



Validation Report

Version 1.1

06-July-2023

Document Prepared by AENOR INTERNACIONAL S.A.U.

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Report Subject to changes – Validation concluded but Verification is ongoing

Forest Carbon Partnership Facility (FCPF) Carbon Fund Validation Report (VAR)	
ER Program Name and Country:	East Kalimantan - Jurisdictional Emission Reductions (EK-JER) Program, INDONESIA
Crediting Period	01-07-2019 to 31-12-2024
Name of the VVB:	AENOR INTERNACIONAL S.A.U.
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Date of the Validation Report:	06-07-2023
Version:	1.1
Report Approved by	José Luis Fuentes

1. VALIDATION STATEMENT

The review and cross-check of explanations and justifications included in the Monitoring Report version dated 16-June-2023 and supporting documents, have provided AENOR with sufficient evidence to determine with a reasonable level of assurance the compliance of the Emission Reduction Program in East Kalimantan (EK-JER), Republic of Indonesia, with the applicable validation criteria and materiality set out in the Forest Carbon Partnership Facility (FCPF) requirements.

The scope covered by the validation with extended scope includes the ER Program's crediting period (01-07-2019 to 31-12-2024), the selected Reference Period (01-07-2006 to 30-06-2016), the accounting area (12,734,692 ha), the REDD Country Participant's Forest Monitoring System, the national REDD+ Programs and Projects Data Management System and the following GHG sources and sinks (REDD+ activities), carbon pools and type of GHGs:

GHG sources and sinks (REDD+ activities)
Emissions from deforestation – Included
Emissions from forest degradation – Included
Removal as a result of improved carbon stocks – Excluded
Emissions and removals from carbon stock conservation – Excluded
Emissions and removals from sustainable forest management - Excluded
Carbon pools
Above Ground Biomass (AGB) – Included
Below Ground Biomass (BGB) – Included
Dead Wood – Excluded
Litter – Excluded
Soil Organic Carbon (SOC) – Partially Included (organic soils), excluded for mineral soils
GHG
CO ₂ – Included
CH ₄ – Partially Included (peat and forest fire), excluded for peat drainage
N ₂ O – Included

The validation with extended scope was performed through a combination of document review, interviews and communications with relevant staff. Findings were issued, requesting: MAJOR Corrective Action Request (MCAR); MINOR Corrective Action Request (mCAR); and Observations (OBS) according to the FCPF validation and verification guidelines (VVG) v2.4 section 11, to ensure compliance with all requirements.

A total of 43 MCAR, 5 mCAR and 1 Observation were raised as part of the validation with extended scope process. All MCAR, mCAR and OBS were successfully addressed by the ER Program and closed by the VVB and no findings remained open. The findings are reported in the Appendix 1 of this report.

Regarding the reference Level, it is AENOR's opinion that the ER Program of East Kalimantan within the Republic of Indonesia meets the applicable validation criteria set out in the FCPF requirements, and that it is free of material misstatements. Hence, AENOR recommends the FCPF Carbon Fund to continue with the relevant subsequent steps to proceed with the verification of the FCPF ERs.

Statement issuing date: 06-July-2023

Intended User: World Bank Group, FCPF Carbon Fund Participants



Carlos Jiménez Barrios
Team Leader



José Luis Fuentes
Climate Change Manager

2. Agreement

2.1 Level of Assurance

The validation with extended scope audit assessment was conducted to provide a reasonable level of assurance concerning material misstatements, errors, or omissions in conformance with the validation criteria and scope set out in the FCPF requirements, in conformance with paragraph 31 of the VVG v2.4. The provisions undertaken to ensure such a reasonable level of assurance included a risk assessment of the sources and the magnitude of potential errors, omissions, and misstatements, as required by section 4.4.1 of ISO 14064-3:2006, previous to the elaboration of a sampling/evidence-gathering plan.

Based on the previous provisions and considering the findings raised during the audit, a positive evaluation statement reasonably ensures that the FCPF Program Reference Level is materially correct and is a fair representation of the GHG data and information provided in the ER Monitoring Report and supporting documents.

2.2 Objectives

The objective of audit was to conduct a systematic, independent, and documented process for the evaluation of the GHG assertion made by the Emission Reduction Program in East Kalimantan (EK-JER), Republic of Indonesia, against the FCPF criteria applicable to validation with extended scope to determine if the Program is in compliance to the agreed criteria, and its implementation can be expected to result in the proposed GHG reductions and removal enhancements as described in the ER Monitoring Report and its Annex 4.

The general objectives of the validation, as required by paragraph 32 of the VVG v2.4, were:

- Review of the ER Monitoring Report and supporting information to confirm the correctness of presented information;
- Identify if the methodological steps and data are publicly available in accordance with applicable criteria;
- Assess whether the start date of the crediting period proposed by the ER Program is in compliance with the definition provided in the FCPF Glossary of terms;
- Assess the extent to which the Reference Level has been reported with a transparent and coherent step-by-step process that enables reconstruction and have meet the requirements of applicable criteria;
- Assess the extent to which the Reference Level is materially accurate;
- Identify sources of uncertainty due to both random and systematic errors related with the Reference Level setting and determine whether the ER Program has conducted the uncertainty analysis in compliance applicable criteria;
- Assess the National Forest Monitoring System (NFMS) of the ER Program and validate that there are controls for sources of potential errors, omissions, and misstatements in place;
- Identify components of the NFMS that require attention and/or adjustment in future monitoring and reporting or identify areas of risk of future non-compliance.

The specific objectives of the validation with extended scope, as required by paragraph 33 of the VVG v2.4, were:

- Determine that the ER Program's scope in terms of sources, sinks and carbon pools is in accordance with the applicable validation criteria;
- Assess whether the ER Program's methods are in accordance with applicable validation criteria as the latest IPCC Guidelines;
- Assess if the Reference level is in accordance with applicable validation criteria.

2.3 Criteria

The audit assessment was carried against the criteria set for validation with extended scope by the following documents:

- FCPF Methodological Framework, v3, April 2020.
- Validation and Verification Guidelines v2.4 August 2021.
- Buffer Guidelines v3.1 May 2022.
- Guidelines on the application of the Methodological Framework.
 1. Use of Interpolation of Data in Relation to the Reference Period of an ER Program v1 June 2016.
 2. Technical Corrections to GHG Emissions and Removals Reported in the Reference Period v2 November 2020.
 3. The Definition of Reporting Periods of Emission Reduction Programs v1 November 2018.
 4. Uncertainty Analysis of Emission Reductions v1.0 November 2020.
- Process Guidelines v5.2 August 2021.
- Glossary of Terms v2.2 May, 2022.
- Guidelines contained in the ER Monitoring Report Template (v2.4), the Validation Report Template (v1.2, September 2021) and the Verification Report Template (v1.3, August 2022);
- ISO 14064-3:2006
- ISO 14065:2013
- ISO 14066:2011

The following documents will be considered as documents that provide acceptable methods for satisfying requirements provided in the above criteria, as per VVG paragraph 38:

- 2006 IPCC Guidelines;
- 2013 IPCC Wetlands Supplement;
- 2019 refinement to the 2006 IPCC Guidelines;
- GFOI 2016 Methods and Guidance Document;
- FCPF Guidance Notes.

Specifically, the following criteria and indicators of the MF were applicable to the validation with extended scope, as per paragraph 37 of the VVG 2.4:

Criteria/indicator	Topic
3	Scope and methods
4	Carbon pools and GHG
5	IPCC guidelines
6	Data availability
7, 8, 9.1	Identification and address source(s) of uncertainty
10 to 13	Reference level
14.2, 14.3	Robust Forest Monitoring system
15	National Forest Monitoring System
16	Community participation in Monitoring and Reporting

2.4 Scope

The scope of validation included as per section 8.4 of the VVG v.2.4:

- The Crediting Period of the FCPF program applicable to the ER Program;
- The selected Reference Period
- The ER Program Accounting Area as defined in the ER Program's Final ER Program Document (ER-PD);
- The GHG sources and sinks associated with any of the REDD+ Activities accounted for as required by the Methodological Framework;

- The Carbon Pools and greenhouse gases to be accounted for as required by the Methodological Framework;
- The REDD Country Participant's Forest Monitoring System as described in the ER Monitoring Report;
- The national REDD+ Program and Projects Data Management System (DMS) as described in the Monitoring Report.

2.5 Materiality

The materiality threshold of the validation, as required section 8.5 of the VVG v2.4, was:

- Quantitative: the threshold for materiality with respect to the aggregate of errors, omissions, and misrepresentations relative to the total reported GHG emission and removals was one percent (1%). Under-estimation of the Reference Level was not considered a material discrepancy.
- Qualitative: any issue related to management system and controls, poorly managed documentation, and non-compliance with the applicable requirements of the MF and other applicable criteria; and any errors in reporting of factual information in the ER Monitoring Report as required by the FCPF MF.

The validation process based on the onsite visit and desk review found that there are not quantitative and or qualitative material discrepancies affecting the Reference Level and the Reference Level setting.

3. METHODOLOGY AND PLANNING

3.1 Validation Team

Name	Role	Activities				
		Desk review	Site visit	Reporting	Supervision	Technical review
Carlos Jiménez	Team Leader	X	X	X	X	
Javier Cócera Cañas	Validator/Verifier auditor	X		X		
Elena Llorente	Validator/Verifier auditor	X		X		
Daniel Bermejo Vesga	Auditor in trainee	X		X		
Adrián Vidal Prados	Auditor in trainee	X		X		
José Luis Fuentes	Reviewer				X	X

3.2 Validation schedule

Tasks	Deliverable	Date	Responsible
1. Kick off meeting		01/09/2022	All parties
2. Desk review of documents	Preliminary findings (if	-	AENOR

	required)		
3.1. Draft sampling plan	Sampling plan draft	23/09/2022	AENOR
3.2. Sampling plan	Sampling plan	V1 0/09/2022 V2 4/10/2022	AENOR
4.1. Draft Audit plan	Audit plan draft	30/09/2022	AENOR
4.2. Audit plan	Audit plan	V1 7/10/2022 V2 4/10/2022	AENOR
5. Country visit	-	26-28/10/2022	AENOR/ Country participant
6. 1st round of findings	1st round of findings	18/11/2022	AENOR
7. Answer to findings	Answer to findings	05/01/2023	Country participant
8. Review of findings and potential 2nd round of findings (if required)	2nd round of findings (if required)	24/01/2023	AENOR
9. Answer to the 2nd round of findings (if required)	Answer to findings	17/03/2023	Country participant
10. Review of answers	-	24/03/2023	AENOR
11. Review of findings and 3 rd round of findings.	3 rd round of findings (if required)	25/03/2023	AENOR
12. Answer to the 3 rd round of findings	Answer to findings	02/06/2023 (final MR on 16/06/2023)	Country participant
13. Review of answers.	-	08/06/2023	AENOR
11. Draft reports	Validation and verification draft reports	22/06/2023	AENOR
12. Provide opportunity to REDD Country and FMT to comment draft reports	Comments to draft reports (if required)	29/06/2023	Country participant/ FMT
13. Final validation report and final verification report with statements. AENOR technical review	Final validation and verification reports	06/07/2023	AENOR

3.3 Methodology description

The validation with extended scope was performed simultaneously with the first verification, through a combination of document review, interviews, and communications with relevant personnel. The conformity was evaluated against the criteria described in section 2.3.

A sampling/evidence-gathering plan was developed for the validation with extended scope and first verification of the ER Program, as required by section 9.4 of the VVG v2.4. A risk assessment of the sources and the magnitude of potential errors, omissions, and misstatements was carried out, as required by section 4.4.1 of ISO 14064-3:2006, previous to the elaboration of the sampling/evidence-gathering plan. The sampling/evidence-gathering plan was developed considering all the criteria set by section 4.4.3 of ISO 14064-3:2006:

- a) Agreed level of assurance;
- b) validation and verification scope;

- c) validation and verification criteria;
- d) amount and type of evidence (qualitative and quantitative) necessary to achieve the agreed level of assurance;
- e) methodologies for determining representative samples; and
- f) risk of potential errors, omissions, or misstatements.

All evidence requested and reviewed was crosschecked in order to evaluate the consistency of information in the ER Monitoring Report. All statements, claims and procedures described within the scope of the validation included in the ER Monitoring Report were part of the assessment of the sampling/evidence-gathering plan and all the reviewed supporting evidence were evaluated against the ER Monitoring Report.

The magnitude of the sampling was based on the previous experience of AENOR as VVB and ensure the achievement of reasonable level of assurance. The sampling/evidence-gathering plan was open to be modified based on any new risks or materiality concerns that could potentially lead to errors, omissions or misstatements identified during the validation process.

The validation team carried out a deep and meticulous review of the calculation spreadsheets to verify the correct application of the used methodology (formulae, equations) and checked that data required to calculate the GHG emission was appropriately provided.

All documentation provided by the Country Participant was assessed against the applicable criteria described in section 2.3. Several MCAR, mCAR and OBS were raised and submitted to the Country Participant to ensure compliance with all requirements, which addressed them either by providing to the validation team with the requested information or by making the appropriate corrections. Updated versions of the documentation were submitted by the Country Participant and the validation team reassessed them against the guidance documentation. This process was repeated iteratively until all MCAR were fully closed.

All findings, 43 MCAR, 5 mCAR and 1 OBS, issued by AENOR's audit team during the validation process have been closed. The findings issued during the validation process and the inputs for their closure are described in Appendix 1 of this report.

3.4 Review of documentation

A detailed review of all documentation was conducted to ensure consistency with and identify any deviation from FCPF requirements. Initial review focused on the ER Monitoring Report and included an examination of the Annex 4. Specially, in relation to the carbon pools, sources and sinks included within the scope of the ER Program, the methodological approach for the determination of the Reference Level, its alignment with IPPC guidelines, the data and parameters used for calculations, the estimated uncertainty, and the design of the NFMS.

In addition to the ER Monitoring Report, all documentation cited in it was downloaded and reviewed in order to verify its public accessibility and to crosschecked with the statements made in the ER Monitoring Report. These documents include, among others, calculation spreadsheets used for the determination of emission factors (EF) and estimation of the Reference Level, GIS data (satellite images and remote sensing analysis) used for determination of activity data (AD), and additional documents related to monitoring procedures, literature sources of parameters, etc.

As result of the desk review of documents and interviews, the validation team required additional documentation to the Country Participant to verify certain statements or have further clarification regarding GHG assertions, data and parameters used or employed procedures. All the additional documents requested were added to the later versions of the ER Monitoring Report, as required by criterion 6 of the MF.

For a listing of all documents provided by the Country Participant and review for the validation, see Appendix 2.

AENOR confirms that sufficient evidence was presented for all GHG assertions and that there is a clear audit trail that contains the evidence and records that validate the stated figures in this validation report since:

- Sufficient evidence available: the Country Participant has provided the 100% of data used in the calculations to achieve the final estimated amount of GHG emissions and removals.
- Nature of evidence: the raw data were collected from reliable sources. They are detailed in the program documents and have been provided to the validation team.
- Cross-checked evidence: AENOR cross-checked the collected information through interviews with stakeholders and reproducing calculations.

3.5 REDD Country Visit

This section is developed in the Verification Report section 3.5, as the country visit for the validation and first verification was carried out at the same time.

4. VALIDATION OF ER PROGRAM DESIGN

4.1 Completeness of Report

AENOR made a review of the ER Monitoring Report, supporting information, procedures, calculations, and supporting documentation of the Emission Reduction Program in East Kalimantan (EK-JER), Republic of Indonesia, and confirms that Annex 4 of the ER Monitoring Report contains the required information to be subject to validation with extended scope.

4.2 Start date of the crediting period

AENOR assessed information provided in the ER Monitoring Report and is able to confirm that the start date of the ER Program's crediting period, 1st July 2019¹, complies with the definition of the start date provided in the FCPF Glossary of Terms, since:

- It is not earlier than the date the first ER Program Measure generating ERs has been implemented.
- It has been independently assessed and justified with objective to AENOR.
- It is not earlier than January 1, 2016, the date on which all ER-PINs were already approved.
- It does not fall within the Reference period (01-07-2006 to 30-06-2016).
- It has been demonstrated to AENOR that the ER Program complies with requirements on safeguards, carbon accounting, and double-counting as specified in the MF since the start date.

4.3 Sources and Sinks

The ER Program selected the following GHG sources and sinks (REDD+ activities):

GHG sources and sinks (REDD+ activities)
Emissions from deforestation – Included
Emissions from forest degradation – Included
Enhancement of forest carbon stocks – Excluded

¹ According to ERPA, the crediting period start date was on 18th June 2019. However, FCPF Secretariat allowed the crediting period to start on 01 July 2019 to match the Program Participant calculations. Please, see context in non-conformity MCAR 17.

Conservation of forest carbon stocks– Excluded
Sustainable management of forests– Excluded

AENOR assessed the justifications and methods provided in Annex 4 - section 7.1 of the ER Monitoring Report and found acceptable the justifications provided to include or exclude the sources and sinks. Emissions from deforestation and forest degradation are included in the Reference Level, in compliance with the requirements set by criterion 3 of the MF.

Additionally, AENOR confirms that the ER Program excludes:

- Emissions and removals from conservation of carbon stocks, since the national REDD+ framework does not define activities for the conservation of carbon stocks.
- Emissions and removals from sustainable management of forest, due to limited data and information
- Removals from enhancement of carbon stocks, due to limited data and information and that the FREL does not account for this sink.

There are no plans for improving data since the excluded sources represent a small fraction of forest-related emissions.

4.4 Carbon pools and GHG

The following carbon pools and types of GHG have been included from the ER Program:

Carbon Pools
Above Ground Biomass (AGB) – Included
Below Ground Biomass (BGB) – Included
Dead Wood – Excluded
Litter – Excluded
Soil Organic Carbon (SOC) – Partially Included (organic soils), excluded for mineral soils
GHGs
CO ₂ – Included
CH ₄ – Partially Included (peat and forest fire), excluded for peat drainage
N ₂ O – Included

AENOR has assessed the rationale of the ER Program for selecting or excluding carbon pools and greenhouse gases and deems that it is reasonable and in accordance with criterion 4 of the MF. The program accounts all significant carbon pools and GHG. No overestimations are occurring due to the inclusion of non-significant carbon pools and GHG.

AENOR confirms that the ER Program has no proposed plans for improving data on excluded pools, as they already included them all.

4.5 Reference Period

AENOR confirms that the start and end dates of the Reference Period (01-07-2006 to 30-06-2016) have been defined in accordance with criterion 11 of the MF and that it complies with the definition provided in the FCPF Glossary of Terms. The Reference Period has not changed from the proposed period in the ER-PD.

4.6 Forest Definition

The submitted national FREL has successfully undergone technical assessment by the UNFCCC. In the construction of the FREL for the ER Program, the same definition of forest has been adopted, which excludes plantation forests. The use of this definition is in line with the spirit of REDD+ activities as defined in paragraph 2e in the Appendix 1 of Decision 1/CP.16. This definition is in accordance with the Indonesian National Standard (SNI) 8033:2014 on “Method for calculating forest cover change based on results of visual interpretation of optical satellite remote sensing image”.

AENOR confirms that the definition of “forest” used in the construction of the Reference Level of the Emission Reduction Program in East Kalimantan (EK-JER), Republic of Indonesia, is consistent with the forest definition used in the context of the national GHG inventory, as verified by the validation team.

