58,728.2</u>	44.204,01
2027	<u>63,731.9</u>	47.970,23
2028	<u>63,724.9</u>	47.965,01
2029	<u>69,038.4</u>	51.964,37
2030	<u>69,027.3</u>	51.956,01

Regarding WPS calculations:

7. Table 3.27 depths and Emissions factors are not aligned with the ones in the “WRCSoilDitchEmissionsWPS” Excel. Emissions factors in the Excel are sourced from Jovani–Sancho et. Al. (2023). Provide a justification of the values applied.
8. Table 3.29 soil microbial decompositions emissions and total are not aligned.

PD:

Vintage Year	Project GHG Emission Components (tCO <sub>2</sub> e)			
	Soil Microbial Decomposition	Ditch	Burned	Total
2022	<u>337.293.9</u>	<u>397.5</u>	<u>0</u>	<u>337.691.4</u>
2023	<u>343.194.9</u>	<u>397.5</u>	<u>0</u>	<u>343.592.4</u>
2024	<u>377.975.0</u>	<u>397.5</u>	<u>0</u>	<u>378.372.5</u>
2025	<u>377.975.0</u>	<u>397.5</u>	<u>0</u>	<u>378.372.5</u>
2026	<u>377.970.4</u>	<u>397.5</u>	<u>0</u>	<u>378.368.0</u>
2027	<u>377.870.2</u>	<u>397.5</u>	<u>0</u>	<u>378.267.7</u>
2028	<u>377.870.2</u>	<u>397.5</u>	<u>0</u>	<u>378.267.7</u>
2029	<u>377.868.5</u>	<u>397.5</u>	<u>0</u>	<u>378.266.0</u>
2030	<u>377.688.7</u>	<u>397.6</u>	<u>0</u>	<u>378.086.2</u>
<b>Total</b>	<b><u>3.663.001</u></b>	<b><u>3.975</u></b>	<b><u>0</u></b>	<b><u>3.666.976</u></b>

Excel:

Year	Soil_CO2	Soil_CH4	soil	Ditch_CO2	Ditch_CH4	Ditch_DOC		Total
2021	64481,5618	273764,817	338246,379	40,1955152	0	357,293469	397,488984	338643,868
2022	64481,5618	273764,817	338246,379	40,1955152	0	357,293469	397,488984	338643,868
2023	70382,6065	273764,817	344147,424	40,1955152	0	357,293469	397,488984	344544,913
2024	105208,214	273719,124	378927,338	40,1985974	0	357,320866	397,519463	379324,858
2025	105208,214	273719,124	378927,338	40,1985974	0	357,320866	397,519463	379324,858
2026	105207,2	273715,547	378922,747	40,1985974	0	357,320866	397,519463	379320,266
2027	105108,578	273713,951	378822,529	40,1985974	0	357,320866	397,519463	379220,048
2028	105108,578	273713,951	378822,529	40,1985974	0	357,320866	397,519463	379220,048
2029	105002,589	273639,817	378642,406	40,1985974	0	357,320866	397,519463	379039,925
2030	105007,511	273633,17	378640,681	40,1985974	0	357,320866	397,519463	379038,2

9. In table 3.30 CH<sub>4</sub> column present different values to ones in the Excel sheet.

PD

Excel

		Soil_CH4
2021	<a href="#">272,812.3</a>	273764,817
2022	<a href="#">272,812.3</a>	273764,817
2023	<a href="#">272,812.3</a>	273764,817
2024	<a href="#">272,766.8</a>	273719,124
2025	<a href="#">272,766.8</a>	273719,124
2026	<a href="#">272,763.2</a>	273715,547
2027	<a href="#">272,761.7</a>	273713,951
2028	<a href="#">272,761.7</a>	273713,951
2029	<a href="#">272,756.6</a>	273639,817
2030	<a href="#">272,681.2</a>	273633,17

Project proponent's response

Date: 17/11/2025

#### Misalignment between Excel Tables and Document (Points: 1, 2, 4, 5, 6, 7a, 8, 9)

All the errors in in these points are due to Aenor comparing out of date excel tables with an updated document. The correct excel tables were found in the Audit > First Round > Evidence > CAR07 > 02\_ExcelWorkbookCalculations. The values have been updated due to the PP's response to CLO2 review of emission factor. We have checked each of these missalignments and found no discrepancy were the correct excel tables are viewed.

#### Missalignment between Table 3.19 and Table 3.18 (Point 3)

There does not appear to be any misalignment between these two tables. One is cut by a page break which perhaps is the reason for this finding.

Table 3.18: Baseline Annual Carbon Emissions from peat burn from 2021 to 2030 vintage years.

Vintage Year	Baseline
	Soil Microbial Decomposition
2021	4,532,628.9
2022	4,841,145.6

3.0, VCS v4.4

Table 3.19: Baseline Annual Carbon Emissions from peat soil microbial decomposition from 2021 to 2030 vintage years.

Vintage Year	Baseline	Baseline Soil Microbial Decomposition (tCO <sub>2</sub> e)		
	Soil Microbial Decomposition	CO <sub>2</sub>	CH <sub>4</sub>	Total
2021	5,164,653.6	4,457,905.1	74,723.8	4,532,628.9
2022	5,476,224.5	4,769,587.8	71,557.8	4,841,145.6
2023	5,812,568.5	5,097,588.2	67,065.4	5,164,653.6
2024	6,123,912.2	5,411,794.9	64,429.6	5,476,224.5
2025	6,448,174.5	5,753,946.6	58,622.0	5,812,568.5
2026	6,758,846.6	6,067,359.0	56,553.3	6,123,912.2
2027	7,082,152.0	6,396,765.6	51,408.9	6,448,174.5
2028	7,340,647.3	6,709,329.6	49,516.9	6,758,846.6
2029		7,037,960.3	44,191.6	7,082,152.0
2030		7,298,751.0	41,896.3	7,340,647.3
<b>Total</b>	<b>59,580,954</b>	<b>59,000,988</b>	<b>579,966</b>	<b>59,580,954</b>

### Emission Factors Reference (Point 7b)

There is extensive documentation on emission factors in the PD Climate Annex.docx Chapter 8: Emission factors.

