

KUAMUT RAINFOREST CONSERVATION PROJECT



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Summary

A brief description of the verification and the project.

Earthood Services Pvt. Ltd. (Earthood) has carried out the first verification assessment of the project activity “Kuamut Rainforest Conservation (KRC) Project” in Sabah, Malaysia (VCS Project ID: 2609). The assessment covered the monitoring period from 11/12/2015 to 31/12/2021. The project activity falls under sectoral scope 14, Agriculture Forestry and Other Land Use (AFOLU) type and category Improved Forest Management (IFM) as per the latest VCS Standard, version 4.4. This is a large-scale project which involves implementation of improved forest land use management activities that will led to conservation of 83,381 ha of forest area of Sabah. The project has been implemented by Permian Malaysia Sdn. Bhd. The applicable version of approved VCS methodology VM0010, v1.3 has been applied to quantify the amount of greenhouse gas reductions achieved through this project. The calculation of project emissions reductions has been carried out in a transparent and conservative manner and were made available in emission reductions calculations spreadsheets and R files for the verification assessment. The project has been developed with the Climate, Community and Biodiversity Standards (CCBS) as well. The project also applies the Gold Level criteria for climate.

The purpose and scope of verification.

This assignment is an independent assessment by a Third Party Earthood Services Private Limited (ESPL) of the proposed KRC Project against all defined criteria set for the registration under the VCS Standard, version 4.4 and CCB Standard, version 3.1. Validation is conducted using ESPL procedures which are developed in line with the requirements specified in the VCS Validation and Verification Manual v3.2. The purpose of the Verification is to confirm that KRC Project and all related project documentation are in accordance with all rules and requirements of the VCS Standard v4.4, CCB Standard, version 3.1, applied methodology (VM0010, v1.3) and its associated tools.

The Project avoided 83,381 ha of forest clearing and conversion to an industrial forestry plantation of previously logged forest area of Sabah, Malaysia while at the same time delivering community and biodiversity objectives of improved local livelihoods and elimination of drivers of deforestation and forest degradation and ecosystem restoration, respectively. The project activities include biodiversity and carbon monitoring to provide protection to forests, regeneration of natural forests in previously logged forest area, and planning for long-term benefits and monitoring for local communities residing near project area.

The monitoring period.

This is the first monitoring period spanning from 11/12/2015 to 31/12/2021.

The method and criteria used for verification.

The verification team has reviewed the project activity in accordance with the rules and requirements specified in the latest versions of VCS standard and checked the applicability of the project against the applied methodology and tools which includes the following:

VCS Standard, version 4.4

VCS Program Guide, version 4.3

VCS Program Definitions, version 4.3

VCS Validation and Verification Manual, version 3.2

AFOLU Non-Permanence Risk Tool, version 4.0

CCB Standard, version 3.1

CCB Program rules, version 3.1

VCS methodology: VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest, version 1.3.

VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, version 3.0

The project activity is found to be appropriately eligible under Project Scope 14 "Agriculture, Forestry, and Other Land Use (AFOLU) and category Improved Forest Management (IFM).

The number of findings raised during verification.

During the verification process 06 clarification, 12 corrective action requests were raised and successfully resolved. PP has shared sufficient and valid supporting documents required to complete the verification process. All the findings raised along with verification team's response have been included in the report in appendix IV.

No forward action requests (FARs) were raised during the verification.

Any uncertainties associated with the verification.

There were no uncertainties associated with the verification process. The verification team has checked the information given in the monitoring report and checked the calculation of emission reductions achieved in this monitoring period. Each detail has been checked through document review which is not only confined to information provided by project proponent (PP) but also by undertaking an independent evaluation of relevant publicly available information by making use of technical expertise of the assessment team. Project implementation activities, monitoring activities and contributed SDGs have also been confirmed during a physical site visit and the responses provided by stakeholders were positive. Thus, there are no evident uncertainties associated with the verification in this monitoring period.

Summary of the verification conclusion.

In conclusion, it is Earthood's opinion that the project activity "KRC Project" (VCS 2609) implemented in the project area Malaysia, meets all relevant requirements for VCS and CCB standards and guidelines, and correctly applies the methodology VCS VM0010, version 1.3 for the calculation of baseline, for determining additionality and to monitor emission reductions. For the current monitoring period from 11/12/2015 to 31/12/2021, the implementation of the project activities has resulted in emission reductions of 4,839,740.67 tCO₂e. Buffer credits allocation is 12% which is 580,769 5tCO₂e and eligible Verified Carbon (tradable) after deducting buffer credits from total verified carbon credits is 4,258,971 tCO₂e. The project is also achieving Gold level criteria for Climate.

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1 INTRODUCTION

1.1 Objective

ESPL was contracted by Permian Malaysia Sdn. Bhd to undertake the first verification of the project activity “KRC Project” in Sabah, Malaysia (which is under the VCS pipeline with ID 2609) /88/.

The objective of the verification is to undertake an independent third-party assessment and to approve that ‘KRC Project’ and all the related project documentation & supporting documents are in accordance with the rules and requirements of the VCS Standard v4.4 /4/ and CCB Standard v3.1/11/.

Especially the project's baseline, monitoring plan, and the quantification of emission reduction & removal and non-permanence risk analysis is in line with relevant VCS requirements and host Country criteria are verified to confirm that the project design, as documented, is comprehensive and practical and meets the identified criteria. Independent third-party verification is a requirement for all VCS projects and is mandatory to provide assurance to the Verra and other stakeholders of the quality of the project and its projected Verified Carbon Units (VCUs) generation.

1.2 Scope and Criteria

The scope of the services provided by the ESPL for the project is to perform joint VCS and CCB verification of the project “KRC Project”. The scope of verification is to assess the emission reductions achieved in this monitoring period as presented in the monitoring report (VCS MR) and emission reduction calculation sheets against the VCS Standard version 4.4 /4/ and CCB standard version 3.1 /11/, applied methodology VM0010, version 1.3 /7/ and other relevant rules and requirements established for VCS and CCB project activities. The scope of this verification also includes assessment of criteria and its indicators of climate, community and biodiversity standard.

Verification Process and Methodology

The verification process is undertaken by a competent verification team and involves the following:

the desk review of documents and evidence submitted by the project participant in context of the reference VCS guidelines issued by Verra

verify whether the project, implementation plan, and calculated emission reductions achieved in this monitoring period meets the requirements of VCS Standard v4.4, VCS program guide v4.3 & VCS program definition v4.3 /6/

evaluate whether the implementation of the project activity is in conformance with the registered and approved implementation plan given in VCS PD

undertaking/conducting site visit or remote site visit, interview, or interactions with the representative of the project participant, reporting audit findings with respect to clarifications and non-conformities and the closure of the findings, as appropriate and

preparing a draft verification opinion based on the auditing findings and conclusions

technical review of the draft verification opinion along with other documents as appropriate by an independent competent technical review team

finalization of the verification opinion (this report)

an independent technical review team reviews the verification report made by the verification team. After the final report is accepted by the technical reviewer it is then approved by ESPL which is processed further according to the VCS procedures.

ESPL has performed verification based on a risk-based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate VCU. The verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of Assurance

In accordance with the VCS Standard v4.4 para 4.1.2 and 4.1.8 and CCB Standard version 3.1, the level of assurance of this verification report is reasonable. VVB has reviewed sufficient evidence to verify the project implementation, data, and parameters, and achieved emission reductions calculations for this monitoring period. Further clarifications were asked, and all the discrepancies found during the verification assessment have been raised as audit findings, and successfully closed.

A draft verification report that is prepared by the assessment team is reviewed by an independent technical review team (one or more members) to confirm if the internal procedures established and implemented by Earthood are duly complied with and such opinion/conclusion is reached in an objective manner that complies with the applicable VCS requirements as appropriate. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team. The report approved by Technical Manager is endorsed by Managing Director, who is overall responsible to ensure quality, before final release. The further details of applicable procedures and responsibilities about Earthood Quality Management System (QMS) are available on its website (www.earthood.in).

Earthood's verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Earthood planned and performed the verification by obtaining evidence and other information and explanations that Earthood considers necessary to give reasonable level of assurance that reported estimated GHG emission reductions are fairly stated.

In our opinion the estimated and actual GHG emissions reductions were calculated correctly on the basis of the approved baseline and monitoring VCS methodology: VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest, version 1.3 /7/ and tool VT0001 Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, version 3.0/8/ and VCS AFOLU Non-Permanence Risk Tool v4.0/9/.

1.4 Summary Description of the Project

The Kuamut Rainforest Conservation Project ('KRC Project') aims to protect and restore 83,381 ha of tropical forest in Sabah, Malaysia. The project is in the Tongod and Kinabatangan Districts of Sabah, Malaysia. The project area is part of a long-term approximately 1-million-hectare concession granted to Yayasan Sabah on a 99-year lease arrangement with the Sabah Forestry Department (acting on behalf of the State Government of Sabah) /18/. Yayasan Sabah is a State-owned para-governmental charitable foundation that was formed in 1966 with the aim of 'improving the lives of Malaysians living in Sabah'.

The project is being implemented by Permian Malaysia Sdn. Bhd. **The lease agreement signed between Sahab Forestry Department and Yayasan Sabah, agreement between Yayasan Sabah and Permian Malaysia and management agreement executed between Permian Malaysia Sdn.Bhd, the State Government of Sabah, and Rakyat Berjaya SDN** have been checked and validated during validation assessment and reviewed in this verification assessment also. The project applied VCS approved methodology VM0010, v1.3, and its associated tool VT0001, v3.0 to quantify the amount of greenhouse gas reductions achieved through this project. The calculation of project emissions reductions achieved for the current monitoring period has been carried out in a transparent and conservative manner and were made available in emission reductions calculations spreadsheets for the verification assessment.

Under the baseline scenario, the project area was designated as production forest (Class II). The area had been repeatedly logged in the past and was designated for further commercial exploitation. Project additionality is explicitly demonstrated by preventing continued commercial logging and instead manage the area for protection. Had the project not intervened, the resulting carbon emissions over this period would have contributed 27,493,288tCO₂e to the atmosphere in the period 2016 – 2045. For the current monitoring period from 11/12/2015 to 31/12/2021, the implementation of the project activities has resulted in emission reductions of 6009917.2 tCO₂e. Buffer credits allocation is 12% which is 580,769 tCO₂e and eligible Verified Carbon (tradable) after deducting buffer credits from total verified carbon credits is 4,258,971tCO₂e. It is to be noted that the start date of the project crediting period and the start date of the first monitoring period is 11/12/2015, however, PP has calculated the actual ERRs for this monitoring period from 01/01/2016. The approach was found to be conservative and ERR calculation files are consistent with MR.

In addition to its contribution to preventing the release of greenhouse gas (GHG) emissions, the project is protecting an important biodiverse habitat. Despite its ex-logged state, the area is known to support very high populations of elephants, banteng and orangutan, and endangered bird species including Helmeted Hornbill, Bornean Peacock Pheasant, and Storms Stork. The project has a long-term benefit for local communities residing near project area and aims to develop livelihood options and improve socio-economic conditions of the local communities residing adjacent to the project area.

The verification team confirms by assessing emission reduction calculation sheet /12//13/ that the implementation of the project would reduce the GHG emissions for the current monitoring period from 11/12/2015 to 31/12/2021 the project activities has resulted in emission reductions of 4,839,740.67 tCO₂e and after deducted 12% buffer the eligible Verified Carbon (tradable) is 4,258,971 tCO₂e.

2 VERIFICATION PROCESS

The verification process adopted by the VVB is in accordance with the Earthood internal auditing procedures and VCS Standard version 4.4 /4/ and VCS Validation and Verification Manual version 3.2 /5/.

Earthood keeps all documents and records in a secure and retrievable manner for at least two years after the end of the project crediting period. Section 2.2.4 of the monitoring report is related to project description deviations which is assessed and found appropriate with the Section 3.20 Project Description Deviations of VCS standard version 4.4.

2.1 Audit Team Composition (Rules 4.3.1)

- Verification team members

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk/document review	On site/ remote inspection	Interviews	Verification findings
1.	Team Leader (New)*	IR	Sharma	Riya	Central Office	Y	Y	Y	Y
2.	Team Leader (Old)**	IR	Garg	Shreya	Central Office	Y	N	Y	Y
3.	TA Expert (14.1)	EI	Roller	Gary B.	Central Office	Y	Y	Y	Y
4.	Local Expert	EI	-	Pavalamar	Central Office	Y	N	N	Y
5.	Verifier	IR	Sharma	Riya	Central Office	Y	N	N	Y
6.	Trainee (Verifier)	IR	-	Deepika	Central Office	Y	N	N	Y
7.	Trainee (Verifier)	IR	Hooda	Waris	Central Office	Y	N	N	Y

* (New Team Leader carried out additional remote calls)

** (Old Team Leader - upto 29 Feb 2024)

Technical reviewer and approver of the verification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical Reviewer	IR	Gautam	Ashok	Central Office
2.	TA Expert (14.1) to TR	IR	Srivastava	Parul	Central Office
3.	Approver	IR	Singh	Kaviraj	Central Office

The Old Team Leader, Shreya Garg is qualified by ESPL in Validation and Verification of Clean Development Mechanism Requirements (CDM projects) and other voluntary schemes as VCS, CCB and GS. She has experience of working in carbon projects, including but not limited to CDM, VCS, GS and GCC projects of more than 10 years for various sectors and methodologies. She attained her master's degree in Climate Science & Policy. She has been qualified as per the evaluation process of ESPL for competency for CDM/VCS/GS. Thus, she has the relevant competence and work experience.

Gary B. Roller is a Technical Area (14.1) Expert in this project. He has conducted the physical site visit. He has attained his MS in Forestry Science and did his BS in Forestry and Natural Resources Management. He has experience of more than 9 years in the forestry field. He has been qualified as per the evaluation process of ESPL for competency for Technical Area (14.1). Thus, he has the social and technical expertise

in this region and have relevant ecological and biodiversity experience due to the education background in forestry.

Riya Sharma is a Team Leader (New) and Verifier in this project. She has been doing carbon projects under CDM/VCS/GS/GCC programs in ESPL. She attained her masters in Biodiversity and Conservation and did specialization in forest carbon stock assessment. She has worked for forest restoration projects and had proven knowledge of R software basic level. She has relevant competence and work experience and has been qualified as per the evaluation process of ESPL for competency for programs CDM/VCS/GS/GCC.

Pavalamalar is a Local Expert in this project. She has conducted the physical site visit. She has attained her M.Sc. in Biotechnology/ Fungal Biotechnology and did her B.Sc. in Biochemistry. She has experience of more than 10 years as a Biochemistry Lecturer in National Institute of Ophthalmic Sciences, Malaysia. She has been qualified as per the evaluation process of ESPL for competency for CDM auditor. She has proficiency in a relevant local or regional language for the project location Malaysia and also relevant social and cultural expertise because she lives there and worked for a very long time there.

Deepika is a Trainee (Verifier) in this project. She has been doing carbon projects under CDM/VCS/GS/GCC programs in ESPL. She attained her master's in forestry and specialization in Sustainable Forest management. She has relevant competence and work experience and has been qualified as per the evaluation process of ESPL for competency for programs CDM/VCS/GS/GCC.

Waris Hooda is a Trainee (Verifier) in this project. He has been working on carbon projects under CDM/VCS/GS/GCC programs at ESPL. He holds a master's degree in Geo-Information Science and Earth Observation. He has the relevant competence and work experience and has been qualified according to ESPL's evaluation process for competency in programs CDM/VCS/GS/GCC.

Technical Review of the project is done by Ashok Gautam. He is the Founder and Director of the Earthhood Services Private Limited. He has done his M.Tech in Energy & Environmental Management. He has an experience of more than 16 years working in the field of Climate Change and carbon market. He has been qualified as per the evaluation process of ESPL for competency for CDM/VCS/GS/GCC. Thus, he has the relevant competence and work experience.

Parul Srivastava is a Technical Area (14.1) Expert to TR in this project. She is a Ph.D. in Forestry (Ecology and Environment). She holds an experience of 20 years. She has been qualified as per the evaluation process of ESPL for competency for Technical Area (14.1). Thus, she has strong technical expertise in this region and has relevant ecological and biodiversity experience due to her education background in forestry.

2.2 Method and Criteria

The verification process involved the following.

A review of the data and information presented by the project proponent in context of the reference VCS rules and guidelines to verify their completeness.

Undertaking site visit, interview, or interactions with the representative of the project proponent, project employees and local stakeholders,

A review of the monitoring plan, the monitoring methodology including applicable tool(s) and, where applicable, the applied standardized baseline, and the quality assurance and quality control procedures.

A review of calculations and assumptions made in determining the GHG data and emission reductions.

An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

Site inspections were carried out including interviews with representatives of PP. The sampling approach followed by the verification team is given in section 2.5 (site inspections) of this report.

To ensure the risk of auditing error is minimized to a reasonable level and ensure effectiveness & efficiency, a project specific validation and sampling plan was developed to guide the verification process. Field sampling and techniques were based on the best professional judgment of the VVB to meet a reasonable level of assurance. The VVB ensured that the data samples must be representative of the whole project area. The methodology of the verification and sampling plan is based on the VCS guidance documents and ISO 14064-3:2006. Any modifications applied to the plan were made based upon the conditions observed for monitoring to detect the processes with highest risk of material discrepancy. VVB along with onsite observation, objective evidence collections, data generation and recording analysis also considered the views obtained in these interviews while arriving at verification opinion. Since the scope of this verification also includes assessment of criteria and its indicators of climate, community and biodiversity standard, VVB has covered the CCB aspects during site visit.

2.3 Document Review

The VCS verification of the project was performed by Earthood through the document review and on site visit completed in line with the requirements specified in the VCS standard, VVB manual and applied methodology VM0010 and other VCS and CCB documents.

Additionally, cross checks were performed for information provided in the monitoring report (MR) using other independent source of information. The list of documents reviewed during the verification process is provided under appendix I of this verification report. On site inspection was carried out by Technical Area (14.1) Expert and Methodological Expert (VM0010) and local expert that covered interviews with PP and relevant stakeholder, review of photographic evidence and videos of sampled sites of plantation plots.

2.4 Interviews

The interview with the representatives of project proponent, representatives of local communities and other local stakeholders were conducted by the technical expert as a part of on-site visit. The Following is the list of people interviewed.

Table 1: list of people interviewed during physical site visit.

No.	Interviewee			Date 22/03/2023 to 04/04/2023	Subject	Team member
	Last name	First name	Affiliation			
1.	Chang	Juan	Head of Operations-Permian Global	24/03/2023	Project design and implementation, documentation and management, CCB objectives, project additionality	Gary B. Roller
2.	Gioiman	Jikos	Manager Monitoring and compliance-Rakyat Berjaya	24/03/2023	Project design and implementation, documentation and management, CCB objectives, project additionality	Gary B. Roller
3.	Ruit Ramos	Javier	Remote sensing Analyst-Permian Global	24/03/2023	Project design and implementation, management, Remote sensing related aspects of project	Gary B. Roller
4.	mannan	Capt. Jamaml Daniel	Pilot-SABAH Air Aviation	24/03/2023	Project design and implementation, CCB objectives, risk identification and mitigation	Gary B. Roller
5.	Philipson	Christopher	Permian Global	24/03/2023	Data monitoring and management	Gary B. Roller
6.	Benedict	Lesimbang Dandia	PACOS Trust	24/03/2023	Description of the project activity, technical details and project design and implementation, project additionality	Gary B. Roller
7.	Ulok	Philip	South East Asia Rainforest Research Partnership (SEARRP)	24/03/2023	Description of the project activity, technical details and project design and implementation, project additionality	Gary B. Roller
8.	Chir Jr.	Philip	PACOS Trust	24/03/2023	Description of the project activity, technical details and project design and implementation, project additionality	Gary B. Roller
9.	Minton	Juriah Binti	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller

10.	Makkin	Maria Binti	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
11.	Mansin	Sabtiah Binti	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
12.	Saidin	Md. Ajdulshah	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
13.	Awang	Masdin	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
14.	Mahala	Mohd. Khairm Binti	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
15.	Nasr	Abd. Rahim	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
16.	Majelik	Intan Naryani Atika	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
17.	Kilai	Abdul Rasik	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
18.	Kablen	Sujanah	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
19.	Arti	Rosilah	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
20.	Masid	Ahmad	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller

21.	Mampanla	Jumin	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
22.	Tawala	Haik	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
23.	Arisin	Rosasin	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
24.	Haji	Hasailin I	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
25.	Abdullah	Kamal	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller
26.	Banu	Josep	Kuamut Cluster community members (Sungai)	02/04/2023	Project activities with communities, grievances, land rights and access	Gary B. Roller

Additional discussions have been carried out with PACOS team for which the details are given below. Please find list of interviewees in below table 2.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Lasimbang	Anne	Executive Director of PACOS	31/01/2024	Stakeholder interview to know the community aspect of project implementation, level of their involvement and related issues, risks and benefits, grievance mechanism	Shreya Garg, Riya Sharma
2.	Tongkul	Felix	Advisor PACOS	31/01/2024	Stakeholder interview to know the community aspect of project implementation, level of their involvement and related issues, risks and benefits, grievance mechanism	Shreya Garg, Riya Sharma
3.	Wong	Ivy	CEO Permian Malaysia	31/01/2024	Stakeholder interview to know the community aspect of project implementation, level of their involvement and related issues, risks and benefits, grievance mechanism	Shreya Garg, Riya Sharma
4.	Saloh	Yani	Community Director Permian Global	31/01/2024	Stakeholder interview to know the community aspect of project implementation, level of their involvement and related issues, risks and benefits, grievance mechanism	Shreya Garg, Riya Sharma
5.	Chang	Juan	Head of Technical Operation Permian Global	31/01/2024	Stakeholder interview to know the community aspect of project implementation, level of their involvement and related issues, risks and benefits, grievance mechanism	Shreya Garg, Riya Sharma

Further, additional discussions have been carried out with PP and community members for which the details are given below. Please find a list of interviewees in below table 3.

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			

1.	Lasimbang	Anne	Executive Director of PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
2.	Lasimbang	Claudia	PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
3.	Chin Jr	Philip	PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
4.	Well	Robin	PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
5.	Lo	Emmy	PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
6.	Daransun	Anjelin	PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma

7.	Mojilip	Amanda	PACOS Trust	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
8.	Amrah	Ruzniel	Kuamut Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
9.	Tikson	Juslin	Kuamut Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
10.	Etin	Melia	Kuamut Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
11.	Girang	Welday	Karamuak Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
12.	Syufa	Sodiqin bin Ahmad i	Karamuak Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma

13.	Sahirin	Wilma	Karamuak Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
14.	Ardi	Rozalaih	Karamuak Cluster - Community representative	05/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
15.	Wong	Ivy	CEO Permian Malaysia	05/03/2024 – 06/03/2024	Confirmation on implementation of CCB project activities, documentation procedures, community and biodiversity claims made for the current monitoring period	Riya Sharma
16.	Saloh	Yani	Community Director Permian Global	05/03/2024 – 06/03/2024	Confirmation on implementation of CCB project activities, documentation procedures, community and biodiversity claims made for the current monitoring period	Riya Sharma
17.	Chang	Juan	Head of Technical Operation Permian Global	05/03/2024 – 06/03/2024	Confirmation on implementation of CCB project activities, documentation procedures, community and biodiversity claims made for the current monitoring period	Riya Sharma
18.		Dr Sunarto	Permian Global	06/03/2024	Confirmation on implementation of CCB project activities, documentation procedures, community and biodiversity claims made for the current monitoring period	Riya Sharma

19.	Gidiman	Jikos	RBJ	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
20.	Arzmi	Azrul	RBJ	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
21.	Sipon	Hozana Chrien	RBJ	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
22.	Rosli	Mohd Shah Fikri	Sabah Forest Department (SFD)	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
23.	Gangon	Janiu	Sabah Forest Department (SFD)	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
24.	Affandy	Mohd Afif bin Mohd	Sabah Forest Department (SFD)	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma

25.	Reynolds	Datuk Dr Glen	South East Asia Rainforest Research Partnership (SEARRP)	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma
26.	Ulok	Phillip	South East Asia Rainforest Research Partnership (SEARRP)	06/03/2024	Stakeholder interview to confirm the project implementation for community benefits, data collection and monitoring procedures, grievance mechanism and community feedback.	Riya Sharma

2.5 Site Inspections

Site inspection was conducted by ESPL Technical Expert (TA 14.1) and Meth Expert Gary B. Roller from 22/03/2023 to 04/04/2023. He was accompanied by PP during site visit. The site visit has been planned and executed in accordance with the VCS Validation and Verification manual v3.2, VCS Standard V4.4, Section 4, CCB Program Rules, v3.1 Section 4.3.1 and 4.3.2.

The onsite visit was performed in order:

To understand and evaluate the project area/boundary, project additionality and expected outcomes

Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the Monitoring Plan

To validate the measurement of carbon pools to calculate carbon stock in the chosen sample

To interact with the communities directly and indirectly dependent/impacting/impacted by the project and understand the socioeconomic dimension of the project

To understand the climate, community, and biodiversity dimensions of the project

To check the project management, meet the management team, check the monitoring plan and its on ground implementation practices

To check the High Conservation Values (HCV) areas defined and mentioned in the MR

Review the financials audits and fund flow

Field sampling approach

The PP remeasured all (so all plots rather than sub-sampling) 46 plots during 2020-2022, (with the interruption unavoidable due to covid movement restriction orders). A wide range of factors, including the irregular topography, dense vegetation, and variable climatic conditions of the Kuamut forests, play key roles in access to field plots. The annual monitoring of the biomass plots is generally carried out during long fieldwork campaigns, requiring several teams spread throughout the project area for several weeks.

Therefore, in order to maximize the number of plots to visit during the limited time of the audit, a series of meetings where the field auditor met with the field team and discussed the accessibility of all the field plots were conducted. The PP provided the most up-to-date Planet high-resolution (3m spatial resolution) cloud-free imagery of the project area (Acquisition dates: 16/01/2023 and 15/02/2023). The final selection of field plots was decided jointly based on a combination of predominantly accessibility and aboveground biomass, but also finally random selection.

In the first verification, a total of 46 plots are laid and measured. VVB decided to check and verify at least 15% - 20% of the total sample plots details (i.e. between 7-10) out of 46 sample plots laid and check their locations to ensure that representative plots have been taken for the remeasurements. A total of 8 plots were visited as part of the audit. The plot selection performed accommodated a representative sample of the different environmental conditions/characteristics present in the project area and are selected randomly to avoid any biases. At each plot, 16-22 trees (averaging >20% of the trees) were remeasured for diameter

at breast height. Measurements were compared to the 2022 field data and any discrepancies were discussed in the field. Some trees had fallen or died since the last measurement and the records of the biomass inventory accurately reported the growth conditions of trees.