AENOR assessed the information according to criterion 12 MF and the guidance from UNFCCC decision 12/CP.17 and deems that it was an appropriate selection of a forest definition.

4.7 Calculation of average annual historical emissions

After review of all ER Monitoring Report information, procedures, calculations, and supporting documentation, and according to the scope of the validation with extended scope carried out, AENOR confirms that:

- EK-JER made a systematic and step-by-step assessment of the methods, assumptions, and approaches used for the calculation of historical emissions, i.e., the Reference Level;
- All equations parameters and fixed data, such as AD and EF, are appropriately linked to the equations used for the quantification of the Reference Level;
- The correctness of presented information, publicly available, reported with a transparent and coherent step-by-step process that enables reconstruction of the Reference Level to validate its compliance with the requirements of applicable criteria;
- The start date of the crediting period proposed by the ER Program is in compliance with the definition provided in the FCPF Glossary of terms;
- The GHG emissions, emission reductions of the Reference Level, and its technical corrections, are materially accurate, and free of material misstatements, errors, or omissions;
- The ER Program’s equations and methods are in accordance with applicable validation criteria as the latest IPCC Guidelines, using the most recent guidance and guidelines, as adopted or encouraged by the Conference of the Parties as a basis for estimating forest related GHG emissions by sources and removals by sinks.
- The emissions from forest degradation are accounted. These emissions were estimated using the best available data.

4.8 Activity data and emission factors

4.8.1 Activity data

AENOR confirms that the reliability of the source and nature of the reported evidence justified the selection of the monitored data and parameters; and that all parameters related to activity data and described below have been reported in line with guidelines provided in the template and validation criteria.

AENOR confirms the correctness of each step of monitoring from measurement to data transfer and calculation and confirmed the information for each parameter is complete and that the stated parameters are free of error and material misstatements.

AENOR also confirms that methodological steps and data are publicly available in accordance with applicable criteria, and the open links to the multiple sources are provided in the ER Monitoring Report. AENOR confirms that the evidence provided by the ER Monitoring Reports is sufficient and appropriate to determine the GHG reductions and removals.

AENOR confirms that Activity Data were determined periodically and allowed for the Reference Level to be estimated for the Reference Period.

Assessment details are as follows per activity data grouped parameters:

Parameters	Deforestation in the RL: - Land cover change from forest categories to non-forest
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	categories (hectare) - Peat decomposition in peatland forest that has been deforested and continue to release emissions, leading to future inherited emissions (hectare) - Mangrove forest deforestation to pond/aquaculture (hectare) Degradation in the RL: - Land cover change from primary forest to secondary forest (hectare) - Secondary forest affected by fire (hectare) - Peat deforested affected by fire (hectare)
Free of Material Misstatement	Yes
Reported Appropriately	Yes
Assessment Details	For emissions calculation due to deforestation (forest to non-forest) and forest degradation (primary forest to secondary forest), the land cover classification was built based on visual on-screen digitizing interpretation of Landsat mosaic data of East Kalimantan for different periods. The activity data was shown in land cover change matrix transition to describe their emission. This information was combined with Reference Data to conduct a sample based estimation analysis. On the other hand, for emissions calculation due to fire on stable secondary forest, activity data from satellite-based fire mapping or hot spot analysis were used. EK-JER presented information about data sources for estimating Activity Data, description of measurement/calculation methods and procedures applied, QA/QC procedures applied, values applied, and uncertainty associated with these parameters. The validation team conducted an independent analysis of similar remotely sensed data to confirm that the source data was reliable and appropriate. Additionally, the validation team was able to ensure that LULC classification was appropriate and followed the defined classification system. The validation team conducted independent data checks for each step necessary for the quantification of these parameters. Activity data parameters were examined using remotely sense imagery to ensure accurate classification of LULC classification. Spatial analyses conducted in ESRI GIS confirmed the geographical boundary, ensuring that all activity data fell within the Accounting Area and that the Accounting Area was computed correctly. Independent data checks were used to ensure that the quantification of the parameters was performed correctly. This included an independent review of the literature cited in reference to the applied equations. The uncertainty associated with this parameter was independently calculated after a thorough review of the calculation spreadsheets. The calculation of uncertainty applied the methodology from Olofsson, et al. (2014), and the validation team reviewed and confirmed that the estimation was correct and without any error.

Thus, AENOR confirms the sufficiency of quantity and appropriateness of quality of the evidence used to determine the Activity data factors and later used in the GHG reductions and removals calculations, and also that the Activity data is compliant with the Methodological Framework and the IPCC Guidelines and Guidance.

4.8.2 Emission Factors

AENOR confirms the reliability of the source and nature of the reported evidence justified the selection of the emission factors; and that these have been reported in line with guidelines provided in the template and validation criteria.

AENOR confirms the correctness of each step of monitoring from measurement to data transfer and calculation and confirms the information for each parameter is complete and that the stated parameters are free of error and material misstatements.

AENOR confirms the source of emission factors is from data collected during different national inventories, and models or average values of direct measurements reported in literature and following IPCC Guidance and Guidelines.

AENOR confirms that emission factors of the EK-JER and the methods to determine them are the same for Reference Level setting and for Monitoring. IPCC Tier 2 or higher methods are used to establish emission factors, and the uncertainty for each emission factor is documented.

Assessment details on emission factors are as follows:

Parameters	- Emission factor for the estimation of emission from deforestation and degradation (tCO₂e/hectare) - Emission factor for the estimation of emission from fire in secondary forest (tCO₂e/hectare) - Emission factor for the estimation of emission from peat fire (tCO₂e/hectare) - Emission factor for peat decomposition (tCO₂e/hectare) - Emission factor for mangrove soil deforestation due to aquaculture/ponds (tCO₂e/hectare)
Free of Material Misstatement	Yes
Reported Appropriately	Yes
Assessment Details	EK-JER Monitoring Report presented the following information about emission factors: source of data; values applied in reference period; QA/QC procedures applied; and uncertainty associated with each emission factor. The validation team conducted independent analysis of the information provided to confirm that the source data was reliable and appropriate. Additionally, the validation team judged that the methods to estimate these parameters were reasonable and appropriate. The validation team performed an independent check of the IPCC Guidance and Guidelines to ensure the parameters ensuring correctness. The validation team conducted independent data checks for each step necessary in the quantification of these parameters. Additionally, the validation team conducted an independent review of the literature cited in reference to each equation in the calculation procedure. The uncertainty associated with these parameters was independently calculated after a thorough review of the calculation spreadsheets; and

	the validation team reviewed and confirmed that the estimation of uncertainty was correct and without any error. The validation team reviewed the ER Monitoring Report and associated links to ensure that all data related to this parameter are made public.
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Thus, AENOR confirms the sufficiency of quantity and appropriateness of quality of the evidence used to determine the Emission factors and later used in the GHG reductions and removals calculations, and also that the Emission Factors are compliant with the Methodological Framework and the IPCC Guidelines and Guidance.

4.9 Adjustments to the average annual historical emissions over the reference period

Adjustments

EK-JER does not meet the qualifications for an upward adjustment as outlined in the Methodological Framework, and it was confirmed by AENOR that an upward adjustment was not applied to the Reference Level. However, the CFPs agreed to provide a one-time waiver to Indicator 13.1 of the MF to use emission level of peat decomposition year 2018 as baseline historical emission and keep it constant for years after 2018. Documented evidence was provided to AENOR to justify this exemption, which is not under the scope of the extended validation and which does not qualify as an adjustment, but a correction.

Indonesia proposed a downward correction to the average annual historical emissions over the Reference Period (from an average 68,406,197.00 tCO₂e/yr in ER PD to 27,469,856.40 tCO₂e/yr in this current ER Monitoring Report). AENOR confirms that the justifications and explanations for this correction are accurate and in compliance with criterion 13 of the MF.

Additionally, AENOR assessed the calculations and spreadsheets for the quantification of the proposed downward correction to the average annual historical emissions over the Reference Period, and confirms that the methods, equations, data, and parameters used are correct.

Technical corrections

On the other hand, the Country Participant made technical corrections to the Reference Level of the ER Program in this ER Monitoring Report submission. These corrections are not related to any change to policy and design decisions that could affect the Reference Level regarding the carbon pools and gases, GHG sources, reference period, forest definition, REDD+ activities, Accounting Area, forest types, and REDD+ activities. However, the Country Participant replaced emission/removal factors for degradation by higher precision EF based on additional sample plots, replacing the allometric equation from Basuki et al. (2009) to Manuri et al. (2017) and establishing new sample plots in mangrove forest. Paragraph 3 positive list of the Guideline on the application of Methodological Framework Number 2 includes these technical corrections.

Further detail about the technical corrections made to the Reference Level as compared to that the estimates provided in the ER PD were presented in detail in ER Monitoring Report.

4.10 Estimated Reference Level

AENOR assessed the Reference Level for the ER Program for the Crediting Period and confirms that the Reference Level is materially accurate. AENOR confirms the relation, and its consistency, between the Reference Level, the development of the FREL/FRL submitted to the UNFCCC and the country's existing greenhouse gas inventory.

The results of the estimated Reference Level are as follows, according to ER Monitoring Report:

Year of Monitoring/ Reporting period t	Average annual historical emissions from	If applicable, average annual historical emissions	If applicable, average annual historical	Adjustm ent, if applicabl	Reference level (tCO ₂ e/yr)
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	deforestation over the Reference Period (tCO _{2-e} /yr)	from forest degradation over the Reference Period (tCO _{2-e} /yr)	removals by sinks over the Reference Period (tCO _{2-e} /yr)	e (tCO _{2-e} /yr)	
MONITORING PERIOD					
1 July 2019 – 30 June 2020	23,949,437.32	3,520,419.08			27,469,856.40
1 July 2020 – 30 June 2021	23,949,437.32	3,520,419.08			27,469,856.40
Total	47,898,874.64	7,040,838.17			54,939,712.80
REPORTING PERIOD					
1 July 2019 – 30 June 2020	23,949,437.32	3,520,419.08			27,469,856.40
1 July 2020 – 31 December 2020	11,974,718.66	1,760,209.54			13,734,928.20
Total	35,924,155.98	5,280,628.62			41,204,784.60

4.11 Consistency of the Program's Reference Level with national FREL/FRL and GHG Inventory

AENOR confirms that EK-JER' proposed Reference Level is consistent with the national FREL/FRL submitted to the UNFCCC and with the country's existing and future GHG inventory. Although some differences can be noted, all of them are measures that improve the accuracy of the Program's Reference Level. The differences were assessed and considered consistent and reasonable by AENOR and in conformance with indicators 10.2 and 10.3 of the MF.

4.12 Uncertainty of the Reference Level

4.12.1 Identification and assessment of sources of uncertainty

The Country Participant identified and assessed through a stepwise approach, the sources of uncertainty of the Reference Level in Activity Data (measurement, representativeness, sampling, extrapolation, Approach 3), Emission Factors (DBH measurement, H measurement, plot delineation, wood density estimation, biomass allometric model, sampling, and in other parameters such as Carbon Fraction, root-to-shoot ratios, etc.), as well as in Integration.

The validation team recalculated the uncertainty statistics independently to confirm the accuracy of the reported precision, reviewed assumptions and sources associated with parameters used in the quantification, and reviewed uncertainty of the Reference Level due to random and systematic errors. AENOR confirms that the sources of uncertainty are systematically identified and correctly assessed in the Reference Level, and addressed according to validation criteria, including the Guideline on the application of the Methodological Framework Number 4.

Additionally, AENOR confirms that there is an appropriate process for reducing uncertainty in the activity data and emission factors, where possible: systematic errors are minimized through the implementation of a consistent and comprehensive set of standard operating procedures, including a set of quality assessment and quality control processes; and random errors and other uncertainties are minimized to the extent practical based on the assessment of their relative contribution to the overall uncertainty of the emissions and removals.

4.12.2 Uncertainty of the estimate of the Reference Level

The Country Participant estimated the uncertainty of the Reference Level based on Monte Carlo analysis. A total of 10,000 iterations were calculated for the cumulative emissions of the reference period. The uncertainty estimate for the Reference Level strictly follows the guidelines of Approach 2: Monte Carlo simulation from 2006 IPCC Volume 1 General Guidance and Reporting Chapter 3 as well as the Guideline on the application of the Methodological Framework Number 4.

The validation team reviewed and confirmed that elements mentioned in section 4.12.1 related to the estimation of uncertainty for the Reference Level were all addressed in the provided Uncertainty spreadsheet. AENOR also confirmed that the estimations were correct and that the results matched the Reference Level included in the ER Monitoring Report. Therefore, AENOR concludes that the application of Monte Carlo simulation for the quantification of Uncertainty of the Reference Level was performed correctly and free of errors and misstatements.

4.12.3 Sensitivity analysis and identification of areas for improvement of the MRV system

In order to identify the relative contribution of each parameter to overall uncertainty, a sensitivity analysis was conducted by the Country Participant in which the uncertainty of each parameter was selectively removed prior to running Monte Carlo simulations and combining uncertainties.

AENOR confirms that uncertainty of AD and EF used in Reference Level setting is quantified in a consistent way, so that the estimation of emissions and removals is comparable among ER Programs.

AENOR reviewed and confirmed that above-mentioned (section 4.12.1) elements related to the sensitivity analysis were all addressed in the provided calculation spreadsheets. The validation team also confirmed that the estimations were free of errors and the results matched the sensitivity analysis included in the ER Monitoring Report. Therefore, AENOR concludes that the sensitivity analysis was performed correctly.

4.13 Data quality and availability

The validation team reviewed the quality and descriptions of the data and reproduced calculations of the Reference Level as presented in the ER Monitoring Report and related documents and is able to confirm that the steps are described with enough detail to enable the reconstruction of the Reference Level.

Additionally, AENOR confirms that the main methodological steps, relevant spatial information, maps, or synthesized data, related to the Reference Level, and the reported emissions are documented and included in the monitoring report and made publicly available online. There is not a specific webpage to find together all the references, but along the ER Monitoring Report there are links and references that lead to the data, methods, and assumptions.

5. NON-COMPLIANCES AND OBSERVATIONS

To ensure conformance of the ER Program with all requirements set by the FCFC and the audit criteria (section 2.3), the validation team issued findings in accordance with section 11 of the VVG v2.4 in the following cases:

- **Major Corrective Action Request (MCAR):** i) the evidence provided to demonstrate conformity is insufficient, unclear, or not transparent and may lead to a material error, omission, or misstatement, and/or a breakdown in the systems delivery; ii) underlying assumptions used to develop the reported estimates are not supported by data; iii) material errors, omissions or misstatements have been made in applying assumptions, in data or calculations; or i) non-compliance with validation criteria.
- **Minor Corrective Action Requests (mCAR):** i) the evidence provided to demonstrate conformity is insufficient, unclear, or not transparent, but does not lead to a material error,

omission, or misstatement, and/or a breakdown in the systems delivery; or ii) non-material errors, omissions or misstatements have been made in applying assumptions, in data or calculations;

- **Observations (OBS):** i) there is no objective evidence to prove that there is a non-conformity, but the VVB observes practices and/or methods that could result in future MCAR and mCAR; or ii) the VVB wishes to identify an area of the Forest Monitoring System that requires attention and/or adjustment in future monitoring and reporting.

The findings were submitted by the validation team in a single document, in which the Country Participant was able to offer answers to each of them and list supporting documents provided.

The Country Participant made the requested corrections and provided the validation team with updated versions of the ER Monitoring Report, which the validation team reassessed against the guidance documentation. The validation team either closed the opened findings when corrections, evidence and answers were satisfactory to comply with the audit criteria or asked for further corrections or clarifications. This process was repeated iteratively until all MCAR were suitably closed, as required by paragraph 62 of the VVG v2.4.

All findings, 43 MCAR, 5 mCAR and 1 OBS, issued by AENOR's audit team during the joint validation and first verification process have been closed. There are no non-compliances pending for the subsequent reporting period. Appendix 1 includes the description of all findings issued and the inputs for their closure.

APPENDIX 1: OVERVIEW OF NON-COMPLIANCES & OBSERVATIONS ISSUED DURING THE VALIDATION BY THE VALIDATION TEAM

Non Conformities (NCs)

NC ID: Major	01	Date: 18/11/2022
Description of NC		
In accordance with the MR template and MF indicator 17.3, this information it is not included in section 1.1: 1- Update on the implemented strategy to mitigate and/or minimize potential Displacement. 2- Highlight any key changes or deviations in the ER Program's design and key assumptions compared to the description of the ER Program in the ER-PD. 3- Implementation date is not complete, since it is now indicated only as 'July 2019 – December 2020'. Consider it also for other section along the MR.		
Project Participant response		Date: 04/01/2023
1. <i>Updated</i> 2. <i>Key changes have been highlighted</i> 3. <i>Date for reporting period has been revised.</i>		
Documentation provided by the Project Participant		
See ERM1 version 2 January 2023		
VVB Assessment		Date: 24/01/2023
1. The section has been updated and deemed correct. 2. Key changes have not been highlighted in the section. 3. The reporting period has been updated on the Component 5: Project Management and Monitoring subsection and other sections but not at the beginning of section 1.1. Therefore MCAR 01 is not closed.		
Project Participant response		Date: 08/03/2023
2. Section 1.1 has been amended to include updates from the Gol team including: updates on social forestry permits (38 units in 2017 to 75 units in Dec 2022), policy change in estate crop sector, and an update on dispute settlements (27 in 2019 - 15 cases in 2020) (in pg 2). Other additions include how those 2 customary forests now have legal recognition, and that the provincial government is no longer the authority for the mining sector (as per the Omnibus Law), meaning that the target in the ERPD to examine 404 mining permits for termination is no longer relevant (as the authority to review has been transferred to the national government). <i>(page 2)</i> Key changes or deviations in the ER Program's design and key assumptions compared to the description of the ER Program in the ER-PD has been added, adding paragraphs related to changes in funding support and changes related to the new law. <i>(see highlighted blue text, page 6)</i> 3. Reporting period has been updated: this reporting period is reported from 1 July 2019 – 31 December 2020. <i>(page 1)</i>		

VVB Assessment	Date: 24/03/2023
1. Key changes have been highlighted in the section. 2. The reporting period has been updated at the beginning of section 1.1. Therefore MCAR 01 is closed.	

NC ID: minor	02	Date: 18/11/2022
Description of NC		
In section 1.1 of the MR, Component 1, 1.1. Strengthening the licensing regime, it is stated “This web platform can assess whether the area is overlapped or not. If the area is overlapped then the license must be postponed until the issue is solved.” It is not clear what elements should not be overlapped.		
Project Participant response		Date: 04/01/2023
<i>The proposed areas should not be overlapped with as follows:</i> • <i>The Indicative Map for Termination of Issuing New Permits for Primary Natural Forest and Peatland</i> • <i>Existing legal permits (forest, mining, social forestry, plantation, and other land use permits)</i> • <i>The Indicative Map for Directions of the Production Forests Utilization that Are Not Encumbered with Permits for Forest Utilization Businesses</i>		
Documentation provided by the Project Participant		
https://mrv.kaltimprov.go.id/storage/guest/ERMR1/Regulation/Decree of MoEF No.851 of 2020 concerning Indicative Maps and termination of the issuance of new permits for Primary Natural Forest and Peatlands.pdf https://mrv.kaltimprov.go.id/storage/guest/ERMR1/Regulation/Decree MoEF No.2111 of 2020 concerning Indicative Maps and Social Forestry Areas.pdf https://mrv.kaltimprov.go.id/storage/guest/ERMR1/Regulation/Decree of MoEF No.10199 of 2019 concerning Indicative Map of Production Forest Utilization Directions for 2020.pdf		
VVB Assessment		Date: 24/01/2023
The section has been updated and clarified, and supporting evidence is deemed correct. Therefore, mCAR 02 is closed.		