### Documentation provided by the project proponent

### VB's evaluation

Date: 28/11/2025

1. Excel tables are deemed aligned with the updated document.
2. Excel tables are deemed aligned with the updated document.
3. Excel tables are deemed aligned with the updated document.
4. Excel tables are deemed aligned with the updated document.
5. Excel tables are deemed aligned with the updated document.
6. Excel tables are deemed aligned with the updated document.
7. Excel tables are deemed aligned with the updated document.
8. Excel tables are deemed aligned with the updated document.
9. Excel tables are deemed aligned with the updated document.

Therefore, CAR 15 is closed.



## CLARIFICATIONS (CLS)

CL ID	01	Date: 06/10/2025
CL description		
<u>Section 3.2.21 of the PD</u>   It is stated: “A spatial analysis based on the administrative territory and the location of previous logging concessions in the project area, these three companies were assumed to have received licenses for 47,309 ha, 44,837 and 57,654 ha within the project area, respectively (see see Figure 3. and Table 3.10).”   Please clarify in the section and explain how the spatial analysis was conducted to reach the stated area values.		
Project proponent's response		Date: 13/10/2025
As outlined in the Project Description Document, the PP assumed that the total project area would be distributed across three concessions/deforestation agents. This assumption was derived from a spatial analysis conducted using official historical data from the Indonesian Ministry of Forestry on Managed Forest (Logging) and Wood and Fiber concessions.   Additionally, the project area is situated at the intersection of two districts (Kotawaringin Timur) and (Katingan), making it administratively unfeasible to establish a single concession spanning both districts. This administrative division therefore guided the decision to distribute the total area into three concessions of comparable size, consistent with the original proposal submitted in 2008 by the company (PT. Natural Wood Kencana) to the government for the development of an Acacia concession covering 50,000 ha.   An updated spatial analysis, developed to generate the baseline scenario for the first Project Description Document, has been shared with the Validation and Verification Body (VVB), along with all supporting datasets obtained from the Ministry of Forestry. This analysis examines the extent of concessions granted by the government between 1987 and 2022 across three regions of interest: Indonesia (national boundaries), Kalimantan, and Central Kalimantan regions.   The results confirm that the proposed concession sizes in the project area fall well within the statistical range of typical concession sizes observed nationally and regionally, being particularly consistent with those in Central Kalimantan. These findings support the baseline rationale and confirm that the project's spatial configuration is both technically justified and consistent with sectoral norms observed in comparable forestry and pulp &amp; paper operations across Indonesia.   All spatial analyses, supporting data, and additional reference materials have been provided to the VVB for review (see below)		
Documentation provided by the project proponent		
The requested spatial analysis of the Pulp&amp;paper and managed forest concessions in the Indonesia administrative territories have been added to the climate evidence folder, under the subfolder “<u>KMPBaselineConcessionAreas Analysis</u>”. A copy of this data and analysis has been added in the CL01 folder (Audit-Evidence folder).		

The letter with the government rejection of the concession permit application for industrial forestry plantation (HTI) by PT Kayu Alam Kencana in 2008 (which states that the application was for 50,000ha) has also been added to the above folders.	
<b>VVB's evaluation</b>	<b>Date:</b> 14/11/2025
The spatial analysis of the Pulp&amp;paper and managed forest concessions have been provided and deemed correct.   However, the government rejection of concession permit application for industrial forestry plantation (HTI) by PT Kayu Alam Kencana in 2008 is not in the mentioned folder.   Therefore, CL01 is not closed.	
<b>Project proponent's response</b>	<b>Date:</b> 16/11/2025
The government rejection of concession permit application for industrial forestry plantation (HTI) by PT Kayu Alam Kencana in 2008 has been added to the relevant audit evidence folder.	
<b>Documentation provided by the project proponent</b>	
Audit > First Round > Evidence > CL01 > KMPBaselineConcessionAreas_Analysis > <u>Government rejection of concession permit application for industrial forestry plantation (HTI) by PT Kayu Alam Kencana in 2008</u>	
<b>VVB's evaluation</b>	<b>Date:</b> 28/11/2025
The evidence has been provided and deemed correct.   Therefore, CL01 is closed.	

CL ID	02	Date: 06/10/2025
CL description		
<u>PD Climate Annex:</u>       <u>Section 3.2:</u> Please provide Ministerial Regulation Permen.LHK No. P.10/2019 and related government guidelines to delineate the peak of the peat dome.     <u>Section 3.3.1:</u> Provide the source and update in the Annex the reference of the parameters essential for conservation area delineation stated in the table.     <u>Section 8.3:</u> Provide the exact source (table and chapter) of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, used for the combustion factors of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O.     <u>Section 11.2:</u> Provide evidence of field data (2010- 2014) gathered to estimate the Bulk density of peat.		
Project proponent's response		Date: DD/MM/YYYY
- The requested regulation has been added to the Climate evidence folder, in folder "Peak of the peat dome regulation".    - Parameters used for the delineation of the peak of the peat dome and their respective references (these references have also been included in the PD Climate Annex):      -Coefficient TP-TMAT: Provided by Ministerial Regulation Permen.LHK No. P.10/2019.     -Faktor Bentuk: Provided by Ministerial Regulation Permen.LHK No. P.10/2019.     -Porosity: field measurements     -Soil moisture: field measurements     -Minimum peat depth: The IPCC (2013) Wetlands Supplement defines peatlands as areas with a naturally accumulated peat layer of at least 30 cm thickness. The FAO World Reference Base for Soil Resources (2022) classifies peat soils (Histosols) as those with an organic layer of at least 40 cm. This project adopts a 50 cm minimum peat thickness threshold, which is more conservative than both international standards. This threshold is used in all components of the baseline and project scenario modelling.          - We have reviewed all emission and GWP factors in the burn emissions calculations. The exact IPCC references are now included in the PD Climate Annex, and all updates are reflected throughout the model and results.      <b>Emission and Combustion Factors:</b> Derived from the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetland, Chapter 2, Table 2.7 for CO<sub>2</sub> and CH<sub>4</sub> (<a href="https://www.ipcc.ch/site/assets/uploads/2018/03/Wetlands_Supplement_Entire_Report.pdf">https://www.ipcc.ch/site/assets/uploads/2018/03/Wetlands_Supplement_Entire_Report.pdf</a>)    - The N<sub>2</sub>O factor remains from the 2006 IPCC Guidelines, Volume 4 (AFOLU) Chapter, 2, Table 2.5 (also within the E-BPB methods module).     <b>Global Warming Potentials (GWPs):</b> Updated to IPCC Sixth Assessment Report (AR6, 2021), Chapter 7, Table 7.SM.7, using 100-year horizon values (Co<sub>2</sub> = 1, CH<sub>4</sub> = 27.9, N<sub>2</sub>O = 273). These replace the earlier AR5 values and are now reflected across all emissions and VCU calculations (ref:		