This was always sufficient to see the experience and accuracy of the field team. Moreover, as we checked the measurements of the larger trees -it was clear the large plots made the carbon estimates very robust. Measurements were compared to the 2022 field data and any discrepancies were discussed in the field. Some trees had fallen or died since the last measurement. Discussions were had about the importance of collecting quality field data through time and the continued improvement of training field technicians, and the quality control of the data. The next measurement of the plots will most likely have new technicians so a robust training program is a necessity for quality control of multiple years of data.

The PP also accommodated a day of aerial reconnaissance by helicopter which allowed the inspection of the project area in detail (03/30/2023). As established with the field auditor in advance, the field plots visited provided a representative sample of the different environmental conditions (e.g., density, height, biomass, species) as well as common challenges faced (e.g., topography, access), thus allowing an optimal evaluation of both field data and the survey standard operation procedures.

All of these field measurements are combined with remote sensing data to produce yearly biomass maps. In the field, in addition to thorough checking of field plots on the ground, we conducted an aerial verification of the biomass maps. This included selecting both high and low biomass areas from the map and requesting the helicopter pilot to fly us directly over them. This additional layer of verification allowed us to see that the biomass mapping approach performs very well. Indeed, the advantage of this approach, that was clearly demonstrated during the flight, is that it the spatial variability in forest structure, and therefore biomass, is more appropriately captured in comparison to an area-scaling approach derived only from the forest plots. Flight paths for this aerial sampling performed on site were also submitted as evidence.

Finally, two days were dedicated to visiting the communities (1-2/04/2023) which were accessed by boat through the Kuamut river. Both Keramuak and Kuamut communities were visited, where team member of verification team was able to meet with members of these communities and assess the support and work of the projects local partner - PACOS Trust on the project.

Detailed maps of the field plots visited as well as the area flown in aerial reconnaissance was also submitted by PP for further assessment.

During the site visit, thorough review of biomass plots calculation sheets and R files for data analysis was carried out and it was confirmed that the parameters and the equations applied for the ERR calculations are complete. Discussions were had about the importance of collecting quality field data through time and the continued improvement of training field technicians, and the quality control of the data. It is concluded that the field measurements are appropriate for the monitoring of this project. The importance of quality data management, field notes, and rechecking of data as it is transcribed from the field sheets and input into the database was all reviewed and discussed in the field.

Interviews were conducted with the Head of Operations- Permian Global, Juan Chang and Manager Monitoring and compliance- Rakyat Berjaya, Jikos Gioiman who confirmed the project activities and benefits as reported in sections 1 and 2.2 of the PD. During the on-site visit, interviews with representatives of project proponents and other entities involved in the project, local communities and other relevant stakeholders were conducted. The reviewed evidence along with other supporting documents were also provided to the verification team for assessment by the PP as listed in appendix I. The records of interviews conducted have been maintained in the form of audio recordings of interviews, photographs taken at project site and audit report. Meetings with the local stakeholders were also scheduled during the on-site visit.

Interviews with PP, other stakeholders and community members from Karamuak and Kuamut communities were conducted to confirm the project objectives, current monitoring and implementation plan, trainings, or programmes delivered under this monitoring period. Other project details such as present land status and legal measures taken to prevent further land encroachment was also discussed. PP and local stakeholders also discussed potential environmental and socio-economic impacts, continuous mechanism of stakeholder consultation, stakeholder feedback and any grievances received from the locals.

The verification team has reviewed the shared evidence and considered all the responses of the interviewees during site visit. The records of photographs and videos were also checked. All the stakeholders supported the project and shared their feedback. The site visit completed for the project in compliance with the VCS VVB Manual, v3.2 /5/. Evidence along with other supporting documents submitted by PP to the verification team for the assessment are listed in appendix I.

2.6 Resolution of Findings

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

Where a non-conformance arises the team leader shall raise a Corrective Action Request (CAR). A CAR is issued, where:

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

The VCS standard, methodology and modules requirements have not been met; - there is a risk that emission reductions cannot be monitored or calculated.

The validation process may be halted until this information has been made available to the team leader's satisfaction. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Clarification Request (CL) will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A Forward Action Request (FAR) will be issued when certain issues related to project implementation should be reviewed during the following verification assessment.

During the verification process, total 06 CLs and 12 CARs were raised and resolved satisfactorily. The list of CARs/CLs raised, and the responses provided, the means of verification, reasons for their closure, and

references to correction in the relevant documents are provided in Appendix IV of this report. 03 FARs were raised during the validation assessment and that has been successfully resolved in this round of verification. No FARs have been raised in this verification.

2.6.1 Forward Action Requests

No Forward Action Requests have been raised during this verification assessment.

2.7 Eligibility for Validation Activities

Earthood is accredited for validation and verification for the VCS sectoral scope 14 AFOLU as well as by VERRA board.

3 VALIDATION FINDINGS

Verification activity was performed to check the correctness of analysis of monitoring report during current monitoring period. Please see section 3.3 of this report. No other verification activities were performed for validation of project description deviation and since this is not a grouped project, no new instances were added to the project activity. The major deviation is in monitoring plan, updated datasets are used for biomass mapping in the MR, which is validated along with the first verification of the project.

3.1 Participation under Other GHG Programs

This is explained in section 2.1.9 of the MR. The project has not, nor does it intend to create non-participate in any other GHG emission trading program and the ERR generated will not be used in other national or sub-national target. Declaration letter /67/ for the same has been submitted by the PP to the VVB.

3.2 Methodology Deviations

The PP has provided a detailed analysis of the methodology deviation from the application of remote sensing and field plot measurements in section 2.2.2 of the MR. This analysis compares the results of the quantification using only field plots and the combination of field plots and RS which resulted in a more conservative and accurate quantification. The requirement of calculating the aboveground biomass of trees in the project scenario from the remote sensing instead of allometry or direct measurement has been checked. It was found that the approach used for biomass estimation is conservative and provide reliable calculations.

PP has updated the MR in section 'Calculation of carbon stocks in commercial timber volumes (section 8.1.1 of the methodology)' of the MR on page 143 to describe the approach used for the calculations and further substantiated in appendix 8 /153/. The PP used all of our 46 field plots (from both 2016 and 2020 survey seasons) to sample for any species that may have been protected in the baseline. The PP has also obtained two species lists relevant to mosaic plantings and natural forest management strata, respectively. The mosaic management strata is more intensive and therefore requires the protection of only 18 species whereas the NFM protected species list comprises 275 different species. These lists were acquired by the PP from Sabah Forestry and have provided email correspondence to support their authenticity. The total aboveground carbon (AGC) contained in protected species present in plots within NFM and mosaic strata was calculated as follows:

For Mosaic strata, all trees with a DBH >31 cm were extracted from the plot data (from mosaic areas) and the Mosaic protected species list was used to calculate the proportion of above ground carbon (AGC) that was present within those protected species relative to the total AGC above the cutting limit.

The same analysis was then carried out for the NFM stratum using the cutting limit of >40 cm and the NFM

protected species list. This analysis demonstrated that 6% and 24% of AGC occurred within protected species for mosaic and NFM management strata, respectively. In order to estimate the carbon in protected tree species, the PP calculates the tree-level Above-Ground Carbon (in Mg) for all trees using tree allometric Eq. 4 in Chave et al. (2014) (i.e. following identical methods to all other tree calculations in the PD and MR). Since, this does not affect the baseline and additionality argument established for the project, VVB confirmed that the approach of application of remote sensing in this project was found appropriate. The methodology deviation has been sought following the requirements of VCS Standard v4.4 section 3.19 and it is confirmed that the deviation is achieving the same level of accuracy or is more conservative than what is set out in the methodology. Moreover, methodology deviation does not negatively impact the conservativeness of the quantification of GHG emission reductions or removals. It is also confirmed that the methodology deviation is in compliance Section 3.3 VM0010, v1.3, Section 8.2.1.2.

3.3 Project Description Deviations (*Rules 3.5.7 – 3.5.10*)

As above, PP has updated the MR in section 'Calculation of carbon stocks in commercial timber volumes (section 8.1.1 of the methodology)' of the MR on page 143 to describe the approach used for the calculations and further substantiated in appendix 8 /153/. The PP used all of our 46 field plots (from both 2016 and 2020 survey seasons) to sample for any species that may have been protected in the baseline. The PP has also obtained two species lists relevant to mosaic plantings and natural forest management strata, respectively. The mosaic management strata is more intensive and therefore requires the protection of only 18 species whereas the NFM protected species list comprises 275 different species. These lists were acquired by the PP from Sabah Forestry and have provided email correspondence to support their authenticity. The total aboveground carbon (AGC) contained in protected species present in plots within NFM and mosaic strata was calculated as follows:

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The process of determining the Above Ground Biomass and developing the biomass model involved several steps that were validated through the use of code and data verification. During the monitoring period, this involved some updates with higher quality datasets that are reported as project deviations.

The project has implemented a validated multi-temporal modeling approach to accurately estimate the spatial distribution and variability of aboveground biomass, considering potential emissions from small-scale deforestation or degradation. The modeling workflow incorporates a machine learning methodology that utilizes various data sources, including aerial LiDAR scan (ALS) data from 2016 for canopy height, optical (Landsat 8) and Synthetic Aperture Radar (SAR) satellite imagery, and forest plot data all acquired in 2016. The combination of these remote sensing data sources enables the generation of an updated Top of Canopy Height (TCH) map, crucial for monitoring forest growth.

To ensure the reliability of the modeling approach, the project has validated the alignment between the data cube and the Canopy Height Model (CHM) for baseline for the year 2016, taking into account the limited coverage of the CHM due to unavailability of LiDAR point clouds in certain areas. The validation is supported by evidence, such as checking the data cube with 41 bands which consists of measured canopy height

values from the CHM, other remotely sensed data and environmental/earth observation data for e.g. Copernicus GLO 30 m global digital elevation model (DEM) derived data products. To ensure consistency and coherence in the temporal dimension of the data temporal smoothing across each band of the data cube is validated through the R code provided). Machine learning package mlr3 were applied to analyze the data cube and develop a Canopy Height Model that minimizes the Root Mean Square Error (RMSE) (Figure 1)). Spatial resampling was conducted to evaluate the performance of the ensemble model and canopy height is predicted for the period from 2015 to 2022 The predictions generated by the model were carefully stored as spatial raster data contained in the folder identified by the specific folder number. /12//104//105//106/.

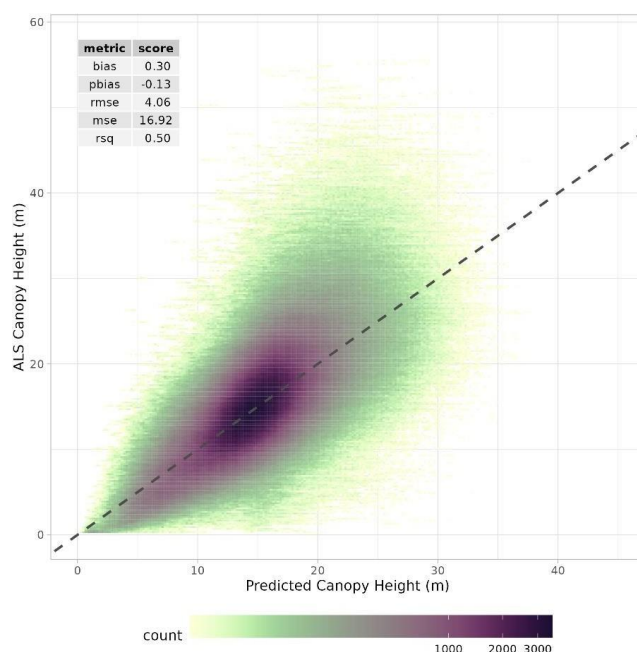


Figure 1 CHM validation plot

The process of determining the Above Ground Biomass and developing the biomass model was thoroughly validated through code verification. Firstly, the canopy height model predictions for each year were accurately appended to their respective data cubes as an additional band, ensuring the integration of relevant information into the biomass model development. The code was reviewed and validated to confirm the correct implementation of this step

Additionally, the field measurements conducted in 2016 and 2020 were combined with the corresponding data cubes, extracting the necessary earth observation data for each surveyed plot area. The conversion of the total Above Ground Carbon (AGC) to Aboveground Carbon density (ACD) by dividing the AGC by the planimetric area of the plot was validated through careful examination of the code, ensuring the accurate calculation of ACD. The annual Above Ground Biomass is available on Kuamut Rainforest Conservation Project's Google Earth Engine Mapping App Links (https://javierruiz_Permian.users.earthengine.app/view/kuamut-project-agb-annual-maps)

The derived dataframe, incorporating the ACD values and selected control features, was then utilized to train the biomass model (add folder and exported dataframe). Multiple variable combinations, ranging from 6 to 10 control features, were tested and evaluated based on the models' Akaike Information Criterion (AIC) values. The code implementation for testing and selecting the best performing model was thoroughly validated, ensuring that the models with the lowest AIC were correctly identified and utilized (add folder and R file name).

The best-performing model, validated through a rigorous process, was employed to predict Aboveground Carbon Density (ACD) for the entire Kuamut area. The methodology employed for the model was repeated

for Merchantable Volume with cutting limits set at 10 cm, 31 cm, and 40 cm. The combination of data sources, as specified in the documentation, was utilized to generate volume maps for the year 2016.

The validation of the model and its corresponding processes is supported by relevant evidence and documentation. This includes the replication of the methodology, adherence to predefined cutting limits, and the utilization of specific data sources for volume mapping. By ensuring consistency with the documented procedures, the project has validated the reliability and accuracy of the predictions for both ACD and Merchantable Volume across the entire Kuamut area. /12//104//105//106/.

The PP updated data to be more accurate during the monitoring, which has meant all the calculations were updated for precision and accuracy (as described in section 2.2.4 of the MR). “The approach for biomass mapping has been updated with new more accurate and up-to-date datasets (see section 3.1.3 ‘Monitoring Plan’ for more details). This constitutes a change in the procedures for measurement and monitoring and therefore this deviation does not impact the applicability of the methodology, additionality or the appropriateness of the baseline scenario.” The only changes are more accurate data (GPS locations, DEM, and more consistent Tree Canopy Height). In addition to the detail of the PD, the PP has very clearly described these steps in chapter 9 and 10 of their html analysis pipeline ‘book’. In summary there is no deviation from the applicability of the methodology, or appropriateness of the baseline scenario. VVB confirmed that the update made in the monitoring does not impact the applicability conditions of the methodology, additionality argument or appropriateness of the baseline scenario.

Additionally, equation 32 has been updated to ensure there is no risk of any credits being issued prior to them being considered additional. This is described under section 3.2.2 ‘Project Emissions’ (pages 82 and 83 of the MR). This also matches the description on chapter 16 of the book additional explanation html document. These calculations are conducted in the R code file AnnualisedCalculations_VM10v1.3.R on lines 207-243 where ‘ongoing_for_gr’ is defined. These changes considerably reduce the project scenario growth credits in this monitoring period which is particularly conservative ensuring no growth is accounted for prior to baseline harvest.

VVB confirmed that PP was able to obtain much more detailed information on the protected tree species, which is reported and assessed as a PD deviation. The PP has described this update in detail in ‘APPENDIX 8. Species conservation factor details’ of the MR and provided additional material evidencing both these new species lists and produced evidence demonstrating the source of these species list from Sabah Forest Department Herbarium. These species lists are used to estimate new species conservation factors for both NFM and Mosaic areas separately. These have indeed been applied to both the project scenario ongoing forest growth and the baseline scenario harvest. We therefore consider this to be an improvement to the MR. This is indeed reported as a PD deviation – with the full changes to all tables reported in the Appendix 1, ‘Changes To The Baseline Due To The Use Of More Accurate And Up-To-Date Datasets (Differential GPS location of field plots & more accurate information on protected species)’. The PP has now added this information and substantially updated “Appendix 8. Species conservation factor details”. The justification here is thorough and more directly in line with the methodology than as previously stated and is deemed acceptable and of high quality.

3.4 Minor Changes to Project Description (Rules 3.5.6)

Not applicable

3.5 Grouped Project (G1.13 – G1.15, G4.1)

Not applicable. The project is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Public Comments (*Rules 4.6*)

In accordance with the requirement in para 3.17.6 of the VCS standard v4.4 “All projects are subject to a 30-day public comment period. The date on which the project is listed on the project pipeline marks the beginning of the project’s 30-day public comment period”.

Also, the public comment period was inline with the CCB program rules, version 3.1 para 4.6.3 “The public comment period shall last a minimum of 30 days, but the validation/verification body or project proponent, at their discretion and on agreement of both parties, can request a longer period of the VCS”. The CCB program rules document para 4.6.4 states that the public comment period should be completed before the start of the site visit for the project. The validation team conducted site visit starting from 11/02/2022 which is inline with the CCB requirements.

This project was open for public comment for 30 days from 23/12/2021 to 22/01/2022 /88/ for public comments. No comments were received during the commenting period, as evident from the VCS pipeline in the web interface.

4.2 Summary of Project Benefits

The KRC Project is being implemented in the Tongod and Kinabatangan Districts of Sabah, Malaysia. The project involves protection and restoration of 83,381 ha of forest area. The implementation of the project would remove the GHG emissions by 27,493,288 tCO₂e for the period of 2016-2045 as confirmed from reviewing GHG removal calculation sheet /12//13/ with an average annual GHG emission reduction of 948,044 tCO₂e and for the current monitoring period from 11/12/2015 to 31/12/2021 the project activities has resulted in emission reductions of 4,839,740.67 tCO₂e and after deducted 12% buffer the eligible Verified Carbon (tradable) is 4,258,971tCO₂e. 83,381 hectares of existing production forest land will be protected, along with biodiversity conservation because of project activities. It is to be noted that the start date of the project crediting period and the start date of the first monitoring period is 11/12/2015, however, PP has calculated the actual ERRs for this monitoring period from 01/01/2016. The approach was found to be conservative and ERR calculation files are consistent with MR.

The project is being developed and will be registered under the VCS and the CCBS. The benefits arising from the implementation of project activity has been listed in section 1.2 “standardized benefit metrics” of PD which are as follows:

The project provided sustainable job opportunities for local community groups. The project has employed 24 persons from local community group, and has set up a plan to employ at least 40 full-time employees, in which 50% will be female during the project lifetime. The PP provided activity reports with communities implemented by PACOS and RBJ during the reported monitoring period as supporting evidence.

Over the lifetime of the project, the community members are expected to have improved skills and/or knowledge resulting from training provided as part of project activities over an estimated period of 5 years of the project implementation. Around 914 (out of which 457 are women) people are expected to experience increased water quality and/or improved access to drinking water because of project activities. During the monitoring period, 123 people in total have been trained as a result of project activities from which 80 were women who also participated in these trainings.

The assessment of the estimated benefits arising from the implementation of project activities were carried out and verification opinion is provided in relevant section of the verification report. It was found that all the supporting documents required to verify the expected benefits were provided by the PP and the project will likely achieve its expected targets if implemented in line with the planned strategies. The benefits were also confirmed with the local communities during the site visit and were found to be accurate. But due to covid 19 pandemic, some of the benefits foreseen were not provided to the community for the current monitoring period.

4.3 General

4.3.1 Implementation Status (G1.9)

ITEM	VERIFICATION FINDINGS
Presence of any material discrepancies between project implementation and the project description	For this project, VVB conducted physical site visit and additional remote calls to confirm the project implementation status in line with VCS and CCB Standard requirements. On the basis of the site assessments & observations, interviews conducted with PP, communities and other relevant stakeholders, and

	assessment of the documents provided, the VVB confirmed that there are no material discrepancies between project implementation and the registered PD. But the current monitoring report seeks for project description deviation and methodology deviation which is validated during the current verification.
The implementation status of the monitoring plan and the completeness of monitoring, including the suitability of the implemented monitoring system (i.e., process and schedule for obtaining, recording, compiling and analyzing the monitored data and parameters)	Through the site assessments & observations, interviews conducted with PP, communities and other relevant stakeholders, assessment of the documents provided and review of VM0010 procedures and all applicable relevant modules & tools, and comparison of monitoring results against the validated PD, the VVB confirmed the implementation status of the monitoring plan and the completeness of monitoring including the suitability of the implemented monitoring system.
The existence of any material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology	It was confirmed through the site assessments & observations, interviews conducted with PP, communities and other relevant stakeholders, and assessment of the documents provided. material discrepancies between the actual monitoring system and the monitoring plan set out in the PD and the applied methodology The current monitoring report seeks for project description deviation which is validated during the current verification. Section 3.3 of this report described in detail which is related to project description deviation.
Whether the GHG emission reductions or removals generated by the project have become included in an emissions trading program or any other mechanism that includes GHG allowance trading	Through the assessment of the national law, REDD+ actions and other emission trading programs and the ERR generated will not be used in other national or sub-national target. Declaration letter /67/ for the same has been submitted by the PP to the VVB. It was confirmed that there is no risk of double counting (as mentioned in section 3.1 of the report) is associated as mentioned in the validated PD (sections 1.15 and 1.16). Also, PP has not received or pursued any other form of environmental credit as confirmed through a risk-based review by the verification team. The undertaking for the same has also been submitted by the PP.
Whether the project has received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification	As mentioned above, PP has not received or sought any other form of environmental credit as confirmed through a risk-based review by the verification team.
Whether the project has participated or been rejected under any other GHG programs since validation or previous verification	As mentioned above, PP has not received or sought any other form of environmental credit as confirmed through a risk-based review by the verification team.

Sustainable development contributions	It was concluded through the review of supporting documents provided and interviewing PP, communities and other stakeholders it was the project sustainable development goals as mentioned in the validated PD and FVR.
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A methodology deviation of 1) using extensive remote sensing to support the field plot data and 2) updates and improvements to equation 32 is reported in the project MR and found to follow a more conservative approach and increases accuracy of the applied methodology. The PP has not applied for approval of this project under any other GHG emission trading program and also there is no risk of double counting (as mentioned in section 3.1 of this report and 1.9 and 1.10 of the MR) of ER generated by the project. In terms of project area boundaries and land use types, the villages and forest strata locations were presented in GIS data. A few villages and strata areas were visited for confirmation.

Project Description Deviation is reported during first monitoring period, which specifically related to improved GPS plot locations and improved protected species information. 3.1.4 Baseline scenario, 3.2.1. Baseline Emissions and 3.2.3 leakage are revised and section 2.2.4, Section 3.1.3 'Monitoring plan' and Appendix 1 of the monitoring report consist of all the changes done in the monitoring plan. The deviation is mainly focused on monitoring, field assessment, and other technical aspects related to carbon accounting, biodiversity surveys, and community engagement during the project activities. The MR followed the PD, monitoring of forest growth using remote sensing imagery conducted in combination with re-measuring of 46 field plots. Project details were verified during the site. The monitoring of annual carbon stock change in aboveground biomass of trees is conducted through a combination of remote sensing techniques and targeted re-measuring of field plots. For the field measurements, a total of 46 circular permanent sample plots (PSPs) with a radius of 30 meters were established in 2021 and within the Kuamut area for the baseline assessment. All 46 field plots were successfully re-measured and now comprise a total of 92 measurements (two measurements per plot), providing a comprehensive dataset for calibration and validation purposes. Detailed information of plot sites is available in Appendix 3 of PDMR.

The validation of this monitoring approach is supported by concrete evidence, including documentation of the established field plots records of the re-measurement process, and the complete dataset obtained from the re-measured plots. This evidence confirms the adherence to the specified protocols and demonstrates the accuracy and reliability of the field measurements used for calibration and validation purposes in the assessment of annual carbon stock change. The assessment team verify that the change in the monitoring plan is inline with the methodology VM0010.

4.3.2 Risks to the Community and Biodiversity Benefits (G1.10)

Table under section 2.2.6 of the MR lists 6 main risks and what will be done to mitigate it which are assessed as below:

	Risk	Assessment of Measure
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Natural Risks	Climate: Natural risks to the climate change benefits of the project are considered low, both in the short and long-term. Such risks, including natural fires, pests & disease, extreme weather, geological events and other natural risks are considered in detail in the non-permanence risk assessment. Community: Natural risks to the community benefits of the project, both in the short-term and long-term, are considered low, and such risks are considered to be lowered further by the activities of the project. Biodiversity: Natural risks to the biodiversity benefits of the project are considered very low. The project essentially protects and restores a natural ecosystem stable to the effects of naturally occurring events that might be anticipated.	Risks like natural fires, pests & disease, extreme weather, geological events, and other natural risks are considered in detail in the non-permanence risk assessment. The same has been assessed by the VVB. Also, VVB has assessed the Climate Risk Country Profile: Malaysia (2021) /55/ and found the project areas not on a list of high climate risk. The Sabah state is high on risk of drought. However, the management plan of PP is sufficient to overcome such issues. PP proposes reduces carbon emissions and creates a better local ecosystem through conserving forest cover. Also, PP proposes diversification of livelihood sources to reduce reliability on only nature-based livelihood like agriculture, etc., which will reduce the impact of climate change/draught over communities. The assessment team observed during site visit and during interviews with the local villagers that the natural risk to communities is very low. The main objective of the project is to protect the forest, which will ultimately reduce the risk on biodiversity in the project area. Previously the forest came under class II but after the project began the forest class changed to class I forest, which will help in the protection of the forest area. Hence the Verification team finds that the mitigation measures provided by PP, are adequate for the risk.
Human-induced risks	Climate – Potential human-induced threats to the project's climate benefits are considered likely, both in the short and medium term, but the project is implemented so as remove, reduce and mitigate their impact. Potential risks include anthropogenic fire, encroachment and illegal logging (loss of above ground biomass). The long-term threat of climate change is considered to present minimal threats to the climate change benefits of the projects. Community: Human-induced threats to the community benefits of the project include the willingness of communities to participate in project activities, both in the short and long-term, external pressures, and long-term climate change. In particular, there is a risk that and initial willingness to accept and participate with the project may change if the	To mitigate the risk a wide range of measures are undertaken to mitigate the threat of human-induced impacts, including a diverse range of project activities designed to protect and the restore the forest and to ensure long-term support for the project from local communities like patrolling, increasing awareness among communities about conservation, and the management plan of the project, etc. The verification team finds that the measures provided by PP are adequate to mitigate/reduce the risk.

	project fails to deliver tangible benefits over the long-term to communities. Biodiversity: Human-induced risks to the project's biodiversity benefits, both in the short and long-term, are essentially the same to those related to climate change benefits (above) as they relate to the protection and regeneration of the natural ecosystem. In addition, there are further human-induced risks related to hunting pressure, typically focused on a narrow range of species.	
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PP has identified all relevant risks of the projects and the mitigation measures provided for each risk is adequate to minimize/mitigate the relevant risks.