NC ID: minor	03	Date: 18/11/2022
Description of NC		
In section 1.1 of the MR, it is mentioned ‘In order to minimise conflict within stakeholders, the provincial government has developed standard operation procedure (SOP) for conflict resolution in forestry		

sector'. However, no evidence (SOP) is provided.	
On the other hand, there is an inconsistency in the following sentence: "Fifteen (15) disputes have been addressed using this SOP up to July 2020. Most of disputes were about tenurial rights. The disputes have been decreased from 27 cases in 2019 to 5 cases in 2020"	
Project Participant response	Date: 04/01/2023
<i>SOP Provided with the link.</i>	
Documentation provided by the Project Participant	
https://mrvt.kaltimprov.go.id/storage/guest/ERM1/Regulation/Forestry_Conflict_Resolution_SOP_2020.pdf	
VVB Assessment	Date: 24/01/2023
Evidence of SOP is provided and deemed correct.	
However, the inconsistency in the number of disputes remain and has not been clarified.	
Therefore, mCAR 03 is not closed.	
Project Participant response	Date: 08/03/2023
Section 1.2 on Dispute Settlement. In 2020, there were 15 cases of conflict. Amended from 5 to 15. (highlighted text page 2)	
VVB Assessment	Date: 24/03/2023
The inconsistency in the number of disputes has been resolved.	
Therefore, mCAR 03 is closed.	

NC ID: Major	04	Date: 18/11/2022
Description of NC		
In section 1.1 of the MR, Component 3.1, it is stated that 'Berau district has put the committed areas of 83,876ha as HCV protection into Bupati's Decree'. However, previous paragraph mentions 'In early 2020 Bupati Berau signed a Decree on HCV indicative map No 287/2020 covering 83,000ha'.		
Project Participant response		Date: 04/01/2023
Based on the Bupati's Decree the total area is 83,876 ha. The text has been revised.		
Documentation provided by the Project Participant		
https://mrvt.kaltimprov.go.id/storage/guest/ERM1/Regulation/Decree_of_the_Head_of_Berau_District_No_287_2020_regarding_indicative_map_of_HCVA_for_plantations.pdf		
VVB Assessment		Date: 24/01/2023
The section has been updated and deemed correct.		

Therefore MCAR 04 is closed.

NC ID: Major	05	Date: 18/11/2022
Description of NC		
Table in MR 1.2.1 missed the driver ‘Unlicensed Land clearing’ reported above and its description on the progress of strategic actions to mitigate and minimize potential displacement.		
Project Participant response		Date: 04/01/2023
<i>Added information:</i>		
7. Unlicensed Land clearing		
Risk of displacement	Medium	
Progress of the strategy in Place	Strengthen forest security patrols, as well as develop and strengthen Forest Protection Communities in areas prone to illegal clearing activities. This includes strengthening the law enforcement process.	
Documentation provided by the Project Participant		
-		
VVB Assessment		Date: 24/01/2023
The section has been updated and deemed correct.		
Therefore, MCAR 05 is closed.		

NC ID: minor	06	Date: 18/11/2022
Description of NC		
In MR section 2.1 and 9.2, is stated that "the accuracy of the interpretation is assessed by comparing the land cover maps to field data from the ground check using a contingency matrix (MoFor, 2012, Margono et al., 2012). There are about 300 points for ground checking in East Kalimantan (MoEF, 2017), which are determined randomly by land cover classes". Please, provide evidences of the accuracy crosscheck carried out.		
Project Participant response		Date: 04/01/2023
Thank you for asking. About 300 points samples as initial samples were planned to check in East Kalimantan and North Kalimantan (before separated from East Kalimantan) at 2016. The samples were generated randomly based on land cover map in both provinces. Due to the limited time for ground check as well as the topography roughly that caused some of samples cannot be accessed. Only 57 samples can be assessed and calculated for accuracy as below.		

No	Classification of Accuracy	Accuracy (%)
1.	Accuracy of 23 classes of land cover	50.88
2.	Accuracy of forest – non forest	78.95
3.	Accuracy of forest - forest	100.00
4.	Accuracy of non forest – non forest	56.76

The report of ground check process as well as accuracy analysis of land cover can be access to link:
https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/Report_groundcheck_East-North_Kalimantan_2017.pdf

Documentation provided by the Project Participant

https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/Report_groundcheck_East-North_Kalimantan_2017.pdf

VVB Assessment **Date:** 24/01/2023

Evidence is provided and deemed correct, and the text has been updated for clarification.
 Therefore, mCAR 06 is closed.

NC ID: Major	07	Date: 18/11/2022
Description of NC		
Regarding section 2.1 in MR: 1- As required per MR template, information about “the selection and management of GHG related data and information” is not included. 2- As required per MF indicator 16.1, regarding the ‘role of communities in the forest monitoring system’, please 1) provide specific evidences, and 2) report results in the MR for the monitoring period.		
Project Participant response		Date: 04/01/2023
1. Selection and management of GHG has been described into the sub-section “Design and maintenance of the Forest Monitoring System” – http://mrv.kaltimprov.go.id 2. Capacity building for communities in the forest monitoring system have been conducted. However, the result report from community has not been integrated yet into the MR system for this monitoring report.		
Documentation provided by the Project Participant		
https://ddpi.kaltimprov.go.id/berita/ddpi-kaltim-menggelar-pelatihan-mrv-redd		

 https://fsc.org/en/newscentre/joint-forest-landscape-restoration-initiative-starts-in-east-kalimantan-indonesia  https://wwf.panda.org/wwf_news/?312610/Forests-and-community-in-East-Kalimantan 	
VVB Assessment	Date: 24/01/2023
1. The section has been updated for clarification and deemed correct. 2. Please report results related to the role of communities in the forest monitoring system (in the MR section 2.1) for the monitoring period, although the report has not been integrated yet into the MR system. The changes made to the text now very vaguely show the activities carried out in this regard. Therefore, MCAR 07 is not closed.	
Project Participant response	Date: 08/03/2023
Additional paragraph included to explain access to land cover maps. <i>(highlighted text page 14)</i>	
VVB Assessment	Date: 24/03/2023
Section 2.1 has been updated and deemed correct. Therefore, MCAR 07 is closed.	

NC ID: Major	08	Date: 18/11/2022
Description of NC		
In section MR 2.2.1: 1- Evidence (link or document) in footnote 15 is not provided (applies also for footnote 49 in MR Annex 4: 9.1 section).		

2- Link in footnote 16 does not work (applies also for footnote 43 in MR Annex 4: 9.1 section)	
3- Evidence (link or document) 'MRI 2013' is not provided.	
Project Participant response	Date: 04/01/2023
1. Document in footnote 15 is provided, please check again - https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/SOP%20AKURASI_ISI_EBOOK.pdf 2. Footnote 16 - https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/SNI_8033_2014.pdf	
Documentation provided by the Project Participant	
VVB Assessment	Date: 24/01/2023
1. The link to the document has been included (footnotes 27 and 140) 2. The link in footnotes 28 and 141 does not work. 3. Evidence (link or document) 'MRI 2013' is not provided yet. Therefore, MCAR 08 is not closed.	
Project Participant response	Date: 08/03/2023
2. Link footnote 28 : https://sigap.menlhk.go.id/sigap-trial/files/pages/perdirjen-planologi-2015-pedoman-pemantauan-penutupan-lahan.pdf There is no footnote #141. 3. MRI 2013 has been revised https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/8_Final_Report_EN_Mitsubishi.pdf .	
VVB Assessment	Date: 24/03/2023
2. The link in footnote 28 has been updated and deemed correct. The link in footnote 141 is working. 3. The document has been provided and deemed correct. Therefore, MCAR 08 is closed.	

NC ID: Major	09	Date: 18/11/2022
Description of NC		
It is stated in sections MR 2.2.2, Annex 4: 8.3, and 9.1 that ‘The GEF for CO2 is 1,701 g/kg dry matter burnt (Table 2.7 of the Chapter 2 of the 2013 Supplement to the 2006 IPCC, page 2.36)’. However, the parameter cannot be found in this document with that reference (Table 2.7, page 2.36).		
Project Participant response		Date: 04/01/2023
The table 2.7 is on page 2.41. The emission factor for dry matter burnt.		
Documentation provided by the Project Participant		

VVB Assessment	Date: 24/01/2023
The reference has been updated in some parts of the text and deemed correct. However, it remains cited as page 2.36 in some parts of section 2.2.2. and 9.1. Therefore, MCAR 09 is not closed.	
Project Participant response	Date: 08/03/2023
Revised and updated. Change from page 2.36 to page 2.41. (<i>page 21 and page 169</i>)	
VVB Assessment	Date: 24/03/2023
Sections 2.2.2. and 9.1 have been updated and deemed correct. Therefore, MCAR 09 is closed.	

NC ID: minor	10	Date: 18/11/2022
Description of NC		
It is stated in sections MR 2.2.2, Annex 4: 9.1 that 'The procedures of calculating peat decomposition from deforestation follow three steps as shown in Annex 4 E Figure 8.5'. However are not included or explained in that section.		
Project Participant response		Date: 04/01/2023
Adding figure 4 Flow chart for calculation of emissions from peat decomposition		
Documentation provided by the Project Participant		
Page 27 – ERM document		
VVB Assessment		Date: 24/01/2023
The section has been updated with the figure and deemed correct. Therefore mCAR 10 is closed.		

NC ID: Major	11	Date: 18/11/2022
Description of NC		
In sections MR 2.2.2 and Annex 4: 9.1 it is stated that 'The emissions from the change of primary to secondary used the equation 8', however, the reference is not correct.		
Project Participant response		Date: 04/01/2023
<i>Equation 19</i>		

Documentation provided by the Project Participant	
VVB Assessment	Date: 24/01/2023
The sections have been updated and deemed correct. Therefore, MCAR 11 is closed.	

NC ID: Major	12	Date: 18/11/2022
Description of NC		
1- Fixed parameters in MR 3.1 section are not aligned with fixed parameters (validation) in MR Annex 4: 8.3 section. In the same way, parameters to be monitored in section MR Annex 4: 9.1 are not aligned with parameters monitored (verification) in section MR 3.2. 2- Review that all the references to the sources are complete (as detailed as possible), not only referencing to other sections (e.g. ‘See chapter 2.2.2’) or just the document. Note that the bibliography that not is not open-access (such as the ones in footnotes 17, 23, 25, 26, etc.) has to be provided as an evidence. 3- Include a description/summary of the QA/QC procedures (not only the reference of the source, e.g. ‘Guidelines for Quality Assurance and Control QA/QC of Indonesia’s Greenhouse Gases Inventory DGCC MoEF, 2018’).		
Project Participant response		Date: DD/MM/YYYY
1. Annex 4 8.3 has been corrected 2. The source has been mentioned in that chapter 3. It is recommended to read the document, as it cannot be summarized.		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
1. Parameters are now aligned. 2. Bibliography documents have been provided in the footnote link and deemed correct. 3. Please provide a summarized description of the steps taken in the parameter tables.		
Project Participant response		Date: 08/03/2023
3. Text in the document Table 3.1.1: Guidelines for Quality Assurance and Control (QA/QC) of Indonesia's Greenhouse Gases Inventory (DGCC MoEF, 2018²) QC/QA activity for Indonesia GHG inventory is intended to ensure the quality of GHG reported from		

² http://ditjenppi.menlhk.go.id/reddplus/images/adminppi/dokumen/Pedoman_QA_QC_FULL_ISBN.pdf

various sources in Indonesia. First step of QC is to fill data gap. It is quite normal that some data are not completed. To fill the gap, methods like interpolation and extrapolation are used.

Another process of QC for every GHG data is calculation of the uncertainty. It is widely known that most of GHG data do not represent population instead of collection of the samples. In this situation, bias or uncertainty is something that cannot be avoided. Therefore, uncertainty value is pivotal to describe the character of data and it is good information to make data more proper for the next GHG reporting by program entities (i.e. government agencies).

When GHG data has been collected and pooled in the authorized agency, the next step is to identify the main contributor of emissions from various sources (key category). It can be taken from annual emissions and projected trend. The process also is taken from any anomaly of GHG data reported such as extra ordinary changing of GHG (increase or decrease) in two periods of reported data. Further clarifications are then needed in order to ensure data valid or invalid.

VVB Assessment
Date: 23/03/2023

the statement about QA/QC has been provided in the corresponding section and it is deemed correct.

Therefore, **MCAR 12 is closed**

NC ID: Major	13	Date: 18/11/2022
Description of NC		
The sources 'Olofsson et al. 2014' and 'Olofsson et al. 2019' are not provided.		
Project Participant response		Date: 04/01/2023
- Olofsson et al. 2014 - https://www.sciencedirect.com/science/article/abs/pii/S0034425714000704 - Olofsson 2019 –  Olofsson_Indonesia_A D_Estimation.pdf https://mrv.kaltimprov.go.id/access-directory/ERMR1/Guidance/olofsson_et_al_2014_good_practices_estimating_area_assessing_accuracy_land_change https://mrv.kaltimprov.go.id/access-directory/ERMR1/Guidance/olofsson_Indonesia_AD_Estimation_2019		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The links are added with the sources and deemed correct. Therefore, MCAR 13 is closed.		

NC ID: Major	14	Date: 18/11/2022
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Description of NC	
In MR 3.1.1, parameter 'Carbon stock used for the estimation of emission from deforestation and degradation' the sources of the root to shoot ratios is not indicated ("The value of the ratio is 0.24 for primary forest. For mangrove and swamp forest the value is 0.36 based on measurement from Komiyama et al., 2005 for mangrove. The values of the ratio vary between land cover types, i.e. 0.32 for forest plantation and estate crops), 0.48 for dry and wet shrubs, mix dryland agriculture and transmigration area, and 1.58 for savanna/grassland, pure dryland agriculture, rice paddy, bare ground and settlement").	
Project Participant response	Date: 04/01/2023
Source: Biomass Default Tables for Section 3.2 Forest Land https://www.ipcc-nggip.iges.or.jp/public/qpqlulucf/qpqlulucf_files/Chp3/Anx_3A_1_Data_Tables.pdf	
Documentation provided by the Project Participant	
https://www.ipcc-nggip.iges.or.jp/public/qpqlulucf/qpqlulucf_files/Chp3/Anx_3A_1_Data_Tables.pdf	
VVB Assessment	Date: 24/01/2023
The link is added in the MR and deemed correct. Therefore, MCAR 14 is closed.	

NC ID: Major	15	Date: 18/11/2022
Description of NC		
Procedures for estimating the fire on secondary forest are not provided in English or in a version that allows automatic translation. https://mr.v.kaltimprov.go.id/storage/guest/ERM1/Guidance/Perdirjen_P.11_Pedoman_Teknis_Penaksiran_Luas_Karhutla (2).pdf		
Project Participant response		Date: 04/01/2023
<i>docx file added.</i>		
Documentation provided by the Project Participant		
https://mr.v.kaltimprov.go.id/storage/guest/ERM1/Guidance/Perdirjen_P.11_Pedoman_Teknis_Penaksiran_Luas_Karhutla.docx		
VVB Assessment		Date: 24/01/2023
The document has been provided in Word and was automatically translated. Therefore, MCAR 15 is closed.		

NC ID: Major	16	Date: 18/11/2022
Description of NC		
Section MR Annex 4 does not include the rationale of the compliance of the technical corrections regarding the paragraph 3 of Guideline on MF n° 2, according to MR template request (Please indicate the changes applied and whether these are included in paragraph 3 of Guideline on the application of the Methodological Framework Number 2 – Technical corrections).		
Project Participant response		Date: 04/01/2023
<i>Already complied with the template</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
No improvements in the text have been applied. Once technical corrections are indicated, please, explain why they comply with paragraph 3 of Guideline on MF n° 2, according to MR template request. E.g. if changes in Activity data are submitted, please, explain why these corrections comply (are amongst the possible cases) with the 'Acceptable technical corrections' listed in the paragraph 3 of the Guideline.		
Project Participant response		Date: 08/03/2023
Text added for technical correction paragraph in <i>page 122</i>. <u>Text in the document:</u> Rationale for proposing technical correction on Activity Data : • East Kalimantan province shares border with adjacent provinces (North, Central and South Kalimantan). In particular segment, the boundary line is not clear. Ministry of Home Affairs is appointed by regulation to facilitate synchronization of the border between two provinces or more (click this link to read news from local newspaper about boundary synchronizing meeting between East and Central Kalimantan in 2021). Therefore, it is normal if provincial administrative boundary slightly changed. The change of provincial boundary often is put then in the revision of regional spatial planning for every 5 years. In order to increase the accuracy of calculating jurisdictional emission reduction in East Kalimantan, it is highly necessary to use the latest East Kalimantan boundary line from East Kalimantan Regional Development Planning Agency (<i>Bappeda Kaltim</i>). • We used the update data of burnt area produced by MoEF in order to use the reference data of higher accuracy and/or precision. As mentioned above, the new burnt area map is produced and taken from using hotspot data and is verified using Landsat imageries. • Land cover classification map that is primary source to calculate deforestation and degradation needs adjustment as part of uncertainty analysis reported in this ERMR. This is part of improvement of the statistical design used in the emission calculation. Rationale for proposing technical correction on Emission factor: • Permanent Sample Plot Data established in 2018-2019 was designed following Indonesia Standard using small sample plot of 0.04 ha. Regarding the high variability of East Kalimantan forests, bigger sample plots are preferred. Therefore, in this ERMR, we decided to use only NFI plots with bigger size that is 1 ha for accuracy improvement. • Recent published article by Manuri (2017) is used as reference for allometric equation to calculate biomass and is more relevant for East Kalimantan rather than previous		

referenced article by Basuki et al. (2009) Additional mangrove plots that recently established also increase the accuracy and at the same time reduced uncertainty of the emission calculation.	
VVB Assessment	Date: 24/03/2023
The section has been updated properly and it is deemed correct. Therefore, MCAR 16 is closed.	

NC ID: Major	17	Date: 18/11/2022
Description of NC		
According to the ERPA (Section 6.01 ER Program Development) and Annex 4 in MR, the ER Program Start Date is 18 June 2019 and the monitoring period is from 18 June 2019 to 31 December 2020. However, FCPF ERs have been calculated along the sections of the MR and its annexes from 1 July 2019, for a period from 1 July 2019 to 31 December 2020, which does not match the period requested by ERPA (Schedule 2).		
Project Participant response		Date: 01/04/2023
<i>Due to technical constraints, we agreed to only calculate from 1 July 2019, so that for the period 18 June - 30 June 2019 no emission calculations were carried out.</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
Since this is a major deviation, please present an authorization from the FCPF stating that the deviation is allowed. In the MR, please indicate this exemption in the text (1) along with a link to the authorization (2). Therefore, MCAR 17 is not closed.		
Project Participant response		Date: 08/03/2023
Letter authorization is provided by FCPF FMT to the Auditor		

Carlos Jiménez Barrios <jimenezbarrios@gmail.com>
To: Julian Gonzalo Jimenez <jgonzalojimenez@worldbank.org>

Wed, Mar 8, 2023 at 8:27 AM

Dear All,

Following up the process, I kindly ask when will you be able to send the response to the second round of findings. We look forward to it.