<a href="https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07_SM.pdf">https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_Chapter07_S M.pdf)</a>   4. Section 10.2 – Subsidence (rather than 11.2): Table 10.2 mistakenly reported that bulk density values from 2010 – 2014 had been used. This was incorrect; 2023 values have been used. Data was collected as described in PD Annex Section 9 (Soil Properties). Table 10.2 has been amended, and bulk density data has been added to the evidence folders.	
<b>Documentation provided by the project proponent</b>	
1. Ministerial Regulation Permen.LHK No. P.10/2019 and the excel spreadsheet provided by the government to make the calculations have been added to the PD Climate evidence folder, in folder “Peak of the peat dome” and Audit CL2 folder.   2. References have been added to the Climate Annex. Porosity and soil moisture field data has been added to the PD Climate evidence folder, in folder “Peak of the peat dome”.   4. Bulk density data (2023) has been added to PD Climate evidence folder, in folder “Pipeline Input Data” (together with all data used in the pipeline) and Audit CL2 folder.	
<b>WB's evaluation</b>	<b>Date: 14/11/2025</b>
1. The evidence has been included.   2. The evidence has been provided, and reference have been included in the PD climate annex.   3. The evidence have been provided and references have been included in the PD climate annex.   4. The evidence has been provided.   Therefore, CL02 is closed.	

<b>CL ID</b>	03	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 2.1.6 of the MR:</u>   Provide evidence of the project start date.		
<b>Project proponent's response</b>		<b>Date: 15/10/2025</b>
Please note that the project was validated in 2016, thus all discussion and evidence on project start date was already provided and approved by Verra secretariat. Evidence on project start date includes the application to obtain the concession which prevented baseline emissions and the confirmation response from the Ministry of Forestry.		
<b>Documentation provided by the project proponent</b>		
Application to obtain the concession dated 10 November 2008.   Confirmation response from the Ministry of Forestry dated 12 June 2009.		
<b>VB's evaluation</b>		<b>Date: 14/11/2025</b>
The issue has been clarified.   Therefore, CL03 is closed.		

<b>CL ID</b>	<b>04</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 2.3.11 of the MR:</u>   Describe in more detail in this section the demonstration that community and other stakeholders were directly consulted and participated during this monitoring period.   Provide evidence of the consultation and participation process described.		
<b>Project Proponent's Response</b>		<b>Date: 17/10/2025</b>
Section 2.3.11 has been expanded to include detailed evidence of direct community and stakeholder consultations. The updated section now references 904 community meetings and 208 participatory planning sessions documented in SIRETA, demonstrating active participation and transparent record-keeping during the monitoring period.		
<b>Documentation provided by the project proponent</b>		
Evidence of consultation and participatory and consultation includes a sample of meeting reports and excel file of consultation process data		
<b>VVB's evaluation</b>		<b>Date: 14/11/2025</b>
The information has been included and deemed correct.   Therefore, CL04 is closed.		

<b>CL ID</b>	<b>05</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 2.3.12 of the MR:</u>   Provide clarification on how the described meetings influenced the decision making of the project. Describe more explicitly the activities carried out during this monitoring period to demonstrate effective participation and gender sensitivity of the activities and/or process implemented.		
<b>Project Proponent's Response</b>		<b>Date: 17/10/2025</b>
Section 2.3.12 has been rewritten to clarify how community and stakeholder consultations directly influenced project decision-making and to detail activities demonstrating inclusive and gender-sensitive participation. It now highlights how feedback from women, farmers, and other groups shaped project priorities and implementation during the 2020–2023 monitoring period.		
<b>Documentation provided by the project proponent</b>		
Updated MR		
<b>VVB's evaluation</b>		<b>Date: 14/11/2025</b>
The information has been included and deemed correct.   Therefore, CL 05 is closed.		

<b>CL ID</b>	<b>06</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 2.3.17 of the MR:</u>   While it was stated in other sections of the MR, it is requested to clarify in this section if worker Insurance (BPJS-TK) has been provided to project workers, and to provide supporting evidence.		
<b>Project proponent's response</b>		<b>Date: 17/10/2025</b>
The section has been updated to clarify that all full-time project staff are registered under both BPJS Ketenagakerjaan (employment insurance) and BPJS Kesehatan (health insurance) in compliance with Indonesian labor regulations. The complete staff list (163 employees) and their respective BPJS-TK and BPJS-Kes numbers have been provided as supporting evidence in this monitoring report. This confirms that the Katingan Mentaya Project maintains full social and health insurance coverage for all employees, including those working in field zones.		
<b>Documentation provided by the project proponent</b>		
Updated MR, database of workers with corresponding insurance coverage number		
<b>VB's evaluation</b>		<b>Date: 14/11/2025</b>
The information has been included and deemed correct.   Therefore, CL 06 is closed.		

CL ID	07	Date: 06/10/2025
<b>CL description</b>		
<u>Section 2.4.2 of the MR:</u>   While the CVs of the RMU team have been provided, no evidence of the Permian team has been provided. Please provide the CVs of the Permian technical team, or other supporting evidence, to assess the management team's expertise and prior experience.		
<b>Project proponent's response</b>		Date: 14/10/2025
A summary of the CVs of Permian Global is provided		
<b>Documentation provided by the project proponent</b>		
Permian Global Technical Expertise CVs summary		
<b>VB's evaluation</b>		Date: 14/11/2025
The evidence has been provided and deemed correct.   Therefore, CL07 is closed.		