4.3.3 Community and Biodiversity Benefit Permanence (G1.11)

To maintain and improve the benefits for the climate, community, and biodiversity for the duration of the Project and beyond the lifetime, the PP is taking the following measures:

The effective protection status of the forest is anticipated to be maintained and extended, either through further licenses or enhanced legal protection from the state as the global importance of the stored carbon stocks and biodiversity are fully recognized because of the project.

project to restore degraded areas will result in the project area being more resilient to the threat of fire.

Conduct capacity building and training within the communities and landowners.

sustainable land use management in the region, leading to wider adoption of the practices it is pioneering.

Providing job opportunities for the locals in and around the project activity.

VVB through verification of the above measures and during site visit through interview with PP & stakeholders, confirms that the measures included in the MR /1/ to maintain and enhance the climate, community, and biodiversity benefits beyond the project lifetime is adequate. VVB confirmed that all the listed activities have been undertaken by the project in the current monitoring period.

4.3.4 Stakeholder Access to Information (G3.1- G3.3)

The KRC project has held a series of community engagements during which the project objectives and structure were explained and discussed. A series of brochures have been produced in the Malay language, which offer written summaries of the project objectives and implementing bodies. Section 2.1.1 of the MR makes reference to Annex 5 of the monitoring report which provides detailed timelines of consultations prior to commencing with project activities. PP has shared the KRCP Project Summary PD in Bahasa language.

The project will also provide access to documentation via the project website, and other means such as community notice boards as appropriate.

This was verified during the site visit and document proof was submitted by the PP. The verification team finds that the measures provided by PP are adequate to provide the information to the stakeholders and ensure their full participation in the project development and implementation process.

4.3.5 Stakeholder Consultation (G3.4 – G3.5)

As mentioned in annexure 5 of the MR, the project has conducted 11 separate workshops and other meetings with village community stakeholders, reaching over 488 participants. A full list of such meetings is provided in in Section 2.3.3 of the validated PD/1/. The PP carried out the consultations with the stakeholders in 2016 and 2017. The minutes of meetings, attendance sheets and photographs of the consultations with the comments from stakeholders were provided to the Validation team. The comments raised during the consultations were addressed by the PP. Also, all the reports of PRA's conducted so far were assessed. All the stakeholders interviewed during the site visit gave positive response about the project. While checking all the reports, minutes of meetings, questionnaire responses during site visit, it is confirmed that all the stakeholders agreed to the project plan.

Though none of the communities resides inside the project boundary and has no legal rights in the project area. However, the communities were extracting resources from the project area since long back and has customary rights. Considering the requirement of section G3.4 of CCB Standard v3.1, that how communities including all the community groups and other stakeholders have influenced project design and implementation through effective consultation, particularly with a view to optimizing community and other stakeholder benefits, respecting local customs, values and institutions, and maintaining high conservation values. Project proponents must document consultations and indicate if and how the project design and implementation has been revised based on such input. It was noted by the Validation team that the project start date is in June 2015, however the first stakeholder consultation was carried out in 2016.

However, Validation body finds that the recent consultations and socioeconomic engagement exercises carried out by PP is in line with footnote 45 of CCB standard v3.1 which says “Where conformance with the Climate, Community & Biodiversity Standards is being applied to a project already under implementation, project proponents must either provide documentation of appropriate consultations during the project design phase or demonstrate how more recent consultations have been effective in evaluating community benefits and adapting project design and implementation to optimize community and other stakeholder benefits and respect local customs”. It was assessed that the PP has tried to engage and communicate to the stakeholders as much as possible and stakeholder access to the project information related costs, benefits, risks, and third-party requirements were clearly communicated as discussed from sections 3.2.18 – 3.2.22 of this report. It was also assessed that from 2019 – 2020 there was travel restrictions related to COVID-19, and most communities have isolated themselves and disallowed entry to non-community members and hence PP has limited access to the communities. Due to the fact again the community engagement process was disturbed. However, as discussed with the local stakeholders and interviews with PP, the project aims and re-establish the engagement with the communities once the pandemic restrictions were lifted and the safety conditions for the team and the communities are improved. The annual plan /54/ submitted by PP has detailed out the stakeholder engagement process.

All consultations and participatory processes have been undertaken directly with communities and other stakeholders. The rightful representatives of all the local communities were also consulted and were briefed about the project and its process. The PP has ensured adequate levels of information sharing with the local communities. The details have been mentioned in section 2.3.7 of the verified MR/1/. PP has thoroughly explained the continuous engagement and **adaptive management undertaken in this project with the communities. It has also been confirmed that results of the monitoring plan are research documents that have been made publicly available as journals in scientific publications on the internet. It has been confirmed that evidence was provided to show that alternative means of communications with the communities to scientific publications on the internet have been used and are described in MR sections 2.3.1, 2.3.3 and 2.5.2. These include flyers created for the community and written in Malay.**

This was verified during the site visit and from the meetings reports and participatory activities engagement proofs /33//31/ and /68/ and other details submitted by the PP to the VVB. Hence, as per the VVB these steps were deemed as the most direct approach for the consultation and sharing of information with the local stakeholders.

4.3.6 Stakeholder Participation in Decision-making and Implementation (G3.6)

Prior to the project's implementation, as determined in the PD, the stakeholders were consulted via PRA and meetings to explain the project's effects and solicit their feedback on the project's design and willingness to participate in its implementation. These have been confirmed by looking up relevant meeting questionnaires and the PRA/PRA/. The stakeholders involved in the meetings conducted FPIC in Kuamut and Karamuak clusters (8 villages), attended by communities. PP provided their comments regarding the project implementation and impacts to them, also PP considered their participation in decision-making by asking all the participants to give their feedback. The community members of 7 villages were elected their representatives who were members of the Community Executive Committee. These elected community members raised the community voice regarding any issue related to the project activity in front of Community Executive Committee.

PP has FPIC SOP and Monitoring and Evaluation Plan as guideline, to ensure stakeholder participation, engagement, and involve in decision making process and implementation. In implementing the project, PP main partners, such as SEARRP, PACOS and RJB, also have their own SOP and principal guide on how to ensure stakeholder participations. PP conducted evaluation and yearly work plan, based on feedback and issues that need to be addressed on the ground, that involve consultation and participatory process to be decided for implementation. The Work Plan and its implementation was discussed and monitor to see output and progress in regular basis.

During this monitoring period, the project proponents deployed the FPIC process through the instigation of a desk based community scoping exercise in 2016, followed by a programme of community engagements and reports from 2017-2019 to ensure that the community willing to participate in project implementation.

The PP have gone to considerable lengths to consult with local stakeholders and engage them in the project during the implementation process. The PP has conducted socioeconomic baseline surveys, consultations, and participatory activities /26//27//33//31// and /34/ as well which ensures effective participation of the stakeholders in implementation of the project. PP also has close coordination with main partner, Yayasan Sabah, RBJ, PACOS and SEARRP, and report the progress in regular basis to ensure they also involve in participation and decision-making process for project implementation.

4.3.7 Anti-discrimination (G3.7)

PP company's Code of Conduct /60/, Procurement Policy /57/ and Staff Reimbursement Policy /59/ were assessed and verified and it was found that that no type of discrimination is tolerated at any point of the project development. The step has been described in section 2.3.11 of the verified MR /1/.

4.3.8 Stakeholder Feedback and Grievance Redress Procedure (G3.8)

Section 2.3.12 of the MR clarified that grievance mechanism was in place through the PACOS Trust Supporting evidence has been provided for the PACOS grievance mechanism during the verification process. Whilst the main procedure was implemented by PACOS throughout the monitoring period, in addition, SEARRP maintains a complaints procedure and safeguarding framework - which is open to anyone engaging with its programme.

However, there is no complaint addressed to the project during that period as shown in the pre-FPIC and FPIC process as well as through interviews with community members.

For the time being the GRM is addressed through PACOS. PACOS has SOP compromises of code of conduct and complain channel (page 31-32) and complain procedure (page 62); and the project have Community Organizers in Karamuak and Kuamut Clusters, and Community Executive member (AJK) in 7 villages. While the GRM set up, the complaint may address directly through the CO and AJK, then to be forwarded to PACOS. Additional interviews were conducted with members of PACOS Trust to confirm the implementation of the Grievance mechanism during the monitoring period. Further evidence was provided in the form of a report of activities conducted by PACOS during the monitoring period. That includes the development of workshop sessions that provided community members with the opportunity to raise any concerns, challenges or complaints about the project.

It was also confirmed that community members are supported by the involvement of a third party mediator to resolve any conflicts not addressed by the grievance mechanism, these include the Indigenous Peoples Network of Malaysia or Jaringan Orang Asal Se-Malaysia (JOAS) and, the Human Rights Commission of Malaysia (SUHAKAM).

Follow-up interviews with project partners and communities members who provided assurance of the implementation of the Grievance Mechanism. It was found that initially, the overlap of the monitoring period with the COVID-19 pandemic significantly impacted the reporting of the project activities implemented directly by Permian Malaysia Sdn. Bhd. This period was marked by restrictions that limited direct engagement with project sites and personnel, leading to an underrepresentation of the grievance mechanism's implementation in the initial monitoring report document. For the avoidance of doubt, this misrepresentation was not due to the absence of a grievance mechanism but rather the challenges in initially documenting and verifying its operation under pandemic constraints. This has been cleared by confirming with community members during remote calls.

4.3.9 Worker Relations (G3.9 – G3.12)

The annual work plan for protection and monitoring was assessed and it was found that Project is committed to investment in training and capacity building, and this commitment extends from project staff to project-zone communities, to local collaborators (both NGO and government). Such training can take many forms,

from work shadowing, internships, ad hoc training, to formal classroom style teaching.

It was found by the verification team that appropriate plans are designed to provide orientation and training for the project's workers and relevant stakeholders from the communities with an objective of capacity building of locally useful skills and knowledge to increase local participation in project implementation. Special attention to women and vulnerable and/or marginalized people has also been considered. During this monitoring period, the project provided training to 123 people in total, from which 80 were women.

These trainings included topics such as Accounts and Management Training at the Community Learning Centre (15), organic agricultural skills (15), food processing and entrepreneurship (18), handicraft making and community based ecotourism (35), socio-economic training (6), joint tactics knowledge sharing session (6) and annual paralegal training (20).

The details are provided in section 2.3.15 of the MR and it states that the project meets all the applicable laws and regulations related to worker's rights. To confirm the same, supporting documents were checked /57//58//59//60//61//63//64//120//121//122//123//124/. Hence, it has been concluded that the project is implemented and adhere to the respective laws and regulations of the project area.

Based on the additional supporting evidence provided, it was confirmed that the project hired 24 people (plus an additional 38 from our project partner, RBJ) were employed in relation to management, implementation of project activities and monitoring.

During document review assessment rounds and site visit it was found that all the activities claimed for the community objectives have been implemented related to community employment in this monitoring period

4.3.10 Management Capacity (G4.2 – G4.3)

This has been explained in section 2.4.1 of the verified MR /1/. The same has been checked and verified during the site visit. Short profiles of technical team /65/ were also assessed and verified during the site visit meetings. In the opinion of VVB, the PP and its team has robust technical skills to ensure successful implementation and sustainability of the project.

Table: Key skills required to implement the project, by activity

Project activity	Sub-project activity	Key skills required
Forest Resources Conservation	Protection and enforcement; Forest fire prevention and control; Habitat conservation and management	HCV mapping, forest conservation; biodiversity conservation, biodiversity MRV
Research and Development	Knowledge management; MRV methods; researching natural regeneration; restoration methods; biodiversity conservation methods	Carbon MRV, silviculture, forest conservation, biodiversity conservation
Livelihood Development	Agriculture improvement, ecotourism development	Community organizing, conflict resolution, participatory land-use mapping,

RBJ has history with timber concessions and has experience in timber measurements and timber contracts. Permian has the capacity to implement remote sensing, carbon measurements and projections. SFD has the technical capacity to ensure adherence to government regulation. All partners have experience with

land management of forests. Curriculum vitae of the managing team /86/ were shared with the verification team which confirmed the proven experience of management team. In the opinion of VVB, the PP and its team has robust management team experience to ensure successful implementation and sustainability of the project.

This is defined in section 2.4.3 of the verified MR /1/. Permian Malaysia Sdn. Bhd. Partners with Permian Global, Yayasan Sabah and Rakyat Berjaya Sdn. Bhd, and Sabah Forestry Department for designing, developing, and implementing the project /23/. The information mentioned in section 2.4.3 of the verified MR was confirmed by assessing the supporting documents /23/ and conducting interviews during the site visit.

The VVB has checked and assessed the financial audits /30/ and /37/ of the company since the project has started and confirms financial health of the PP. Permian global has funded the development of the project and until carbon credits are sold it is self-funded project (interview PP). It is concluded by the VVB that the PP financial strategies are sound enough to develop and sustain the project.

Based on site visit interviews and assessment of supporting documents /57//60//62/ and /63/ it is concluded that the project proponent involved in project design and implementation is not involved in or is not complicit in any form of corruption such as bribery, embezzlement, fraud, favoritism, cronyism, nepotism, extortion, and collusion.

4.3.11 Commercially Sensitive Information (Rules 3.5.13 – 3.5.14)

The following information is commercially sensitive and is not publicly available:

Financial projections – Detailed 30-year financial projections for the project which include all project-related costs and ex-ante carbon estimates.

Agreements between implementing, technical partners, communities and government – All agreements between project proponents and other implementing partners governing the implementation of project activities.

Project workplans and budgets – Detailed implementation workplans.

However, the same was assessed by the verification team during the verification process.

4.3.12 Rights Protection and Free, Prior and Informed Consent (G5.1-G5.5)

This is explained in section 2.5.1 and 2.5.2 of the verified MR. The VVB has checked and assessed land and partnership records /18//19/ and /17/. It is concluded that all property rights and recognized, respected and supported. All properties involved in the project either have property titles or equivalent documents to certify and assure rights over the land. Within the project area, there are no local communities or indigenous heritage with collective property titles.

This is explained in section 2.5.3 of the verified MR. As discussed above the project activities do not lead to involuntary removal or relocation of property rights holders from their lands or territories, and do not force rights holders to relocate activities important to their culture or livelihood.

The evidence provided was assessed as follows:

- a. Documentation of Legal and Regulatory Framework:

Includes references to the Sustainable Forest Management License Agreement (1997) and the Forest Enactment (1968), providing a legal basis for the project's activities and the re-designation of the forest reserve. This evidence is essential for demonstrating compliance with national laws and regulations, which is a key aspect of Verra's validation process. This was further confirmed by reviewing official website of the Sabah Forestry Department <https://forest.sabah.gov.my/fmu10/about-camp-fmu10/managing-camp-fmu10/fmu10-profile.html>

b. Statement of Affirmation by the General Manager of Rakyat Berjaya Sdn Bhd:

This statement confirms the original designation of the project area as Class II FR, in accordance with the Sustainable Forest Management License Agreement of 1997 and the Forest Enactment of 1968. It provides assurances that the project's legal and regulatory groundwork is solid and predates the project, which is crucial for validating the project's environmental integrity and legal compliance.

The statement also clarifies that no Community Forestry Areas were created within the Kuamut Forest Reserve. This is significant as it responds to potential queries about changes in land use or rights that could affect local communities, assuring Verra that the project has not imposed new restrictions or rights that negatively impact the communities.

c. Records of Stakeholder Engagements and Consent:

Detailed records of consultations with local communities and stakeholders, including the process of obtaining free, prior, and informed consent (FPIC), provide evidence of the project's efforts to engage with and respect the rights and opinions of local communities. This is crucial for meeting Verra's standards on stakeholder engagement and consent.

The KRC Project aims to reduce and put an end to all the illegal activities identified in the project area by a combination of protection and enforcement, education, and incentive, including strengthening tenure rights and providing sustainable livelihood options and employment opportunities. RBJ and SFD are the government agencies responsible for preventing illegal activities. SFD has predetermined process and laws for prosecuting illegal activities. Through this mechanism the project will be generating positive leakage. During the site visit interview with the project management team and local communities it has been assessed that the project management team has a robust strategy to identify such illegal activities and stop such actions on immediate effect. Hence, it is concluded that the project's climate, community, and biodiversity impacts will not be affected by any illegal activities.

Ongoing disputes are not applicable for this project as no communities have been displaced due to this project and land rights are owned exclusively by SFD and the YS concession. During the site visit it was found that there are no conflicts between PP, other parties and the local communities regarding land purchase Property rights and its protection. However, there could be potential future disputes over access to fishing due to the increased regulation as a Class I forest. It was found that some of the communities were just concerned about their customary rights in the Project area. To resolve the same PP and associated project parties are in continuous consultation with the communities and the later has assured the communities that "any customary rights of the local communities, in accordance with the current legislation, will be respected through the project implementation which can be confirmed at each verification period". During the site visit the local communities showed excitement over the project.

4.3.13 Legal Status (G5.6)

The project activities follow all the laws and regulations listed in section 2.5.6 of the verified MR, the laws and regulations are confirmed through checking the public websites /66/ which has been compared with the actual situation of the project by on-site observation.

The legal status of the project area is protected area and legal agreement signed by PP for management practices is of 30 years. This was confirmed by reviewing evidence and site visit inspection.

Project is protected by legally binding commitment to continue management practices that protect the credited carbon stocks over at least 100 years.

4.4 Climate

4.4.1 Accuracy of GHG Emission Reduction and Removal Calculations

Data/Parameter	Unit	Accuracy of GHG emission reductions and removals	Whether methods and formulae set out in the PD have been followed	Values and Appropriateness of values
Data and parameters available at validation				
CF _j	tC·td.m.-1	Cross checked parameter against the validated PD	Assessed at validation	0.47, validated from IPCC default for aboveground

				tree biomass (table 4.3 in volume 4 of the 2006 IPCC guidelines)
Dj	t.d.m. m-3	Cross checked parameter against the validated PD	Assessed at validation	Average wood density values were estimated for each genus using the Global Wood Density Database which is validated from Global Wood Density Database (Chave et al. 2009)
Relationship between Aboveground Carbon Density and LiDAR based Top of Canopy Height	Unitless	Cross checked parameter against the validated PD	Assessed at validation	NA, validated
$BCEFR$	t.d.m m-3	Cross checked parameter against the validated PD	Assessed at validation	1.89, validated from IPCC documents
$FRSD/BSL$	Dimensio nless	Cross checked parameter against the validated PD	Assessed at validation	1.8 is the value applied by PP. the value for this parameter “Residual Stand Damage Factor” has been calculated using the published research /110/ which has been checked and found appropriate.
$V_{l,j,i,sp}$	m ³	Cross checked parameter against the validated PD	Assessed at validation	The parameter “Merchantable volume for tree l of species j in

				sample plots p in stratum l" is sourcing values from the field measurements.
fj(X,Y...)	t d.m. tree ⁻¹	Cross checked parameter against the validated PD	Assessed at validation	The value of the parameter allometric equation(s) for species j linking measured tree variable(s) to aboveground biomass of living trees is sourced from literature Chave et al. (2014) /112/
OF	Kg kg ⁻¹	Cross checked parameter against the validated PD	Assessed at validation	The values for this parameter is sourced from default values for the tropical forest region provided in the methodology
SLF	Kg kg ⁻¹	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from default values given in the methodology were used which in turn are taken from Winjum et al (1998).
WW	Kg kg ⁻¹	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from default values given in the methodology were used which in turn are taken from Winjum et al (1998). /113/
PML _{FT}	%	Cross checked parameter	Assessed at validation	The value for this parameter is

		against the validated PD		sourced from merchantable volume data for all active logging concessions within the State of Sabah
RGR_i	$tC \cdot ha^{-1} \cdot yr^{-1}$	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from various published data /114//115//116//117/
$V_{EX,i/BSL}$	$m^3 \cdot ha^{-1}$	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from modelled timber harvest plan.
$TH_{i,p}$	Years	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from timber harvest schedule.
$A_{i,p}$	ha	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from model analysis and calculations.
$A_{1,l,p}$	ha	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from model analysis and calculations.
$A_{2-10,l,p}$	ha	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from model analysis and calculations.
$A_{11-20,i,p}$	ha	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from model analysis and calculations.
A_{t+}	ha	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from

				model analysis and calculations.
<i>Asp</i>	ha	Cross checked parameter against the validated PD	Assessed at validation	The value for this parameter is sourced from model analysis and calculations.
Species Conservation Factor		This value is now a PD deviation but fits closer with the methodology and is deemed accurate.	Assessment at validation. This is evidenced using extensive lists of protected species provided by the Sabah Forest Department Herbarium Curator	This value combines available species protection information, with literature on forest ecology of dipterocarp forests, with common practice of realistic merchantable timber.
Data and parameters available monitored				
<i>Abum,i,t</i>	ha	LiDAR, Landsat & Sentinel-2 remote sensing data, NASA FIRMS alerts	Data sources or own measurements. Calculated according to requirements of applied methodology.	0
<i>Adist,i,t</i>	ha	LiDAR, Landsat & Sentinel-2 remote sensing data in combination with ground truthing shared by PP	Data sources or own measurements. Calculated according to requirements of applied methodology.	0
<i>ADIST_IL,i</i>	ha	LiDAR, Landsat & Sentinel-2 remote sensing data in combination with ground truthing shared by PP	Data sources or own measurements. Calculated according to requirements of applied methodology.	463 ha
$\Delta C_{AB,i PRJ}$	tCO ₂ e	Remeasuring of field plots in combination with remote	Data sources or own measurements. Calculated according to requirements of applied methodology.	2.9 Remote sensing with optical and Synthetic

		sensing (LiDAR (airborne and/or satellite), supported with optical and RADAR remote sensing data).		Aperture Radar (SAR) satellite data), in combination with some remeasuring of field plots.
$B_{i,t PRJ}$	$t \cdot d.m.ha^{-1}$	Determined using the high-resolution maps and the model that determines the relation between the Aboveground Carbon Density and the TCH	Data sources or own measurements. Calculated according to requirements of applied methodology.	NA, no fires occurred
$C_{AB,i BSL}$	$tC \cdot ha^{-1}$	Determined using the high-resolution maps and the model that determines the relation between the Aboveground Carbon Density and the TCH	Data sources or own measurements. Calculated according to requirements of applied methodology.	Pixel level values in the wall-to-wall biomass map
GR	$tC \cdot ha^{-1}yr^{-1}$	Determined using high-resolution carbon density maps and a mixed effects regression model, where growth rate was derived from the change in (slope of) carbon density through time at a 30 m spatial resolution.	Data sources are field plot data and remote sensing data including aerial LiDAR, Landsat 8 and Sentinel 1.	aboveground biomass carbon growth rate of trees in parcel i at time t , $tC \cdot ha^{-1}yr^{-1}$

C _{DIST_IL,i,t PRJ}	tCO _{2e}	High resolution TCH map in combination with model that determines the relation between the Aboveground Carbon Density and the TCH	Data sources or own measurements. Calculated according to requirements of applied methodology.	Pixel level values in the wall-to-wall biomass map
PMP _i	%	Merchantable biomass and aboveground tree biomass are estimated from the forest biomass maps	Data sources or own measurements. Calculated according to requirements of applied methodology.	Stratum PMP_I Mosaic 0.5300 NFM 0.4102 Ex-ante a time zero measurement must be made of this factor. The timber harvest plan

				sets the allowable mean extracted volume from the merchantable volume of timber in the forest inventory (V _{j,i} BSL), based on legal limits. The value has been verified from Merchantable biomass and aboveground tree biomass are estimated from the forest biomass maps
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4.4.2 Quality of Evidence to Determine GHG Emission Reductions and Removals

The assessment of the quantification methods for GHG emission reductions and removals applied in the project has been done in line with the applied methodology VM0010, version 1.3 /7/. The calculation of baseline emission has been carried by PP by using equations given under section 8.1.1 of the methodology /7/. Modelling of the baseline scenario has been done by applying common practice analysis as described in section 3.1.4 of the PD /1/. This has been validated under section 3.3.4 of the validation report.

BASELINE EMISSIONS: GHG Emission Reduction/Removal calculations, including calculation of baseline scenario were carried out in R software and all the R files were submitted by PP for the validation. VVB ran the R files in the R studio software to check the calculation and it was found that the R files submitted has carefully documented every step of the analysis, and every segment has detailed description describing the formula used and the corresponding pages in the methodology /7/.

Merchantable volume: The merchantable volumes was estimated through an approach where a detailed forest inventory using field plots was combined with airborne LiDAR data. Aa total of 46 circular 30-meter radius (each 0.28 ha) permanent sample plots (PSPs) plots were set up within the Kuamut area. The taxonomic information was recorded. Biomass was calculated according to equation 4 from Chave et al. (2014). The PP measured diameter and heights, and the estimated wood density. Global Wood Density Database (Chave et al. 2009) was used for the wood density. 1.89 was taken as the BCEF (default values) from 2006 IPCC Guidelines for National Greenhouse Gas Inventories Chapter 4 – Forest Land, Table 4.5

/90/ and 0.47 for CF. The plot level timber volume was derived by summing the timber volume of all trees above the defined cutting limit (40 cm DBH for the NFM areas, and 31 cm DBH for the Mosaic Planting Approach areas).

The field plot data were combined with the high-resolution Top- Of-Canopy height (TCH) map derived from LiDAR. The relationship between the merchantable volume from field plots and the TCH was modelled using a non-linear model. From this high resolution map, the mean volume of extracted merchantable timber per hectare ($V_{EX,j,i|BSL}$) was estimated.

TCH and field data are used to calculate merchantable timber which is then used to calculate carbon stocks as per methodology in PD. The TCH is calculated as the difference from the digital surface model and digital elevation model, as is the standard method with lidar data. The TCH maps were checked. The relationship between the merchantable volume from field plots and the TCH was modelled using a non- linear model and high-resolution merchantable timber volume map was produced.

The R files Kuamut Tree Allometrics and Kuamut tree2plots were reviewed. BCEF and CF taken for calculation are 1.89 and 0.47, respectively. For the calculation, tree level dataset with above ground biomass, above ground carbon and volume estimated for each tree were uploaded in the R file. The code ran returned with output file of plot species list. Individual tree measurement file was then run in the Rstudio which gave the tree level above ground biomass, carbon, and volume. The TCH data has been verified with the High-resolution Tree Canopy height data submitted /47/. This tree canopy height data has been further validated with the GEDI /52/ data and found to be in line with the description and values mentioned in the PD.