On the other hand, regarding MCAR number 17, AENOR has received an official communication from FCPF Secretariat that confirms as acceptable that East Kalimantan ER Program deviates from the schedule set on the ERPA for the first reporting period of Tranches A and B (June 18, 2019, - December 31, 2020) and use the July 1, 2019 as the start date of the Crediting Period. Please, indicate it in the MR for transparency purposes. Since we have received the direct email, there is no need for further actions regarding the last request (2) in MCAR 17.
Note, that MCAR 18 is a different request, then it still has to be addressed.

Kind regards.

VVB Assessment

Date: 24/03/2023

Authorization letter has been provided by FCPF FMT (request 2).

However, this exemption has not been stated in the updated text, to account for the deviation from the schedule set on the ERPA (request 1) as requested in the previous assessment and in the VVB mail.

Project Participant response

Date: 20/04/2023

The text for explanation of the acceptable deviation from FCPF Secretariat has been added and highlighted on page 51. The link for copy of letter from FCPF secretariat to AENOR is provided [here](#).

VVB Assessment

Date: 08/06/2023

The section has been updated by including the reference to the exemption letter from FCPF. Therefore **MCAR 17 is closed**

NC ID: Major

18

Date: 18/11/2022

Description of NC

Section 'Start Date of the Crediting Period' in MR Annex 4 does not include a 'justification and evidence to demonstrate compliance with the definition of the Start Date of the Crediting Period provided in the FCPF Glossary of Terms', according to the MR template request.

Project Participant response

Date: 04/01/2023

Due to technical constraints, we agreed to only calculate from 1 July 2019, so that for the period 18 June - 30 June 2019 no emission calculations were carried out.

Documentation provided by the Project Participant	
VVB Assessment	Date: 24/01/2023
The request of this NC is different from the one in NC 17. Please, provided 'justification and evidence to demonstrate compliance with the definition of the Start Date of the Crediting Period provided in the FCPF Glossary of Terms', as it is required by the MR template. Therefore, MCAR 18 is not closed.	
Project Participant response	Date: 08/03/2023
Explanation on the start date of the crediting period provided in blue in text and in Annex 4. EKal to include a paragraph outlining how that the crediting period is in line with the FCPF Methodological Framework (based off the FCPF Glossary of Terms). GoI to include in this paragraph that there are technical reasons to choosing the dates of the crediting period (already listed in revisions to the ERMR), and that it is aligned with the FCPF definitions. Regulation on mapping period can be mentioned also as a footnote. <u>Text in the document:</u> Start Date of the Crediting Period The ER Program Start Date is 1 July 2019. The rationale of date selection is to incorporate with the starting date of the production of annual land cover maps produced by Ministry of Environment and Forestry (MoEF). It is also related to the mosaics Landsat images prepared by Indonesian Space Agency (LAPAN) as primary sources of land cover interpretation that is started in July at year N-1 up to June at year N for land cover map year of N. For ER monitoring purpose, the emission is calculated using the LAPAN's land cover maps as it mentioned in ERPD. Therefore, it is essential to start the ER program following that cycle date. The date is also in line with FCPF Methodological Framework. It is not earlier than the date the first ER Program Measure(s) (including any Sub- Project(s)) begins generating ERs, i.e. first implementation. The date is also not earlier than January 1st 2016. The date of 1 July 2019 is justified with objective evidence by the MoEF as mentioned in the previous paragraph. The period date of ER monitoring report from 1 July 2019 to 31 December 2020 is independently assessed by a Validation Verification Body during Validation. The ER monitoring report is also not in fall within the Reference Period (1 July 2005 – 30 June 2016). Social and Environmental Safeguards Due Diligence is conducted to assess the extent to which the relevant safeguard measures under the ER Program are aligned with the Environmental and Social Management Framework (ESMF). Due Diligence focuses on assessing system capacity for the management of environmental and social aspects in all program activities implemented during the period 1 July 2019 to 31 December 2020. Over this period, implementation of all the program components had commenced, with a total of 47 relevant ER activities that are the subject of this due diligence. An eSurvey and in-depth interviews were conducted with 24 institutions, covering government agencies and non-government organizations. Specific aspects of due diligence focused on the presence or absence of a system for screening and assessing risks for activities carried out under the ER Program, provision of resources for monitoring/supervision, technical support, coordination, and capacity development, and the availability and operation of Feedback and Mechanisms Complaints Handling (FGRM). Overall, the results showed adequate institutional capacity for identifying and managing environmental and social risks, although some gaps and areas for strengthening remain. The assessment of system capacity identified a number of areas where environmental and social risks management could be improved. Particular attention needs to be given to the social risks associated with improving land governance conducted in areas under existing and potential conflicts and/or disputes or areas with overlapping boundaries and/or claims, between customary and common/formal laws and processes, and in areas with competing claims especially with concession areas. The full report	

can be seen at . https://mrv.kaltimprov.go.id/storage/guest/SAFEGUARDS/FCPF_EK_Retroactive_FINAL_REPORT_GOI.docx.

VVB Assessment**Date:** 24/01/2023

Justification to demonstrate compliance with the definition of the Start Date of the Crediting Period in the FCPF Glossary of Terms has been provided and deemed correct.

Therefore, MCAR 18 is closed.

NC ID: Major**19****Date:** 18/11/2022**Description of NC**

Table 7.2 in MR Annex 4 does not indicate the inclusion of litter and deadwood as carbon pools in the case of swamp forests and mangroves, according to criterion 4 of the MF.

Project Participant response**Date:** 04/01/2023

It has been explained in the table

Documentation provided by the Project Participant**VVB Assessment****Date:** 24/01/2023

Litter exclusion is justified as they are not considered significant according to indicator 4.2 of the MF. However, as deadwood is significant according to indicator 4.2 of the MF, its exclusion is not justified.

Also, please reference the research conducted at sites in Sumatra and Kalimantan for deadwood, and the specific section of the Indonesia's FREL where the mentioned data for litter is stated.

Therefore, MCAR 19 is not closed.

Project Participant response**Date:** 08/03/2023

Explanation on exclusion of dead wood now included in the ERMR. Research referenced summarized in Annex 3.2 of 2016 Indonesia FREL

Text in the document (page 128):

Based on research conducted at sites in Sumatra and Kalimantan by Manuri et al. (2011), Dharmawan et al. (2013), Khrisnawati et al. (2014) and Manuri et al. (2014) and compiled in Table Annex 3.2 of 2016 Indonesia FREL (https://redd.unfccc.int/files/frel_submission_by_indonesia_final.pdf), the dead wood or necromass pool is accounted for an average of 14.5% of total biomass emissions. In spite of being significant, the carbon pool of the dead wood is excluded due to lack of sampling data. The study of the Dead wood biomass measurement is limited and is only conducted by researcher at the universities or research institution. On the other hand, Indonesia's national forest inventory (NFI) does not include measurement of carbon pool other than above ground biomass. Therefore, in this case of ER program for East Kalimantan it does not consider the inclusion of the dead wood during the ER monitoring period up to 2024.

VVB Assessment	Date: 24/03/2023
Table 7.2 in Annex 4 was completed to justify the exclusion of deadwood. Research and FREL relevant information reference was included. Therefore, MCAR 19 is closed.	

NC ID: Major	20	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.2 section, the following does not work: http://sni.bsn.go.id/product/detail/22270		
Project Participant response		Date: 04/01/2023
SNI 8033:2014 - https://mr.v.kaltimprov.go.id/storage/guest/ERM1/Guidance/SNI_8033_2014.pdf		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The link provided refers to the correct source, but it has not been updated in MR Annex 4: 8.2 section instead of http://sni.bsn.go.id/product/detail/22270. Therefore, MCAR 20 is not closed.		
Project Participant response		Date: 08/03/2023
Revised in Annex 4: 8.2 (https://mr.v.kaltimprov.go.id/storage/guest/ERM1/Guidance/SNI_8033_2014.pdf).		
VVB Assessment		Date: 24/03/2023
The link has been correctly updated on the MR Annex 4: 8.2 section. Therefore, MCAR 20 is closed.		

NC ID: Major	21	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3 the reference to fcpf_ekjerp_ermr1_MC_24Juli2022b.xlsx in Equation 1 and 2 is not		

correct (fcpf_ekjerp_ermr1_summary_26Juli2022c was provided to VVB).	
Project Participant response	Date: 04/01/2023
Corrected file: fcpf_ekjerp_ermr1_MC_26Juli2022c.xlsx - https://mr.v.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_ermr1_MC_26Juli2022c.xlsx	
Documentation provided by the Project Participant	
VVB Assessment	Date: 24/01/2023
The reference has been updated and deemed correct. Therefore, MCAR 21 is closed.	

NC ID: Major	22	Date: 18/11/2022
Description of NC		
MR Annex 4: 8.3, Activity Data parameters do not follow the MR template table (Parameter and QA/QC procedures are currently missing).		
Project Participant response		Date: 04/01/2023
Table corrections according to the template are conducted. It can be seen on the updated ER-MR		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The tables have been updated to comply with the template. Therefore, MCAR 22 is closed.		

NC ID: Major	23	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, AD parameter 'Deforestation. Area of land cover change between 2006-2009, 2009-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, and 2015-2016' the values reported do not match the ones resulted in evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx'.		
The uncertainty of the land cover change (deforestation) does not match neither the evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx'.		

Project Participant response	Date: 04/01/2023
<i>Corrections according to the template are conducted. It can be seen on the updated ER-MR</i>	
Documentation provided by the Project Participant	
VVB Assessment	Date: 24/01/2023
The values have been corrected. Therefore, MCAR 23 is closed.	

NC ID: Major	24	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, AD parameter 'Peat decomposition - deforestation and degradation. Area of land cover changes between 2006-2009, 2009-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016, 2016-2017, and 2017-2018', some values reported (20041-20071, 20051-2010, 20051-2014, 20071-20071) do not match the ones resulted in evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx'. On the other hand, the unit for the values is missing.		
Project Participant response		Date: 04/01/2023
<i>Corrections according to the template are conducted. It can be seen on the updated ER-MR</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The values have been corrected. Therefore, MCAR 24 is closed.		

NC ID: Major	25	Date: 18/11/2022
Description of NC		
Resolution CFM/19/2019/1, in which 'the CFPs and Program Participant agreed to remove the calculation for emissions associated with projected future deforestation in peat forest and apply the estimate of the most recent data not later than 2018 and the CFPs agreed to provide a one-time waiver to Indicator 13.1', is not provided.		
Project Participant response		Date: 04/01/2023

Resolution CFM/19/2019/1 https://www.forestcarbonpartnership.org/system/files/documents/Resolution%20CFM_19_1_Endorsement%20of%20Indoneisa%20ER%20Program%20FINAL.pdf	
Documentation provided by the Project Participant	
https://www.forestcarbonpartnership.org/system/files/documents/Resolution%20CFM_19_1_Endorsement%20of%20Indoneisa%20ER%20Program%20FINAL.pdf	
VVB Assessment	Date: 24/01/2023
The evidence provided is deemed correct, but the reference of CFM/19/2019/1 in the updated text has been deleted. Since this information is important, please, place in the equivalent parameter (Annex 4: 8.3, Activity Data, Parameter: Peat decomposition). Please, also add the link to the text.	
Project Participant response	Date: 08/03/2023
Text in Annex 4 Section 8.3 in the document (page 137): Peat decomposition In peatland forest, that has been deforested, peat decomposition will continue to release emissions, leading to future inherited emissions. Following resolution CFM/19/2019/1, the CFPs and Indonesia agreed to remove the calculation for emissions associated with projected future deforestation in peat forest and apply the estimate of the most recent data not later than 2018 and the CFPs agreed to provide a one-time waiver to Indicator 13.1. The agreement has been documented and traceable through this following link https://www.forestcarbonpartnership.org/system/files/documents/Resolution%20CFM_19_1_Endorsement%20of%20Indoneisa%20ER%20Program%20FINAL.pdf	
VVB Assessment	Date: 24/03/2023
The statement and the link are considered correct. Therefore, MCAR 25 is deemed closed	

NC ID: Major	26	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, AD parameter 'Soil mangrove. Area of land cover changes between 2006-2009, 2009-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, and 2015-2016' the value 20041-20094 does not match the ones resulted in evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx'. The uncertainty of the land cover change (deforestation) does not match neither the evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx'.		
Project Participant response		Date: 04/01/2023
<i>Corrections according to the template are conducted. It can be seen on the updated ER-MR</i>		
Documentation provided by the Project Participant		

VVB Assessment	Date: 24/01/2023
The values have been corrected. Therefore, MCAR 26 is closed.	

NC ID: Major	27	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, AD parameter 'Forest Degradation. Area of degradation, change of primary forest into secondary forests between 2006-2009, 2009-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, and 2015-2016 that occurred in all forested land' the values reported do not match the ones resulted in evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx'.		
Project Participant response		Date: 04/01/2023
Corrections according to the template are conducted. Please see the updated ER-MR		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The values have been corrected. Therefore, MCAR 27 is closed.		

NC ID: Major	28	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, AD parameter ‘Fire on stable forest. Area of secondary forest affected by fires in 2006, 2009, 2011, 2012, 2013, 2014, 2015, and 2016.’ the values reported for 2016 (2002, 20041) do not match the ones resulted in evidence ‘fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx’.		
Project Participant response		Date: 04/01/2023
Corrections according to the template are conducted. Please see the updated ER-MR		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The values have been corrected. Therefore, MCAR 28 is closed.		

NC ID: Major	29	Date: 18/11/2022
Description of NC		
MR Annex 4: 8.3, Emission factor parameters do not follow the MR template table (Parameter and QA/QC procedures are currently missing).		
Project Participant response		Date: 04/01/2023
<i>Corrections according to the template are conducted. Please see on the updated ER-MR</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The tables have been updated to comply with the template. Therefore, MCAR 29 is closed.		

NC ID: Major	30	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, EF parameter 'Emission Factor for deforestation and forest degradation...' the values reported for Secondary swamp forest (237.3 Ton C/ha) and Secondary mangrove forest (118.1 Ton C/ha) do not match the ones resulted in evidence 'fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx' in tabs AD_ER_DEF_XXXX and AD_ER_DEG_XXXX.		
Project Participant response		Date: 04/01/2023
<i>Corrections according to the template are conducted. Please see the updated ER-MR</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The values indicated in Parameter 'Carbon stock used for the estimation of emission from deforestation and degradation' in section 3.3.1 and Annex 4 have been indicated for AGB. Please, provide <u>also</u> the values for living biomass (AGB+BGB, t/ha) which is the unit of the parameter. Therefore, MCAR 29 is not closed.		
Project Participant response		Date: 08/03/2023
Section 3.1.1 and Annex 4 for living biomass (ABG+ABG (t/ha) have been revised		

Forest lands

Land cover	Code	AGB (t/ha)	AGB+BGB (t/ha)
Primary Dryland Forest	2001	287.08	355.98
Secondary dryland forest	2002	209.44	259.70
Swamp primary forest	2005	538.56	731.60
Swamp secondary forest	20051	365.30	496.24
Mangrove primary forest	2004	263.38	357.78
Mangrove secondary forest	20041	181.83	247.01

Non-forest lands

Land cover	Code	AGB (t /ha)	AGB+BGB (t/ha)
Plantation forest	2006	133.11	175.71
Dry shrub	2007	41.36	61.21
Wet shrub	20071	46.53	68.86
Savanna and Grasses	3000	5.96	15.37
Pure dry agriculture	20091	15.96	41.17
Mixed dry agriculture	20092	47.89	70.88
Estate crop	2010	105.75	139.59
Paddy field	20093	9.36	24.15
Transmigration areas	20122	21.28	31.49
Bare ground	2014	5.32	13.72
Settlement	2012	8.51	21.96
Port and harbor	20121	0.00	0.00
Open water	5001	0.00	0.00
Open swamps	50011	0.00	0.00
Mining areas	20141	0.00	0.00
Fish pond/aquaculture	20094	0.00	0.00

After the AGB successfully calculated, the BGB was estimated by multiplying the AGB with the Root:Shoot Ratio, then multiplying the result with the carbon fraction to estimate the carbon content (C /Ha).

VVB Assessment**Date:** 24/03/2023

The values for living biomass (AGB+BGB, t/ha) have been included in the parameter box (Carbon stock used for the estimation of emission from deforestation and degradation).

Therefore, MCAR 30 is closed.

NC ID: Major	31	Date: 18/11/2022																							
Description of NC																									
In MR Annex 4: 8.3, EF parameter 'Emission factors from fire in secondary forest. Emission Factor for biomass fire' the source of GWP is not provided.																									
Project Participant response		Date: 04/01/2023																							
<i>Corrections according to the template are conducted. Please see the updated ER-MR</i>																									
Documentation provided by the Project Participant																									
VVB Assessment		Date: 24/01/2023																							
The source of GWP is still not provided. Therefore, MCAR 31 is not closed.																									
Project Participant response		Date: 08/03/2023																							
<u>Text in the Document:</u> See chapter 2.2.2. Spatial level: regional (province) with data provided nationally by MoEF. Global Warming Potential (GWP) values can be accessed through this following link : https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/1_Global-Warming-Potential-Values_(Feb_16_2016)_1.pdf Global warming potential (GWP) values relative to CO₂ <table border="1"> <thead> <tr> <th rowspan="2">Industrial designation or common name</th> <th rowspan="2">Chemical formula</th> <th colspan="3">GWP values for 100-year time horizon</th> </tr> <tr> <th>Second Assessment Report (SAR)</th> <th>Fourth Assessment Report (AR4)</th> <th>Fifth Assessment Report (AR5)</th> </tr> </thead> <tbody> <tr> <td>Carbon dioxide</td> <td>CO₂</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>Methane</td> <td>CH₄</td> <td>21</td> <td>25</td> <td>28</td> </tr> <tr> <td>Nitrous oxide</td> <td>N₂O</td> <td>310</td> <td>298</td> <td>265</td> </tr> </tbody> </table>			Industrial designation or common name	Chemical formula	GWP values for 100-year time horizon			Second Assessment Report (SAR)	Fourth Assessment Report (AR4)	Fifth Assessment Report (AR5)	Carbon dioxide	CO ₂	1	1	1	Methane	CH ₄	21	25	28	Nitrous oxide	N ₂ O	310	298	265
Industrial designation or common name	Chemical formula	GWP values for 100-year time horizon																							
		Second Assessment Report (SAR)	Fourth Assessment Report (AR4)	Fifth Assessment Report (AR5)																					
Carbon dioxide	CO ₂	1	1	1																					
Methane	CH ₄	21	25	28																					
Nitrous oxide	N ₂ O	310	298	265																					
VVB Assessment		Date: 24/03/2023																							
A reference has been included with the values. However, the source provided is not the original (IPCC) and the values selected are not clearly stated (Second Assessment Report (SAR), Fourth Assessment Report (AR4) or Fifth Assessment Report (AR5)). Please, 1) provide the IPCC source, 2) clarify the values used (Assessment Report number) and, 3) if values selected are different from the recommended (AR5) ones, justify it. Therefore, MCAR 31 is not closed.																									
Project Participant response		Date: 20/04/2023																							
The text in the document revised see page 153 – 155 in the ERM1 document:																									

Combustion factor value = 0.36 is derived from 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 (Agriculture, Forestry and Other Land Use), Chapter 2: Generic Methodologies Applicable to Multiple Land-Use Categories, Table 2.6 (sees page 2.48 on [the document](#): 'Mean' for 'All primary tropical forests').