<b>CL ID</b>	<b>08</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 2.5.4 of the MR</u>   Section states:   “By maintaining programmes such as community rubber gardens and small-scale rattan businesses, the Katingan Mentaya Project enables economic activities that respect traditional knowledge and environmental values.”   “Healthcare delivery remains a key aspect of the Katingan Mentaya Project’s efforts to support local well-being while respecting the unique cultural and geographical context of the region. By continuing to deliver health services via waterways in remote villages with limited road access the project demonstrates adaptability to local needs.”   Provide in the text a more detailed explanation of these activities, where and/or how many local communities/village implemented these programs to demonstrate that the project continues to preserve and protect cultural heritage in this monitoring period.		
<b>Project proponent’s response</b>		<b>Date: 17/10/2025</b>
Section 2.5.4 has been expanded to include specific information on the implementation of community rubber and rattan programmes (18 villages, 384 households) and the floating health service (18 remote riverine communities). These details demonstrate that the project continues to preserve and protect cultural heritage through the integration of traditional livelihoods and culturally appropriate service delivery.		
<b>Documentation provided by the project proponent</b>		
Updated MR		
<b>WB’s evaluation</b>		<b>Date: 14/11/2025</b>
The information has been updated and deemed correct.   Therefore, CL 08 is closed.		

<b>CL ID</b>	<b>09</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 2.5.8 of the MR</u>   Section describes the handling of Individual Claims in 2019, which occurred in a previous monitoring period.   Please clarify and update with any new information on this issue or other encounter during the current monitoring period.		
<b>Project proponent's response</b>		<b>Date: 17/10/2025</b>
The reference to individual claims from 2019 has been corrected, as these cases were resolved in a previous monitoring period and are no longer active. For the current monitoring period (2020–2023), no new individual claims have been registered. This is confirmed by the Grievance and Dispute Register (2020–2023), which documents 40 grievances and 3 disputes, all resolved through participatory mechanisms without escalation to individual claims. The section has been updated accordingly to reflect that no new cases occurred during this monitoring period.		
<b>Documentation provided by the project proponent</b>		
Grievances spreadsheet for monitoring period.		
<b>VB's evaluation</b>		<b>Date: 14/10/2025</b>
The information has been updated and deemed correct.   Therefore, CL 09 is closed.		

<b>CL ID</b>	<b>10</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 3.1.4 of the MR:</u>   Please provide record of formal meetings and socialisation in the form of minutes, photos and an attendees' list.		
<b>Project proponent's response</b>		<b>Date: DD/MM/YYYY</b>
During the 2020–2023 monitoring period, the Katingan Mentaya Project maintained a robust and well-documented program of community engagement.   A total of 904 formal community meetings and 208 participatory socialisation events were held across all 34 partner villages in Katingan and East Kotawaringin districts. These activities included annual village consultations (Musyawarah Desa), socialisation of project updates, livelihood planning workshops, gender-focused dialogues, and joint evaluation sessions between project representatives and community institutions (LPHDs, KTHs, PKK groups, and youth associations).   For each meeting, the project maintains complete attendance lists, minutes of discussions, and photographic records. These have been compiled in the Excel file "Community Meeting 2020-2023.xlsx" and are supported by digital folders containing signed attendance sheets and image documentation for every village and year of the monitoring period.   This documentation demonstrates that the project has consistently conducted participatory and transparent stakeholder engagement throughout the monitoring period, ensuring that local communities were fully informed and involved in project activities and decision-making.		
<b>Documentation provided by the project proponent</b>		
Excel file "Community Meeting 2020-2023.xlsx"		
<b>VB's evaluation</b>		<b>Date: 14/11/2025</b>
The information has been included and provided by the PP.   Therefore, CL 10 is closed.		

CL ID	11	Date: 06/10/2025
CL description		
Some clarifications are needed in the MR:       1. <u>Section 4.4.1:</u> Regarding Capacity Building and Social Cohesion, clarify in the text how many community members participated and provide evidence.     2. <u>Section 4.4.3:</u> Regarding Women's participation in microfinance programmes, clarify in the text how women participated and provide evidence.     3. <u>Section 4.4.5:</u> Describe more explicitly how community perspectives and needs are considered in project planning and implementation.		
Project proponent's response		Date: 18/10/2025
1. Section 4.4.1 – Capacity Building and Social Cohesion   During the 2020–2023 monitoring period, the project delivered extensive capacity-building programmes across all 34 villages, directly training 2,364 community members (38% women) in areas such as fire prevention, agroecology, microfinance, and sustainable livelihood management. These activities were implemented through participatory training sessions, field demonstrations, and community workshops led by zone facilitation teams. The results are documented through the SIRETA monitoring system, which tracks participation records, attendance lists, and evaluation forms. Beyond individual skill development, the project strengthened social cohesion by fostering collaboration between community groups, such as LPHDs, KTHs, women's PKK groups, and youth associations, through joint activities like reforestation campaigns, health initiatives, and participatory village planning. These efforts built trust, encouraged shared responsibility, and reinforced community governance structures, demonstrating measurable improvements in cooperation and collective action.   Section 4.4.3 – Women's Participation in Microfinance Programmes   Women's engagement in the project's microfinance initiatives has been both active and transformative. During this monitoring period, 11 women-led microfinance groups operated across the project area, providing small loans, savings mechanisms, and financial literacy training to over 340 women participants. Women played key roles not only as beneficiaries but as group leaders, treasurers, and facilitators managing revolving funds at the village level. These groups received ongoing mentorship and support from RMU's field facilitators and financial trainers to ensure accountability and growth. Records from the SIRETA system and MoU village reports provide verifiable evidence of these activities, including meeting minutes and fund distribution logs. Through their participation, women have gained greater financial independence, decision-making influence, and recognition within their communities—contributing to stronger household economies and equitable local development.   Section 4.4.5 – Incorporation of Community Perspectives and Needs   Community perspectives and needs are systematically incorporated into project planning and implementation through a participatory governance structure anchored in the annual Musyawarah Desa (village assemblies) and ongoing consultation processes. Each of the 34 partner villages holds structured meetings where local priorities, challenges, and proposals are discussed with project representatives before inclusion in annual work plans and MoU fund allocations. During 2020–2023, more than 900 community meetings and 200 participatory planning sessions were held, engaging 28,516 participants across different demographic groups. Inputs gathered		

through these processes directly influenced project decisions—such as prioritising health campaigns in riverine villages, expanding agroecology training, and developing women-led microfinance initiatives. This participatory feedback cycle ensures that community priorities are integrated into implementation strategies and that project outcomes remain locally relevant, transparent, and community-driven.