For the calculation of baseline scenario and stratification of the project area, PP has conducted cluster analysis on the slope raster to distinguish between selective logging (Natural Forest Management) and the Mosaic Planting Approach areas. It is to be noted that all the assessment were performed in R software including emission reduction calculations. The analysis led to generation of shapefiles of two largest contiguous flat areas. The shapefile was produced through R coding in which image of slopes were inserted and read by R. The shapefiles shared for the assessment were checked and found to be fine /25/. The corresponding R code file was also shared and checked by VVB. The outcome of the R files i.e., shapefiles were found accurate and exactly similar as shared by PP. Areas (in ha) were correctly identified and reported in MR.

Sample Selection

The monitoring of annual carbon stock change in aboveground biomass of trees is conducted through a combination of remote sensing techniques and targeted remeasuring of field plots. For the field measurements, a total of 46 circular permanent sample plots (PSPs) with a radius of 30 meters were established in 2021 and within the Kuamut area for the baseline assessment. All 46 field plots were successfully re-measured and now comprise a total of 92 measurements (two measurements per plot), providing a comprehensive dataset for calibration and validation purposes. Detailed information of plot sites is available in Appendix 3 of MR.

The validation of this monitoring approach is supported by concrete evidence, including documentation of the established field plots (add document no to SOP of field data selection), records of the remeasurement process, and the complete dataset obtained from the re-measured plots. This evidence confirms the adherence to the specified protocols and demonstrates the accuracy and reliability of the field

measurements used for calibration and validation purposes in the assessment of annual carbon stock change.

Modeling approach

Biomass mapping

The process of determining the Above Ground Biomass and developing the biomass model involved several steps that were validated through the use of code and data verification.

The project has implemented a validated multi-temporal modeling approach to accurately estimate the spatial distribution and variability of aboveground biomass, considering potential emissions from small-scale deforestation or degradation. The modeling workflow incorporates a machine learning methodology that utilizes various data sources, including aerial LiDAR scan (ALS) data from 2016 for canopy height, optical (Landsat 8) and Synthetic Aperture Radar (SAR) satellite imagery, and forest plot data all acquired in 2016. The combination of these remote sensing data sources enables the generation of an updated Top of Canopy Height (TCH) map, crucial for monitoring forest growth.

To ensure the reliability of the modeling approach, the project has validated the alignment between the data cube and the Canopy Height Model (CHM) for baseline for the year 2016, taking into account the limited coverage of the CHM due to unavailability of LiDAR point clouds in certain areas. The validation is supported by evidence, such as checking the data cube with 41 bands which consists of measured canopy height values from the CHM, other remotely sensed data and environmental/earth observation data for e.g. Copernicus GLO 30 m global digital elevation model (DEM) derived data products. To ensure consistency and coherence in the temporal dimension of the data temporal smoothing across each band of the data cube is validated through the R code. Machine learning package `mlr3` were applied to analyze the data cube and develop a Canopy Height Model that minimizes the Root Mean Square Error (RMSE) (Figure 1). Spatial resampling was conducted to evaluate the performance of the ensemble model and canopy height is predicted for the period from 2015 to 2022 (add folder and R file name). The predictions generated by the model were carefully stored as spatial raster data contained in the folder identified by the specific folder number. /12//104//105//106/.

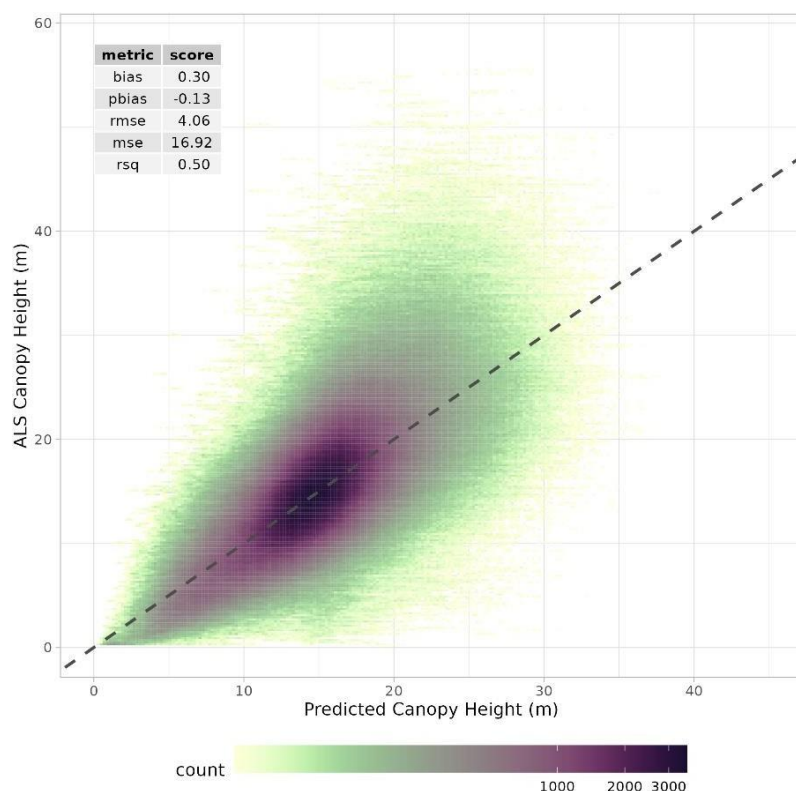


Figure 1 CHM validation plot

The process of determining the Above Ground Biomass and developing the biomass model was thoroughly validated through code verification. Firstly, the canopy height model predictions for each year were accurately appended to their respective data cubes as an additional band, ensuring the integration of relevant information into the biomass model development. The code was reviewed and validated to confirm the correct implementation of this step.

Additionally, the field measurements conducted in 2016 and 2020 were combined with the corresponding data cubes, extracting the necessary earth observation data for each surveyed plot area. The conversion of the total Above Ground Carbon (AGC) to Aboveground Carbon density (ACD) by dividing the AGC by the planimetric area of the plot was validated through careful examination of the code, ensuring the accurate calculation of ACD. The annual Above Ground Biomass is available on Kuamut Rainforest Conservation Project's Google Earth Engine Mapping App Links (https://javierruiz_Permian.users.earthengine.app/view/kuamut-project-agb-annual-maps)

The derived dataframe, incorporating the ACD values and selected control features, was then utilized to train the biomass model (add folder and exported dataframe). Multiple variable combinations, ranging from 6 to 10 control features, were tested and evaluated based on the models' Akaike Information Criterion (AIC) values. The code implementation for testing and selecting the best performing model was thoroughly validated, ensuring that the models with the lowest AIC were correctly identified and utilized /12//106/

The best-performing model, validated through a rigorous process, was employed to predict Aboveground Carbon Density (ACD) for the entire Kuamut area. The methodology employed for the model was repeated for Merchantable Volume with cutting limits set at 10 cm, 31 cm, and 40 cm. The combination of data sources, as specified in the documentation, was utilized to generate volume maps for the year 2016.

The validation of the model and its corresponding processes is supported by relevant evidence and documentation. This includes the replication of the methodology, adherence to predefined cutting limits, and the utilization of specific data sources for volume mapping. By ensuring consistency with the

documented procedures, the project has validated the reliability and accuracy of the predictions for both ACD and Merchantable Volume across the entire Kuamut area.

Growth Rate

The growth rate for the entire Kuamut project area was calculated by analyzing data across multiple years, ensuring the derivation of a robust estimate. Predicted Aboveground Carbon Density (ACD) maps for the years 2016 to 2021 were utilized, taking into account the project's commencement in 2016. To estimate the ongoing forest growth rate, a linear mixed-effects model was applied to the entire dataset where management strata was included as a fixed effect and year and pixel id were included as random effects, resulting in a distribution of predicted growth rates for each management strata (with consideration of spatial autocorrelation). The fixed effect slopes for each strata, derived from this model, represent the growth rate for each stratum, as documented in the monitoring section of the report. Mean growth rates of 2.61, 3.2 and 3.02 t C ha⁻¹ yr⁻¹ were calculated for NFM, mosaic-planted and mosaic-unplanted stratum, respectively. The validation of this approach is supported by corresponding evidence i.e., the R code and documentation (Figure 2) /12//106/

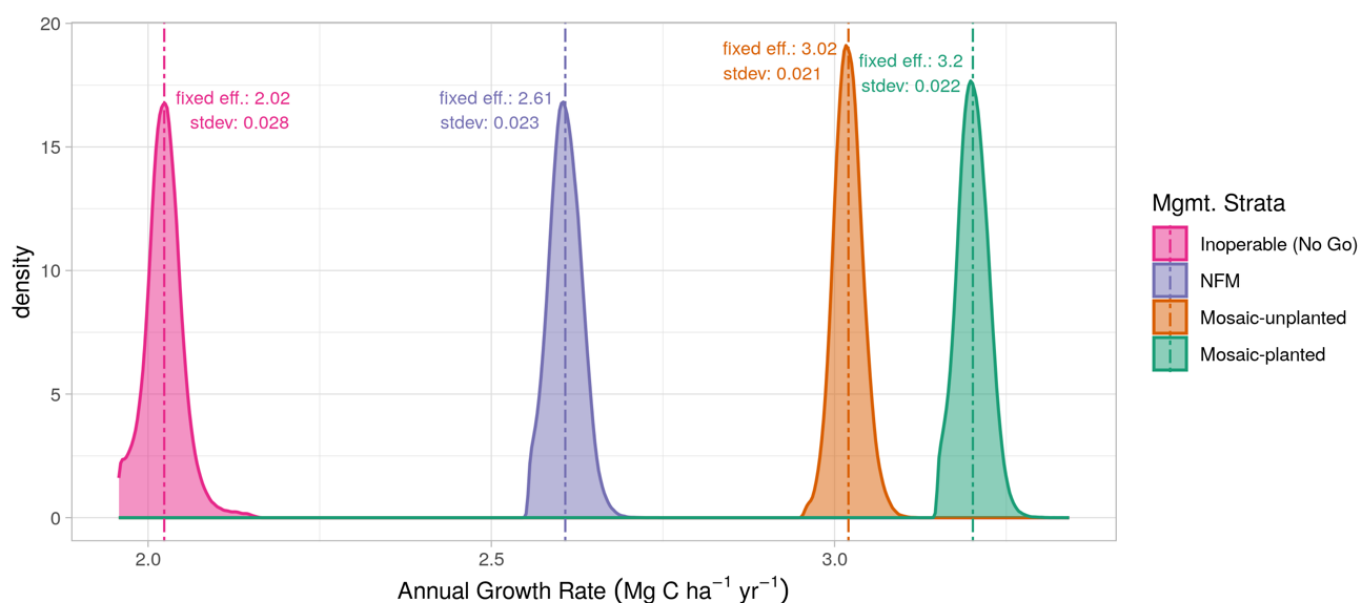


Figure 2 Growth rate

Growth rates before and after applying the strata-specific species conservation factor.

As described earlier, the species conservation factor is applied to these growth rates to obtain more conservative, adjusted growth rates. These are adjusted for species that would not have been harvested under the baseline.

Management Strata	Modelled Growth Rate (Mg C ha ⁻¹)	Species Conservation Factor	Adjusted Growth Rate (Mg C ha ⁻¹)
Inoperable (No Go)	2.02 (not used)	Not used	Not used
NFM	2.61	0.76	1.98
Mosaic-unplanted	3.02	0.94	2.84
Mosaic-planted	3.2	0.94	3.01

Forest disturbance

In order to effectively monitor forest disturbances, including fire, non-fire forest disturbances, and illegal logging, the project incorporates additional analysis of optical data products such as Landsat 8 (OLI) and Sentinel-2. These data products have been proven to possess the capability to detect deforestation and to some extent, detect degradation within forest areas. The analysis of optical data products is performed in conjunction with the data on biomass and forest regrowth, as described earlier. By combining the information from these sources, the project gains a comprehensive understanding of forest disturbances and their impacts on the ecosystem. The utilization of optical data products is validated and supported by their established effectiveness in detecting deforestation and their potential for identifying degradation.

Fire

NASA FIRMS alerts in addition to field team monitored fires within or near the project area are utilized to identify potential fire incidents. These alerts serve as notifications of hotspots detected by NASA, and the project team converts these email alerts into text messages containing the coordinates of the hotspots. During the monitoring period, no active fire alert incidents were reported. This information has been verified by cross-checking the data with the NASA FIRMS portal/105/. The absence of active fire alerts indicates that there were no detected hotspots or fire incidents within the project area or its vicinity during the specified time frame.

To assess the impact of fires on the forest, the project proposes to utilize high-resolution optical and SAR satellite imagery. Coincidental or near-coincidental imagery from platforms such as Planet, Sentinel-2,

Landsat 8-9, and Sentinel-1 is used for multi-temporal investigations. These investigations involve analyzing the environmental conditions before and after the fire event based on various indices derived from remotely sensed data. However, no code was found to assess the impact during this monitoring period.

Other disturbances including illegal logging.

No significant natural disturbances occurred in the project area. Non-fire disturbances were considered as part of the deforestation analysis for illegal logging. A field team from Rakyat Berjaya Sdn. Bhd deployed for regular monitoring, including helicopter surveillance, ground and river patrols for 10 days once a month. Global Forest Watch optical and SAR-based deforestation alerts were also used by SEARRP field team to check those specific locations indicated by the alerts also available in local language.

The impact assessment of such events during the monitoring period is done using a Remote Sensing-based multi-temporal deforestation analysis. The analysis utilized the Google Earth Engine platform for data access and core analysis, following the methods outlined by Gorelick et al. (2017). The analysis comprised three main stages. Firstly, optical satellite image collections were filtered to obtain cloud-free images for generating annual composite images with cloud cover $\leq 25\%$. A detailed list of images used for composite is added in Appendix 2 of MR. Secondly, a supervised land cover classification was performed using machine learning algorithms. The classification is performed on four classes Forest, Non-Forest, Water and Clouds. Finally, the final results were cleaned and post-processed using advanced GIS tools and software /103//104//105/.

Uncertainty Analysis

Three key sources of uncertainty in the prediction of baseline and project-based emissions are the total merchantable volume (TMV) stock with a DBH > 31 cm and 40, observed growth rate, and post-processing of deforestation masks. To address TMV uncertainty, a simulation approach was used, drawing 100 random samples from a normal distribution constrained by the upper and lower 95% prediction interval values. The resulting simulated total provided uncertainty limits. The project growth rate uncertainty was derived from the fixed effects slopes of the linear mixed-effects (LME) model, calculating the 0.025th and 0.975th percentiles as uncertainty limits. To improve detection accuracy and reduce false positives, a post-processing analysis included a morphological neighbourhood filter and a redundancy investigation. The filter removed small polygons and merged them with larger neighbors, while a redundancy analysis eliminated areas previously identified as deforested in annual calculations. These measures increased confidence in deforestation detection and reduced errors in carbon stock calculations. The approach aligns with general practice followed for uncertainty analysis in this matter /12//105//106/.

PROJECT EMISSIONS: GHG Emission Reduction/Removal calculations, including calculation of project scenario were carried out in R software and all the R files were submitted by PP for the validation. VVB ran the R files in the Rstudio software to check the calculation and it was found that the R files submitted has carefully documented every step of the analysis, and every segment has detailed description describing the formula used and the corresponding pages in the methodology /7/.

Ongoing forest growth in the project scenario: The annual AGB in the project scenario has been estimated with the similar method explained above in the baseline emissions quantification. For the ex-ante estimations of the project emissions, the IPCC default value of $1.6 \text{ Mg ha}^{-1} \text{ yr}^{-1}$ was used to estimate the ongoing forest growth in the project scenario. However, for ex-post annual carbon stock growth will be estimated using equation 32, which has been updated from the methodology to eliminate any risk of project growth credits being delivered earlier than the baseline scenario. /7/. This method is similar but improved upon compared to the PD and is vastly more conservative. This is ultimately determined from the field plot data and so the validation method used by the VVB to assess the carbon stock measurement reported in the PD as done for the baseline emissions.

From the high resolution maps, the annual carbon stock change in aboveground biomass of trees has been calculated as:

$$\Delta C_{AB,t|PRJ} = \sum_{i=1}^M (A_i * \frac{C_{AB,i,t2|PRJ} - C_{AB,i,t1|PRJ}}{T}) * \frac{44}{12} \quad \text{Equation 1}$$

Where:

$\Delta C_{AB,t PRJ}$	Annual carbon stock change in aboveground biomass of trees in year t, tCO ₂ e yr ⁻¹
$GR_{i,t}$	aboveground biomass carbon growth rate of trees in parcel <i>i</i> at time t, tC ha ⁻¹ yr ⁻¹
$t_{p \text{ harv BSL}}$	baseline harvest date of the parcel, years
$t_{proj \text{ start}}$	the start year of the project, years
A_i	Area covered by stratum parcel <i>i</i> , ha
T	Number of years between monitoring time <i>t1</i> and <i>t2</i> ($T = t2 - t1$); years
IP	1,2,3 ... <i>M</i> <i>i</i> strata each parcel
T	1,2,3 ... <i>t*</i> years elapsed since the start of the project activity.
$44/12$	Ratio of molecular weights of carbon dioxide and carbon, tCO ₂ e tC ⁻¹ .

Year	Annual carbon stock change in aboveground biomass of trees in year t, tCO ₂ e)
2016	79,202.87
2017	281,959.53
2018	396,039.95
2019	705,293.33
2020	772,708.05
2021	644,031.90

Forest disturbance in the project scenario: PP has estimated all fire to non-fire disturbance which can happen in the project area.

Natural disturbance – Fire: Natural disturbance from fire has been estimated using equation 33 of the applied methodology. If any area is subject to a fire disturbance, the aboveground biomass stock present in the project scenario but absent in the baseline scenario before burning will be derived from the high-resolution map and the Aboveground Carbon Density model by applying equation 34.

The net greenhouse gas emissions resulting from fire disturbance are calculated as

$$\Delta C_{DIST-FR,t|PRJ} = \sum_{i=1}^M A_{Burn,i,t} * B_{i,t|PRJ} * COMF_i * G_{g,i} * 10^{-3} * GWP_{CH4} \quad \text{Equation 2}$$

Where:

$\Delta C_{DIST_FR,t PRJ}$	Net greenhouse gas emissions resulting from fire disturbance in year t , tCO ₂ e
$A_{burn,i,t}$	Area burnt for stratum i at time t , ha
$B_{i,t PRJ}$	Average aboveground biomass stock present in the project scenario but absent in the baseline scenario before burning stratum i , time t ; t d. m. ha ⁻¹

$COMF_i$	Combustion factor for stratum i , dimensionless
$G_{g,i}$	Emission factor for stratum i for methane, g kg ⁻¹ dry matter burnt
GWP_{CH_4}	Global warming potential for CH ₄ (IPCC default: 21), tCO ₂ e tCH ₄ ⁻¹ ;
i	1,2,3 ... M strata
t	1,2,3 ... t^* years elapsed since the start of the project activity.

$$B_{i,t|PRJ} = \sum_{j=1}^J \{V_{EX,i,j|BSL} * BCEF_R\} \quad \text{Equation 3}$$

Where:

$B_{i,t PRJ}$	Average aboveground biomass stock present in the project scenario but absent in the baseline before burning for stratum i , time t , t d. m. ha ⁻¹ ;
$V_{EX,i,j BSL}$	Mean volume of extracted timber per unit area for species j in stratum i , m ³ ·ha ⁻¹
$BCEF_R$	Biomass conversion and expansion factor applicable to wood removals in the project area, t.d.m m ⁻³ ;
i	1,2,3 ... M strata
j	1, 2, 3 ... J tree species
t	1,2,3 ... t^* years elapsed since the start of the project activity.

For the ex-ante estimation, it is assumed by the PP that the area burned is zero as a consequence of the project but this will be monitored during project implementation. NASA FIRMS alerts will be used to monitor any possible fires. Any hotspot inside or surrounding the project area will be checked. The emails alerts from NASA will be converted into text messages with the coordinates of the hotspots that determined field team members with receive on their phones. Remote sensing imagery as close to the fire event as possible will be used to map the burn scars.

Natural Disturbance – Non-Fire: for non-fire natural disturbance, it is assumed that a disturbance event in the project scenario would also have occurred in the baseline scenario. Project emissions are therefore equal to the non-fire natural disturbance to biomass absent in the baseline scenario (harvested and removed) but present in the project scenario. This will be calculated using equation 35 of the applied methodology.

$$\Delta C_{DIST,t|PRJ} = \sum_{i=1}^M A_{dist,i,t} * \sum_{j=1}^J \{C_{AB,j,i|BSL}\} * \frac{44}{12} \quad \text{Equation 4}$$

Where:

$\Delta C_{DIST,t PRJ}$	Net greenhouse gas emissions resulting from non-fire natural disturbance in year t , tCO ₂ e
$A_{dist,i,t}$	Area disturbed for stratum i at time t , ha
$C_{AB,i BSL}$	Carbon stock in aboveground biomass per unit area in stratum i , tC·ha ⁻¹
$44/12$	Ratio of molecular weights of carbon dioxide and carbon, tCO ₂ e tC ⁻¹
i	1,2,3 ... M strata
j	1, 2, 3 ... J tree species; and
t	1,2,3 ... t^* years elapsed since the start of the project activity.

Similar to disturbances by fire, if any area is removed, we will use the carbon value for that specific area based on the high resolution map. The area does not have a history of major disturbance events in the area, therefore for the ex-ante estimation it is assumed that the area disturbed is zero. The assessment team verified the data from the NASA-FIRMS which is found correct and consistent through out the MR.

Illegal Logging: PP has selected option B sampling for assessment of illegal logging in the project area. Data on the occurrence of disturbances and illegal logging will be derived from the field plots and remote sensing analysis that are part of the monitoring of ongoing forest growth in the project scenario. To ensure sufficient coverage, the project will also use the Global Forest Watch GLAD deforestation alerts. These alerts will be used as a guide for the field team to check specific locations where illegal logging may be happening. They will also be used as a guide to monitor the areas using remote sensing. This will be complemented with an analysis of optical data products (Landsat & Sentinel-2) and Synthetic Aperture Radar (SAR) data that have a proven capability for deforestation detection and some capacity for degradation detection

The proposed project activities are expected to completely prevent illegal logging and therefore for the ex-ante estimation, the area potentially impacted by illegal logging is assumed to be zero.

Period	Area deforested (ha)	Project area deforested %
2016 - 2017	97.70	0.117
2017 - 2018	309.70	0.372
2018 - 2019	10.10	0.012
2019 - 2020	11.50	0.014
2020 - 2021	34.30	0.041
2021 - 2022	0.00	0.000
Total	463.1	0.556

Table: Annual deforestation figures resulting from illegal logging activities within the Kuamut project area

Net greenhouse gas emissions in the project scenario: The net GHGs is estimated using equations 38 and 39 of the applied methodology.

Net greenhouse gas emissions in the project scenario in year t are then calculated as:

$$\Delta C_{NET,t|PRJ} = (\Delta C_{DIST-FR,t|PRJ} + \Delta C_{DIST,t|PRJ} + \Delta C_{DIST-IL,t|PRJ}) - \Delta C_{AB,t|PRJ} \quad \text{Equation 5}$$

and

$$GHG_{Net|PRJ} = \sum_{t=1}^{t^*} \Delta C_{Net,t|PRJ} \quad \text{Equation 6}$$

Where:

$GHG_{Net PRJ}$	Net greenhouse gas emissions in the project scenario since the start of the project activity, tCO ₂ e
$\Delta C_{NET,t PRJ}$	Net greenhouse gas emissions in the project scenario in year t , tCO ₂ e;

$\Delta C_{DIST_FR,t PRJ}$	Net greenhouse gas emissions resulting from fire disturbance in year t , tCO ₂ e
$\Delta C_{DIST,t PRJ}$	Net greenhouse gas emissions resulting from non-fire natural disturbance in year t , tCO ₂ e
$\Delta C_{DIST_IL,t PRJ}$	Net carbon stock changes as a result of illegal logging at time t , tCO ₂ e
$\Delta C_{AB,t PRJ}$	Annual carbon stock change in aboveground biomass of trees in year t , tCO ₂ e yr ⁻¹
t	1,2,3 ... t^* years elapsed since the start of the project activity.

Year	Area disturbed at time t (ha)	Net greenhouse gas emissions resulting from non-fire natural disturbance in year t (tCO ₂ e)
2016	97.70	20,115.6
2017	309.70	79,186.3
2018	10.10	469.3
2019	11.50	2,368.5
2020	34.30	8,080.7
2021	0.00	0.00

Table: Net greenhouse gas emissions resulting from non-fire disturbance in year t

Year	Net greenhouse gas emissions resulting from fire disturbance in year t (tCO ₂ e)	Net greenhouse gas emissions resulting from non-fire disturbance and illegal logging (tCO ₂ e)	Annual carbon stock change in aboveground biomass of trees in year t , tCO ₂ e	Net greenhouse gas emissions in the project scenario in year t^* (tCO ₂ e)	Cumulative net greenhouse gas emissions in the project scenario in year t^* since the start of the project activity
2016	0.00	20,115.6	- 79,202.87	-59,087.27	-59,087.27
2017	0.00	79,186.3	- 281,959.53	-202,773.23	-261,860.50
2018	0.00	469.3	- 396,039.95	-395,570.65	-657,431.15
2019	0.00	2,368.5	- 705,293.33	-702,924.83	-1'360,355.97
2020	0.00	8,080.7	- 772,708.05	-764,627.35	-2'124,983.33
2021	0.00	0.00	- 644,031.90	-644,031.90	-2'769,015.22

Table: Actual greenhouse gas emissions in the project

LEAKAGE EMISSIONS: GHG Emission Reduction/Removal calculations, including calculation of leakage emisisions were carried out in R software and all the R files were submitted by PP for the validation. VVB ran the R files in the Rstudio software to check the calculation and it was found that the R files submitted has carefully documented every step of the analysis, and every segment has detailed description describing the formula used and the corresponding pages in the methodology /7/.

PP has considered both activity and market leakage due to the project activities which is in line with the applied methodology.

Activity shifting leakage: For activity leakage, as described earlier the project area is owned by Yayasan Sabah and under the baseline scenario would have been managed by its subsidiary, Rakyat Berjaya Sdn. Bhd. Licences to harvest, through annual coupe permits would have been issued by the Sabah Forestry Department and granted to Rakyat Berjaya Sdn Bhd. The management plans for Yayasan Sabah and Rakyat Berjaya Sdn. Bhd. have not materially changed because of the planned project and neither have the permits issued by the Sabah Forestry Department materially changed.

The audit team has checked the Sabha Timber Production records /81/. The data provided include data on the volume extracted, the area that was harvested, and the logging type (NFM or Salvage logging). Multiple records for each forest reserve were taken. The data analysis shows that there is no material difference between the Timber Volume extracted from the other forest reserves before and after the start of the project activity, therefore there is no evidence of any activity shifting leakage.