For the following Gas emission factors, CO₂ = 1,580 g/kg d.m. burnt, CH₄ = 6.8 g/kg d.m. burnt, and N₂O = 0,2 g/kg d.m. burnt, is derive from from 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4 (Agriculture, Forestry and Other Land Use), Chapter 2: Generic Methodologies Applicable to Multiple Land-Use Categories, Table 2.5 (sees page 2.47on [the document](#): Table 2.5 under the category of 'Tropical forest'). The link for the document is provided as follows:

https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_02_Ch2_Generic.pdf

In addition, the link to refer the Global Warming Potential values that used for developing Indonesia's 2nd FRL submitted in January 2022 as well as for calculating emission from fire in East Kalimantan emission reduction program (ERP) by FCPF-CF is as follows:

<https://unfccc.int/process/transparency-and-reporting/greenhouse-gas-data/greenhouse-gas-data-unfccc/global-warming-potentials>

Instead of using the latest Fifth Assessment Report (AR5) for GWP values, the calculation of East Kalimantan emission used Second Assessment Report (SAR). It aims to make consistent with the GWP values that was used previously for calculating Indonesia Forest Reference Level (FRL) submitted to UNFCCC in early 2022. In Indonesia's 2nd FRL document (https://redd.unfccc.int/files/2nd_frl_indonesia_final_submit.pdf), SAR GWP values for 100 years' time horizon are listed in Table 8 (see on page 20), exactly on column table 6 and 7 for CH₄ and N₂O respectively.

According to Trottier (2015), 100-year GWPs being the most widely adopted in GHG inventories. In addition, Trottier (2015) also mentioned that applying the AR5 GWP values with feedback will cause only a small increase in stated emissions for most organizations. Therefore, for Indonesia's FRL and East Kalimantan ERP, GWP values from SAR is still relevant to be used. The link to download Trottier (2015) document is as follows:

<https://ecometrica.com/assets/Understanding-the-Changes-to-GWPs.pdf>

VVB Assessment

Date: 08/06/2023

The response providing and justifying the source and origin of the parameters used is considered correct. Therefore, MCAR 31 is closed

NC ID: Major	32	Date: 18/11/2022
Description of NC		
In MR Annex 4: 8.3, EF parameter 'Emission Factors from soil', when it is stated that 'The third step is calculating total annual emissions by multiplying the transition matrix of both areas and associated emission factors' it seems that a footnote is missing. On the other hand, the complete references of the sources used are not provided (such as Maswar and Agus, 2015; Hooijer et al, 2012; Ritung et al. 2011). Finally, the reference for the EF and its uncertainty is not complete ('These emission factors are		

reported in 2013 Supplement Guideline to 2006 IPCC Guidelines for National GHG Inventory: Wetlands. Most of the data reported in this guideline come from Indonesian sites’).

Project Participant response
Date: 04/01/2023

Corrections according to the template are carried out. Can be seen on the updated ER-MR

The footnote is linking to the table of emission factor for peat decomposition mentioned in the document.

References for EF are included into the documents. (Maswar and Agus, 2015; Hooijer et al, 2012; Ritung et al. 2011)

Documentation provided by the Project Participant
VVB Assessment
Date: 24/01/2023

The text is updated with reference to Figure 4 and deemed correct.

Maswar and Agus, 2015 and Hooijer et al, 2012 are correctly referenced in footnotes 124 and 125, respectively. However, Ritung et al. 2011 is not correctly referenced in footnote 126, which links to a different document.

The mentioned part of the text (*‘These emission factors are reported in 2013 Supplement Guideline to 2006 IPCC Guidelines for National GHG Inventory: Wetlands. Most of the data reported in this guideline come from Indonesian sites’*) and its references has been deleted from the updated MR. Please correct and add references.

Therefore, MCAR 32 is not closed.

Project Participant response
Date: 08/03/2023

We were updated the link for Ritung et al (2011) as

¹https://mrv.kaltimprov.go.id/storage/guest/ERMR1/Guidance/2_Ritung_2011_Indonesian_Peat_Land_Map_Scale_1_250000.pdf - This reference is published in a book format instead of journal or paper.

Add text: *Ritung et al (2011) in MoEF (2016)*

-- MoEF, 2016, National Forest Reference Emission Level for Deforestation and Forest Degradation. https://redd.unfccc.int/files/frel_submission_by_indonesia_final.pdf (page 29)

VVB Assessment
Date: 24/03/2023

The references have been updated and deemed correct.

Therefore, MCAR 32 is closed.

NC ID: Major	33	Date: 18/11/2022
Description of NC		
In section MR Annex 4: 8.4		
1- Please, provide intermediate table por sources/land use type [deforestation (living biomass,		

mangrove soil, and fires on peat), peat decomposition of the deforested, degradation (living biomass, fires in stable forest), peat decomposition in degraded areas, etc.].

2- According to the text “The reference level is calculated using: [average of deforestation (living biomass, mangrove soil, and fires on peat) in the reference year (2006-2016) added with peat decomposition of the deforested area in 2017-2018], then added with [average of forest degradation (living biomass, fires in stable forest) in the reference year (2006-2016) added to peat decomposition in degraded areas in 2017-2018+”. However, this description does not match results in the table ‘Calculation of the average annual historical emissions over the Reference Period’, since the results of this table do not consider peat decomposition.

3- The values in table ‘Calculation of the average annual historical emissions over the Reference Period’ (either the current 27,649,973.72 or the 26,493,920.60 tCO₂e/yr according to the definition) do not match the RL reported in table ‘ER Program Reference level’ or the evidence in ‘fcpf_ekjerp_ermr1_MC_26Juli2022c’, where an average 27,469,856.40 tCO₂e/yr is stated.

Project Participant response

Date: 04/01/2023

1. Add intermediate table

	Emission (tCO ₂ e/year)		Emission (tCO ₂ e/year)
Deforestation	23.949.437,32	Living biomass	23.058.668,41
		Soil Mangrove	729.648,69
		Peat Decomposition	55.852,41
		Peat fire	105.267,80
Forest Degradation	3.520.419,08	Living biomass	2.391.882,73
		Peat Decomposition	987.517,06
		Fire in stable forest	141.019,29
Total	27.469.856,40		27.469.856,40

2. Changes made to the table

3. Changes made to the table. Corrected number is 27.469.856,40 tCO₂e

Documentation provided by the Project Participant

VVB Assessment

Date: 24/01/2023

1. Information provided and deemed correct.

2. Changes in the table deemed correct.

3. Please, do not eliminate the following table, but correct it to make it match with the one included in the point 1 above. In other words, please, provide a table with the historical emissions that matches the average for the period.

Period	Deforestation	Forest Degradation	Total
2006-2007	22,265,406.41	2,203,162.16	24,468,568.63
2007-2008	22,265,406.41	2,203,162.16	24,468,568.63
2008-2009	22,265,406.41	2,203,162.16	24,468,568.63
2009-2010	11,283,098.47	735,459.61	12,018,558.04
2010-2011	11,283,098.47	735,459.61	12,018,558.04
2011-2012	34,372,668.98	461,002.08	34,833,671.06
2012-2013	29,557,250.31	426,479.08	29,983,729.39
2013-2014	9,655,366.26	1,438,282.73	11,093,648.99
2014-2015	26,845,754.93	11,156,226.95	38,001,981.88
2015-2016	40,793,227.35	2,356,430.72	43,149,658.07
Average (2006-2016)	24,967,538.96	2,682,434.76	27,649,973.72
Peat decomposition (2017-2018)	55,852.41	987,517.06	1,043,369.48
Reference Level	24,967,538.96	2,682,434.76	27,649,973.72

Therefore, MCAR 33 is not closed.

Project Participant response

Date: 08/03/2023

New Table in the Document (Annex 4 Section 8.4) – page 159:

More detailed on the historical emission (reference level) is shown in the following table:

Period	Emission (tCO2)							Total
	Deforestation (living biomass)	Forest Degradation (living biomass)	Soil mangrove	Peat Fire (Deforestation)	Peat decomposition (Deforestation)	Peat decomposition (Forest degradation)	Fire in stable forest	
2006-2007	22,265,406.47	2,203,162.16	472,518.94	-			258,230.51	25,199,318.08
2007-2008	22,265,406.47	2,203,162.16	472,518.94	-			22,580.16	24,963,667.73
2008-2009	22,265,406.47	2,203,162.16	472,518.94	-			153,586.02	25,094,673.59
2009-2010	11,283,098.43	735,459.61	45,603.44	-			43,954.96	12,108,116.44
2010-2011	11,283,098.43	735,459.61	45,603.44	-			95,157.52	12,159,319.00
2011-2012	34,372,668.98	461,002.08	697,213.18	-			214,555.41	35,745,439.65
2012-2013	29,557,250.31	426,479.08	1,179,540.14	-			116,656.23	31,279,925.76
2013-2014	9,655,366.26	1,438,282.73	-	244,106.47			263,971.09	11,601,726.56
2014-2015	26,845,754.93	11,156,226.95	2,867,704.54	298,756.14			8.07	41,168,450.63
2015-2016	40,793,227.35	2,356,430.72	1,043,265.40	509,815.35			241,492.96	44,944,231.78
2017-2018					55,852.41	987,517.06		1,043,369.48
Average	23,058,668.41	2,391,882.73	729,648.69	105,267.80	55,852.41	987,517.06	141,019.29	27,469,856.40

VVB Assessment

Date: 24/03/2023

A correct and clarifying table with the historical emissions that matches the average for the period has been added.

Therefore, MCAR 33 is closed.

NC ID: Major

34

Date: 18/11/2022

Description of NC

In section MR Annex 4: 8.5

1- It is stated that “As Indonesia does not meet the qualifications for an upward adjustment as outlined in the Methodological Framework, and the Methodological Framework does not otherwise consider the uniqueness of peat forests, the CFPs agreed to provide a one-time waiver to Indicator 13.1 of the Methodological Framework *...+. The implications of this decision for the final Reference Emission Level is that the estimated emissions from peat degradation will increase from 975.631 tCO₂e/yr (the average over the reference period) to 1,036,236 tCO₂e in 2017 and 1,043,684 tCO₂e in 2018, staying constant for years after 2018”. It is not clear the quantification of the adjustment (column Adjustment, if applicable (tCO₂-e/yr) is now empty). Please provide it in a table with the change per year regarding the

previous RL.

2- Although it seems that finally an upward adjustment was done (as a CFP exemption), apparently the adjustment was from 27,469,856.40 tCO₂e/yr (MR Annex 4: section 8.4) to 27,448,712.07 tCO₂e/yr (MR Annex 4: section 8.5), that means a downward. Please, clarify the final RL used, since in section MR 4.1 the RL reported and used as final for the FCPF ER calculation is 'pre-adjustment' (the one reported in MR Annex 4: 8.4).

3- Section MR Annex 4: 8.5 lacks a clear 'executive summary of assumptions, methods and results of any underlying studies that have been used to determine the adjustment' (according to MR template), particularly a comprehensive explanation of the quantification methods and final results ('complete calculation for the quantification of the proposed upward or downward adjustment to the average annual historical emissions over the Reference Period. Provide a step-by-step estimation of the expected emissions that would result from documented changes in ER Program circumstances. Attach any documents or spreadsheets used in the calculation'). In case the current values in MR Annex 4: 8.4 are the adjusted ones, please provide the same information but regarding the ones provided currently in MR Annex 5: 8.5 (if this ones are the pre-adjusted).

Project Participant response

Date: 04/01/2023

1. Based on Resolution CFM/19/2019/1 (https://www.forestcarbonpartnership.org/system/files/documents/Resolution%20CFM_19_1_Endorsement%20of%20Indonesian%20ER%20Program%20FINAL.pdf), in which 'the CFPs and Program Participant agreed to remove the calculation for emissions associated with projected future deforestation in peat forest and apply the estimate of the most recent data not later than 2018
2. Corrections were made in Annex 4, 8.4. The figures used are 27,469,856.40 tCO₂e/yr
3. Calculations are in the excel file https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_erm1_MC_26Juli2022c.xlsx

Documentation provided by the Project Participant

VVB Assessment

Date: 24/01/2023

1. Please, provide in the table in Annex 4: 8.4 and 8.5 the previous value of reference level and the adjustment -column 'Adjustment, if applicable (tCO₂-e/yr)'- in a way that Previous RL + adjustment = RL employed (27,469,856.40).
2. Clarification has been addressed.
3. The information requested is not provided in the MR (only the Excel spreadsheet).
Therefore, MCAR 34 is not closed.

Project Participant response

Date: 08/03/2023

Table in Annex 4: 8.4 has been revised. – See Page 158 in the Document

Tables in the Annex 4 section 8.4:

	Emission (tCO ₂ e/year)		Emission (tCO ₂ e/year)
Deforestation	23.949.437,32	Average Living biomass	23.058.668,41
		Average Soil Mangrove	729.648,69
		Peat Decomposition 2017-2018	55.852,42

		Average Peat fire	105.267,80
Forest Degradation	3.520.419,08	Average Living biomass	2.391.882,73
		Peat Decomposition 2017-2018	987.517,06
		Average Fire in stable forest	141.019,29
Total	27.469.856,40		27.469.856,40

More detailed on the historical emission (reference level) is shown in the following table:

Period	Emission (tCO ₂)							Total
	Deforestation (living biomass)	Forest Degradation (living biomass)	Soil mangrove	Peat Fire (Deforestation)	Peat decomposition (Deforestation)	Peat decomposition (Forest degradation)	Fire in stable forest	
2006-2007	22,265,406.47	2,203,162.16	472,518.94	-			258,230.51	25,199,318.08
2007-2008	22,265,406.47	2,203,162.16	472,518.94	-			22,580.16	24,963,667.73
2008-2009	22,265,406.47	2,203,162.16	472,518.94	-			153,586.02	25,094,673.59
2009-2010	11,283,098.43	735,459.61	45,603.44	-			43,954.96	12,108,116.44
2010-2011	11,283,098.43	735,459.61	45,603.44	-			95,157.52	12,159,319.00
2011-2012	34,372,668.98	461,002.08	697,213.18	-			214,555.41	35,745,439.65
2012-2013	29,557,250.31	426,479.08	1,179,540.14	-			116,656.23	31,279,925.76
2013-2014	9,655,366.26	1,438,282.73	-	244,106.47			263,971.09	11,601,726.56
2014-2015	26,845,754.93	11,156,226.95	2,867,704.54	298,756.14			8.07	41,168,450.63
2015-2016	40,793,227.35	2,356,430.72	1,043,265.40	509,815.35			241,492.96	44,944,231.78
2017-2018					55,852.41	987,517.06		1,043,369.48
Average	23,058,668.41	2,391,882.73	729,648.69	105,267.80	55,852.41	987,517.06	141,019.29	27,469,856.40

Section 8.5:

As Indonesia does not meet the qualifications for an upward adjustment as outlined in the Methodological Framework, and the Methodological Framework does not otherwise consider the uniqueness of peat forests, the CFPs agreed to provide a one-time waiver to Indicator 13.1 of the Methodological Framework. In other words, Indonesia uses emission level of peat decomposition year 2018 as baseline historical emission and stays constant for years after 2018 (Figure 5.1). The Carbon Fund Participants and Indonesia note that this decision is specific to this ER-Program, and does not imply precedent for any other program under the Carbon Fund or in Indonesia³.

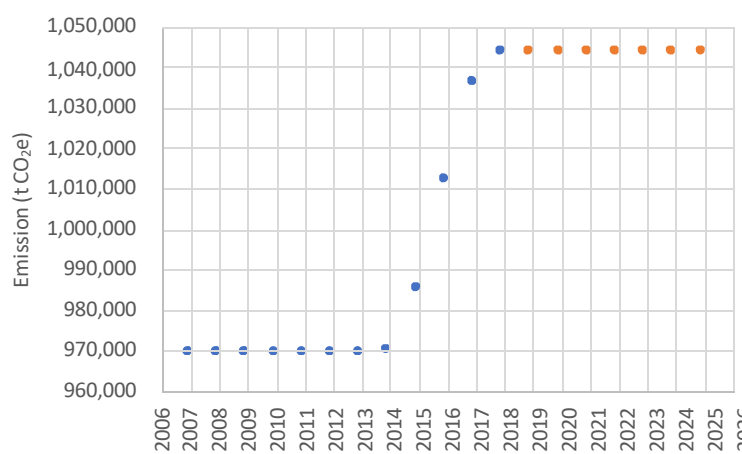


Figure 5.1 Projected emission from peat decomposition to 2025 taking into account the inherited emission

³Resolution CFM_19_1_Endorsement of Indonesia ER Program FINAL.pdf (forestcarbonpartnership.org)

It has been clarified that an upward adjustment itself has not been applied, but the CFPs agreed to provide a one-time waiver to Indicator 13.1 of the MF to use emission level of peat decomposition year 2018 as baseline historical emission and keep it constant for years after 2018. Documented evidence was provided. Thus, the pending requests 1) and 3) are not longer required.

Therefore, MCAR 34 is closed.

NC ID: minor	35	Date: 18/11/2022
Description of NC		
In MR Annex 4: 9.2 section is mentioned "For MMR of peat and forest fire, as seen in Figure 9.1". The reference is not correct.		
Project Participant response		Date: 04/01/2023
<i>We appreciate your concern. The sentence should mention the reference to Figure 9.1 (Method for estimating burnt area from hotspot data (MoEF, 2021) at page 155.</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
The text has not been updated in the MR. The figure has been eliminated. Therefore, mCAR 35 is not closed.		
Project Participant response		Date: 08/03/2023
We were updated and corrected as mention from figure 9.1 to figure 8.1. (MMR of peat and forest fire) was inserted in the Annex 4: Section 8.3		
VVB Assessment		Date: 24/03/2023
The text and the figure have been correctly updated in the MR. Therefore, mCAR 35 is closed.		

NC ID: Major	36	Date: 18/11/2022
Description of NC		
In section MR 4.1:		
1- The values in table 4-1 do not correspond to the assumed values in the table in MR Annex 4: 8.4 'Final Estimated Reference Emission Level for East Kalimantan', but rather to the 'ER Program Reference level' values (assumed which are pre adjustment).		
2- The introduction paragraph does not indicate the complete figures in the required format (000,000,000.00; such as 23.9M and 3.5M, for example). This is repeated in the case of sections MR 4.2		

and MR 4.3.

3- The reference "See Annex 4 Table 8.22" is not correct, there is no such table.

4- Table 4-1 does not indicate that the values are annual.

5- An explanation (or a reference to the section) is not included for the difference in values between the ER Program Document and the Technical Corrections, as requested by the template ("If there are differences, explain these differences and whether Technical Corrections have been applied").

6- The title of table 4-2 is not correct (regarding the interpretation of the values).

7- The source (or link) of the RL values in Table 4-2 is not indicated.

8- A table with the prorated values for the Reporting Period has not been included.