#### Documentation provided by the project proponent

Updated MR and corresponding evidence

#### VVB's evaluation

**Date:** 14/11/2025

1. The issue has been clarified and is deemed closed.
2. The information is included and deemed correct.
3. The information is updated and deemed correct.

Therefore, CL 11 is closed.

<b>CL ID</b>	<b>12</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 5.2.2 of the MR:</u>   Provide evidence of the following statements:       1. "All 34 villages are rural and among Indonesia's lowest income brackets."     2. "Project has supported 11 LPHDs to obtain forest tenure and empowered over 11 women-led groups." Additionally, include in the MR the list of LPHD women-led groups.		
<b>Project proponent's response</b>		<b>Date: 14/10/2025</b>
Evidence has been added to substantiate the statements in Section 5.2.2. All 34 villages engaged in the project are located in rural areas of Katingan and East Kotawaringin districts, both recognised by BPS as among Indonesia's lowest income categories. The project has facilitated the formalisation of 11 LPHDs through Village Forest (Hutan Desa) permits and provided targeted capacity building to these institutions. Additionally, 11 women-led groups have been supported across participating villages through microfinance, NTFP, and handicraft initiatives, ensuring both gender inclusion and livelihood diversification. The list of LPHDs and women-led groups is now included as an annex to the MR.		
<b>Documentation provided by the project proponent</b>		
Corresponding evidence is provided		
<b>VB's evaluation</b>		<b>Date: 14/11/2025</b>
1. The evidence has been provided and deemed correct.     2. The evidence has been provided and deemed correct.       Therefore, CL12 is closed.		

<b>CL ID</b>	<b>13</b>	<b>Date: 06/10/2025</b>
<b>CL description</b>		
<u>Section 5.3.2 of the MR:</u>   The explanation provided regarding dissemination of biodiversity results for academia and general public is clear. However, it is unclear how these results have been communicated to other stakeholders.   Provide evidence that biodiversity results have been communicated to communities and local stakeholders.		
<b>Project proponent's response</b>		<b>Date: 15/10/2025</b>
Biodiversity monitoring results indicate ongoing hunting, logging, and human–wildlife conflicts since the projects inception. These findings subsequently prompted a series of targeted outreach and awareness programmes with affected communities during the monitoring period. Between 2021 and 2023, multiple biodiversity-focused workshops, socialisation sessions, and awareness campaigns were held across project villages to promote wildlife protection, prevent poaching, and reduce illegal logging. These activities included specific sessions on orangutan encounters, biodiversity survey methods, and forest conservation laws, and are evidenced by attendance records and photographic evidence.   In addition, biodiversity-related information was disseminated during the socialization of the current MR results in July 2025 and integrated into the Environmental and Health Education Module under the <i>Sekolah Sehat</i> program, which was delivered to local schools in collaboration with education authorities. These initiatives ensured that biodiversity monitoring results were communicated to communities and stakeholders, reinforcing local participation in conservation efforts. These dissemination activities are now listed in the MR, with supporting evidence referenced in Section 5.3.2.		
<b>Documentation provided by the project proponent</b>		
See evidence file CL13 including biodiversity community meetings, education module and socialization of the PD and MR		
<b>VB's evaluation</b>		<b>Date: 14/10/2025</b>
The information has been clarified and evidence has been provided.   Therefore, CL 13 is closed.		

CL ID	14	Date: 06/10/2025
CL description		
<u>MR:</u>   Provide evidence of government approval to proceed with the verification process and evidence of the project registration in Indonesia's national registry system (SRN-PPI).		
Project proponent's response		Date: 14/10/2025
<b>Evidence of government approval to proceed with the verification process:</b>   The reactivation of PT RMU's permit from suspension provides the basis for further verification. The decrees for the reactivation of the permit for the freezing of PT RMU for Units I and II (No.374 and 375) are provided as evidence.   <b>Evidence of Project registration in SRN-PPT:</b>   Below is an explanation of the Progress of PT RMU's activity registration by the SRN:       1. PTRMU has registered through SRN since 2018 up to the technical document status stage (stage III of 4 stages)     2. The Ministry of Environment is developing a Robust SRN (new Beta version) from the existing SRN to support the implementation of the Mutual Recognition Agreement (MRA) with Verra or other certifications (JCM, Gold Standard, Plan Vivo).     3. On August 25, 2025, the new SRN dashboard (Robust SRN) was launched and simulations were conducted. PT RMU has successfully logged in to the new dashboard, but data is awaiting migration from the existing SRN.     4. Following the signing of the MRA, Verra requires guidance for Project Developers/Proponents to ensure the MRA scheme can be implemented. The guidance document is currently being prepared.		
Documentation provided by the project proponent		
- Evidence of project registration in Indonesia's national registry system (SRN-PPI). This evidence includes the description of the process and screenshots of the registry system displaying the project registration.     - Decrees for the reactivation of the permit for the freezing of PT RMU for Units I and II (No.374 and 375).		
VVB's evaluation		Date: 14/11/2025
The issue has been clarified, and evidence has been provided.   Therefore, CL 14 is closed.		