Market leakage: This is calculated by applying equation 40 of the methodology. The leakage factor was determined by considering where logging will be increased because of the decreased supply of the timber caused by the project. To estimate the leakage factor, the ratio of merchantable biomass to total biomass was estimated for the NFM stratum (stratum 2) and the combined Mosaic strata (stratum 3 and 4) in the project area (PMPi). PML is calculated individually for each Forest Reserve Logging Type combination. The weighted leakage for the entire project estimated is 0.288.

According to the methodology, market leakage will be estimated as:

$$GHG_{LK|LtPF,t^*} = LF_{ME} * GHG_{NET|BSL,t^*} \quad \text{Equation 7}$$

Where:

$GHG_{LK LtPF,t^*}$	Total market leakage as a result of IFM LtPF activities, in the year t^* since the start of the project activity, tCO ₂ e
LF_{ME}	Leakage factor for market-effects calculations; dimensionless
$GHG_{NET BS,t^*}$	Net greenhouse gas emissions in the baseline scenario in the year t^* since the start of the project activity, tCO ₂ e

Stratum in the project area	Corresponding forest type in the analysed forest estate	% difference between PMP _i and PML _{FT}	LF _{ME}

Stratum 2	Natural Forest Management	-10.3%	0.4
Stratum 3 and Stratum 4	Salvage logging	35.5%	0.2

Table: Calculated deduction factors (LF_{ME})

Year that logging would occur according to the timber harvesting plan	Leakage due to activity shifting (tCO ₂ e)	Market leakage as a result of IFM LtPF activities in year t* (tCO ₂ e)	Total cumulative leakage in year t* since the start of the project activity
2016	0	66,258.57	66,258.57
2017	0	94,310.91	160,569.48
2018	0	109,422.08	269,991.56
2019	0	169,386.80	439,378.36
2020	0	200,094.11	639,472.47
2021	0	198,124.34	837,596.81

Table: Emission as a result of leakage

NET GHG EMISSION REDUCTIONS AND REMOVALS

The net GHG emission reductions and removals has been estimated using equation 41 of the applied methodology. PP has considered the second concession area (approved in 2016) for ERR calculation from 2020 onwards.

The net emission reductions and removals calculated is 27,493,288 tCO₂e and the average annual net emission reduction estimated is 948,044 tCO₂e over the project lifetime.

For the current monitoring period from 11/12/2015 to 31/12/2021, the implementation of the project activities has resulted in emission reductions of 4,839,740.67 tCO₂e. Buffer credits allocation is 10% which is 580,769 tCO₂e and eligible Verified Carbon (tradable) after deducting buffer credits from total verified carbon credits is 4,258,971 tCO₂e.

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2016	230,064.47	-59,087.27	66,258.57	222,893.17
2017	327,468.44	-202,773.23	94,310.91	435,930.76
2018	379,937.79	-395,570.65	109,422.08	666,086.36
2019	588,148.60	-702,924.83	169,386.80	1,121,686.62
2020	694,771.21	-764,627.35	200,094.11	1,259,304.46
2021	687,931.75	-644,031.90	198,124.34	1,133,839.30

Total	2,908,322.25	-2,769,015.22	837,596.81	4,839,740.67
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4.4.3 Non-Permanence Risk Analysis

The non-permanence risk report /28/ and non-permanence risk calculation sheet /111/ have been provided by PP, the risk assessment has been carried out according to the VCS “AFOLU Non-Permanence Risk Tool”, version 4.0 /9/.

Each risk category was calculated based on the VCS guidance during this verification period and found that the risk was 12% during the monitoring period. The information was verified and cross-checked through document review, onsite visits of the project area and interviews conducted. Details of the assessment are provided as follow:

Risks	Assessment of the risk factor justification	Risk rating
Internal risks		
Project management (PM)	The risk rating of the project management category has been correctly identified by PP and the justification of the risk category has been assessed as follows. The risk associated with the plantation of non-native species are not applicable in this project as this is not afforestation or reforestation project which require new plantation. There will be limited plantation activities in the project area with native species only as per the project design. The verification assessment confirmed through document review and site visit observations that no plantation activity has been carried out in this verification assessment. The implementation of the project activity prevents encroachment activity. Therefore, there is no risk of encroachment by outside actors. /56//83/ SFD and RBJ manage the project area which includes patrolling, monitoring through satellite imagery of the project area. Project management is done by competent personnel of SFD, RBJ, SEARRP team along with PP. /18/ The monitoring plan was also discussed during site and the roles of each of the entities involved were understood. /15//16/ Furthermore, the project team of Permian Malaysia is based in Malaysia with support from Permian Global in the UK. Therefore,	Risk rating: -2

	the risk factor for project management categories (a) to (d) are not applicable. The management team includes individuals with significant experience in AFOLU project design and implementation, carbon accounting and reporting under the VCS Program or other approved GHG programs. Since the mitigation factor is considered in this project, therefore the category (e) mitigation is rated (-2). Adaptive management plan is rated not applicable. The overall risk rating is -2.	
Financial viability (FV)	In the financial viability category of the risk is rated (-1). The assessment of this category is as follows. The project cash flow breakeven point is greater than 4 and up to 7 years from the current risk assessment, therefore the risk rating as per the NPR tool is 1. VVB has checked the financial analysis records and evidence provided for verification assessment. /30//37/ Funding secured by project is 80% needed to cover the total cash out. The mitigation category is rated (-2) as per the NPR tool, the project has available as callable financial resources at least 50% of total cash out before project reaches breakeven. Therefore, the total comes out (-1).	Overall risk rating: -1
Opportunity costs (OC)	The assessment of the financial sheets of the project confirmed that NPV from the most profitable alternative land use activity is expected to be at least 100% more than that associated with project activities. /30//75/ The legal status of the project area is protected area and legal agreement signed by PP for management practices is of 30 years. This was confirmed by reviewing evidence and site visit inspection. Project is protected by legally binding commitment /22//23/ to continue management practices that protect the credited carbon stocks over at least 100 years. /18/	8 is given for the risk factor NPV. For the mitigation measure, Mitigation: Project is protected by legally binding commitment /22//23/ to continue management practices that protect the credited carbon stocks over at least 100 years, -8 is rated. /18/ Overall risk rating: 0

Project longevity (PL)	The project area got legal protection from harvesting activities and falls under Class I forest protected area category which provides full forest protection, and no logging is being carried out in the project area. /20//21//19/ This category has been correctly rated and justified in the NPR report.	Yayasan Sabah on a 99-year lease agreement with the Sabah Forestry Department (acting on behalf of the State Government of Sabah) has taken the land for project development and implementation. /18/. Logging is not permissible in the 99 years of lease agreement. Considering the above Risk rating: 0
Internal risk rating	PM + FV + OC + PL	score is $-2 + -1 + 0 + 0 = -3$ but in accordance with the Tool, total may not be less than zero Internal risk score = 0
External risks		
Land Tenure and Resource Access/ Impacts (LT)	The project area is categorized as Class I forest which is a protected forest type, and this legal status is permanent, the legal agreement of the implementation of management practices in the project area is with PP for at least 30 years. Yayasan Sabah on a 99-year lease arrangement with the Sabah Forestry Department (acting on behalf of the State Government of Sabah) has taken the land for project development and implementation. /18/ The Sabah Forestry Department is the legal land rights-holder of project area. /22//23/ PP has the full authority of designing, developing, and implementing the proposed project in the Project area. The risk score for land tenure and resource access/impacts was verified based on the evidence reviewed during verification, which includes the designation of the project area Class I (Protection) from Class II (Commercial) by the Sabah Forestry Department among other evidence. The project acknowledges the communities' views of the ancestral use of the land. Nonetheless, the rights and access over the project area were defined as part of	For the risk factor Ownership and resource access/use rights are held by different entity(s) (e.g., land is government owned, and the project proponent holds a lease or concession), risk is rated as 2. However, the mitigation measure in this risk category is that continuation of the implementation of project activity through legally binding commitment, therefore this has been rated -2. Total risk rating: 0

	the creation of the forest reserve a couple decades before the start of the project.	
Community engagement (CE)	For the community engagement, the justification of risk rating has been given in the NPR report. It was confirmed from the site inspection that no community, community groups or indigenous groups prior to the Project or after the project resides inside the project area. Communities identified in this project were divided into two clusters "Kuamut and Keramuak clusters" which dwells in the vicinity of the project area.	The project includes livelihood activities to improve the well being of the communities /82/, and therefore risk mitigation factor has been scored in the project. Risk rating: -5
Political risk (PC)	PP has calculated governance score from the mean of Governance Scores across the six indicators of the World Bank Institute's Worldwide Governance Indicators /109/	The governance score falls between 0.19 and 0.82, therefore PP has rated this risk as 1. Further, mitigation measures and the inclination of Government of Sabah towards protection of Biodiversity /56/ gives risk mitigation rating -2. Total risk rating: 0 (as the total may be less than zero)
External risk	LT + CE + PC	score is -0 + -5 + 0 = -5 but in accordance with the Tool, total may not be less than zero. External score = 0
Natural risks		
Fire (F); Pest and Disease outbreaks (PD)	There is no evidence of fires, pest, and disease outbreaks ever occurring in Kuamut. This was confirmed through site inspection and interviews with stakeholders. /14//15//16/	Risk rating: 0
Extreme Weather (W)	The chances of extreme weather in Sabah including project location is every 10 to less than 25 years. /55/	Risk rating: 1

Geological risk (G)	Chances of occurrence of small geological events like landslides, earthquakes or volcanoes in Sabah including project location is every 50 to less than 100 years. /55/	Risk rating: 0
Other natural risk (ON)	Through site visit inspection and interview /15//16/ with PP it was confirmed that chances of occurrence of other risks associated with estuarine wetlands is negligible. The verification team has checked the NPR report and confirmed through desk review whether there has been any incidence of fire, pest and disease outbreaks, extreme weather, geological risk, other natural risk, however, no incidence has been found and therefore risk is correctly rated.	Risk rating: 0
Natural risks	F + PD + W + G + ON	Score is 0 + 0 + 1 + 0 + 0 = 1 but in accordance with the Tool
Overall risk rating	Internal risk + external risk + natural risk	0 + 0 + 1 = 1

4.4.4 Dissemination of Monitoring Plan and Results (CL4.2)

Whilst reduced activities were implemented during the COVID pandemic led restrictions and internal elections in the communities, sections 2.1.1 and 2.5.2 of this report demonstrate how the project proponents have communicated and disseminated relevant details about the project to stakeholders during this monitoring period, including a detailed methodology. The project proponents instigated a community scoping exercise in 2016, followed by a programme of community engagements from 2017-2019 to identify relevant communities, socialise the project and its associated costs, risks and benefits. In sections 4.3.1 and 4.3.2 of MR, PP has described the community impact monitoring results for the activities implemented during this monitoring period.

4.4.5 Optional Gold Level: Climate Change Adaptation Measures (GL1.3)

The description mentioned in section 3.3 of the MR/1/ has been checked with the online information available on the government website and published reports of UNFCCC, World Bank and ADB. To assess the impact of climate change in the project area PP has used spatial eco-hydrological model Costing Nature. /100/ The model results were assessed by the VVB and were also cross checked with published

data and found that the regional climate change scenario presented by the PP is fine and in line with the published information.

The published report supports the claim of PP that the region faces intensifying temperature, increased rainfall and extreme weather conditions. Overall, the country has experienced increased minimum, mean and maximum air temperatures. The rainfall intensity has also increased. While Malaysia can experience drought, landslides, earthquakes, and storm surges, most of its losses are attributable to flooding. Malaysia's climate also makes the country particularly vulnerable to vector-borne diseases. Malaysia regularly experiences high maximum temperatures, on average experiencing an annual maximum of daily maximums of around 33°C /55/. The project through its increased vegetation cover and helping the biodiversity and community well-being will certainly help in local climate change adaptation and mitigation.

Hence, the project qualifies for the Exceptional Climate Benefits Gold Level.

4.4.6 Optional Gold Level: Climate Change Adaptation Benefits (GL1.4)

As explained in section 3.3 of the MR /1/, the most pressing issue in the project area is water scarcity, water quality and soil erosion which is exacerbated by climate change impact in the area. The water scarcity is and will directly impact the local people and biodiversity. It is reported that due to climate change Malaysia can experience drought, landslides, earthquakes, and storm surges, most of its losses are attributable to flooding. Forests can play a role in excess rainwater retention, prevent extreme run-offs and reduce the damage from flooding. The project area forests are likely to play a climate adaptation role regulating water supplies. If the forest in Kuamut was not protected, droughts downstream the Kinabatangan river could likely be more pronounced and flooding events even larger due to the loss of flow regulation provided by the forest. Therefore, the Kuamut project can help buffer against the likely impact of climate change in terms of water flow, regulation and water stress mitigation. Also, forest areas of Kuamut will help in reducing soil erosion, which means that the water quality flowing downstream from Kuamut would be cleaner compared to water flowing from other areas, therefore resulting in better water quality downstream for water consumption. VVB verified the PP's claim during the site visit interviews with the PP and local communities and checking the independent published reports Mulligan, M. (2022) Model results from the CostingNature version 2 policy support system. /55/.

As explained in section 4.4.5 of this report and section 3.3.1 of the MR /1/, the project area is highly vulnerable to climate change and already facing its wrath. The project through its different interventions has planned for climate change mitigation and adaptation. Adaptation will be achieved through strengthening community and biodiversity resilience. PP will be implementing following activities to achieve the adaptation goal:

Activity	Components	Adaptation Benefits
Ecosystem protection and forest regeneration	- Avoided Degradation due to logging - Avoided deforestation - Reforestation - Fire prevention - Habitat and species protection - Reduction in hunting pressures	Forest regrowth and increased biomass of forests in the Kuamut project, have already resulted in important adaptation benefits such as reduced soil erosion and sedimentation downstream. Thus, ensuring a better water quality downstream to help maintain or improve the availability of potable water, reduce water filtration costs and potentially reduce the prevalence of gastrointestinal and vector diseases.

Improved Public health and sanitation services	- Improved access to clean water and sanitation facilities - Improved access to public health care services	Reduced soil erosion and sedimentation is helping to improve the water quality downstream the project area, along the Kinabatangan River, both for human communities and their agricultural activities.
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4.5 Community

4.5.1 Community Impacts (CM2.1)

The audit team took the following steps to verify the reported impacts of project activities on identified community group.

The VVB reviewed Section 4.1.1 of the MR and confirmed it includes a detailed assessment of expected community impacts on the well-being of communities, including all constituent socio-economic or cultural groups under the with and without project scenario.

The indicators, impacts and change in well-being is clearly described in the MR, which allow easy assessment of project's community risks and benefits for the auditor and public.

Based on on-site assessment, the audit team interviewed local community members who confirmed that the assumptions in the model with regard to community impacts, were discussed and explained to them and are a result of the continuous consultations process from 2016 – 2019. The MR includes a detailed breakdown of anticipated impacts including costs, risks and benefits by communities and shows the result to be net positive for all, therefore meeting the requirements of the CCB and VCS requirements.

However, Verification team finds that the recent consultations and socioeconomic engagement exercises carried out by PP is in line with footnote 45 of CCB standard v3.1 which says “Where conformance with the Climate, Community & Biodiversity Standards is being applied to a project already under implementation, project proponents must either provide documentation of appropriate consultations during the project design phase or demonstrate how more recent consultations have been effective in evaluating community benefits and adapting project design and implementation to optimize community and other stakeholder benefits and respect local customs”. It was assessed that the PP has tried to engage and communicate to the stakeholders as much as possible and stakeholder access to the project information, costs, benefits, risks, and third-party requirements were clearly communicated as discussed from sections 3.2.18 – 3.2.22 of this report. It was also assessed that from 2019 – 2020 there was travel restrictions related to COVID-19, and most communities have isolated themselves and disallowed entry to non-community members and hence PP has limited access to the communities. Due to the fact again the community engagement process was disturbed. However, as discussed with the local stakeholders and interviews with PP, the project aims to re-establish the engagement with the communities once the pandemic restrictions were lifted and the safety conditions for the team and the communities are improved. The annual plan /54/ submitted by PP has detailed out the stakeholder engagement process.

The assessment made by the supporting documents /33//34//26//25/ and /27/, PRAs report /68/ and site visit interviews confirms the above. The project is having positive impacts on the communities if implemented in line with the communicated intentions and strategies.

4.5.2 Negative Community Impact Mitigation (CM2.2)

The negative impact of the project on the local communities are the stopping of customary rights like resource extraction, fisheries, and hunting, however these rights were already limited through the establishment of the forest reserve Class II prior to the existence of the project. Based on interviews with the PPs and local communities' representative, the legal customary rights like extraction of wild plants and fisheries from the project area will be allowed if permitted by the current legislation and the discussions regarding the same are ongoing. However, the only issue is with hunting, which is an illegal activity as well (as per the Malaysian regulations and law). Stopping hunting is a complex issue and one which PP is undertaking especial tact and care when discussing hunting with communities during ongoing dialogues. Also, PP is seeking to provide education in both biodiversity conservation and the relevant state legislation.

This was discussed during the site visit, and it was found that the dialogue to resolve the above issues are ongoing and will be addressed where both the parties come to an agreement. For the current monitoring period, no negative impact on community was observed or recorded.

4.5.3 Net Positive Community Well-being (CM2.3)

The step is explained in section 4.1.3 of the MR.

The MR describes several activities undertaken during the monitoring period that demonstrate the project's impacts on community well-being and its alignment with climate change adaptation can be articulated as follows:

Infrastructure Enhancement: Repair and construction of community buildings and facilities (like toilets and protective fences) have directly improved living conditions and safety, fostering community pride and security. This aligns with CCB standards emphasizing improved infrastructure for enhanced community well-being.

Health and Sanitation: Initiatives like the construction of sanitation facilities and provision of clean water systems have directly addressed health and hygiene needs, leading to a probable reduction in disease prevalence and improved overall wellness. These initiatives are in line with CCB standards focusing on health and sanitation improvements.

Economic Empowerment and Livelihood Diversification: Training in food processing, entrepreneurship, handicrafts, and ecotourism have diversified economic opportunities, fostering economic resilience and self-reliance. This aligns with CCB's focus on sustainable economic development and livelihood security.

Social Cohesion: Activities such as Youth Day events and Community Learning Centre training have strengthened community bonds, empowered marginalized groups, and promoted gender equality. These initiatives reflect CCB's emphasis on social cohesion and inclusive community development.

Descriptions in MR has been checked, it is verified that the information on the community groups in this monitoring period is fine through checking the socioeconomic survey report /33/, Participatory mapping /68/ and onsite observations and discussions with the local stakeholders of the project and other evidence as reviewed and reported in appendix I

The project was initiated with a dual focus on environmental conservation and community development, incorporating various interconnected activities such as infrastructure development, skill training programs,

direct employment opportunities, and improvements in health and education. These initiatives were aimed at enhancing the well-being of the community and fostering sustainable livelihoods. An extensive evaluation in Section 4.3.1 of the Monitoring Report highlights the project's significant achievements in community development, environmental preservation, and sustainability. It provides a detailed analysis of the project's impact based on the latest updates and monitoring activities.

Community engagement and feedback mechanisms played a crucial role in the project's success, evidenced by active participation in the Centralized Joint Tactics Session and responses from training programs. This approach ensured that the project's interventions were relevant and beneficial to the community members. Infrastructure improvements, particularly in sanitation, water access, and renewable energy, received positive feedback from the community, significantly enhancing living conditions and health services. The project's emphasis on creating direct employment opportunities, especially in project management and environmental monitoring, has contributed to economic stability and fostered a sense of ownership among community members.

Training programs focused on skill development, including organic agriculture, ecotourism, and handicraft production, underscored the project's commitment to improving economic opportunities and personal development, with a notable focus on gender inclusivity and women's empowerment. The project also made significant contributions to environmental conservation, aligning with global sustainability goals and ensuring the preservation of local biodiversity.

The evaluation process involved direct observations, surveys, and community feedback, confirming the project's positive impact on community well-being. Noteworthy achievements include the training of 123 community members in various skills, leading to enhanced economic opportunities, and the successful installation of infrastructure that improved the quality of life for 245 individuals. The project created a total of 62 direct jobs, enhancing economic stability and involvement in project outcomes.

This comprehensive evaluation justifies the project's continued recognition and support, confirming its effectiveness in achieving stated objectives and aligning with the CCB criteria for exceptional community benefits. The updated Section 4.3.1 of the Monitoring Report now provides a thorough and evidence-based account of the project's positive impacts, showcasing its achievements in improving community well-being, economic opportunities, and environmental stewardship. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period”.

4.5.4 Protection of High Conservation Values (CM2.4)

Project Area has been designated as a Class I Forest Reserve /20/ and /21/ under the 1968 Forest Enactment it now has the status of a Protected Area under state law. The HCVs related to community well-being will not be negatively affected by the project; on the contrary, only positive impacts are expected. The project is designed to protect and conserve these areas from misuse, enhance community understanding of their value and to improve overall community well-being.

4.5.5 Other Stakeholder Impacts (CM3.2-CM3.3)

This is explained in detail in section 4.2.1 of the verified MR. The project is designed to generate only positive impacts to the stakeholders living in the LMA and other near-by communities. The negative plausible impacts and mitigation on local communities has been discussed in sections 3.4.6 and 3.4.10 of this report. Apart from local communities, the primary non-community stakeholders are the Sabah Forestry Department and Yayasan Sabah (via its subsidiary body Rakyat Berjaya). By reclassifying the Kuamut forest reserve as a Class I Protection Forest, both entities are foregoing potential future revenues from continued logging operations and mosaic planting. They thus bear some opportunity costs by engaging with the project and may stand to lose a portion of their incomes if the project is unsuccessful.

Conversely, with a successful project both the Sabah Forestry Department and Yayasan Sabah may make good financial returns and will have the reputational benefits of contributing to the conservation of the state's biodiversity and participating in a pioneering model of conservation management through the enhancement of ecosystem services whilst enhancing the livelihoods of indigenous communities.

This was cross checked and confirmed during the site visit observations and interviews.

4.5.6 Community Monitoring Plan (CM4.1, CM4.2, GL2.2, GL2.3, GL2.5)

The PP mentioned a detailed community monitoring plan in section 4.3.1 of the verified MR.

The VVB has assessed the monitoring plan /107/ and found that monitoring indicators are confirmed as consistent with the net positive change which created by the project. The plan mentioned in the MR is satisfactory to track the social and economic changes and impacts on the communities.

PP has identified the community variables to be monitored, community groups and other stakeholders to be monitored, the types and methods of measurements, and the frequency of monitoring and reporting. As discussed during interviews with the PP, the HCVs identified in section 4.3.1 of the MR will also be monitored and tracked regularly.

Indicator	Result
Training Programs - Sustainable Livelihoods and Economic Opportunities	Over 70 participants trained, majority women
Employment Opportunities - Sustainable Livelihoods and Economic Opportunities	Direct employment, including patrol staff

Infrastructure Improvements - Sustainable Livelihoods and Economic Opportunities	Toilet construction in Kiliwong, tree felling and fence construction in Karamuak
Environmentally Friendly Practices - Research & Development	Training programs emphasizing sustainable practices
Training and Education Programs - Health Services and Education	Training for 35 people at the Community Learning Centre, focus on women
Climate and Biodiversity Protection - Unique Project Benefits	Protection of 83,381 ha of forest, regular patrols, helicopter surveillance
Biodiversity Corridor Conservation - Unique Project Benefits	Improved project area protection, aiding in wildlife recovery
Employment Metrics - Sustainable Job Opportunities	Over 60 people employed in various roles, plan to employ 40 full-time
Training, Health, Education, Job Creation - Community Well-being Improvements	Over 120 people trained, food aid for 245, support for pre-school teachers, water supply improvements
Training and Employment - Standardized Benefit Metrics	123 people trained, focus on 80 women; employment for over 60 people
Livelihoods, Health, Education, Water, Well-being - Standardized Benefit Metrics	Improved livelihoods for 141, health services for 245, education for 42 children, water quality for 245

The comprehensive revisions made to Section 4.3.1 of the Monitoring Report reflect a deliberate effort to align closely with the community-monitored indicators, as delineated in Sections 1.2, 4.1.1, and 4.1.3. These adjustments ensure that the report transparently conveys the monitored benefits to the community, adhering to the validated community monitoring plan. It critically assesses various impacts, including those stemming from the cessation of hunting, uneven distribution of project benefits, unforeseen negative effects from project activities, changes not directly linked to the project, and impacts on community High Conservation Values (HCVs).

In addressing potential negative impacts, particularly those related to the cessation of hunting, the report expands to consider the intricate effects on community dynamics and livelihoods alongside positive biodiversity outcomes. This balanced discussion reflects a nuanced understanding of the project's comprehensive impact on the community. Furthermore, the report enhances methodological transparency by detailing the dates, frequencies, and sampling methods employed in measuring indicators during the monitoring period. This commitment strengthens the credibility of the monitoring results, providing a solid foundation for the assertions made within the report.

The revised section offers an in-depth evaluation of the project's effects on community well-being and environmental conservation, presenting detailed monitoring results and evaluations.

The alterations to Section 4.3.1 underscore Permian's commitment to comprehensively addressing feedback from Verra, ensuring adherence to the community monitoring plan and presenting a transparent, detailed account of the project's monitoring methodologies and community impacts. These revisions demonstrate an unwavering dedication to transparency, community involvement, and environmental stewardship, aligning with Verra's highest standards.

Training Programs	
Number of participants trained	123 people trained in various programs, improving skills and knowledge.
Types of skills acquired	Training in Accounts and Management, organic agricultural skills, food processing and entrepreneurship, handicraft making, community-based ecotourism, socio-economic training, joint tactics knowledge sharing, and annual paralegal training.
Gender distribution of participants	80 women trained, highlighting gender inclusivity.
Employment Opportunities	
Number of direct employment opportunities created	24 people directly employed (plus 38 from RBJ) in management, implementation, and monitoring roles.
Types of roles filled	8 employed for regular patrols to monitor illegal logging and poaching.
Duration of employment	The length of employment varies depending on the position, with several long-term positions available.
Gender representation in employment	7 women directly employed (plus 10 from RBJ), ensuring gender representation in employment.
Infrastructure Improvements	
Types of infrastructure developed	Toilet construction, protective fences, and water system improvements.
Number of community members benefiting	Clean water access provided to 245 people (98 households), including a supply of drinking water to Kg Karamuak village and expansions to two further villages.
Quality and sustainability of infrastructure	High-quality, durable materials and environmentally sustainable designs employed. Projects were community-centered with a focus on maintenance and resilience to environmental changes.
Cessation of Hunting	
Changes in wildlife populations	83,381 ha protected, contributing to wildlife recovery.
Community perceptions on hunting restrictions	Positive perceptions, recognizing benefits to local wildlife and ecosystem health. Concerns addressed with sustainable alternatives for livelihoods.
Alternatives provided for livelihoods	Alternatives include training in ecotourism, organic agriculture, and handicraft production, creating diverse income opportunities.
Impacts of Changes Not Directly Associated with the Project	
Government and Administration Changes	Continued engagement and adaptive strategies ensured project continuity and effectiveness amidst external changes.
Change in Community Perceptions	Positive acceptance of hunting restrictions, recognizing their conservation importance. Increased sense of belonging and strengthened community identity through collective conservation efforts.
Alternatives Provided for Livelihoods	High engagement in alternative livelihood programs, leading to improved economic stability and reduced reliance on hunting. The diversity and quality of alternatives strengthen the community's sense of security, foster shared identity, and deepen attachment to community values and goals.