Project Participant response

Date: 04/01/2023

1. Corrections have been made in Annex 4, 8.4.
2. Done
3. Deleted "See Annex 4 Table 8.22"
4. Table 4.1 is annual number
5. See summary of technical correction and table 4.1
6. Corrected, due to rounding off calculation numbers.
7. See sheet 'Sum All' on file for emission calculation –
https://mrv.kaltimprov.go.id/storage/quest/ERM1/CarbonAccounting/fcpf_ekjerp_ermr1_MC_26Juli2022c.xlsx
8. Added on Table 4.2

Documentation provided by the Project Participant

VVB Assessment

Date: 24/01/2023

1. The values have been corrected.
2. Some figures in section 4.1 have been updated, but others remain in the incorrect form (23.9M and 3.5M). Sections 4.2 and 4.3 have been correctly updated.
3. The section has been updated and deemed correct.
4. It is not stated on the table description. Please update accordingly.
5. The summary or the reference to the section in which the summary is included is not addressed.
6. The table title is still incorrect regarding the dates.
7. The source has been updated and deemed correct.
8. The table has been updated and deemed correct.

Therefore, MCAR 36 is not closed.

Project Participant response

Date: 08/03/2023

Table 4.A-1 amended to show annual emission calculation and explanation added on difference between emissions in ERPD and technical correction (indicating that ERPD most likely overestimated). Table 4-2 also amended.

Text in the document:

Under the corrected Reference Level (see Annex 4), the average annual historical emissions from deforestation reached 23,949,437.32 tCO₂e per year, whereas from forest degradation reached

3,520,419.08 tCO₂e per year. 'Deforestation' includes all emissions associated with change from forest to non-forest cover, including living biomass, peat decomposition, peat fires in deforested areas, and mangrove soil in deforested areas. 'Degradation' includes all emissions associated with change from high biomass forest to lower biomass forest and includes living biomass, and peat decomposition and fires in secondary forest. Based on that, the reference level for this reporting period is 27,469,856.40 tCO₂e per year.

Table 5.A - 1. Comparison of Reference Level between 2019 ERPD and Technical Correction

	ER Program Document		Technical Correction	
	Deforestation (ton CO ₂ e/yr)	Forest degradation (ton CO ₂ e/yr)	Deforestation (ton CO ₂ e/yr)	Forest degradation (ton CO ₂ e/yr)
Living biomass	49,735,619.29	14,701,507.87	23,058,668.41	2,391,882.73
Peat decomposition	109,330.85	929,875.96	55,852.42	987,517.06
Fire	33,555.69	1,804,726.13	105,267.80	141,019.29
Mangrove soil	1,091,581.22	0.00	729,648.69	0.00
Total	50,970,087.05	17,436,109.96	23,949,437.32	3,520,419.08
	68,406,197.00		27,469,856.40	

From Table 4A-1 above, the emission calculation in 2019 ERPD is most likely overestimated. There is significant different in term of adjusted total deforestation area in reference period 2006-2016 from the previous calculation in ERPD (2019) and technical correction. The deviation is 422,796 hectares as shown in Table A4.1. Adjusted forest degradation is also reduced quite significant from ERPD and technical correction, from 276,780 hectares to 140,974 hectares. On the other hand, emission factor (EF) in technical correction is recalculated using NFI samples rather than PSP FCPF samples, and the EF value for 6 forest classes is higher than EF using in ERPD. As consequences, once deforestation happened in this forest classes, the emission will systematically increase. Therefore, the size of deforestation area is the major contributor of different emission calculation between ERPD (2019) and technical correction.

Table 4-2. The emission of deforestation and forest degradation during monitoring and reporting period based on emission reference Level from technical correction 2006 - 2016

Year of Monitoring/ Reporting period t	Average annual historical emissions from deforestation over the Reference Period (tCO ₂ -e/yr)	If applicable, average annual historical emissions from forest degradation over the Reference Period (tCO ₂ -e/yr)	If applicable, average annual historical removals by sinks over the Reference Period (tCO ₂ -e/yr)	Adjustment, if applicable (tCO ₂ -e/yr)	Reference level (tCO ₂ -e/yr)
MONITORING PERIOD					
1 July 2019 – 30 June 2020	23,949,437.32	3,520,419.08			27,469,856.40
1 July 2020 – 30	23,949,437.32	3,520,419.08			27,469,856.40

June 2021					
Total	47,898,874.64	7,040,838.17			54,939,712.80
REPORTING PERIOD					
1 July 2019 – 30 June 2020	23,949,437.32	3,520,419.08			27,469,856.40
1 July 2020 – 31 December 2020	11,974,718.66	1,760,209.54			13,734,928.20
Total	35,924,155.98	5,280,628.62			41,204,784.60
See sheet 'Sum All' on file for emission calculation – https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_ermr1_MC_26Juli2022c.xlsx					
VVB Assessment				Date: 24/03/2023	
2. The figures have been corrected.					
4. The table values description has been updated and deemed correct.					
5. The explanation is included and deemed correct.					
6. The table description has been updated and it is clear now.					
Therefore, MCAR 36 is closed.					

NC ID: minor	37	Date: 18/11/2022
Description of NC		
In section MR 4.2: 1- "So, total net emissions for period July 2019-June 2020 is 2.1M tCO₂e per year and July 2020-June 2021 is 7.2M tCO₂e per year". Mentioning "per year" is confusing when at the same time the annual period is indicated. 2- Please include a table with the breakdown of emissions by pool and source (same as Table 4-1).		
Project Participant response		Date: 04/01/2023
1. Done 2. Not mention in template		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
1. The section has been updated and deemed correct. 2. The template indeed does not requires it.		

Therefore, mCAR 37 is closed.

NC ID: Major	38	Date: 18/11/2022
Description of NC		
In section MR 4.3: 1- The approach used for the adjustment between the Monitoring Period and the Reporting Period has been to pro-rate the number of days between both periods (that is, considering 549 [366+183] days out of 730). However, table 4-4 (MR 4.2) shows for the period 2020-2021 the emissions of 0.5 years, in line with the explanation in MR 4.3 “The Emission Reduction calculation is then done by subtracting the 1.5 amount of carbon of RL (annual) with the sum of emissions for 2019-2020 + half of (RL minus emissions for 2020-2021)”. The approach used is correct, but the second explanation (weighting 1.5 of the period) is not exactly equivalent (0.75 years is not exactly equivalent to 549/730 days). Please adapt the explanation, although the calculations are correct in Table 4-4 (MR 4.3) and adapt Table 4-4 (MR 4.2). 2- Section states “Emission Reduction Calculation during the reporting period presented in table 4-4 covers the period of 548 days”. According to calculations it is 549. 3- “East Kalimantan has produced emission reductions of 25.77M tCO₂e”. This is not correct. 4- The template requests to “Set aside a number of ERs *...+ in a buffer reserve. This amount reflects the level of uncertainty associated with the estimation of ERs generated during the Crediting Period”. Indicate the reasons in the text if this buffer is not applicable.		
Project Participant response		Date: 04/01/2023
1. <i>Done</i> 2. <i>Done</i> 3. <i>Done</i> 4. <i>Not in template</i>		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
1. The section has been updated and deemed correct. 2. The section has been updated and deemed correct. 3. The section has been updated and deemed correct. 4. The information is included in section 5.1 and 8 of the MR. Therefore, MCAR 38 is closed.		

NC ID: Major	39	Date: 18/11/2022
Description of NC		

In section MR 5.1, the table column Analysis of contribution to overall uncertainty does not include a detailed explanation of (according to MR template request): 1) the rationale to conclude whether its contribution to total uncertainty of Emission Reductions is high or low, 2) measures that have been implemented to address these sources of uncertainty as part of the Monitoring Cycle (including specific references to QA/QC procedures, training, measures, etc.). Update also table in section MR 12.1.

Project Participant response
Date: 04/01/2023

1. *Done*
2. *already available in the table*

Documentation provided by the Project Participant
VVB Assessment
Date: 24/01/2023

No significant changes have been done to the previous report in this regard. The detailed explanation addressing these points for each source of uncertainty is still incomplete.

Therefore, MCAR 39 is not closed.

Project Participant response
Date:
08/03/2023

Paragraph of explanation included for each source of uncertainty.

Table 5.A in the Document:

Sources of uncertainty	Analysis of contribution to overall uncertainty	Contribution to overall uncertainty (High or Low)
Activity Data		
<i>Measurement</i>	Annual land cover map produced by MOEF is the primary sources of activity data in this ER program. The map accuracy relies on the interpreter which varies in term of experience when the manual interpretation took place. This situation may lead to inconsistency during delineation of Landsat image to land cover class. As deforestation and forest degradation are identified using this map, therefore the accuracy of land cover map is pivotal and contribute significantly to overall ER uncertainty. In order to maintain consistency of the delineation process, the Landsat interpreter must have equal capacity and basic understanding about the interpretation process. Through training program, the capacity of interpreter will be upgraded and refreshed. MOEF as institution that responsible to produce the map, provides Standard Operating Procedures (SOPs) and manuals to guide the interpreters to do the satellite image interpretation. Another unit in MOEF running the QC/QA process is to quantify the land cover map accuracy and to fix any inappropriate data. All this measure action will ensure that the land cover map is accurate and suitable for further analysis including deforestation and forest degradation calculation.	High (red)
<i>Representative</i>	As much as 150 points samplings were distributed for each land cover change (LCC) categories. There are 6 possible categories as a result of analysing two land	Low

<i>ness</i>	cover maps (T_0 and T_1) that is area of deforestation, forest degradation, forest gain, stable primary forest, stable secondary forest and stable non forest. If all land cover change categories applicable, therefore there will be 900 sample points. Each sample point will be representing an area of 6.25 hectare, so that in total there will be 5,625 hectares of sampling area for assessing the accuracy of East Kalimantan land cover change. In relation to East Kalimantan jurisdictional area, the sampling intensity for all East Kalimantan area is about 0.04% but for deforestation alone, the sampling intensity is 0.15%. Using this guideline, the representatives is well addressed therefore the contribution to overall uncertainty is low.			
<i>Sampling</i>	150 sample points is distributed using stratified simple random sampling for evaluating each land cover change. This is called as probability sampling. This approach ensures that ER program follows a robust sampling design in term of activity data preparation. Robust sampling design will increase the confidentiality of land cover change estimation. Probability sampling is expected to reduce uncertainty and therefore the contribution of sampling is essential.	<i>High (random/bias)</i>		YES
<i>Extrapolation</i>	There is no extrapolation conducted to prepare activity data for this ER program. Deforestation is estimated per forest class, based on reference data. Therefore, this source of uncertainty is not applicable to our approach.	<i>Intentionally left blank</i>		<i>Intentionally left blank</i>
<i>Approach 3</i>	The source of uncertainty of Approach 3 in East Kalimantan ER program may come from massive cloud cover that persist in Landsat images as sources for land cover interpretation. However, as mentioned in the interpretation guideline (https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/petunjuk-teknis-penafsiran-citra-satelit-resolusi-sedang.pdf), on the area where cloud exists, the interpreter may use additional imageries such as mosaics of Landsat image from previous year or high resolution image (SPOT 6/7 if available) or download additional Landsat scene from here http://landsat-catalog.jpia.go.jp/	<i>Low (bias)</i>		YES
Emission Factor				
<i>DBH measurement</i>	DBH is variable of tree measured directly during field survey. DBH is proxy data to estimate biomass and carbon using allometric equation. Another variable is tree height. Compare to DBH, tree height is difficult to measure. Both variables are then very important and are contributor for any uncertainty in emission estimation. Plot delineation is also important to ensure only tree inside sample plot that is measured. Technically, during sample plot establishment in the ground, the plot line boundary or delineation is open clear at least 1 meter wide. Flagging tape often puts along the plot line. The process to measure DBH, height and establishing plot delineation follow manual or guideline that already provide by IPSDH MOEF (https://mrv.kaltimprov.go.id/storage/guest/ERM1/Guidance/Petunjuk_Teknis_Enumerasi_TSP_dan_PSP.pdf). Field surveyor is expected one person who has forestry background. The survey team is preferable led by researcher or universities -forestry staff. Training is mandatory prior survey.	<i>High (bias)</i>		YES
<i>H measurement</i>		<i>Low (random)</i>		YES
<i>Plot delineation</i>		<i>Low (random)</i>		YES
<i>Wood density estimation</i>	The complexity of forests structure and tree species composition in East Kalimantan make wood density important variable for estimating biomass. The inclusion of wood-density classes improves the performance of allometric equation for lowland tropical forests. Furthermore, diameter and wood density are essential variables in estimating AGB in highly diverse tropical ecosystems (Manuri et al., 2017). The source error of wood density is possibly due to limited	<i>Low (random)</i>		YES

	data availability and variation among samples from the same species. Therefore, it is necessary to encourage more research to add wood density database of tropical forests in East Kalimantan.			
<i>Biomass allometric model</i>	Biomass allometric equation directly affects emission factor for each land cover classes. In this ER program, EF uncertainty is expected to get lower and lower. At this point, uncertainty of EF of primary and secondary dryland forest are 9.27% and 5.24%, respectively. This uncertainty is low. It is expected that other land cover classes will have EF uncertainty less than 10% as well. However, the sample tree data used to construct biomass allometric models is still relatively limited to trees of a certain size. Since biomass is calculated using allometric model of one or two measured variables, therefore the contribution of error is quite high to emission prediction. In order to control the error source from allometric equation, it is recommended to add more available field data to update the existing allometric model.	High (random)		YES
<i>Sampling</i>	Sampling error is the statistics representing error due to collecting data using sample (part of population) rather than all population element. Emission factor is generated from sample plots therefore sampling is also contributor of overall uncertainty of EF. This source of error is random and is considered to be high if sample do not represent all variation of population. By adding more sample plots and the plot is distributed following probability sampling, then the error is expected low.	High (random)		YES
<i>Carbon Fraction</i>	Carbon fraction uses the values listed in Table 4.3 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 4: Agriculture, Forestry and Other Land Use https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf Carbon fraction default values is expressed as 0.47. In tropical and subtropical forest, the lowest value of carbon fraction is 0.43 while the highest one is 0.49. Deviation is quite small, therefore carbon fraction contribution to overall EF uncertainty is low.	Low (bias / random)		YES
<i>Root to-shoot ratio</i>	Root shoot ratio using the IPCC GPG LULUCF Table 3A.1.8 - https://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf_files/Chp3/Anx_3A_1_Data_Tables.pdf Root to shoot ratio (R:S ratio) varies depending on the land cover type. From 23 land cover classes in Indonesia, the lowest R:S ratio is 0.24 while the highest one is 1.58 (savanna & grasses, pure dry agriculture, bare ground and Settlement). The deviation of lowest and highest value of R:S ratio is quite significantly different, therefore R:S ratio most likely have high contribute to overall uncertainty. Similar to carbon fraction, ER program managemeny is encouraged to support any research on this topics at local scale.	High (bias / random)		YES
<i>Representativeness</i>	From regional point of view, 23 classes of land cover are suitable enough to accommodate all physical variation on the ground. Emission factor has been set to all these land cover class (forest and nonforest classes). It is expected emission uncertainty from deforestation and forest degradation would be lower. The potential error sources regarding to representativeness is the sample plot is not randomly distributed. With lack of access to reach all forest area, sample plot may distributed purposively following road or stream network. In this case, the error would be increased. Representativeness should be accommodated through robust sampling design using stratified random sampling.	High (bias)		YES

Integration			
Model	The combination of AD & EF does not necessarily need to result in additional uncertainty. Usually, sources of both random and systematic error are the calculations conducted in spreadsheets. Common error is incomplete equation script during data processing. The MRV team of East Kalimantan has implemented an automated script to calculate emissions and uncertainty in spreadsheet as well as in GIS web-based platform. This effort should greatly reduce the possibility of mistakes in the calculations. The outputs of the activity data and emissions spreadsheets were double checked by MRV team member through MRV working group meeting.	Low (bias)	YES
Integration	This source of error is linked to the lack of comparability between the transition classes of the Activity Data and those of the Emission Factors. Using Landsat image (spatial resolution 30 m), some of land cover classes may look similar and therefore it is difficult to differentiate. On the other hand, there is physical feature that is really unique as seen on Landsat (such as karst) but there is no class for this landscape. Meanwhile, we almost agree that forest structure and composition in karst area is unique and quite different compared to primary or secondary dryland forest.	Low (bias)	YES
VVB Assessment		Date: 24/03/2023	
Table 5 have been updated and the analysis of contribution to overall uncertainty is deemed correct. Therefore, MCAR 39 is closed.			

NC ID: Major	40	Date: 18/11/2022
Description of NC		
Table 14 in section 5.2 is not complete, some fields not complete in ‘Error sources quantified in the model (e.g. measurement error, model error, etc.)’, ‘Probability distribution function’, ‘Assumptions’. Update also table in section MR 12.2.		
Project Participant response		Date: 04/01/2023
Link for parameter values works well.		
Documentation provided by the Project Participant		
See sheet ‘EF_EKJERP’ excel file https://mrvt.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_erm1_MC_26Juli2022c.xlsx		
VVB Assessment		Date: 24/01/2023

No significant changes have been done to the previous report in this regard.

Project Participant response

Date: 08/03/2023

Table amended and additional paragraph of explanation included.

Table 5.B. in the document (Page 57):

Parameter included in the model	Parameter values	Error sources quantified in the model (e.g. measurement error, model error, etc.)	Probability distribution function	Assumptions
Project Area	12,734,692 ha	Intentionally left blank	Intentionally left blank	ER program document
Length of reference period	10 years	Intentionally left blank	Intentionally left blank	ER program document
Carbon Fraction	0.47	Measurement error	Triangular (lower bound = 0.44, upper bound = 0.49, mode = 0.47)	IPCC 2006
Ratio of molecular weights of CO ₂ and C	44/12	Intentionally left blank	Intentionally left blank	Default
Root to shoot ratio (R:S ratio)	0.24 0.32 0.36 0.48 1.58	Measurement error	Intentionally left blank	2006 IPCC GPG LULUCF Table 3A.1.8. See sheet 'EF_EKJERP' excel file https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_erm1_MC_26Jul2022c.xlsx
AGB stock	See sheet 'EF_EKJERP' excel file https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_erm1_MC_26Jul2022c.xlsx	Sampling error Measurement error	Normal distribution	Intentionally left blank
Activity data	See sheet 'UncertaintyAD' excel file https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_erm1_MC_26Jul2022c.xlsx	Measurement error	Non-parametric bootstrapping	Intentionally left blank

VVB Assessment

Date: 24/03/2023

The table has updated as per requirements and it is deemed corrected. It is assumed that, although appearing in the table, fixed parameters (Project Area, Length of Reference period, Ratio of C:CO₂, R:S) do not participated in the MC simulation.

Therefore, MCAR 40 is closed

NC ID: minor

41

Date: 18/11/2022

Description of NC

- 1- Reference sources of Table 5 in MR 5.2 and Table 6 in MR 5.3.
- 2- Formula in Table 5 (MR 5.2) 'D: Half Width Confidence Interval at 90% (B – C/2)' is not correct (although the result is).

Project Participant response

Date: 04/01/2023

1. Done.

2. Wrong formula on template. Correct formula and used are $= (B - C)/2$

Documentation provided by the Project Participant

VVB Assessment

Date: 24/01/2023

1. Sources are not referenced.
2. Please, change the formula to $(B - C)/2$

Therefore, mCAR 41 is not closed.