# APPENDIX 5: ATTENDANCE LISTS

**AENOR**

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ATTENDANCE LIST

PROJECT: Katering Mentaya Project

DATE: 03/08/2025

MEETING TOPIC: Kick off Meeting

LOCATION: Aquarius Hotel/MIA TOWN

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	Taryono. Darusman	GM & RnD - RMU		Darusman
2	Fari Salah	community - RMU		Salah
3	SARAH SCRIVEN	BIODIVERSITY TECH TEAM - PEKANAN		SS
4	Banu M. H. H.	Project Manager		Banu
5	Hirason H.	Biz Dev Manager		Hirason
6	Josep H.	Kasir PMDTH		Josep
7	Henel C. G.	Kasir HR KEM		Henel
8	Brama M. H.	Koordinator HSE		Brama
9	Akasyul Anwar	Kasir PMSE		Akasyul
10	Krisno	Kasir BAHUTLA		Krisno
11	Gele Wop	KZ MDW		Gele
12	Yohanes Toka	FZ SPTT		Yohanes
13	M. GALICOT.	FZ		M. GALICOT.
14	Dwi Winayanti	HR		Dwi
15	Zidna Sabila H.	RnD		Zidna
16	Arjo Utiro	Holding		Arjo
17	Jetti BERNARD	Holding		Jetti
18	DESMON	PERC		DESMON
19	Andi Angga Kusuma	Kepala Zona PH		Andi Angga

**AENOR**

Confia

ATTENDANCE LIST

PROJECT: Katering Mentaya Project

DATE: 03/08/2025

MEETING TOPIC: Kick off Meeting

LOCATION: Midtown Hotel

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
20	Magner. Nurlana	Consultan		Magner
21	Milena A.	HSE		Milena
22	Paryandi	BIO		Paryandi
23	Dim Kama Wdt	FIN		Dim
24	Lingga	LUG		Lingga
25	Ridho	KOMUK		Ridho
26	SUANDEK	Kalon Kamipeng		SUANDEK
27	HEOWIN	PPH		HEOWIN
28	SONIA	CONSULTANT SDGs		SONIA
29	Siah	Magang		Siah
30	Gunarto	KMR BIOD		Gunarto

# AENOR

## Confía

PROJECT: Rukungu Mentaya Project

DATE: August 31, 2025

**MEETING TOPIC:** Interview with local authorities

LOCATION: Avarius Hotel

## ATTENDANCE LIST

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

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# AENOR

**Confía**

PROJECT: Katingan Mentaya Project

DATE: 04/08/2025

**MEETING TOPIC:** Interview with project management

LOCATION: PT. RMU office at Sampit

## ATTENDANCE LIST

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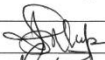
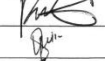
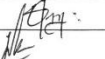
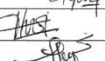
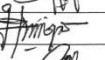
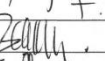
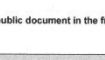
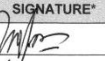
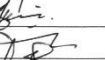
**Confía**

DATE: 05/08/2025

## ATTENDANCE LIST

LOCATION: Mentaya Sebrang, Zone Seranau

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No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
	Rosalia P	Kasi PKD	Kec. Seranau	
	REZA An M. Adoi	LURAH	MENTAYA SEBERANG	
1	Subliangah	Sekdes	Seragam Jaya	
2	Ahmad Hoptan Sapari	RSA	RSA Muntaya Seberang	
3	Zul Kifli	Mantir	Seragam Jaya	
4	YANTO	PKRT/ANG	MENTAYA SEBERANG	
5	Musfah	Kader Posyandu	Terantang	
6.	Libik Tiwahyuni	Kader Poslansia	Mentaya Seberang	
7	Murniah	Kader Posyandu Balita	Mentaya Seberang	
8.	REWARDI SYUKUR.	Headw. DB Terantang	DB Terantang	
9.	Sapra Peli Nabata	Perangkat Desa	Desa Ganggo	
10.	Ceci Ceci Renty	Kepala Desa Ganggo	Desa Ganggo	
11	M. FAHRURA ZI	KTH. HUMBANG HINYAR.	TERANTANG Hiliris	
12	Barni Abdul Fatah	Sekdes Terantang Hiliris	Terantang Hiliris	
13.	Abdul Muhid	KADES	Terantang Hiliris	
14	EXO CHAYONO	RSA	SERAGAM Jaya	

**Confía**

DATE: 05/08/2021

## ATTENDANCE LIST

LOCATION: Mentawai Sebrang, Zone Seranau

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**AENOR**

Confia

ATTENDANCE LIST

PROJECT: *Katungan Mentaya Project*

DATE: *6/08/2025*

MEETING TOPIC: *Interview with the Guard Post Fire manager* LOCATION: *Pos Barat / West Post*

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No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	Andi Angsa Kusuma	Rimba Makmur Utama / Kasek		<i>[Signature]</i>
2	Agus	Rimba Makmur Utama		<i>[Signature]</i>
3	HERDIAN	RMU / manager RMU		<i>[Signature]</i>
4	KRISNO	RMU / Kasi PPHK		<i>[Signature]</i>
5	Ahmad Sulaiman	RMU ZPHT		<i>[Signature]</i>
6	IRMIANTO	RMU BIN-ITVT		<i>[Signature]</i>
7	FERNANDES.O.M	Rmu / Kasi PPHK		<i>[Signature]</i>
8	A. Nurhasyem	RMU / Administrasi HSE		<i>[Signature]</i>
9	Donnal Setiawan	RMU / wakil kepala Zona P.H		<i>[Signature]</i>
10	SYAHRI	RMU / PMK		<i>[Signature]</i>
11	Rida	RMU / PMU		<i>[Signature]</i>
12	ANDRE WINATA	RMU / UMLOG		<i>[Signature]</i>
13	Asykar	RMU / Komunikasi		<i>[Signature]</i>
	Agung	Rmu / Komunikasi		<i>[Signature]</i>

**AENOR**

Confia

ATTENDANCE LIST

PROJECT: *Katungan Mentaya Project*

DATE: *06/08/2025*

MEETING TOPIC: *Interview with the Nursery team* LOCATION: *Nursery Unit I Keraton Hartigan*