4.5.7 Community Monitoring Plan Dissemination (CM4.3)

Whilst reduced activities were implemented during the COVID pandemic led restrictions and internal elections in the communities, sections 2.1.1 and 2.5.2 of this report demonstrate how the project proponents have communicated and disseminated relevant details about the project to stakeholders during this monitoring period, including a detailed methodology. The project proponents instigated a community scoping exercise in 2016, followed by a programme of community engagements from 2017-2019 to identify relevant communities, socialise the project and its associated costs, risks and benefits.

4.5.8 Optional Gold Level: Short-term and Long-term Community Benefits (GL2.2)

For the category PP demonstrated the following:

Provision of piped, clean water: During the monitoring period (June-July 2020, RBJ provided polypipes to the Kg. Karamuak community to support the maintenance of their gravity water system within the village, thus supporting 98 families residing in the village.

Agricultural advice & support: the project provided a series of training activities to communities, including training on environmentally friendly farming for 15 people and socio-economic livelihood related activities particularly for 6 women from the project zone communities.

Direct community engagement on the project: plantation activities like production of seedlings and tourism will support in livelihood generation. During the monitoring period, the project provided training on food processing and entrepreneurship for 18 people from which were 14 females.

Healthcare training & support (including emergency first aid): The project intends to support a healthcare-focussed education programme – with a particular emphasis on emergency first aid. During the COVID pandemic provided, the project provided food-aid program to 97 families (245 people).

Several other activities were implemented to improve livelihoods of communities that are described in the MR and verified through activity reports from PACOS and RBJ as evidence. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period.

4.5.9 Optional Gold Level: Smallholder/community member Risks (GL2.3)

So far, the project through a participatory process has identified risks for the community members to participate in the project. In section 4.4.6 of the MR PP has listed the participation risks and has also describes trade-offs and the measures taken to manage the identified risks. Reference documents like minutes of meetings of the consultations /33//34//26//25//68/ and /27/ and site visit interviews with the local communities' representatives, local employees, and PPs verified the same. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period

4.5.10 Optional Gold Level: Marginalized and/or Vulnerable Community Groups (GL2.4)

PP has identified women of both the communities' clusters as marginalized community groups that the project is engaging with. The project is expected to positively impact 500 women. During the current monitoring period, the project supported 80 women through training activities, 7 women were employed for

project activities, 78 women received food aid, 13 women and girls gained access to quality education, 102 women received access to water supply.

Barriers for assessing the benefits and expected benefits has been clearly mentioned in section 4.4.2 of the MR /1/. No negative impact is expected. Reference documents like minutes of meetings of the consultations /33//34//26//25//68/ and /27/ and site visit interviews with the local communities' representatives, local employees, and PPs verified the same. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period.

4.5.11 Optional Gold Level: Net Impacts on Women (GL2.5)

During the current monitoring period, the project supported 80 women through training activities, 7 women were employed for project activities, 78 women received food aid, 13 women and girls gained access to quality education, 102 women received access to water supply. The net impact on women who are also identified as the marginalized community group are expected to have net positive impacts. The same has been clearly defined in sections 4.4.3 of the MR /1/. Reference documents like minutes of meetings of the consultations /33//34//26//25/ and /27/, PRAs report /68/ and site visit interviews with the local communities' representatives, local employees, and PPs confirmed the same which will be implemented in the next monitoring period. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period

4.5.12 Optional Gold Level: Benefit Sharing Mechanisms (GL2.6)

Though there are several consultations conducted in the project area. Risks, costs, and benefits of the project has also been discussed with the communities. However, due to the constraints mentioned in section 4.4.4 of the MR, benefit sharing mechanism was completed in 2023 considering the future sale of carbon units to the market. The project provided benefits to the communities as described in section 4.4.1 of the MR. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period

4.5.13 Optional Gold Level: Governance and Implementation Structures (GL2.8)

The project governance structure implied for the project implementation will also be used for community activities governance and implementation. The PP has also planned the involvement of the communities in the project activities implemented in the project zone which will be based on an inclusive approach to ensure effective participation of all community members. This was confirmed during the site visit interviews conducted by the audit team. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period

4.5.14 Optional Gold Level: Smallholders/Community Members Capacity Development (GL2.9)

The capacity development plan has already been designed /54/. Previous activities, during the monitoring period, resulted in training with agricultural techniques and some education with regard to the production of handicrafts, food processing, smart agriculture and ecotourism. Section 4.4.1 provides details of the activities aimed at improving the capacities of community members during the reported monitoring period. Nonetheless, the PP will not claim Gold level for Community during the reported monitoring period.

4.6 Biodiversity

4.6.1 Biodiversity Changes (B2.1)

The biodiversity impact of the project is positive and will help the protection and enhancement of biodiversity. The impacts are listed in detail in section 5.1.1 of MR.

Change in Biodiversity	Gradual dispersal of RTE species throughout the Project Area
Monitored Change	Based on empirical surveys conducted in 2014 - 2017 presented in the Project Description Document, the population of orangutan in the Project Area is approximately 630 individuals.
	Without-project intervention, the population of the orangutan in the project area is expected to decline due to reduction in lesser habitat extend, lower quality, and more intense disturbance. Field visits and general observations by project team during this monitoring period indicated very low level or barely any human activities in the project area. Since the project inception, no evidence was found that the orangutans in the project area is threatened. Subsequent systematic census based on aerial nest count is to be planned in the next monitoring period. Various studies and analyses conducted during this monitoring period within and in the vicinity of the project area also showed that the project area continued to become an important area to support the rich assemblages of Sabah's rich biodiversity, including the rare, threatened and endemic species, especially primates (such as orangutans, gibbons and langur), elephants, and banteng.
Justification of Change	Due to project intervention, namely the protection upgrade from logging to protection of the area, the orangutan population decline due to habitat conversion did not happen. As demonstrated in the vegetation analysis, presented under the Climate section, this allows improvement in habitat condition. The change in the management status also associated with less human activities hence reduction or total cancellation of threats. With such a condition, it should be safe to assume that the number of orangutans remain stable and likely recovering in some areas. The condition of the project area in terms of becoming habitats for various species especially the RTE, have been proven by various studies conducted directly in the area and analyses at the larger area which scope also include the project area.

MOV	During the monitoring period, there was a survey of orangutan in 2014-2017, which indicated a stable population of around 630 individuals within the project area. The verification team verified it from the 2014-2017 orangutan survey results. See published paper by Ancrenaz et al. (2005) for the results of the initial orangutan survey in 2002-2003 and the Simon, Davies & Ancrenaz (2019) study for the methods and results of the 2014-2017 orangutan monitoring by external experts and project consultants HUTAN. During the site visit and desk review, it is clear that the project activity has had a positive effect on the trigger species (orangutans) in the project area. Important orangutan and RTE species habitat was not converted to mosaic plantings and logging activities were halted. The population of orangutans appears to be stable within the project area, and may be recovering in some areas. More detailed activities were conducted during 2022 (not within the current monitoring period), it includes: - Camera trapping - Bio-acoustic recoding - Dug beetle sampling - Use of the forest integrity assessment (FIA) tool - Further refining the sampling approach - Repeat orangutan surveys on 3-to-5-year basis initiating in 2023 - Hornbills survey - Elephant survey
	- Use of the forest integrity assessment (FIA) tool - Further refining the sampling approach - Repeat orangutan surveys on 3-to-5-year basis initiating in 2023 - Hornbills survey - Elephant survey
Change in Biodiversity	Natural forest regeneration leads to increase in mature forest habitats

Monitored Change	The data provided in the climate section are showing that the forest in the project area is regenerating. <u>(e.g., an increase in the aboveground biomass of trees)</u>. Various studies and analyses also conducted during this monitoring period within and in the vicinity of the project area showed that the project area continued to become an important area for conservation that supports the rich assemblages of Sabah's biodiversity, including the rare, threatened and endemic species, especially primates (such as orangutans, gibbons and langur), elephants, and banteng.
Justification of Change	Methods used to monitor <u>forest regeneration</u> include remote sensing using satellite imageries technology <u>(i.e., to estimate aboveground biomass)</u>. There were also border patrols using helicopters, and ground observation in some areas, <u>as well as camera trapping</u>. The condition of the project area in terms of becoming a suitable habitats for various species, especially the RTE, have been proven by various studies conducted directly within the area and analyses at the larger area whose scope also included the project area. Many of these RTE species require mature, or relatively undisturbed, forest habitats to persists in the long-term .
MOV	The assessment team verified during the desk review and during site visit that potential future scenarios involving that imply the transformation of much of the Kuamut project reserve into mosaic plantingsa logging concession would have exerted a significant impact to biodiversity as a result of forest loss and high landscape fragmentation at a large/regional scale. Natural forest regeneration has been supported by the project within the project area, which will ultimately lead to forest recovery and habitats that are more similar to mature, undisturbed forest habitats. The Kuamut reserve plays a critical role in maintaining the biodiversity of the region as it sits between other two other highly protected Class 1 forest reserves, thus acting as the unique corridor/link between these.

	The conservation of Kuamut's forests and the recovery of its habitat will therefore benefit forest connectivity on a larger scale, and may facilitate the movement of wide-ranging species between surrounding forest reserves (such as the Danum Valley Conservation Area). The project was converted to Class I forest from Class II (logging) forest, which gives more stringent legal protection and thus forest degradation caused by ongoing logging activities will be terminated. Among different activities, the project conducted patrolling, engagement with communities and installation of camera traps to help protect forest and conserve it's biodiversity. PP shared Presentation made by Glen Reynolds, Executive Director of SEARRP as evidence during site visit.
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This was confirmed by checking and assessing the climate and biodiversity baseline data /41//39//40//70/ and /71/ and interview with local experts and communities.

4.6.2 Mitigation Actions (B2.3)

Mitigation measures as discussed across the MR to conserve and enhance the forests and biodiversity of the project area are consistent with the standard practices and sufficient to achieve the project aim.

This was confirmed by checking and assessing the climate and biodiversity baseline data /41//39//40//70/ and /71/ and interview with local experts and communities.

4.6.3 Net Positive Biodiversity Impacts (B2.2)

The expected biodiversity impact of the project is positive and will help the protection and enhancement of biodiversity. The impacts are listed in detail in sections 5.1.1 in the MR.

This was confirmed by checking and assessing the climate and biodiversity baseline data /41//39//40//70/ and /71/ and interview with local experts and communities.

4.6.4 High Conservation Values Protected (B2.4)

Checking and assessing the climate and biodiversity baseline data /41//39//40//70/ and /71/ and interview with local experts and communities the VVB concluded that the project will not negatively affect any biodiversity-related HCVs. The project is committed to the protection of all HCV values present in the Project Area and Project Zone.

4.6.5 Invasive Species (B2.5)

The degraded parts of the Project Area have the capacity to regenerate naturally under the condition of full protection, and no planting activities are currently envisioned. As of now no new species will introduced. This was confirmed during the site visit interviews and observations.

4.6.6 Impacts of Non-native Species (B2.6)

The project involves improved forest management activities to restore the project area and none of the planned interventions under this project will introduce invasive species or genetically modified organisms. The project will allow natural regeneration and no new species will be planted. This was confirmed during the site visit observations and interviews with the PP, management team and local people.

4.6.7 GMO Exclusion (B2.7)

The project involves improved forest management activities to restore the project area and none of the planned interventions under this project will introduce invasive species or genetically modified organisms. The project will allow natural regeneration and no new species will be planted. This was confirmed during the site visit observations and interviews with the PP, management team and local people.

4.6.8 Inputs Justification (B2.8)

Not applicable.

4.6.9 Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Actions (B3.2)

The only negative offsite impact identified is hunting activities refocused in other forest reserves outside of Project Zone. PP has provided possible areas /72/ where hunting might shift due to the project activity. However, PP is taking proper mitigation measures to avoid any such negative impact through reduction in overall hunting pressure through livelihood enhancement and education & awareness generation activities. Also, PP is seeking to provide education in both biodiversity conservation and the relevant state legislation.

This was discussed during the site visit, and it was found that the dialogue to resolve the above issues are ongoing and will be addressed where both the parties come to an agreement.

4.6.10 Net Offsite Biodiversity Benefits (B3.3)

There is a possibility that hunting activities will be refocused in other forest reserves outside of the Project Zone; e.g., the Deramakot Forest Reserve to the north of the Kuamut village cluster. However, as discussed in section 3.5.13 above PP is taking proper mitigation measures to avoid any such negative impact through reduction in overall hunting pressure through livelihood enhancement and education & awareness generation activities. Also, PP is seeking to provide education in both biodiversity conservation and the relevant state legislation. Also, for any issues related to ongoing activities, the grievance handling mechanism for community concerns and resolving any issues and concerns is well established by the PP and communities are aware of it.

This was discussed during the site visit, and it was found that the dialogue to resolve the above issues are ongoing and will be addressed where both the parties come to an agreement.

4.6.11 Biodiversity Monitoring Plan (B4.1, B4.2, GL3.4)

Biodiversity monitoring plan will be undertaken along with the climate monitoring plan. Apart from forest health monitoring, signs of RTE species (direct sightings, tracks and/or scats) will be documented opportunistically by the field team during monthly surveillance and monitoring activities (see section 3.3.3 of PD /1/), and recorded via data sheets, photographs, and GPS waypoints. The project biodiversity monitoring plan /83/ has been provided for validation. The VVB has assessed the monitoring plan /108/ and found that monitoring indicators are confirmed as consistent with the net positive change which created by the project. The plan mentioned in section 5.3.1 the MR /1/ and in the biodiversity monitoring plan /83/ is satisfactory to track the biodiversity changes and impacts. VVB has interviewed the communities and project stakeholders Sabah Forestry Department, RBJ, PACOS Trust, and Rainforest Trust to discuss and confirm the progress of the conservation initiatives. VVB also checked the Orangutan survey and reviewed the evidence 'project progress report' published by Rainforest Trust for the recent reporting period of year 2020 that has been covered in the current monitoring period of the project.

The results and evaluation of the biodiversity monitoring indicators are described in detail below.

HCV 1 species monitoring:

Trigger species monitoring: There have been two orangutan surveys conducted across Sabah that encompass the Kuamut Project Area and which the PP has referenced in the PD and MR documents, since the Bornean orangutan is a trigger species for the project. These surveys involved orangutan nest counts and used a combination of ground and helicopter surveys to estimate the current distribution and size of the orangutan population.

2002-2003 surveys: The first survey took place between 2002-2003 and hence was before the Kuamut Project Area was protected in 2016 and the project monitoring period began. The survey was published in 2005 (see Ancrenaz et al. 2005) and the study estimated the number of orangutans in different forest blocks across Sabah; these blocks were categorized by inspecting vegetation maps. Two of the forest blocks included the Kuamut Project Area (as well as a much larger area of forest), but the population size of orangutans was not estimated, and could not be deduced, for the Project Area specifically.

2014-2017 surveys: More recent and more intensive orangutan surveys were conducted between 2014-2017 during the 2016-2021 monitoring period and the results were published in 2019 (see Simon, Davies & Ancrenaz 2019). Aerial nest surveys via helicopters covered much of central Sabah, including the Project Area, where orangutan nests were counted from the air along linear transects. Nest density and orangutan density were then estimated from the results of the aerial surveys for different forest reserves across Sabah, and from these results, the PP has deduced a population size estimate for the Project Area (see text below). The specific methodologies of orangutan sampling are detailed in the Ancrenaz et al. (2005) and Simon, Davies & Ancrenaz (2019) published studies, with an assessment of the results provided below.

In the 2014-2017 surveys, orangutan population density and size was estimated across different forest reserves in Sabah, three of which comprise the Kuamut Project Area specifically: (1) Northern Kuamut (West): population size and 95% CIs = 193 (128-292), (2) Kuamut (West): population size and 95% CIs = 20 (13-31) and (3) Northern Kuamut (East): population size and 95% CIs = 417 (281-619) (see **Figure 3**). These three forest reserves correspond to a total area of 963.1 km² or 96,310 ha, roughly the same size as the Project Area. Hence, the total number of individuals estimated during these aerial nest surveys within these three forest reserves corresponds to an estimated population size of 630 individuals within the Kuamut Project Area in 2014-2017. Hence, this reflects a substantial population of orangutans within the Project Area that has been identified by HUTAN (one of the project consultants) via biodiversity monitoring

activities conducted within the 2016-2021 monitoring period.

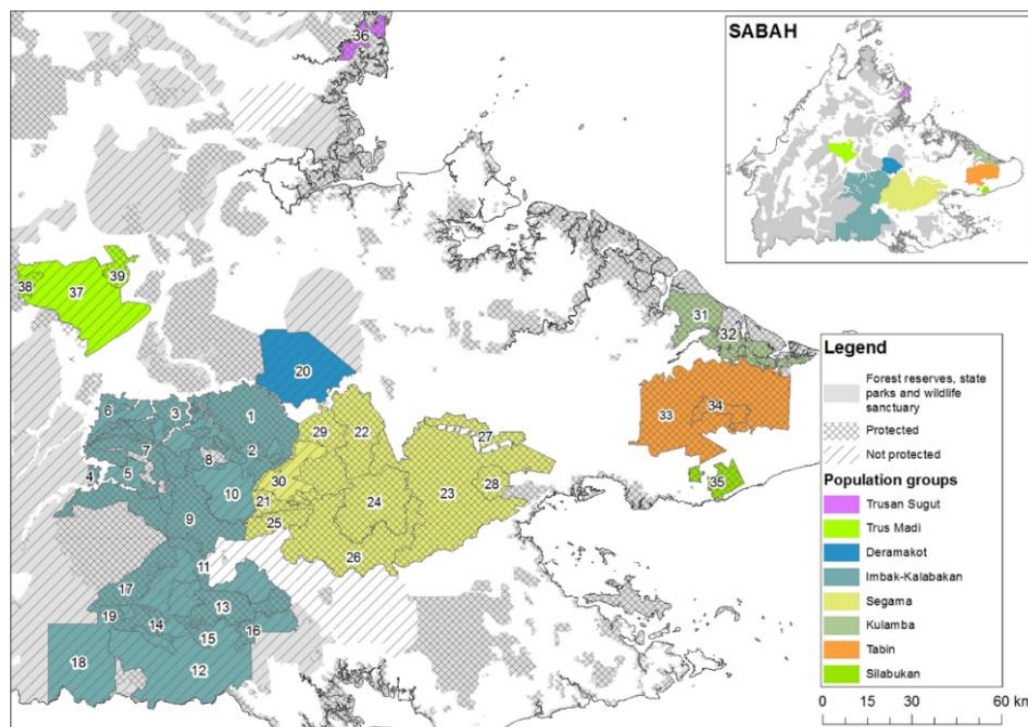


Figure 3. Map taken directly from Simon, Davies & Ancrenaz (2019) showing the forest reserves for which orangutan population density and size were estimated in the 2014-2017 surveys. The Project Area comprises the forest reserves labeled as 1 - Northern Kuamut (West), 2 - Kuamut (West) and 29 - Northern Kuamut (East). In total, it is estimated by the PP that there are 630 orangutans in the Project Area in 2014-2017.

Simon, Davies & Ancrenaz (2019) also compared these findings to orangutan population density estimates in 2002-2003. However, these results were compared at a much larger scale, and so no explicit comparison of orangutan population size or density can be made explicitly for the Kuamut Project Area between the two time periods. The Simon, Davies & Ancrenaz (2019) study does however highlight an increase in orangutan population density and size between 2002-2003 and 2014-2017 within the much larger Imbak-Kalabakan region (shown in light blue in **Figure 3**); this region includes the western part of the Kuamut Project Area. A small proportion of this increase reflects immigration from adjacent land areas where there has been significant forest clearance adjacent to the eastern boundary of the Project Area, but the larger population located recently in the Imbak-Kalabakan region was identified as a result of the more intensive survey efforts in the 2014-2017 sampling (i.e., compared to the 2002-2003 surveys). The Simon, Davies & Ancrenaz (2019) study also found that the orangutan population size had remained consistent in the larger Segama region, which encompasses the eastern side of the Kuamut Project Area. The VVB felt that the results of these comparisons are helpful in order to better understand the ecology and population trends through time of the trigger species across central Sabah both within and surrounding the Project Area; yet the PP acknowledges that referring to both sets of results has caused some confusion.

Following this assessment of the methods and results of the Simon, Davies & Ancrenaz (2019) study, the VVB estimates that across the whole Kuamut Project Area, the number of orangutans has remained stable during this 2002-2003 and 2014-2017 time period and is likely recovering in some areas. The VVB estimates that during this time period the Kuamut Project Area is thought to have supported, and is regularly used, by at least 500 orangutans, a population that has likely been stable from the early 2000s (Ancrenaz

Pers. Coms.). The value of 500 individuals originally cited in the last version of the MR document referred to the estimated number of orangutans across the 2002-2003 and 2014-2017 time periods. To further avoid confusion, the PP has removed this value in the MR report and now only cites the value of 630 individuals that was deduced from the Simon, Davies & Ancrenaz (2019) study during the 2014-2017 surveys. The VVB is satisfied with the quoted population size of orangutans from the monitoring activities. Whilst it is likely that orangutan populations have recovered in some parts of the Project Area during the 2016-2021 monitoring period, the PP cannot explicitly attribute population increases to project activities during this monitoring period and this has now been made clear in the MR document. From this assessment of the methods and results of the Simon, Davies & Ancrenaz (2019) study, the VVB can however verify that the population has remained stable and that if the project was not implemented, a significant proportion of the remaining orangutans within the Project Area would be lost following the conversion of important forest habitat to mosaic plantings.

Anthropogenic disturbance and hunting activities: Section 5.3.1 of monitoring report also provides the frequencies, dates and sampling methods for the measurements taken during the monitoring period for the indicators “anthropogenic disturbance” and “hunting activities”. The VVB verifies that the PP has provided evidence of monitoring occurrences during the monitoring period which occurred in the form of routine outpost/security gate manning and/or surveillance by the field team. The documentation provided by the PP shows that these occurrences happened at least 14 times throughout the monitoring period.

Vegetation health: The PP justifies the use of carbon density to monitor vegetation health and the linkage between vegetation health and biodiversity impacts with the support of a brief literature review, which has been added in Appendix 9 of the MR document. The VVB has assessed this literature review by assessing the methods used in the scientific peer-reviewed papers that have been cited, as well as how the results of these papers link to the statements made in the literature review conducted by the PP. The VVB has concluded that the use of carbon density to monitor vegetation health (which the PP refers to as ‘vegetation quality’) is appropriate as the PP clearly demonstrates with the support of this literature review that within disturbed forest habitat, carbon will accumulate over time as the forest regenerates. Therefore, any increases in aboveground carbon will also reflect forest recovery and improvements to vegetation quality following the termination of logging activities. Additionally, the VVB has concluded that the PP has sufficiently justified the linkage between vegetation quality and biodiversity impacts by providing evidence in a second brief literature review. The PP highlights that degraded forest areas generally support fewer forest specialists and restricted range species compared to undisturbed forest habitats and that areas of high carbon have been found to support high biodiversity value for both fauna and flora. The VVB has thoroughly assessed the scientific peer-reviewed papers used for this literature review and can verify that the methods used within the papers, as well as the results from the studies, align with the statements made in the literature review conducted by the PP. This evidence is adequate to justify the links made between carbon density and vegetation health along with vegetation health and biodiversity. For further details on the literature review assessment conducted by the VVB, please refer to the table below.