Project Participant response

Date: 08/03/2023

Table 7 (previously 5.C) and text in the document (page 58):

		Total Emission Reductions*
A	Median	35,404,709.61
B	Upper bound 90% CI (Percentile 0.95)	31,595,294.53
C	Lower bound 90% CI (Percentile 0.05)	39,343,003.80
D	Half Width Confidence Interval at 90% $((B - C)/2)$	3,873,854.63
E	Relative margin (D/A)	11%
F	Uncertainty discount	0

In the table above, emission sources are not presented in order to simplify the table. In this ER program there are six sources of emission that is deforestation and forest degradation of living biomass, mangrove soil, peat decomposition, peat fire and fire in stable forest. All the emission sources have been calculated as well as the uncertainty that evaluated using Monte Carlo. Complete information on emission reduction calculation using Monte Carlo for each emission sources is available through https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/fcpf_ekjerp_ermr1_MC_26Juli2022c.xlsx.

VVB Assessment

Date: 24/03/2023

The table has been updated and clarification about the sources was provided.

Therefore, mCAR 41 is closed.

NC ID: Major

42

Date: 18/11/2022

Description of NC

Table in 12.1 is not aligned with the information requested by MR in this section. See also non-conformity regarding section MR 5.1 section.

Project Participant response		Date: 04/01/2023																													
Done. Change of template																															
Documentation provided by the Project Participant																															
VVB Assessment		Date: 24/01/2023																													
The tables still not comply with the information required: please indicate clearly how systematic and random errors have been addressed in accordance with the guidelines. See also non-conformity regarding section MR 5.1 section.																															
Project Participant response		Date: 08/03/2023																													
Table 13 in Section 12.1 of the Document – page 181:																															
<table><tr><th>sources of certainty</th><th>Analysis of contribution to overall uncertainty</th></tr><tr><td>activity Data</td><td></td></tr><tr><td>measurement</td><td> Annual land cover map produced by MOEF is the primary sources of activity data in this ER program. It relies on the interpreter which vary in term of experience when the manual interpretation may lead to inconsistency during delineation of Landsat image to land cover class. As degradation are identified using this map, therefore the accuracy of land cover map is significantly to overall ER uncertainty In order to maintain consistency of the delineation process, the Landsat interpreter must have basic understanding about the interpretation process. Through training program, the capacity is upgraded and refreshed. MOEF as institution that responsible to produce the map, provide Procedures (SOPs) and manuals to guide the interpreters to do the satellite image interpretation. MOEF run the QC/QA process, to quantify the land cover map accuracy and fixed any inconsistency. Measure action will ensure the land cover map is accurate and suitable for further analysis including forest degradation calculation. </td></tr><tr><td>representative ness</td><td> As much as 150 points sampling were distributed for each land cover change (LCC) category and categories as a result of analysing two land cover maps (T₀ and T₁) that is area of deforestation, forest gain, stable primary forest, stable secondary forest and stable non forest. If all land is applicable, therefore there will be 900 sample points. Each sample point will be representing so that in total there will be 5,625 hectares of sampling area for assessing the accuracy of Emission change. In relation to East Kalimantan jurisdictional area, the sampling intensity for all East Kalimantan is 0.04% but for deforestation alone, the sampling intensity is 0.15%. Using this guideline, the contribution to overall uncertainty is low. </td></tr><tr><td>sampling</td><td> 150 sample points is distributed using stratified simple random sampling for evaluating each class is called probability sampling. This approach ensures that ER program follow robust sampling data preparation. Robust sampling design will increase the confidentiality of land cover change sampling is expected to reduce uncertainty and therefore the contribution of sampling is essential. </td></tr><tr><td>extrapolation</td><td> There is no extrapolation conducted to prepare activity data for this ER program. Deforestation class, based on reference data. Therefore, this source of uncertainty is not applicable to our program. </td></tr><tr><td>approach 3</td><td> The source of uncertainty of Approach 3 in East Kalimantan ER program may come from maps that persist in Landsat images as sources for land cover interpretation. However, as mentioned in guideline (https://mrk.kaltimprov.go.id/storage/guest/ERMRI/Guidance/petunjuk-teknis-pemrosesan-resolusi-sedang.pdf), on the area where cloud exists, the interpreter may use additional image of Landsat image from previous year or high resolution image (SPOT 6/7 if available) or download Landsat scene from http://landsat-catalog.lapan.go.id/. </td></tr><tr><td colspan="2">Emission Factor</td><td></td></tr><tr><td>DBH measurement</td><td colspan="2"> DBH is variable of tree measured directly during field survey. DBH is proxy data for estimation using allometric equation. Another variable is tree height. Compare to DBH, tree height is also important to ensure only tree inside sample plot that is measured. Technically, during sampling </td></tr><tr><td>measurement</td><td colspan="2"></td></tr><tr><td>plot delineation</td><td colspan="2"> in the ground, the plot line boundary or delineation is open clear at least 1 meter wide. Flag the plot line. The process to measure DBH, height and establishing plot delineation follow already provide by IPSDH MOEF (https://mrk.kaltimprov.go.id/storage/guest/ERMRI/Guidance/Enumerasi-TSP-dan-PSP.pdf). Field surveyor is expected one who has forestry background. The survey team is preferably from universities-forestry staff. Training is mandatory prior survey. </td></tr><tr><td>wood density estimation</td><td colspan="2"> The complexity of forests structure and tree species composition in East Kalimantan make variable for estimating biomass. The inclusion of wood-density classes improved the precision </td></tr></table>			sources of certainty	Analysis of contribution to overall uncertainty	activity Data		measurement	Annual land cover map produced by MOEF is the primary sources of activity data in this ER program. It relies on the interpreter which vary in term of experience when the manual interpretation may lead to inconsistency during delineation of Landsat image to land cover class. As degradation are identified using this map, therefore the accuracy of land cover map is significantly to overall ER uncertainty In order to maintain consistency of the delineation process, the Landsat interpreter must have basic understanding about the interpretation process. Through training program, the capacity is upgraded and refreshed. MOEF as institution that responsible to produce the map, provide Procedures (SOPs) and manuals to guide the interpreters to do the satellite image interpretation. MOEF run the QC/QA process, to quantify the land cover map accuracy and fixed any inconsistency. Measure action will ensure the land cover map is accurate and suitable for further analysis including forest degradation calculation.	representative ness	As much as 150 points sampling were distributed for each land cover change (LCC) category and categories as a result of analysing two land cover maps (T₀ and T₁) that is area of deforestation, forest gain, stable primary forest, stable secondary forest and stable non forest. If all land is applicable, therefore there will be 900 sample points. Each sample point will be representing so that in total there will be 5,625 hectares of sampling area for assessing the accuracy of Emission change. In relation to East Kalimantan jurisdictional area, the sampling intensity for all East Kalimantan is 0.04% but for deforestation alone, the sampling intensity is 0.15%. Using this guideline, the contribution to overall uncertainty is low.	sampling	150 sample points is distributed using stratified simple random sampling for evaluating each class is called probability sampling. This approach ensures that ER program follow robust sampling data preparation. Robust sampling design will increase the confidentiality of land cover change sampling is expected to reduce uncertainty and therefore the contribution of sampling is essential.	extrapolation	There is no extrapolation conducted to prepare activity data for this ER program. Deforestation class, based on reference data. Therefore, this source of uncertainty is not applicable to our program.	approach 3	The source of uncertainty of Approach 3 in East Kalimantan ER program may come from maps that persist in Landsat images as sources for land cover interpretation. However, as mentioned in guideline (https://mrk.kaltimprov.go.id/storage/guest/ERMRI/Guidance/petunjuk-teknis-pemrosesan-resolusi-sedang.pdf), on the area where cloud exists, the interpreter may use additional image of Landsat image from previous year or high resolution image (SPOT 6/7 if available) or download Landsat scene from http://landsat-catalog.lapan.go.id/.	Emission Factor			DBH measurement	DBH is variable of tree measured directly during field survey. DBH is proxy data for estimation using allometric equation. Another variable is tree height. Compare to DBH, tree height is also important to ensure only tree inside sample plot that is measured. Technically, during sampling		measurement			plot delineation	in the ground, the plot line boundary or delineation is open clear at least 1 meter wide. Flag the plot line. The process to measure DBH, height and establishing plot delineation follow already provide by IPSDH MOEF (https://mrk.kaltimprov.go.id/storage/guest/ERMRI/Guidance/Enumerasi-TSP-dan-PSP.pdf). Field surveyor is expected one who has forestry background. The survey team is preferably from universities-forestry staff. Training is mandatory prior survey.		wood density estimation	The complexity of forests structure and tree species composition in East Kalimantan make variable for estimating biomass. The inclusion of wood-density classes improved the precision	
sources of certainty	Analysis of contribution to overall uncertainty																														
activity Data																															
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approach 3	The source of uncertainty of Approach 3 in East Kalimantan ER program may come from maps that persist in Landsat images as sources for land cover interpretation. However, as mentioned in guideline (https://mrk.kaltimprov.go.id/storage/guest/ERMRI/Guidance/petunjuk-teknis-pemrosesan-resolusi-sedang.pdf), on the area where cloud exists, the interpreter may use additional image of Landsat image from previous year or high resolution image (SPOT 6/7 if available) or download Landsat scene from http://landsat-catalog.lapan.go.id/.																														
Emission Factor																															
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measurement																															
plot delineation	in the ground, the plot line boundary or delineation is open clear at least 1 meter wide. Flag the plot line. The process to measure DBH, height and establishing plot delineation follow already provide by IPSDH MOEF (https://mrk.kaltimprov.go.id/storage/guest/ERMRI/Guidance/Enumerasi-TSP-dan-PSP.pdf). Field surveyor is expected one who has forestry background. The survey team is preferably from universities-forestry staff. Training is mandatory prior survey.																														
wood density estimation	The complexity of forests structure and tree species composition in East Kalimantan make variable for estimating biomass. The inclusion of wood-density classes improved the precision																														

VVB Assessment	Date: 24/03/2023
Section has been updated properly. Therefore, MCAR 42 is closed.	

NC ID: Major	43	Date: 18/11/2022
Description of NC		
1- Table in 12.2 is not aligned with the information requested by MR in this section. 2- Indicate why the uncertainty has been carried out for deforestation and degradation separately (while in section MR 5.3 is calculated jointly. Explain how also how the Uncertainty discount is taken into account (to differentiate it from the Uncertainty discount indicated in 5.2). 3- Reference sources in section 12.2 and 12.3.		
Project Participant response		Date: 04/01/2023
1. Done. Change of template 2. MR 5.3 calculate separately, see excel file fcpf ekjerp ermr1 MC 26Juli2022c.xlsx 3. Done. No section 12.3.		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
1. Certain fields of the table are still empty. See also non-conformity regarding section MR 5.1 section. 2. Please clarify the reason requested in the MR text. 3. The section is updated and deemed correct.		
Project Participant response		Date: 08/03/2023
Revised Table in the Document Section 12.2:		

Parameter included in the model	Parameter values	Range or standard deviations		Error sources quantified in the model (e.g. measurement error, model error, etc.)	Probability distribution function	Source of assumptions made
		Lower	Upper			
Project Area	12,734,692 ha	Intentionally left blank	Intentionally left blank	Intentionally left blank	Intentionally left blank	ER program document
Length of reference period	10 years	Intentionally left blank	Intentionally left blank	Intentionally left blank	Intentionally left blank	ER program document
Carbon Fraction	0.47	0.43	0.49	Measurement error	Triangular (lower bound = 0.44, upper bound = 0.49, mode = 0.47)	IPCC 2006 - https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/4_Volume4/V4_04_Ch4_Forest_Land.pdf
Ratio of molecular weights of CO ₂ and C	44/12	44/12	45/12	Intentionally left blank	Intentionally left blank	The weight of carbon isotopes contains in molecules found in the atmosphere (i.e. CO ₂), mainly 12C and 13C
Root shoot ratio	0.24 0.32 0.36 0.48 1.58	0.22 0.27 0.31 0.33 1.09	0.26 0.37 0.41 0.63 2.07	Measurement error	Intentionally left blank	2006 IPCC GPG LULUCF Table 3A.1.8 https://www.ipcc-nggip.iges.or.jp/public/gpglulucf/gpglulucf_files/Chp3/Anx_3A_1_Data_Tables.pdf See sheet 'EF_EKJERP' excel file fcpf_ekjerp_ermr_1_MC_26Juli2022_c.xlsx
AGB sample	See sheet 'EF_EKJERP' excel file fcpf_ekjerp_e	Intentionally left blank	Intentionally left blank	Measurement error	Non-parametric bootstrapping	Intentionally left blank

VVB Assessment	Date: 24/03/2023
1. The table has been completed as per requirements. 2. Point 2) above has not been clarified yet. Therefore, MCAR 43 is not closed.	
Project Participants Response	Date: 24/03/2023
For the calculation of all emissions, we use different uncertainty numbers for each calculation parameter as described in 5.2, and the overall calculation is carried out at the end, as shown in section	

5.3. Please see excel [fcpf ekjerp ermr1 MC 26Juli2022c.xlsx](#), sheet "Sum All" For static number, see excel file [fcpf ekjerp ermr1 summary 26Juli2022c.xlsx](#), sheet "All". This calculation has also followed the [guidance provided](#).

VVB Assessment**Date: 08/06/2023**

The explanation provided is deemed correct. Therefore, MCAR 43 is closed

NC ID: Major**44****Date: 18/11/2022****Description of NC**

Regarding MR 7.3 section:

- 1- The Reversal Risk evaluation has not established indicators for the Risk Factors that allow discerning the threshold for considering a risk as low, medium or high, and its consequent assignment of a Reversal Risk Set-Aside Percentage for each type of risk.
- 2- In addition to the Risk Factors listed in the Buffer Guidelines, other Reversal Risk factors with an impact on large-scale deforestation/degradation have not been evaluated, such as economic (international palm oil price/demand), or political (transfer of the national capital to EK Kalimantan) factors.
- 3- It is not indicated how the ER Program' design and implementation mitigates significant risks of Reversals identified in the assessment to the extent possible, and addresses the sustainability of ERs, both during the Crediting Period, and beyond the Crediting Period, according to MF Indicator 18.2.

Project Participant response**Date: 04/01/2023**

We recommend that you read the ER-PD document, regarding program components and risk mitigation efforts. Components, programs and activities are actions that are simultaneously carried out to reduce reversals, as well as being contained in the ESMF and other safeguards documents.

Documentation provided by the Project Participant**VVB Assessment****Date: 24/01/2023**

There are no changes in the MR 7.3 section that attends the three requests of this finding. Although a reference to the ER-PD is done:

1. The ER-PD does not provide indicators for the Risk Factors that allow discerning the threshold for considering a risk as low, medium or high, and its consequent assignment of a Reversal Risk Set-Aside Percentage for each type of risk. This is a particular request for the current MR. Indeed; the ER-PD assigns a medium risk per each factor, while in the MR the same factors are classified as low.
2. Other factors with an impact on large-scale deforestation/degradation that may have come up since 2019 have not been evaluated, like the ones commented above.
3. While the ER-PD indicates the mitigation measures, at least a summary is not included in the MR. On the other hand, there is no mention regarding the sustainability of ERs, both during the Crediting Period, and beyond the Crediting Period, according to MF Indicator 18.2.

Therefore, MCAR 44 is not closed.

Project Participant response**Date: 08/03/2023**

Clarification on risk factor is explained in MR Section 7.3

VVB Assessment	Date: 24/03/2023
1. Clarification has not been provided. Points 2) and 3) not yet address in full. Therefore, MCAR 44 is not closed.	
Project Participants Response	Date: 10/05/2023
2. Adding a paragraph to Risk Factor C: Related to the existence of a new capital city of Indonesia (IKN), we have already carried out emission calculations in that area, if a forest area clear cut is carried out. In 2018, there were 6,049 hectares of forested areas and had the potential to release emissions of 1.6 million tons of CO₂e, if a clear-cut was carried out. However, the IKN Plan has stated that a "Forest City" will be built (https://en.antaranews.com/news/259041/iqn-development-with-forest-city-concept-to-mitigate-climate-change) and protecting forested areas in the IKN area, including reforesting non-development areas. "The Forest City concept requires at least 65% forest cover, which can be achieved by forest and land rehabilitation efforts in the 58,570 ha of IKN area" (- https://ikn.go.id/en/stay-connected#faq). Regarding the situation of the world's oil palm commodity, the condition of oil palm plantations in East Kalimantan, based on estate crops statistical data, the total area of oil palm plantations in East Kalimantan in 2019, it was 1.23 million hectares with production of 18.34 million tons, and in 2021 it was 1.37 million hectares with production of 17.72 million tons. There was no significant increase in the area of oil palm plantations (0.14 million hectares in 2 years). So that changes in the world have no effect on the situation in East Kalimantan. 3. There is no significant risk of reversal based on the results of the analysis, however, program and activity designs, including precautionary measures in safeguards, have been planned and carried out in the reporting period, and are planned and will be carried out in activities until the end of the program period.	
VVB Assessment	Date: 08/06/2023
The response into the MR is considered correct. Therefore MCAR 44 is closed	

NC ID: Major	45	Date: 18/11/2022
Description of NC		
In MR 8 section, 'J. Quantity of ERs to allocated to the Reversal Buffer (F-H)*(I-5%)', 'K. Quantity of ERs to be allocated to the Pooled Reversal Buffer (F-H)*5%' and 'L. Number of FCPF ERs (F- H – J – K)' are not properly calculated, according to instructions and the tool provided by FCPF (example_section_8_monitoring_report_template_v2.0.xlsx).		
Project Participant response		Date: 04/01/2023
Done. The Section 8 has been revised based on the new MR template v2.0.		
Documentation provided by the Project Participant		
See the ERM1 document		

VVB Assessment	Date: 24/01/2023
The figures have been corrected. Therefore, MCAR 45 is closed.	