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No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	Nurhasyem	Manager Pembinaan Hutang (P.P. RMU)		<i>[Signature]</i>
2	IRMIANTO	KASIE PEMBINAAN HUTANG		<i>[Signature]</i>
3	Calvoro	STAF Lapangan		<i>[Signature]</i>
4	HERDIANTO	STAF Lapangan		<i>[Signature]</i>
5	Budi Jaso	STAF Lapangan		<i>[Signature]</i>
6	Ahmad Rahmadi	STAF Lapangan		<i>[Signature]</i>
7	AGUSTINUS LEPPE	STAF PMOH / kelola Sosial		<i>[Signature]</i>

**Confía**

DATE: 07/08/2025

LOCATION: Central Post

## ATTENDANCE LIST

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**Confía**

DATE: 07/08/2025

LOCATION: Central Post

## ATTENDANCE LIST

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[illegible]

## Confía

DATE: 07/08/2025

LOCATION: Central Post

## ATTENDANCE LIST

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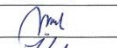
**Confía**

DATE: 08/08/2025

LOCATION: Kampung Melayu

### ATTENDANCE LIST

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No	NAME & SURNAME	ROLE/PROF/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	M. Yooni	Kp Melayu	KTH.	
2	AMANSYAH	KAMEL	KETUA KTH	
3	RASYO	MENDAWAI	KETUA LPHD	
4	NURUL BUDIA	PERIGI	Guru	
5	NORSAH	MENDAWAI	KET. KEL SIMPAN PINJAM	
6	MELIANA	PERIGI	GURU	
7	JURHA	PERIGI	KADER	
8	RAMADANI	Kp Melayu	LIMNAS	
9	M. Haris JM. S.Pd	Kampung Melayu	Guru	
10	MASYHAM	Mendawai	Guru	
11	SULAMI	- 1 -	Anggota KSM	
12	Rahmadinor	- 2 -	LPHD	
13	Iktiharial	- 1 -	ANGGOTA KSM	
14	Madona Melly Melani	Mendawai	Sebidais KSM.	
15	Diah	Kampung Melayu	Masyarakat	
16	MAKASI	Kp Melayu.	Kades	
17	NICHOLAS DAIKEL	CAMAT	Kecamatan Mendawai	

# AENOR

## Confía

PROJECT: Katering Mentaya Project

DATE: 08/08/2025

**MEETING TOPIC:** Interview with the Community

LOCATION: Kampung Melayu

## ATTENDANCE LIST

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

[illegible]

# AENOR

## Confía

PROJECT: Kiatangan Mantaya Project

DATE: 08/08/2025

**MEETING TOPIC:** Interview with Community Agroforestry team

LOCATION: Demplot CSR Kampung Melayu

## ATTENDANCE LIST

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

[illegible]

**Confía**

DATE: 09/09/2025

LOCATION: Central Post

### ATTENDANCE LIST

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[illegible]

**Confía**

DATE: 12/09/2025

LOCATION: Tampelas village, LPHD office

### ATTENDANCE LIST

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[illegible]

**AENOR**  
Confia

ATTENDANCE LIST

PROJECT: Karingan Mentaya Project  
MEETING TOPIC: Interview with the community

DATE: 13/09/2025  
LOCATION: Telaga village

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1.	Toni	Kepala Desa Telaga	Desa Telaga	[Signature]
2	M. BERAU	Kepala BPD Desa Telaga	Desa Telaga	[Signature]
3	Ahmad Yuni	Ketua LPM Desa Telaga	Desa Telaga	[Signature]
4	Metroyadi	Ketua KTH Kelayan Cestonik & Idang	Desa Telaga	[Signature]
5	Sumarjo	Bendahara KTH DS Telaga	Desa Telaga	[Signature]
6	Suparji	SEKRETARIS Desa Parupuk	Desa Parupuk	[Signature]
7	Yulia Sari	Kader Posyandu	Desa Parupuk	[Signature]
8	M. JAIRUDINSYAH	MPA DS TELAGA	Desa TELAGA	[Signature]
9	DEA KARNO	MPA DS Telaga	Desa TELAGA	[Signature]
10	Rahma Wati	KADER Posyandu Telaga	Desa Telaga	[Signature]
11	IRAWATI	Kader posyandu Telaga	Desa Telaga	[Signature]
12	Sri Ranti	Kepala Sekolah SMAS PGRI Telaga	Desa Telaga	[Signature]

**AENOR**  
Confia

ATTENDANCE LIST

PROJECT: Karingan Mentaya Project  
MEETING TOPIC: Plot Measurement III

DATE: 13/09/2025  
LOCATION: Karam Karakan Hanjipon

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No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIYANTO	Tim Pengukuran Plot		[Signature]
2	PHILIP ULOK	PERMIAN GLOBAL		[Signature]
3	ZAIDEY JULGENTIUS	PERMIAN GLOBAL		[Signature]
4	Wardoyo	Tim pengukuran plot Chobris		[Signature]
5	AMANTO	Tim pengukuran plot Chobris		[Signature]
6	CATYANO	Tim pengukuran plot Chobris		[Signature]
7	Booi Jasi	Tim Pengukuran Plot Chobris		[Signature]
8	Ahmad Nur Amin	Tim pengukuran plot Chobris		[Signature]
9	Sumarto	Permisian Global		[Signature]
10	Andri Pratama P	Support CHSE		[Signature]

**AENOR**

Confia

ATTENDANCE LIST

PROJECT: Ketrans Mentaya Project

DATE: 13/09/2025

MEETING TOPIC: Plot Measurement 112

LOCATION: Koral Kencana Hantipon

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIVANTO	Tim Pengukuran Plot		Ahmad
2	PHILIP ULOK	PERMIAN GLOBAL		CH
3	ZAIDEY FULGENTIUS	PERMIAN GLOBAL		Su
4	Wardoyo	Tim Pengukuran plot Choloni's		[Signature]
5	IRMANANTO	Tim Pengukuran plot Choloni's		[Signature]
6	CATTYONO	Tim Pengukuran plot Choloni's		[Signature]
7	Rudi Josa	Tim Pengukuran Plot Choloni's		[Signature]
8	Ahmad Nur Amin	Tim Pengukuran plot Choloni's		[Signature]
9	Sunarto	Perumian Global		[Signature]
10	Andri Pratama P	SUPPORT (HSE)		[Signature]