[Literature reference table providing additional information on the study area, supporting statements, methods and findings of the studies reviewed in section 5.3.1 of the MR \(vegetation quality\).](#)

Study and Publication Date	Location & Habitat Type	Statement	Methods in relation to statement	Result in relation to statement
Imai et al., 2009	Sabah, Malaysian Borneo;	Areas of high carbon have been found to	Above- and below-ground carbon density and their spatial	The estimated mean carbon density in above ground

	lowland mixed dipterocarp forest	support high faunal biodiversity.	variation were estimated using the stratum map of the entire Deramakot and Tangkulap Forest Reserves. The study estimated the distribution and diversity of medium to large-bodied forest-dwelling vertebrates throughout Deramakot and Tangkulap FRs by selecting 29 circular plots each with 500 m radius at approximately 5 km intervals in the two forest reserves. At each plot, three passive heat-sensor cameras were placed along the animal track closest to a randomly selected point (generally <20 m). A camera was attached to an appropriate standing tree at about 1 m height and automatically photographed all animals passing at an anterior position of the camera in all hours.	vegetation was greater in the SFM (Sustainable Forest Management) applied forest than in the conventionally logged forest. Additionally, the study showed that overall vertebrate diversity was also greater in the SFM applied forest than in the conventionally logged forest.
Deere et al., 2018	Sabah, Malaysian Borneo; lowland and hill dipterocarp forest	Areas of high carbon are also likely to support high faunal biodiversity	The study examined the biodiversity value of High Carbon Stock (HCS) Forest for mammals. Camera-trap sampling was conducted to detect medium-large mammals, whereby remotely operated digital cameras were deployed at 130 locations across the landscape.	Following an analysis of high-resolution biomass data, a positive relationship was found between carbon and threatened and disturbance-sensitive mammal species.
Asner et al.,	Sabah,	Unlogged	The study generated a	The study compared

2018	Malaysian Borneo; within the forested (i.e., non-oil palm) areas.	forests have higher levels of aboveground carbon than logged forests	wall-to-wall map of ACD throughout the State of Sabah which required the integration of airborne data and regional modeling techniques.	the distribution of aboveground carbon stocks in all logged forests to those forests known to be free of past selective logging. The results indicate that, as a whole, forests of Sabah have a highly skewed distribution of carbon stocks, with the most common carbon levels ranging from 20 to 120 Mg C ha ⁻¹ . In contrast, logging-free forests harbor much higher aboveground carbon stocks averaging 200 Mg C ha ⁻¹ .
Fleiss et al., 2020	Sabah, Malaysian Borneo; in primary forest, logged forest and forest set-asides within oil palm plantations.	Aboveground carbon has been shown to correlate with plant diversity within forest habitats in Sabah.	The study conducted vegetation measurements to examine the benefits of set-asides for aboveground carbon stocks (AGC) in certified oil palm plantations on Borneo, and whether their AGC is positively associated with plant diversity.	Set-aside AGC and plant diversity (i.e., genus richness for seedlings, saplings and adult trees) were positively associated, so conserving set-asides for high AGC has co-benefits for conserving high plant diversity.
Rozak et al., 2018	Borneo, Indonesia; mixed Dipterocarp forest	1. Such disturbance involves the removal of large trees and frequently results in the death and damage of smaller trees during harvesting. 2. Intensively logged forests have been found	The study investigated the effect of logging intensity, topography, and soil variables on carbon stocks using field sampling at 24 1 ha plots.	Logging intensity was found to be the main factor explaining the variability in carbon stored in above- and below- ground biomass of tree DBH >20 cm and deadwood. Total carbon stocks in unmanaged forests or those logged at low intensity were on average higher than those found in areas with high logging

		to contain less above- and below- ground carbon compared to unlogged forests and carbon stocks generally decrease when logging intensity increases.		intensity.
Saner et al., 2012	Sabah, Malaysian Borneo; lowland dipterocarp rainforest	1. In degraded tropical forest habitats, levels of aboveground carbon are often relatively low, and have resulted from habitat disturbance through anthropogenic activities such as logging. (2). Degraded forests in Sabah that contain lower levels of aboveground carbon compared to unlogged forests contain fewer large trees (i.e., with a larger basal area), particularly dipterocarps that are selectively removed during logging cycles. Dipterocarps are the dominant structural component of SE Asian forests and the target of	The study presents the components of carbon balance for selectively logged dipterocarp forests. They estimated the total organic carbon that was stored in different components of the forest including: above and below ground carbon in trees, deadwood and soil organic matter, understory vegetation, standing litter and fine root biomass. The components were measured on site or estimated from existing biomass regression models and biomass partitioning ratios.	The main finding of this study is that the biomass stock of the Sabah Biodiversity Experiment is 28% less than that of pristine forest even 22 years after logging. The study estimates that 55–66% of the pre-logging dipterocarp stock was exploited by selective logging, resulting in significant carbon losses. Approximately 20% of the basal area in selectively logged forest was later occupied by fast growing pioneer trees, which contributed substantially less to the carbon stock. The study also found that the density but not the diversity of the dipterocarp sapling and seedling stock was high. In combination, these observations indicate that lowland dipterocarp rainforest that is disturbed by selective logging will lose desirable and specialized

		logging activities due to their commercial value.		dipterocarp species, but that overall levels of diversity may be maintained by competitive release of early successional species following disturbance.
Brearley, Banin & Saner 2016	South-east Asia; dipterocarps	Dipterocarp trees are important for forest health and essential for the structure and function of SE Asian forests.	Literature review on the ecology of Asian dipterocarps.	This study aims to understand the fundamental ecology of this important taxon, and the processes that underpin the structure and function of dipterocarp communities.
Dumbrell & Hill, 2005	Sabah, Malaysian Borneo; lowland Dipterocarp rainforest	Forest disturbance results in structural changes that are detrimental for forest specialists who rely on undisturbed forest habitats, and this has been documented for taxa such as butterflies.	This study investigates the impacts of selective logging on Nymphalid butterflies in primary forest and forest selectively logged 15 years previously in Sabah.	Data from canopy and ground-level traps showed significantly lower Nymphalid butterfly diversity in selectively logged forest compared to primary forest. Primary forest supported a butterfly community that comprised species with more restricted geographical ranges, and hence a higher conservation value, compared with selectively logged forest.
Edwards et al., 2009	Borneo; Lowland dry dipterocarp forest	Forest disturbance results in structural changes that are detrimental for forest specialists who rely on undisturbed forest habitats, and this has	Fieldwork was conducted in which 36 transects were established across unlogged, naturally regenerating, and rehabilitated forest (12 replicated transects in each forest type). Transects within each habitat were ≥500 m	Species richness and diversity of birds was significantly lower in naturally regenerating logged forest than in unlogged forest.

		been documented for taxa such as birds.	apart, with 300 m to 9 km between transects in different habitats. Each transect contained 15 mist nets (12 × 2.7 m; 25- mm mesh size) erected end-to-end in a straight line and opened from 06:00 to 12:00 for three consecutive days (9720 mist net hours total).	
Meijaard et al., 2005	Borneo; lower altitude dipterocarp forests	1. Degraded forest habitats of lower vegetation quality contain fewer species compared to primary or pristine forests. 2. Primate densities have been shown to decline following logging	Extensive literature review on the impacts of logging on Bornean Wildlife.	The review shows that selective logging, in a commercial concession context, can have a significant negative impact on Bornean vertebrates. Though some of these effects are the direct consequences of timber cutting and extraction, or of roadbuilding, many others are associated with the changes, such as habitat fragmentation and increased hunting, that commonly occur in concessions.
Morris, 2010	Tropical forests. Biodiversity and ecosystem functioning in primary and secondary forests.	Deforestation and fragmentation, over-exploitation, invasive species and climate change are the main drivers of tropical forest biodiversity loss	This study focuses on investigating the primary anthropogenic impacts on tropical forests and their effects at the species level. The author discusses the current knowledge of network structure and tropical forest ecosystem functioning, highlighting empirical examples of their response to anthropogenic impacts	It is clear that habitat destruction and fragmentation, over-exploitation, invasive species and climate change have the potential to create havoc in tropical forests. If we are to truly understand the impact of changes in biodiversity loss, we must look beyond species richness and diversity.

Philipson et al. 2020	Sabah tropical forests, Malaysia.	Restoration could accelerate recovery of aboveground carbon density (ACD).	This study reports estimates of the response of Above Carbon Density (ACD) accumulation rates to active restoration using a combination of climber cutting and enrichment planting in a logged tropical forest over decadal time scales. This research combines detailed information on logging history and repeated in situ measurements from 257 forest plots from three different plot networks in Sabah, Malaysia, with High Resolution airborne LiDAR to compare recovery rates for naturally regenerating forest with recovery rates for areas that had been actively restored	Results showed a mean ACD of naturally regenerating forests in 2016 to be 135 Mg ha ⁻¹ (CI: 123 to 148), whereas that of forest that had been subjected to restoration treatments was 166 Mg ha ⁻¹ (CI: 152 to 176), confirming a substantial difference in ACD in response to restoration.
Slik et al., 2013	South American, African and Asian lowland moist tropical forests	Dipterocarps are important stores of aboveground carbon.	Aboveground biomass measurements were calculated for 120 intact lowland moist forest locations from field sampling. Linear regression was used to calculate variation in AGB explained by the density of large trees.	Tropical forests store considerable amounts of terrestrial carbon.
Kuar, 2020	Sabah, Malaysian Borneo; lowland forest	Species that require large trees (e.g., Hornbills) may be detrimentally affected by the loss of nesting site availability.	In a 10 km ² study site, eight trained observers systematically visited 30 250 m x 250 m plots within LKWS (Lower Kinabatangan Wildlife Sanctuary) and recorded tree cavities that appeared suitable for hornbills based on a pre-established list of	A majority of the area within the LKWS has been logged at least once. Tree cavities are, however, essential to sustain viable populations of the hornbill species. A hornbill's body size dictates the choice of nest cavity as larger

			criteria. Nineteen trees with cavities were located, measured and identified. The study anticipated that cavities could go undetected by the observers and therefore used a zero-inflated process occupancy model to address this measurement error and to analyze data obtained along transects.	hornbills choose bigger trees with higher cavities. The study's observations indicate the lack of suitable nesting sites in these forests, particularly for larger hornbill species, which could threaten the long-term viability of hornbill populations.
Kinnaird, et al., 2003	Bukit Barisan Selatan National Park (BBSNP); Indonesian island of Sumatra. Located in southwest Sumatra (lat. 431–557S, long. 10334–10443E)	Mammal populations are also widely affected by changes in vegetation cover due to the direct impact on the richness of food resources and the habitat preferences of these species.	Landsat Thematic Mapper (1985–1997) and Enhanced Thematic Mapper Plus (1999) images were acquired over the BBSNP for 1985, 1989, 1994, 1997, and 1999. The time series of images was interpreted as a temporal progression of land-use change, with forest cover at each time point used as the base forest cover for the next time point. Wildlife Cameras were dispersed in 20-km ² sampling blocks at approximately 10-km intervals for the length of the park. Historical land-cover and camera-trap data were matched to assess forest disturbance's impact on species richness.	Given the current rates of deforestation and without immediate action, the demise of Sumatra's tigers, rhinoceros, and elephants within the BBSNP landscape is almost certain. Habitat loss for large forest mammals is disproportional to and faster than simple forest loss when these species tend to avoid forest boundaries.
Davies et al., 2017	Sabah, Malaysian Borneo; degraded mixed lowland	Orangutans have been found to be more likely to move in directions of increased	This study combined 3 years of highly detailed visual observations of Bornean orangutans with high-resolution airborne remote	The study showed that structural attributes of the upper forest canopy were the dominant determinant of orangutan

	dipterocarp and freshwater swamp forests	canopy closure and avoid canopy gaps, and so vegetation quality and carbon density are likely to correlate with the occurrence of our trigger species.	sensing (Light Detection and Ranging) to understand orangutan movement in disturbed and fragmented forests of Malaysian Borneo.	movement among all age and sex classes, with orangutans more likely to move in directions of increased canopy closure, tall trees, and uniform height, as well as avoiding canopy gaps and moving toward emergent crowns. These results suggest that although orangutans do make use of disturbed forest, they select certain canopy attributes within these forests, indicating that not all disturbed or degraded forest is of equal value for the long-term sustainability of orangutan populations.
López-Bedoya et al., 2022	Global meta-analysis.	Forest disturbance leads to and compromised ecosystem functioning.	This study is a global synthesis of forest degradation and deforestation using 48 studies published in peer-reviewed journals. The authors use dung beetles as indicators given their sensitivity to anthropogenic disturbance and their relevance in performing essential ecological functions in terrestrial ecosystems.	This study found lower diversity and a decrease in ecological functions associated with all classes of disturbance in primary forest.
Okuda et al., 2019	Peninsular Malaysia; lowland tropical rainforest	Forest disturbance leads to detrimental changes in canopy height and structure.	Canopy height was measured in 2003 and 2011 by using an airborne light detection and ranging system and mapped on a 2.5-m grid over logged and primary forest plots.	The average canopy height in the logged forest plot increased from 23.6 m (2003) to 25.8 m (2011), but both of these heights were still significantly lower ($P < 0.0001$) than in those in the

				primary forest plot (28.7 m in 2003 and 30.4 m in 2011). The coefficient of variation and canopy height diversity (H') were also lower in the logged forest plot, suggesting that the highly heterogeneous canopy height commonly seen in the primary forest in this region had not fully recovered even 53 years after the logging operation.
Slade, Mann & Lewis 2011	Sabah, Malaysian Borneo; lowland dipterocarp forest	Forest disturbance leads to compromised ecosystem functioning.	The study compared dung beetle assemblages and experimentally assessed rates of dung removal and seed burial in undisturbed forest, low-intensity selectively logged forest under sustainable forest management, and high-intensity logged forest, not under sustainable management in Malaysian Borneo.	Two ecosystem functions: dung and seed removal were significantly lower in the high-intensity logged sites. Dung removal rates were significantly positively correlated with dung beetle species richness, but not with dung beetle biomass or abundance. Dung beetle communities and their associated ecosystem functions were resilient to low-intensity but not high-intensity selective logging.
Williams et al., 2020	Sabah, Malaysian Borneo.	Areas of high carbon have been found to support high faunal biodiversity.	Conducted analyses to prioritize 410,00 ha of forest for increased protection across Sabah taking into account connectivity, carbon, plants, butterflies and several vertebrates (i.e., raw feature layers).	The prioritized forest area had high species richness of butterflies, plants and vertebrates, was important for connectivity and contained relatively high in aboveground carbon density – hence showing complementarity between the raw

				feature layers.
Gamfeldt et al., 2013	Sweden; temperate and boreal forests.	The concept that multiple ecosystem functions are intercorrelated has been well established by biodiversity ecosystem function research and in particular work on ecosystem multi-functionality. Many other ecosystem functions crucial to ecosystem and vegetation health are strongly correlated with biomass and carbon.	The study used a nationwide forest data set from the Swedish National Forest Inventory and the Swedish Survey of Forest Soils and Vegetation. The inventory uses a randomly planned regular sampling grid, and includes around 4,500 permanent tracts with each tract being surveyed once every 5 years.	Tree species richness in production forests shows positive to positively hump-shaped relationships with multiple ecosystem services. These include production of tree biomass, soil carbon storage, berry production and game production potential. For example, biomass production was approximately 50% greater with five than with one tree species. In addition, the study shows positive relationships between tree species richness and proxies for other biodiversity components.
Mo et al., 2023	Global forest	There is currently a large body of research focusing on biomass and carbon.	The study combines several ground-sourced and satellite-derived approaches to evaluate the scale of the global forest carbon potential outside agricultural and urban lands. The study maps the human impact on tree biomass globally and tests the relationship between aboveground forest biomass and anthropogenic degradation.	The results suggest a consistent decline in tree carbon density along the anthropogenic degradation gradient across all biomes, evident in both the ground-sourced and the satellite-derived biomass observations.
Ruiz-Jaen &	Panama,	There is	This study used	A higher proportion of

Potvin, 2011	tropical moist forest	currently a large body of research focusing on biomass and carbon, and it is now widely accepted that many other ecosystem functions crucial to ecosystem and vegetation health are strongly correlated with biomass and carbon.	species richness, functional trait diversity, species dominance and functional trait dominance to predict tree carbon storage across two forests (mixed-species plantation and natural mixed forest). Then the study compared the species ranking based on wood density, maximum diameter, maximum height, and leaf mass per area (LMA) between sites to reveal how these values changed between different forests.	large trees and species with high LMA (leaf mass per area) increased tree carbon storage in the natural forest.
Shen et al., 2016	Southern China, tropical forest	There is currently a large body of research focusing on biomass and carbon, and it is now widely accepted that many other ecosystem functions crucial to ecosystem and vegetation health are strongly correlated with biomass and carbon.	This study was conducted in a 20 ^{ha} (400 m × 500 m) Dinghushan (DHS) Forest Dynamics Plot in the center of the Dinghushan Nature Reserve (1155-ha) in Guangdong Province, southern China. This forest has been conserved for over 400 years. All stems within the plot with DBH ≥ 1 cm were measured, mapped, tagged and identified to species in 2005. The DHS plot was resurveyed in 2010.	This study found significant effects of local environments, functional dominance and functional diversity on fine-scale variation in carbon storage in a tropical forest.
Shenkin et al. 2019	Sabah, Malaysian Borneo	Dipterocarps are amongst the tallest trees in the forest	This paper reports the discovery of the world's tallest tree in Sabah – a dipterocarp species (<i>Shorea faguetiana</i>) and provides a novel three-dimensional	This work highlights that in the world's tropical rainforests some of the largest organisms on Earth still await discovery and description. The

			exploration of its dimensions. The study also evaluates the factors that drives the limits of tree height.	discovery of this tree in the vicinity of the Kuamut rainforest project area highlights the high ecological value that Dipterocarpaceae species have in Sabah's rainforests.
Zakaria et al., 2016	Tropical rainforest	We define vegetation quality as a biodiversity indicator that incorporates overall forest structure and composition. This includes the height, size, composition and diversity of trees, the canopy cover, the diversity of the forest strata (i.e., tree layers)	Book chapter and literature review	The vegetation species composition of rainforests encompasses four distinct layers of trees, namely; emergent, upper canopy, understory, and forest floor.
Slade et al., 2019	Concept paper - the study examines the ecological relationships between biodiversity and multiple ecosystem functions	Given that biodiversity positively correlates with multiple different ecosystem functions and services on many trophic levels, and aboveground carbon is the ecosystem function that can be mostly accurately measured, we have chosen aboveground biomass as a functional	Concept paper and review – the study explores the important question of <i>whether greater biodiversity is necessary to support more ecosystem functions and services?</i> The paper specifically refers to ecosystem functions, such as dung burial and seed germination that are carried out by dung beetles.	The study suggests that multiple ecosystem functions and services positively correlate with biodiversity up until asymptote. Correlations among species contributions to ecosystem functions and the extent of interspecific competition are also suggested to be crucial when determining the number of species needed to maximize additional functionality.

		measure of vegetation quality and health.		
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4.6.12 Biodiversity Monitoring Plan Dissemination (B4.3)

The structure of biodiversity monitoring has been explained in section 5.3.1 and 5.3.2 of the MR /1/. The biodiversity monitoring plan and monitoring results will be communicated with Project Zone communities concomitantly with discussions on monitoring results.

4.6.13 Optional Gold Level: Trigger Species Population Trends (GL3.3)

Trigger species are by which an area qualifies as Key Biodiversity Area (KBA). The presence of Bornean orangutan (*Pongo pygmeus morio*) and other RTE species (identified in section 5.5.1 of the validate PD /1/) makes the project area a KBA. The project area is in a critical region within the global terrestrial ecoregion "Borneo lowland rain forests". The project area is in the State of Sabah and the biodiversity of Sabah is exceptionally high, helping to earn Malaysia its status as one of 17 mega-diversity countries. /91/ In section 5.5.2 of the PD, given details of population of Bornean orangutan in the project area at the start of the project and has also described the most likely changes under the without-project land use scenario. PP has also given details measures needed and taken to maintain or enhance the population status of each trigger species in the project zone and to reduce the threats. Assessment for monitoring of orangutans has already been provided in 4.6.11 above. The details were cross checked and confirmed through secondary literature and on-site records. Nonetheless, the PP will not claim Gold level for Biodiversity during the reported monitoring period.

4.6.14 Optional Gold Level: Effectiveness of Threat Reduction Actions (GL3.4)

PP has described the measures to maintain the status of the trigger species. The trigger species is Bornean orangutan (*Pongo pygmeus morio*). The criteria of CCB standard section GL3 has been met by the project and the assessment of the same is as follows. As per GL3 (1) the trigger species is correctly identified as Bornean orangutan (*Pongo pygmeus morio*) is listed under 'Critically Endangered (CR)' under IUCN Red List. The threats to trigger species and measures taken to enhance the population status has been provided by PP in the section 5.4.1 of the MR. VVB has interviewed the communities and project stakeholders Sabah Forestry Department, RBJ, PACOS Trust, and Rainforest Trust to discuss and confirm the progress of the conservation initiatives. VVB also checked the Orangutan survey and reviewed the evidence 'project progress report' published by Rainforest Trust for the recent reporting period of year 2020 that has been covered in the current monitoring period of the project. Nonetheless, the PP will not claim Gold level for Biodiversity during the reported monitoring period.

4.7 Additional Project Implementation Information

NA

4.8 Additional Project Impact Information

NA

5 VERIFICATION CONCLUSION

Earthood was contracted by Permian Malaysia Sdn. Bhd. For the project activity “Kuamut Rainforest Conservation Project” in Sabah, Malaysia (VCS project ID: 2609) with regards to the VCS Standard v4.4 and CCB Standard v3.1 requirements and the information provided by the project proponent related to the project design and emission reduction calculation spreadsheets.

A risk-based approach has been followed to perform this verification. During the verification 12 Corrective Action Requests (CARs), and 06 Clarification requests (CLs) were raised and successfully closed. The review of the revised PD versions, the supporting documents and subsequent follow-up discussions provided adequate evidence to conclude the closure of specified CARs and CLs. No Forward Action Requests (FARs) were raised during first verification of the project. Three Forward Action Requests (FARs) were raised during validation which are successfully closed during the first verification.

No limitations or doubts were identified related to the verification of the project. The conservative approach and methodological choices used in the project design make it very likely that the KRC project met the projected emissions reduction & removals, community, and biodiversity targets. Also, PP has clearly documented the activities planned and the expected results that enabled them to qualify for the Gold Level criteria for climate.

Earthood has reviewed the monitoring report documents and emission reductions and removals calculation R files and subsequently carried out site visit interviews to confirm the fulfillment of stated criteria.

The project activity has correctly applied the baseline and monitoring methodology “VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest, v1.3” which is an approved methodology under the VCS program and is acceptable under VCS Standard Version 4.4. The baseline has been determined in accordance with the stated approved baseline methodology.

In summary the verification team was able to conclude that:

- The project is in line with all relevant host country criteria (Malaysia) and is applied in accordance with the guidelines and requirements of VCS and CCB Standards.
- The project additionality is sufficiently justified in the PD.
- The monitoring plans (climate, community, and biodiversity) are transparent and satisfactory and in line with applied baseline and monitoring methodology of VM0010, version 1.3, and all the related tools.
- The calculation formulae and use of parameter for the project emission reductions estimation are transparent and in line with the requirement of the applied methodology. The ex-ante projection of emission reductions given is found to be appropriate, conservative and in line with the requirement. The estimated Emission Reductions during the crediting period by the Project is expected to be 27,493,288 tCO_{2e} to the atmosphere in the period 30 years of project life.
- The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the validation as outlined under VCS Standard v4.4 and CCB Standard v1.3

The Project activity is found to be eligible under Sectoral Scope 14. Therefore, ESPL is able to certify that the project meets all relevant requirements of the above-defined criteria.

Monitoring period: From 11/12/2015 to 31/12/2021

Verified GHG emission reductions and removals in the above verification period, the implementation of the project activities has resulted in emission reductions of 4,839,740.67 tCO₂e. Buffer credits allocation is 12% which is 580,769 tCO₂e and eligible Verified Carbon (tradable) after deducting buffer credits from total verified carbon credits is 4,258,971 tCO₂e.

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2016	230,064.47	-59,087.27	66,258.57	222,893.17
2017	327,468.44	-202,773.23	94,310.91	435,930.76
2018	379,937.79	-395,570.65	109,422.08	666,086.36
2019	588,148.60	-702,924.83	169,386.80	1,121,686.62
2020	694,771.21	-764,627.35	200,094.11	1,259,304.46
2021	687,931.75	-644,031.90	198,124.34	1,133,839.30
Total	2,908,322.25	-2,769,015.22	837,596.81	4,839,740.67

Approved by



Dr. Kaviraj Singh

Date: 26/03/2024

Managing Director

Place: Gurugram, Haryana

Earthood Services Private Limited

APPENDIX I: LIST OF DOCUMENTS REFERRED

Ref no.	Author	Title	Reference to the document	Provider
1.	PP	CCB & VCS Monitoring Report	Version 3.9 dated 25/03/2024	PP
2	VCS	CCB VCS Project Description template	Version 3.0	Others
3	VCS	VCS Program Guide	Version 4.2	Others
4	VCS	VCS Standard	Version 4.4	Others
5	VCS	VCS Validation and Verification Manual	Version 3.2	Others
6	VCS	VCS Program Definitions	Version 4.2	Others
7	VCS	VM0010 Methodology for Improved Forest Management: Conversion from Logged to Protected Forest	Version 1.3	Others
8	VCS	VT0001 Tool for demonstration and assessment of additionality in VCS AFOLU Project Activities	Version 3.0	Others
9	VCS	AFOLU Non-Permanence Risk Tool	Version 4.0	Others
10	CCB	CCB Program Rules	Version 3.1	Others
11	CCB	CCB Standard	Version 3.1	Others
12	PP	GHG Emission Reduction calculation files – R files	-	PP
13	PP	GHG Emission Reduction .csv files	-	PP
14	ESPL	On-site photographs taken by the verification team	-	Others
15	ESPL	Audio recordings of interview conducted during on-site visit	-	Others
16	ESPL	On-site audit report	-	Others
17	PP	Management agreement signed between a) Permian Malaysia Sdn. Bhd. b) The State Government of Sabah c) Rakyat Berjaya Sdn. Bhd.	06/08/2021	PP
18	The Government of The State of Sabah	Sustainable Forest Management Licence Agreement (1-million-hectare concession granted to Yayasan Sabah on a 99-year lease arrangement with the Sabah Forestry Department)	10/09/1997	PP
19	Rainforest Trust	Grant agreement 2014-15 to reclassify the 282,000 acre Class 2 Production Forest of Kuamat into a Class I Forest Reserve	31/07/2014	PP
20	The State of Sabah	No. 7 of 2015 (Legal land conversion to protected forest area 69,454 ha)	11/12/2015	PP
21	The State of Sabah	No. 13 of 2016 (Additional legal land conversion to protected forest area 13,927 ha)	08/12/2016	PP
22	Rakyat Berjaya Sdn. Bhd.	Letter of Engagement on Monitoring and Protection signed between Permian Malaysia Sdn. Bhd and Rakyat Berjaya Sdn. Bhd.	06/08/2021	PP

23	PP	Service Agreement signed between a) Permian Malaysia Sdn. Bhd. b) The State Government of Sabah c) Rakyat Berjaya Sdn. Bhd.	06/08/2021	PP
24	PP	Geodetic coordinates of project boundaries	-	PP
25	PP	KML files and project zone maps	-	PP
26	PP	Photographic evidence of participatory mapping carried out by PP	-	PP
27	PP	KRRP household survey datasheet	-	PP
28	PP	Kuamut AFOLU Non-permanence risk report	Version 2 dated 10/03/2024	PP
29	VCS	VCS AFOLU Non-Permanence risk report template	-	Others
30	PP	Sabah Kuamut Financial Projections 2022-2041	-	PP
31	PP	Photographic evidence of community workshops and attendance sheets	13/10/2017	PP
32	PP	Copy of brochures distributed in Malay language	-	PP
33	PP	KRC Project Social Baseline Assessment 2017-2019 – Process Report	-	PP
34	PP	Kuamut household survey database	-	PP
35	PP	Staff handbook folder	-	PP
36	PP	Resume of involved project personnel	-	PP
37	PP	Permian Malaysia Sdn. Bhd. Financial Statement and reports 2018, 2019 and 2020	-	PP
38	PP	Training records	-	PP
39	PP	Kuamut carbon field inventory SOP	-	PP
40	PP	Field plot database for biomass calculation	-	PP
41	PP	R files for the calculation of baseline scenario	-	PP
42	PP	R files for the calculated carbon stocks in commercial timber volumes	-	PP
43	PP	R files for the calculation of project scenario	-	PP
44	PP	R files for the calculation of leakage analysis	-	PP
45	PP	R files for calculation of uncertainty analysis	-	PP
46	PP	LiDAR data	-	PP
47	PP	High resolution Top to Canopy Height (TCH) maps	-	PP
48	PP	High Conservation Values (HCV) area maps	-	PP
49	PP	Map of state-wide vegetation classification	-	PP
50	Department of Statistics, Malaysia	Department of Statistics, Malaysia https://www.dosm.gov.my/v1/index.php?r=colu-mn3/accordion&menu_id=amZNeW9vTXRydTFwTXAxSmdDL1J4dz09	Last accessed on 15/06/2023	Others
51	Google earth	https://www.google.com/earth	Last accessed on 15/06/2023	Others
52	GEDI Data	https://glad.umd.edu/dataset/gedi	Last accessed on 15/06/2023	Others
53	PP	Request for data from PP to RBJ	1 st September 2015	PP