NC ID: Major	46	Date: 18/11/2022
Description of NC		
Section MR 6.2: 1- It is mentioned that "based on Criterion 37, the ER Program host country should decide whether to maintain its own comprehensive national REDD+ Program and Projects Data Management System", it is not clear about the option taken, whether the system is national, jurisdictional or third party centralized. 2- The measures implemented "to avoid having multiple claims to an ER Title" are not clearly pointed out. 3- To "provide evidence of the implementation and operation of a Program and Projects Data Management System" is requested. However, it is not specified in this section, only "data and information from the field are managed and stored" and "format reports for ER activities have been designed and put onto both web-based and excel-based" are mentioned. 4- Please, highlight any changes compared to what was anticipated in the ER-PD and explain why these changes were made, or if not applicable. 5- According to indicator 37.2, it is not indicated how the national REDD+ Program and Projects DMS provides the attributes of ER Programs (including: i. The entity that has Title to ERs produced; ii. Geographical boundaries of the ER Program or project iii. Scope of REDD+ activities and Carbon Pools; and iv. The Reference Level used) and how to report the activities and estimated ERs in a manner that conforms to the relevant FCPF Methodological Framework C&Is. 6- According to MF Indicator 37.3, it is not clarified how "the information contained in a national or centralized REDD+ Programs and Projects Data Management System is available to the public via the internet in the national official language of the host country (other means may be considered as required)". 7- According to MF Indicator 37.4, "administrative procedures are defined for the operations of a national or centralized REDD+ Programs and Projects Data Management System". However, it is only mentioned "Several standard operational procedures (SOPs), such as reporting, data entry, data validation, and data and information exchange are being developed for data management".		
Project Participant response		Date: 04/01/2023
1. The system will be centralized and put into the MoEF's web database (srn.mnlhk.or.id). The East Kalimantan Web Portal (mrv.kaltimprov.go.id) is using the same template as MoEF's web database. 2. Section 6 or ER title revised 3. Program dan data are put into both web-based and excel-based 4. Paragraph revised. The additional policy on Perpres NEK No.98/2022 and MoEF Decree No.21/2022 are added. 5. This has been put into MoU between National and Provincial Government of East Kalimantan. 6. Please see MoEF website: srn.mnlhk.or.id		

7. Done	
Documentation provided by the Project Participant	
VVB Assessment	Date: 24/01/2023
1. The previous statement has been moved from 6.1 to section 6.2. However, no changes have been done. 2. There are no changes in section 6.2 to address the request. 3. There are no changes in section 6.2 to address the request. 4. There are no changes in section 6.2 to address the request. 5. There are no changes in section 6.2 to address the request. 6. There are no changes in section 6.2 to address the request. 7. There are no changes in section 6.2 to address the request. Therefore, MCAR 46 is not closed. Please, note that any clarification has to be done in the applicable section 6, <u>not only responding in this finding box</u>. Note that the findings above are regarding section 6.2 (not 6.1 or section 6.3), then please address the clarifications specifically as requested and in the corresponding section.	
Project Participant response	Date: 08/03/2023
Split the section more clearly into 6.1, 6.2, and 6.3. Added additional information in 6.2 and in 6.4. Now complete according to ER template.	
VVB Assessment	Date: 24/01/2023
There are still points above not addressed at all or just mentioned but incomplete. Please, address the requests above point by point, in a clear manner, stating exactly what is requested. Therefore, MCAR 46 is not closed.	
Project Participant response	Date: 10/05/2023
Page 60 and 61 in ERM document: 1. Page 61- #1 paragraph:.....The National REDD+ program and Projects Data Management system are hosted by Ministry of Environment and Forestry (MoEF). However, in order to fulfil the data into the MoEF's database, then sub-national level (province) submits their data and information to the national level. Since the Government of Indonesia has appointed the Ministry of Environment and Forestry (MoEF) as a National Focal Point for climate change mitigation and adaptation, such national REDD+ Program and Projects Data Management System are managed by MoEF. So, the data management system is a national centralized. 2. Page 61 - #2 paragraph:.....Up to now, there is no claims of ER title from any carbon initiative projects from East Kalimantan. It is shown that there is no voluntary REDD+ initiatives such as VERRA Projects implemented in East Kalimantan (see the list of REDD+ project registered under VERRA⁴) and no also Plan VIVO project in East Kalimantan⁵.	

⁴ [allprojects Verra in Indonesia.xlsx \(live.com\)](#)

⁵ [All Plan Vivo Project in Indonesia.xlsx \(live.com\)](#)

3. Page 61 - #2 paragraph:..... On the other hand, in order to back up data and information that have been submitted to national system (srn.menlhk.go.id), sub-national level develops Portal Measurement Monitoring Report/MMR (<https://mrv.kaltimprov.go.id/>). The data and information are sourced from ER activities at Provincial level that have formatted and put onto both web-based and excel-based. The evidence of the implementation of ER activities were recorded in the web (<https://mrv.kaltimprov.go.id/>).
4. Page 60 - #2 paragraph: Based on President Regulation No.98/2021 (Article 1 Point 22), carbon right is regulated and managed by the Central Government. In this regard, the MoEF is by law considered as Program Entity as having ability to transfer the title of ERs resulting from the REDD+ program, that is conceptualized as “a national approach with sub-national implementation”. The Minister of Environment and Forestry has also an exclusive right to authorize the transfer of carbon right to overseas (MoEF’s Decree No.21/2022, article 21 point 2d)⁶.
5. Page 60 - #4 paragraph:.... In order to ensure the implementation of the ER program at sub-national level, a Memorandum of Understanding (MoU) between the national (through MoEF) and sub-national level was signed (No.PKS.3/SETJEN/ROKLN/KLN.0/3/2020 and No.197/2439/B.Humas-III)⁷. The sub-national level hereafter represented by Provincial Government of East Kalimantan, which also represent beneficiaries from province, district, village including indigenous people for the ER implementation in East Kalimantan. The MoU covers a) strategy and program for REDD+ activity in the province, b) working plan of REDD+, c) benefit sharing mechanism between national and sub-national level, d) safeguards implementation, e) carbon rights managed by Central Government, f) data and information exchange on forest and land cover change. It is clear in the MoU that Central Government manages and regulates the rights of carbon. The commitments to implement the ER program from village and indigenous people were also stated in the FPIC Process⁸. The FPIC is a process to get approval from the village and indigenous people to participate the ER Program. The commitment for participation in ER Program of the village and indigenous people is then put into the village approval statement (see FPIC Report⁹).
6. Please visit <http://srn.menlhk.go.id/>.
7. Page 62 - #4 paragraph:Standard operational procedures (SOPs) for project data management, such as administrative procedure, project registry, reporting, data entry, data validation, and data and information exchange have been developed (and available in <https://mrv.kaltimprov.go.id/>).

VVB Assessment

Date: 08/06/2023

The country participant have answered properly to the missing sections. Therefore, the MCAR 46 is considered closed

⁶ <https://mrv.kaltimprov.go.id/storage/guest/ERMRI/Regulation/permen-lhk-no.-21-tahun-2022-1.pdf>

⁷ [MoU REDD+ di Kaltim Materai Sekjen KLHK.pdf \(kaltimprov.go.id\)](#)

⁸ [PADIATAPA IMPLEMENTATION REPORT ENG.pdf \(kaltimprov.go.id\)](#)

⁹ [PADIATAPA IMPLEMENTATION REPORT ENG.pdf \(kaltimprov.go.id\)](#)

NC ID: Major	47	Date: 18/11/2022
Description of NC		
Section MR 6.4: 1- ERs figure is not updated. 2- Please, give more details on the current situation of this point (excess of ERs and agreement with the WB).		
Project Participant response		Date: 04/01/2023
1. Done 2. Done		
Documentation provided by the Project Participant		
VVB Assessment		Date: 24/01/2023
1. The figure remains the same. Also, Section 6.2 (Implementation and operation of Program and Projects Data Management System) has not been properly updated as it is included in section 6.1. Please update to comply with the template. 2. This information has not been updated. Therefore MCAR 47 is not closed.		
Project Participant response		Date: 08/03/2023
Text in the Document MR Section 6.4 (on excess of ERs and agreement with the WB): The estimated ERs produced during the first reporting period was 31.9 MtCO_{2e} (subject to validation and verification). The Program Entity proposes to offer 22 million Contract ERs to the FCPF Carbon Fund. In addition, the Program Entity will offer 9.9 million Additional ERs for purchase under the Call Option with the price to be negotiated in accordance with the ERPA. No ERs in East Kalimantan are transferred to other entities or other schemes during the reporting period. The negotiation of this excess ER between Gol (MoEF), East Kalimantan government and FCPF will be started soon after ERM_{R1} verification is accomplished. East Kalimantan government and MoEF also need to carefully discuss about the excess ER based on ERPA and existing regulation. Initial discussion about this issue has been carried out during several WB trips to East Kalimantan. More intensive discussion will be set on first week of March 2023		
VVB Assessment		Date: 24/03/2023
1. The figures have been updated and deemed correct. 2. This information has been updated and deemed correct. Therefore MCAR 47 is closed.		

NC ID: Major	48	Date: 18/11/2022
Description of NC		

Form requirements requested by the MR template not met:

- 1- In the front page, the template has specific format for the date (DD-MM-YYYY). However, the MR does not meet this requirement.
- 2- The template has specific font style requirements (body text shall be Calibri 10 black font). However, the font of the whole document does not match the template requirement, including footnotes and tables.
- 3- Template has specific requirements for numbers reporting (international standard format) according if they are thousands, or decimals ('e.g 1,000 representing one thousand and 1.0 representing one'). However, this requirement is not met (e.g. 193k instead of 193,000 ha) along the MR.
- 4- According to MR, 'All instructions *...+ should be deleted when submitting the ER-MR to the Facility Management Team of the FCPF'. However, the Annexes contain instructions boxes.
- 5- Along the MR, the alignment of the text is changing the limits on the left and the right, as well as the size of the page.
- 6- Throughout the document there is double spacing.
- 7- Throughout the MR there are numerous spelling errors and in general a final revision of the text is lacking to avoid confusing wording.
- 8- There are two broken internal references ('Error! Reference source not found')
- 9- There are tables that do not have titles and others that have titles with different numbering criteria.
- 10- There are references to tables and figures in the texts that are not correct.

Project Participant response

Date: 04/01/2023

1. *Revised*
2. *Revised*
3. *Revised*
4. *Revised*
5. *Revised*
6. *No direction for double spacing the template*
7. *Revised*
8. *Revised*
9. *Revised*

Documentation provided by the Project Participant

VVB Assessment

Date: 24/01/2023

1. Date of Submission on the front page still does not follow the correct format.
2. A thorough revision of the document is required, as several fonts and sizes still appear on the document not following the template.
3. A thorough revision of the document is required, as several numbers still appear on the document not following the template (e.g. 23.9M, 3.5M, 30.8, etc).
4. Annexes have been updated and deemed correct.
5. A thorough revision of the document is required, as several sections still not comply with this (e.g. 4.2).
6. It is still considered a typo, and therefore subject to correction.
7. A thorough revision of the document is required, as several typos remain.

8. Internal references have been updated and deemed correct. 9. It has been updated and deemed correct. 10. It has been updated and deemed correct. 11. Please, update the table of contents in the clean version. Therefore, MCAR 48 is not closed.	
Project Participant response	Date: 08/03/2023
Edits made across the ERMR as recommended (stylistic).	
VVB Assessment	Date: 24/03/2023
The ERMR has been updated. Therefore, MCAR 48 is closed.	

Observations (OBSs)

OBS ID	01	Date: 28/12/2022
Description of OBS		
Link in MR 3.1.1, parameter 'Carbon stock used for the estimation of emission from deforestation and degradation' does not work (although the evidence was already provided to the VVB): https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/TC_AGB_lokal_Uncertainty_23Jul2022.xlsx		
Country participant response		Date: 04/01/2023
https://mrv.kaltimprov.go.id/storage/guest/ERM1/CarbonAccounting/TC_AGB_lokal_Uncertainty_23Jul2022.xlsx <i>It works well.</i>		
Documentation provided by the Country Participant		
VVB assessment		Date: 24/01/2023
The link has been updated and deemed correct. Therefore, OBS 01 is closed.		

APPENDIX 2: EVIDENCE PROVIDED BY COUNTRY PARTICIPANT AND REVIEWED BY AENOR

Title	File
MR	Clean_Indonesia ERMR 1 - EKJERP - 29July2022_complete_clean_FMT_August 2022.docx East Kalimantan JERP FCPF CF Guide to Dataset Name and Description v02_VER CARB ACC Y GEOSP.pdf Clean_version_Indonesia ERMR 1 - EKJERP_4Jan2023_rev.docx Cleared_Version_24012023_FCPF EK JER_2nd rnd findings_16_March_2023.docx Clear_version_Indonesia ERMR 1 - EKJERP_16_June_2023_FINAL
Carbon Accounting	AccuracyAssessmentEK_LandCover2020_2021_v02U.xlsx fcpf_ekjerp_ermr1_MC_26Juli2022c.xlsx fcpf_ekjerp_ermr1_summary_26Juli2022c.xlsx TC_AGB lokal_Uncertainty_23Jul2022.xlsx
FPIC	ek_fcpf_2021_laporan_padiatapa_2021June09.pdf ek_fcpf_padiatapa_lampiran.pdf PADIATAPA IMPLEMENTATION REPORT_ENG.pdf
GeospatialData	DaratanKaltimRTRW2016_v20121219.rar Landsat2019_2020CompressedIndex.rar Landsat2020_2021CompressedIndex.rar PL2006_2021_Karhutla_Gambut_Kaltim_v02U.rar QCSample2006_2016.rar QCSample2019_2020.rar QCSampleBuffer2020_2021.rar

Guidance	Aboveground Carbon Stock.pdf ASB-LN-4A-Hairiah-et-al-2001-Carbon-stocks-tropical-land-use.pdf Cadangan_Karbon_di_Kalimantan_Timur_EBOOK.pdf Carbon Sequestration and Trace Gas Emissions.pdf fcpf_guidance_on_monte_carlo_analysis_2021_002.pdf Manuri etal_2014_allometric for tropical PSF.pdf manuri etal_2016_improved allometric equations for dipterocarp forest kalimantan.pdf Manuri etal_2017_allometric trop lowland.pdf MN17335.PDF Pedoman_Alometrik_pedugaan_biomassa.pdf Perdirjen P. 11 Pedoman Teknis Penaksiran Luas Karhutla (2).pdf PERDIRJEN Planologi Kehutanan No P.1-VII-IPSDH-2015 Tentang Pedoman Pemantauan Penutupan Lahan.pdf" Petunjuk Teknis Enumerasi TSP dan PSP.pdf petunjuk-teknis-penafsiran-citra-satelit-resolusi-sedang.pdf SNI 8033 2014.pdf SOP AKURASI_ISI_EBOOK.pdf
MHA_IP	perda pengakuan kubar benuaq telimuk.pdf PERDA.1.2015.pdf SK HA HEMAQ BENIUNG.pdf SK HUTAN ADAT BENUAQ MADJAUN DAN HUTAN ADAT GUNUNG MENALIQ(1).pdf SK HUTAN ADAT BENUAQ TELIMUK DAN HUTAN ADAT TELUYEN JARIKNG LESTARI(1).pdf SK MHA PARING SUMPIT(1).pdf sk_ha_mului.pdf
MoU and Decree	komitmen kesepakatan bersama.pdf MoU REDD+ di Kaltim_Materai Gub Kaltim.pdf MoU REDD+ di Kaltim_Materai Sekjen KLHK.pdf Nota Kesepakatan KLHK Kaltim FCPF 2022_2 (1).pdf SK Tim Kordinasi pengelolaan pengaduan dan petugas administrator.pdf

Other	1_FCPF_ERretro_Daftar Kegiatan OPD dan UPT.xlsx 50_KTPA_Bermitra_Dengan_Perusahaan_Perkebunan.pdf DISBUN_KEGIATAN_KARLABUN_KTPA.pdf Dishut_Kaltim_32_ribu_hektare_perhutanan_sosial_ANTARA_News_Kalimantan_Timur.pdf Empat_kelompok_tani_Kaltim_ANTARA_News_Kalimantan_Timur.pdf Jauhar_Sambut_Baik_Kebijakan_Perhutanan_Sosial.pdf Laporan Perkembangan Perhutanan Sosial Provinsi Kaltim.pdf RESUM KEGIATAN MMR DI DINAS LINGKUNGAN HIDUP PROV KALTIM.docx Surat_Menteri_KLHK_Alokasi_Nilai_Responsibility_Cost_Pada_BSM_FCPF.pdf
Other ERP in Indonesia	All Plan Vivo Project in Indonesia.xlsx allprojects Verra in Indonesia.xlsx
Regulation	2021pmlhk007_menlhk.pdf PERDA ADAPTASI dan MITIGASI.pdf PERDA Kaltim.7.2018.pdf Perda Paser 4 thn 2019 MHA Paser.pdf perda pengakuan kubar benuaq telimuk.pdf Perdirut Nomor 07 Th 2020 Tentang Penyaluran Dana REDD+.pdf Pergub Mekanisme Pembagian Manfaat.pdf PERGUB.12.2021-Kriteria ANKT.pdf PERGUB_69_2019-aspirasi etam.pdf Perpres Nomor 98 Tahun 2021.pdf SK Bupati Berau 287 2020 ttg Peta Indikatif ANKT.pdf SK Gub 522 Pembentukan Tim Pengelola Emisi Gas Rumah Kaca dalam Kerangka FCPF.pdf SK Tim Kordinasi pengelolaan pengaduan dan petugas administrator.pdf sk_ha_mului.pdf
Safeguards	1_Strategic-Environmental-and-Social-Assessment.pdf 2_Environmental-and-Social-Management-Framework.pdf 3_Feedback-and-Grievance-Redress-Mechanism.pdf 4_Indigenous-Peoples-Planning-Framework.pdf 5_Resettlement-Planning-Framework-and-Process-Framework(1).pdf fcpf_ek_Draft esmp_2020Dec23_SA_ok.docx

PD and Annexes	ERPDIndonesia FINAL VERSION_MAY_2019.pdf Annex 4.1. Results Chain East Kalimantan.pdf Annex 4.2. Summary of ER Activities and sub-activities.pdf Annex 4.2a. Timeline ER Activities and sub-activities.pdf Annex 4.3. Regulations and Policies related REDD+ implementation.pdf Annex 4.4. Indigenous People.pdf Annex 5.1 Stakeholder consultation on Sustainable Oil Palm within Province and Districts.pdf Annex 5.2. Summaries related to the consultation process.pdf Annex 8.1. Adjusted Activity Data.pdf Annex 8.2. References for Technical Assessment Related to Carbon Accounting.pdf Annex 8.3. Carbon Stocks Non-Forest References.pdf Annex 9.1. Technical guidelines of field observation.pdf Annex 9.2. Ground check procedure for land cover accuracy assessment.pdf Annex 9.3. Activity data Landcover improvement.pdf Annex 12.1. Accuracy assesment of Area Change.pdf Annex 14.1. Bibliography SESA REDD+.pdf
-	2_Ritung_2011_Indonesian_Peat_Land_Map_Scale_1_250000.pdf
-	Crediting Period start date of the FCPF East Kalimantan ER Program.eml
-	example_section_8_monitoring_report_template_v2.0_CJB.xlsx Section 8 East Kalimantan New Revised.xlsx
Evidences to close Non conformity #2 (NC #2)	Decree of MoEF_No.10199_of_2019_concerning_Indicative_Map_of_Production_Forest_Utilization_Directions_for_2020.pdf Decree_MoEF_No.2111_of_2020_concerning_Indicative_Maps_and_Social_Forestry_Areas.pdf DECREE~1.PDF
NC #3	Forestry_Conflict_Resolution_SOP_2020.pdf
NC #4	Decree_of_the_Head_of_Berau_District_No_287_2020_regarding_indicative_map_of_HCVA_for_plantations.pdf
NC #6	Report_groundcheck_East-North_Kalimantan_2017.pdf
NC #8, 20	SNI 8033 2014.pdf SOP AKURASI_ISI_EBOOK.pdf
NC #13	Olofsson_et_al_2014_Good_practices_estimating_area_assessing_accuracy_land_change.pdf Olofsson_Indonesia_AD_Estimation_2019.pdf"
NC #14	Anx_3A_1_Data_Tables
NC# 15	Perdirjen_P._11_Pedoman_Teknis_Penaksiran_Luas_Karhutla.docx Perdirjen_P._11_Pedoman_Teknis_Penaksiran_Luas_Karhutla_Bahasa.docx

NC #25	Resolution CFM_19_1_Endorsement of Indoneisa ER Program FINAL.pdf
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Document information

Version	Date	Description
1.1	06-July-2023	Final version including comments from Country Participant and FMT.
1	22-June-2023	Initial draft version of validation report.