**AENOR**

Confia

ATTENDANCE LIST

PROJECT: Ketrans Mentaya Project

DATE: 13/09/2025

MEETING TOPIC: Plot Measurement 113

LOCATION: Koral Kencana Hantipon

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIVANTO	Tim Pengukuran Plot		Ahmad
2	PHILIP ULOK	PERMIAN GLOBAL		CH
3	ZAIDEY FULGENTIUS	PERMIAN GLOBAL		Su
4	Wardoyo	Tim Pengukuran plot Choloni's		[Signature]
5	IRMANANTO	Tim Pengukuran plot Choloni's		[Signature]
6	CATTYONO	Tim Pengukuran plot Choloni's		[Signature]
7	Rudi Josa	Tim Pengukuran Plot Choloni's		[Signature]
8	Ahmad Nur Amin	Tim Pengukuran plot Choloni's		[Signature]
9	Sunarto	Perumian Global		[Signature]
10	Andri Pratama P	SUPPORT (HSE)		[Signature]

**Confía**

DATE: 14/09/2025

### ATTENDANCE LIST

LOCATION: Kana/ Karokan Han tipan (Cfona)

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[illegible]

**Confía**

DATE: 14/09/2025

## ATTENDANCE LIST

LOCATION: Kanal Kerotan Hantipon (Selaian <sup>Utara</sup> ~~Selaian~~)

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

[illegible]

**AENOR**

Confia

ATTENDANCE LIST

PROJECT: Kabinan Mentaya Project

DATE: 14/09/2023

MEETING TOPIC: Plot Measurement 61

LOCATION: Kanal Karantan Hantipan (Ctara)

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIYANTO	Tim Pengukuran Plot		Ahmad
2	PHILIP ULOK	PERMIAN GLOBAL		Philip
3	ZAIDEY FULGENTIUS	PERMIAN GLOBAL		Sug
4	Wanso	Tim pengukuran plot Choloris		Wanso
5	IRMANITO	Tim Pengukuran Plot Choloris		Irmanito
6	CATYANO	Tim pengukuran plot Choloris		Catano
7	Budi Josa	Tim pengukuran plot Choloris		Budi
8	Ahmad Nur Amin	Tim pengukuran plot Choloris		Ahmad
9	Sumarto	Permian Global		Sumarto
10	Andri Pratama P	SUPPORT (CHSE)		Andri

**AENOR**

Confia

ATTENDANCE LIST

PROJECT: Kabinan Mentaya Project

DATE: 15/09/2023

MEETING TOPIC: Plot Measurement 52

LOCATION: Kanal Karantan Hantipan (Sabana)

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No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIYANTO	Tim Pengukuran Plot		Ahmad
2	PHILIP ULOK	PERMIAN GLOBAL		Philip
3	ZAIDEY FULGENTIUS	PERMIAN GLOBAL		Sug
4	Wanso	Tim pengukuran plot Choloris		Wanso
5	IRMANITO	Tim Pengukuran Plot Choloris		Irmanito
6	CATYANO	Tim pengukuran plot Choloris		Catano
7	Budi Josa	Tim pengukuran plot Choloris		Budi
8	Ahmad Nur Amin	Tim pengukuran plot Choloris		Ahmad
9	Sumarto	Permian Global		Sumarto
10	Andri Pratama P	SUPPORT (CHSE)		Andri

**AENOR**  
Confia

## ATTENDANCE LIST

PROJECT: Kabinan Mentaya Project

DATE: 15/09/2025

MEETING TOPIC: Plot measurement 62

LOCATION: Kana/ Karokan, Hantipon (Selatan)

\*By signing this document, I hereby acknowledge and accept the following terms: a) it is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIVANTO	Tim Pengukuran Plot		Ahmad
2	PHILIP ULOK	PERMIAN GLOBAL		Philip
3	ZAIDEY FULGENTIUS	PERMIAN GLOBAL		Sur
4	Wardoyo	Tim pengukuran plots Choloris		Wardoyo
5	IRMANANTO	Tim pengukuran Plot Choloris		Irmananto
6	Cahyanto	Tim pengukuran plot Choloris		Cahyanto
7	Budi Josa	Tim pengukuran Plot Choloris		Budi Josa
8	Ahmad Nur Amin	Tim pengukuran plot Choloris		Ahmad Nur Amin
9	Sumarto	Permisian Global		Sumarto
10	Andri Pratama P	SUPPORT (MSE)		Andri Pratama P

**AENOR**  
Confia

## ATTENDANCE LIST

PROJECT: Kabinan Mentaya Project

DATE: 16/09/2025

MEETING TOPIC: Plot Measurement 79

LOCATION: Kana/ Karokan, Hantipon (Selatan)

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No	NAME & SURNAME	ROLE/PROFESSION/STAKEHOLDER GROUP	COMMUNITY	SIGNATURE*
1	HERIVANTO	Tim pengukuran Plot		Ahmad
2	PHILIP ULOK	PERMIAN GLOBAL		Philip
3	ZAIDEY FULGENTIUS	PERMIAN GLOBAL		Sur
4	Wardoyo	Tim pengukuran plots Choloris		Wardoyo
5	IRMANANTO	Tim pengukuran Plot Choloris		Irmananto
6	CAHYANO	Tim pengukuran plot Choloris		Cahyanto
7	Budi Josa	Tim pengukuran Plot Choloris		Budi Josa
8	Ahmad Nur Amin	Tim pengukuran plot Choloris		Ahmad Nur Amin
9	Sumarto	Permisian Global		Sumarto
10	Andri Pratama P	SUPPORT (MSE)		Andri Pratama P

Confía

DATE: 17/09/2025

LOCATION: RMU office at Bogor, West Java

\*By signing this document, I hereby acknowledge and accept the following terms: a) It is my intention to participate in this query in a free and transparent manner. b) I consent to disclose my name in public document in the framework of the certification to issue carbon credits

[illegible]