54	PP	KRC Project Monitoring and Protection Annual Plan 2022	-	PP
55	Different Organizations	Climate Risk Country Profile: Malaysia (2021): The World Bank Group and the Asian Development Bank https://reliefweb.int/attachments/49ce1b95-d60c-3a4d-a518-03c8c0e837ff/climate-risk-country-profile-malaysia.pdf Malaysia National communication 2 UNFCCC https://unfccc.int/sites/default/files/resource/Malaysia%20NC3%20BUR2_final%20high%20res.pdf Climate change Knowledge Portal World Bank https://climateknowledgeportal.worldbank.org/country/malaysia/vulnerability#:~:text=While%20Malaysia%20can%20experience%20drought,vulnerable%20to%20vector%20Dborne%20diseases. Impact of Extreme Drought Climate on Water Security in North Borneo: Case Study of Sabah https://mdpi-res.com/d_attachment/water/water-12-01135/article_deploy/water-12-01135-v2.pdf?version=1587873353 Impacts of and adaptation to climate change on the oil palm in Malaysia: a systematic review https://sci-hub.se/10.1007/s11356-021-15890-3 3 Surprising Ways Water Depends on Healthy Forests https://www.wri.org/insights/3-surprising-ways-water-depends-healthy-forests Trees, forests and water: Cool insights for a hot world https://www.sciencedirect.com/science/article/pii/S0959378017300134 https://www.policysupport.org/costingnature	Last accessed on 22/07/2022	Others

56	Sabah Biodiversity Strategy 2012-2022	Sabah Biodiversity strategy 2012-2022 https://sabc.sabah.gov.my/sites/default/files/uploads/attachments/2020-05/Sabah-Biodiversity-Conservation-Strategy.pdf	Last accessed on 15/06/2023	Others
57	PP	SEARRP Procurement Policy	-	PP
58	PP	SEARAPP Grievances Redressal Procedure	-	PP
59	PP	SEARAPP Staff Reimbursement Policy	-	PP
60	PP	SEARAPP Code of Conduct	-	PP
61	PP	SEARAPP Sexual Harassment Policy	-	PP
62	PP	SEARAPP Whistleblowing Policy & Procedure	-	PP
63	PP	SERRAP Guidelines for Employee Conduct	-	PP
64	Law of Malaysia	Laws of Malaysia, Act 4 Employees' Social Security Act 1969 https://www.ilo.org/dyn/natlex/docs/ELECTRONIC/43901/99443/F970138794/MYS43901%202013.pdf	Last accessed on 15/06/2023	Others
65	PP	RBJ Management Description	-	PP
66	Malaysian Law and regulations	Native Customary law 1995 https://sagc.sabah.gov.my/?q=ms/content/native-courts-native-customary-laws-rules-1995 Environment Quality Act, 1974 https://www.env.go.jp/en/recycle/asian_net/Country_Information/Law_Regulation/Malaysia/Malaysia_mal13278.pdf Occupational safety and health act, 1994, Malaysia https://www.ilo.org/dyn/natlex/docs/WEBTEXT/47664/65082/E94MYS01.htm#:~:text=An%20Act%20to%20make%20further,and%20for%20matters%20connected%20therewith	Last accessed on 15/06/2023	Others
67	Yayasan Sabah Group	Undertaking of project not under any emission trading scheme	28/03/2022	PP
68	PP	Participatory mapping	-	PP
69	PP	Historical Extraction data and shapefiles	-	PP
70	PP	Flora and Fauna list – survey report KRC project area	-	PP
71	Biodiversity assessment secondary literature	Biodiversity assessment secondary literature: 1. Developing Ecosystem Maps Using Eco-Geological Information for the Sustainable Management of Natural Resources https://www.scirp.org/%28S%28vtj3fa45qm1ean45vvfcz55%29%29/reference/referencespapers.aspx?referenceid=1758663 2. Runoff and Soil Erosion in Selectively-logged Over Forest, Danum Valley Sabah, Malaysia http://tost.unise.org/pdfs/vol4/no4/4x4x449x459.html 3. Biodiversity conservation in multiple-use forest landscapes in Sabah, Malaysia	Last accessed on 15/06/2023	Others

		https://www.my.undp.org/content/malaysia/en/home/operations/projects/environment_and_energy/80468_forestlandscapes.html 4. Aerial Surveys Give New Estimates for Orangutans in Sabah, Malaysia (citation – Acrenaz. Et. Al. PloS Biology, January 2005, Vol. 3, issue 1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC534813/ 5. Changes in Sabah Orungutan population in recent times 2002 – 2017 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6636716/#:~:text=A%20total%20of%2096%2C580%20nests,interval%3A%206%2C815%20to%2015%2C129		
72	PP	Plausible offsite hunting sites shapefiles	-	PP
73	Global Forest Watch Land Use data	https://data.globalforestwatch.org/search?groupIds=f66f01cc104e4fd5adf1f8790a472e85	Last accessed on 15/06/2023	Others
74	PP	Project area Slope raster data	-	PP
75	PP	Simple cost analysis calculation	-	PP
76	Permian Malaysia Sdn. Bhd. Website	https://permianglobal.com/	Last accessed on 15/06/2023	Others
77	Reference area management plan and research paper	1. 10 years forest development Plan 2012-2022 for NFM and mosaic planting approach in an area of 15,000 ha within FMU 16, SG Pinangah Forest Reserve submitted by RBJ 2. 10 years forest development Plan 2003-2023 for NFM and mosaic planting approach in an area of 20,000 ha within FMU 16, SG Pinangah Forest Reserve submitted by RBJ 3. 10 years forest development Plan 2001-2021 for NFM and mosaic planting approach in an area of 5,000 ha within FMU 16, SG Pinangah Forest Reserve submitted by RBJ 4. 10 years forest development Plan 2015-2024 for 14,158 ha within FMU 24, Gunung Rara Forest Reserve submitted by RBJ	-	Others
78	Yahya & AG, 2016	Yahya, A. Z., & AG, A. I. Reforestation with naturally regenerated trees and selected forest plantation species based on mosaic planting approach https://www.researchgate.net/profile/Ahmad-Yahya-3/publication/341313623_REFORESTATION	Last accessed on 15/06/2023	Others

		WITH NATURALLY REGENERATED TREE S AND SELECTED FOREST PLANTATION SPECIES BASED ON MOSAIC PLANTING APPROACH/links/5eba6dcc92851cd50dab6851/REFORESTATION-WITH-NATURALLY-REGENERATED-TREES-AND-SELECTED-FOREST-PLANTATION-SPECIES-BASED-ON-MOSAIC-PLANTING-APPROACH.pdf?origin=publication_detail		
79	Global wood density data	Biomass calculation references https://www.researchgate.net/profile/Javier-Gamarra/publication/277716151_GlobAllomeTree%27s_wood_density_database/links/5c0a87e692851c39ebda296b/GlobAllomeTrees-wood-density-database.pdf?origin=publication_detail	Last accessed on 15/06/2023	Others
80	Chave et al., 2014	Chave, J., Réjou-Méchain, M., Búrquez, A., Chidumayo, E., Colgan, M. S., Delitti, W. B., ... & Vieilledent, G. (2014). Improved allometric models to estimate the aboveground biomass of tropical trees. <i>Global change biology</i> , 20(10), 3177-3190 https://www.researchgate.net/profile/Raphael-Pelissier/publication/262197290_Improved_allometric_models_to_estimate_the_aboveground_biomass_of_tropical_trees/links/59dc84a5a6fdcc1ec8a6fad2/Improved-allometric-models-to-estimate-the-aboveground-biomass-of-tropical-trees.pdf?origin=publication_detail	Last accessed on 15/06/2023	Others
81	PP	Sabah Timber Production 2010 – 2019	-	PP
82	PP	KRC – Community Development Plan	-	PP
83	PP	KRC – Biodiversity Development Plan	-	PP
84	PP	Permian first meeting with Sabah Forestry Department to discuss carbon project development in Sabah	-	PP
85	PP	Initial presentation to Sabah Forestry Department concerning Kuamut	-	PP
86	PP	CV of the managing team members	-	PP
87	Sabah Forestry Department	Undertaking that the project is not under jurisdictional REDD+ programme	30/03/2022	PP
88	VERRA	Kumauat Rainforest Conservation Project https://registry.verra.org/app/projectDetail/VCS/2609	-	Others
89	VERRA	VT0005 Tool for measuring aboveground live forest biomass using remote sensing	Version 1.0	Others

90	IPCC	Chapter 3, 2006 IPCC Guidelines for National Greenhouse Gas Inventories Equation 3.1 https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/1_Volume1/V1_3_Ch3_Uncertainties.pdf	Last accessed on 15/06/2023	Others
91	UNDP	https://www.my.undp.org/content/malaysia/en/home/operations/projects/environment_and_energy/80468_forestlandscapes.html	Last accessed on 15/06/2023	Others
92	IUCN	https://www.iucnredlist.org/species/pdf/7640635/attachment	Last accessed on 15/06/2023	Others
93	Oram et al., 2022	Oram, F., Kapar, M. D., Saharon, A. R., Elahan, H., Segaran, P., Poloi, S., ... & Ancrenaz, M. (2022). "Engaging the Enemy": Orangutan (<i>Pongo pygmaeus morio</i>) Conservation in Human Modified Environments in the Kinabatangan floodplain of Sabah, Malaysian Borneo. International Journal of Primatology, 1-28. https://link.springer.com/article/10.1007/s10764-022-00288-w	Last accessed on 15/06/2023	Others
94	Protected planet	Malaysia https://www.protectedplanet.net/country/MYS	Last accessed on 15/06/2023	Others
95	VERRA	https://registry.verra.org/app/search/VCS/Registered	Last accessed on 15/06/2023	Others
96	Department of Statistics Malaysia Official Portal	https://www.dosm.gov.my/v1/index.php?r=column/cthemeByCat&cat=493&bul_id=VTNHRkdiZkFzenBNd1Y1dmg2UUlrZz09&menu_id=amVoWU54UTl0a21NWmdhMjFMMWcyZz09	Last accessed on 15/06/2023	Others
97	Statista	https://www.statista.com/statistics/1196343/poverty-rate-by-state-malaysia/#:~:text=In%202020%2C%20the%20East%20Malaysian,ringgit%20to%20%2C208%20Malaysian%20ringgit.	Last accessed on 15/06/2023	Others
98	World Bank 2020	Malaysia Poverty and Equity Brief – East Asia and Pacific. Available in https://databank.worldbank.org/data/download/poverty/33EF03BB-9722-4AE2-ABC7-AA2972D68AFE/Global_POVEQ_MYS.pdf	Last accessed on 15/06/2023	Others
99	RSIS Working paper	Sabah's unrelenting exclusionary and inclusionary politics Vilashini Somiah & Jose Ricardo Sto. Domingo s. Rajaratnam School of International Studies Singapore 5 May 2021.	Last accessed on 15/06/2023	Others

		https://www.rsis.edu.sg/wp-content/uploads/2021/05/WP334.pdf		
100	Co\$ting Nature	Conservation prioritization and Ecosystem Services mapping with co\$ting nature http://www.policysupport.org/costingnature	Last accessed on 22/07/2022	Others
101	PP	KRCP Project Summary PD_Bahasa Malaysia	20/07/2022	PP
102	PP	Module and community organizing training report	-	PP
103	PP	Annual land cover classification files	-	PP
104	PP	Webmapping data files	-	PP
105	PP	FIRMS alerts files	-	PP
106	PP	Biomass Machine Learning project data files	-	PP
107	PP	Community monitoring plan	-	PP
108	PP	Biodiversity monitoring plan	-	PP
109	The World Bank	https://databank.worldbank.org/source/worldwide-governance-indicators	Last accessed on 18/09/2023	Others
110	Pinard & Putz, 1996	Pinard, Michelle A., and Francis E. Putz. "Retaining forest biomass by reducing logging damage." <i>Biotropica</i> (1996): 278-295.	1996	Others
111	PP	Non-permanence risk excel sheet	Corresponding to PRR	PP
112	Chave et al., 2014	Chave, J., Réjou-Méchain, M., Búrquez, A., Chidumayo, E., Colgan, M. S., Delitti, W. B., ... & Vieilledent, G. (2014). Improved allometric models to estimate the aboveground biomass of tropical trees. <i>Global change biology</i> , 20(10), 3177-3190.	Last accessed on 18/09/2023	Others
113	Winjum et al., 1998	Winjum, Jack K., Sandra Brown, and Bernhard Schlamadinger. "Forest harvests and wood products: sources and sinks of atmospheric carbon dioxide." <i>Forest Science</i> 44.2 (1998): 272-284.	Last accessed on 18/09/2023	Others
114	Suarez et al, 2019	Suarez et al, 2019. Estimating aboveground net biomass change for tropical and subtropical forests: Refinement of IPCC default rates using forest plot data	Last accessed on 18/09/2023	Others
115	Ahmad Zuhaidi Yahya & Albert Ikau A.G. (2016)	Ahmad Zuhaidi Yahya & Albert Ikau A.G. (2016) Reforestation with naturally regenerated trees and selected forest plantation species based on mosaic planting approach. <i>International Journal of Agriculture, Forestry and Plantation</i> , Vol. 1 (Dec 2015)	Last accessed on 18/09/2023	Others
116	Zanne et al., 2009	Zanne, A., Lopez-Gonzalez, G., Coomes, D., Ilic, J., Jansen, S., Lewis, S., Miller, R., Swenson, N., Wiemann, M. & Chave, J. 2009. Global Wood Density Database. <i>Dryad Digital Repository</i>	Last accessed on 18/09/2023	Others
117	Mahmud et al., 2017	Mahmud, Siti Zalfah & Hashim, Rokiah & Saleh, Abdul & Sulaiman, Othman & Saharudin, Nur & Lokmal, N. & Masseat, Khairul & Husain, Hamdan. (2017). Physical and mechanical properties of juvenile wood	Last accessed on 18/09/2023	Others

		from Neolamarckia cadamba planted in West Malaysia. Maderas. Ciencia y tecnología. 19. 10.4067/S0718-221X2017005000020.		
118	Permian Global	Kuamut Community Baseline Survey, Assessment Process Report and Technical Report, completed on Jan 2020	Jan 2020	PP
119	PP	Photographic evidence of FPIC introductory meetings between communities and SFD, PP. FGDs photographs	-	PP
120	PP	2017 Summary Communities Activities RBJ	2017	PP
121	PP	2018 Summary Communities Activities Yayasan Sabah	2018	PP
122	PP	2019 Summary Communities Activities	2019	PP
123	PP	2020 Summary Communities Activities RBJ	2020	PP
124	PP	2021 Summary Communities Activities RBJ	2021	PP
125	PP	Volume claimed map (Biomass map)	-	PP
126	PP	HTML analysis pipeline 'book' for ERR calculations	-	PP
127	PP	Supplemental agreement between (a) Permian Malaysia Sdn. Bhd. (b) The State Government of Sabah (c) Rakyat Berjaya Sdn. Bhd. For the inclusion of second parcel of land (Norther Kuamut Forest Reserve)	28/01/2022	PP
128	Rainforest Trust	Project Progress Report (Reporting period: 01/04/2020 to 30/06/2020) Quarter 2	2021	PP
129	IUCN	https://www.iucnredlist.org/	Last accessed on 28/01/2024	PP
130	Permian Global	Carnegie LiDAR Survey Letter	18/04/2016	PP
131	Permian Global	Agreement between Permian Global Research Limited and Carnegie Airborne Observatory, Carnegie Institution for Science for Carnegie data collection and analysis	02/02/2017	PP
132	SFD	Permission letter given to access the Class I Kuamut Forest Reserve for Continued Carbon, Biodiversity and Social Baseline Surveys for the KRC project valid till 31/12/2027	10/04/2017	PP
133	SFD	Permission letter given to access the Class I Kuamut Forest Reserve for Continued Carbon, Biodiversity and Social Baseline Surveys for the KRC project and exemption from fee Duration: 01/06/2017 to 31/12/2017	19/06/2017	PP
134	SFD	Letter to request to renew the annual gate pass for access the Class I Kuamut Forest Reserve for Continued Carbon, Biodiversity and Social Baseline Surveys for the KRC project	12/12/2018 30/01/2018 09/01/2020	PP

135	SEARRP	Gate pass or permission letter for fieldwork of Carbon, Biodiversity and Social Baseline Surveys	30/04/2016 14/06/2017 09/04/2017 29/01/2018 12/07/2018 04/12/2018 06/01/2020 02/07/2020	
136	PP	Summary Of Information of Documents on Rakyat Berjaya Sdn. Bhd. Security, Enforcement & Monitoring Activities	-	PP
137	PP	Agenda points and minutes of meeting of Action Committee to Combat Illegal Hunting in Sandakan Region – 11 th Meeting	23/11/2021	PP
138	FD, Lhag Datu	Concession Safety Unit Anti-Poaching task Force Report	20/06/2016	PP
139	Wild Asia	KRC Social baseline Assessment – Phase 2	09/01/2017	PP
140	SEARRP	Request Letter for Technical Support in Conducting Community-Level Workshops for the Kuamut Forest Reserve Social Baseline Study (RBJ/Permian/SFD Carbon Project).	20/11/2017	PP
141	SEARRP	Evidence of meeting letter to discuss the Social Baseline Survey for the Class I Kuamut Forest Reserve	17/05/2016	PP
142	PP	Brochure for community engagement and FPIC procedures in Malay language	-	PP
143	PP	Photographic evidence of FPIC and social baseline assessment photos	-	PP
144	PP	Photographic evidence of creation of tempoyak food product	-	PP
145	PP	PACOS Joint Tactic Session (JTS)	Various (2020, 2021)	PP
146	PP	PACOS Social Economic Program	Various (2020, 2021)	PP
147	PP	PACOS Handicraft Training records	2021	PP
148	PP	Training Manual Basics of Financial Management in Small Business for the Overseas Community and presentation	-	PP
149	PP	Paralegal training records	2021	PP
150	PP	PACOS Training activity records 2016 – 2021	-	PP
151	PP	PACOS photographic evidence of food aid provided to communities 2021	2021	PP
152	PP	FPIC photographic records, meeting records,	-	PP
153	PP	Appendix 8: merchantable-timber-and-protected-trees-information3.0	-	PP
154	COVID restrictions articles	https://www.independent.co.uk/news/world/asia/coronavirus-malaysia-cases-southeast-asia-mosque-islam-a9403816.html https://www.malaymail.com/news/malaysia/2020/03/25/pm-covid-19-shutdown-extended-to-april-14/1850034 https://www.malaymail.com/news/malaysia/2020/03/16/pm-malaysia-in-	Last accessed on 02/03/2024	Others

		lockdown-from-wed-until-march-31-all-shops-closed-except-for/1847204 https://www.channelnewsasia.com/asia/timeline-how-covid-19-pandemic-has-unfolded-malaysia-january-2020-2082081 https://www.kln.gov.my/web/usa_washington/news-from-mission-/blogs/travel-advisory-entry-restrictions-on-foreign-travelers-to-malaysia-4-september-2020		
155	PP	Records of Kuamut Village Committee Member Appointments Nov 2020	-	PP
156	PP	Kuamut Village Head Appointment 1 - 2019	-	PP
157	PP	2016 Payroll (Jan- Dec)	-	PP
158	PP	2017 Payroll (Jan- Dec)	-	PP
160	PP	2018 CLC Payroll (Jan- Dec)	-	PP
161	RBJ	KRCP staff employed records	-	PP
162	SEARPP	KRCP staff employed records	-	PP
163		Records of Patroller contract and payroll samples	-	PP
164	SEARPP	Payslips of employed personnel	-	PP
165	PACOS	Photographic evidence of distribution of food aid	-	PP
166	PACOS	Records of polypipe clean installation	-	PP
167	PACOS	PACOS COMMUNITY TRAINING ACTIVITIES (2016-2021)	-	PP
168	PACOS	2018, 2020, 2021 Social Economic Program report	-	PP
169	PACOS	2019, paralegal training report 2016, 2021 paralegal training records	-	PP
170	PACOS	Leadership training records	-	PP
171	PACOS	JTC (Joint Tactic Session) records	-	PP

APPENDIX II: ABBREVIATIONS

Abbreviations	Full texts
AFOLU	Agriculture, Forestry and Other Land Use
ARR	Afforestation, Reforestation and Revegetation
BE	Baseline Emission
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO ₂	Carbon di oxide
CP	Crediting Period
DR	Desk Review
EI	External Individual
ER	Emission Reductions
ESPL	Earthood Services Private Limited
FAR	Forward Action Request
GHG	Green House Gas
GPS	Global Positioning System
IFM	Improved Forest Management
KRC	Kuamut Rainforest Conservation
LiDAR	Light Detection and Ranging
RBJ	Rakyat Berjaya Sdn Bhd
SEARRP	South East Asia Rainforest Research Partnership
SFD	Sabah Forestry Department

APPENDIX III: COMPETENCE OF TEAM MEMBERS AND TECHNICAL REVIEWERS

Competence Statement			
Name	Shreya Garg		
Country	India		
Education	M.Sc. (Climate Science & Policy), TERI University		
Experience	9 Years +		
Field	Climate Change		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS.I.A., AMS.I.C., AMS.I.D., AMS.I.F., AMS.II.D., AMS.II.G., AMS.II.J., AMS.III.AV., AMS.III.BL, ACM0002, ACM0012		
Local expert	YES (India)		
Financial Expert	NO		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shifali Guleria	Date	21/12/2022
Approved by	Deepika Mahala	Date	21/12/2022

Competence Statement

Name	Gary B. Roller		
Education	MS Forestry Science BS Forestry and Natural Resources Management		
Experience	6+ years		
Field	Forestry		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	YES (TA 14.1)		
Reviewed by	Shifali Guleria (Quality Manager)	Date	21/02/2023
Approved by	Deepika Mahala (Technical Manager)	Date	22/02/2023

Competence Statement			
Name	Riya Sharma		
Education	M.Sc. Biodiversity & Conservation		
Experience	1+ years		
Field	Climate Change & Environment, Forestry		
Approved Roles			
Team Leader	Yes (VM)		
Validator	Yes (VM)		
Verifier	Yes (VM)		
Local expert	Yes (India)		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Shifali Guleria, Quality Manager	Date	29/11/2022
Approved by	Deepika Mahala, Technical Manager	Date	29/11/2022

Competence Statement	
Name	Deepika Suhag
Education	M.Sc. (Forestry) B.Sc. (Hons.) Forestry
Experience	-
Field	-
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO
Methodology Expert	NO

Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria (Quality Manager)	Date	03/10/2022
Approved by	Deepika Mahala (Technical Manager)	Date	03/10/2022

Competence Statement			
Name	Waris Hooda		
Education	Master of Science (Geo-Information Science and Earth Observation) Bachelor of Engineering (Computer Engineering)		
Experience	1+ years		
Field	Geo-Information Science and Earth Observation (Specialization: Geo-informatics)		
Approved Roles			
Team Leader	NO		
Validator	NO		
Verifier	NO		
Methodology Expert	NO		
Local expert	NO		
Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Trainee	Yes		
Reviewed by	Shifali Guleria (Quality Manager)	Date	08/12/2022
Approved by	Deepika Mahala (Technical Manager)	Date	15/12/2022

Competence Statement	
Name	Pavalamalar a/p M.Rajalingam
Education	B.Sc. Biochemistry M.Sc. Biotechnology
Experience	10 years
Field	Biotechnology
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO
Methodology Expert	NO
Local expert	YES (Malaysia)

Financial Expert	NO		
Technical Reviewer	NO		
TA Expert (X.X)	NO		
Reviewed by	Deepika Mahala (Quality Manager)	Date	08/12/2021
Approved by	Ashok Gautam (Technical Manager)	Date	08/12/2021

Competence Statement			
Name	Ashok Gautam		
Country	India		
Education	M. Sc. (Environmental Sciences) M. Tech. (Energy & Environmental Management)		
Experience	16 Years +		
Field	Energy, Climate Change & Environment		
Approved Roles			
Team Leader	YES		
Validator	YES		
Verifier	YES		
Methodology Expert	AMS-I.D., AMS-I.A., AMS-I.C., AMS-I.E, AMS-II.D., AMS-II.G., AMS-III.E., AMS-III.H., AMS-III.Q, AMS-III.Z., AMS-III.AV., AMS III.AR, AM0029, AM0025, AM0056, ACM0001, ACM0002, ACM0004, ACM0012, ACM0006, AM0018, ACM0017, ACM0009, AM0034, AMS.I.B, ACM0016, AMS-III.BL, AMS-II.L, AMS-I.I., AMS-III.A.O., ACM0010, ACM0025		
Local expert	YES (India)		
Financial Expert	YES		
Technical Reviewer	YES		
TA Expert	YES (TA 1.1, TA 1.2, TA 3.1, TA 13.1)		
Reviewed by	Shifali Guleria	Date	06/03/2023
Approved by	Deepika Mahala	Date	06/03/2023

Competence Statement	
Name	Parul Srivastava
Education	PhD Forest Ecology and Environment M.Sc. Botany B.Sc. Botany and Chemistry
Experience	20 years
Field	Forestry
Approved Roles	
Team Leader	NO
Validator	NO
Verifier	NO
Methodology Expert	NO
Local expert	NO
Financial Expert	NO

Technical Reviewer	NO		
TA Expert (14.1)	YES		
Reviewed by	Shifali Guleria (Quality Manager)	Date	13/04/2023
Approved by	Deepika Mahala (Technical Manager)	Date	13/04/2023

APPENDIX IV: CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS

Table 1. Remaining FAR from validation

FAR ID	01	Section no.	3.2.10, 3.2.23, 3.2.40, 3.2.41, 3.5.14	Date : 22/03/2023
Description of FAR				
Following FAR has been raised in the validation. The stakeholder engagement started after the start date of the project. Hence, as per section G5 of CCB standard v3.1, PP is required to provide proof that project activities do not lead to involuntary removal or relocation of property rights holders from their lands or territories and do not force them to relocate activities important to their culture or livelihood. PP will respect customary tenure and resources use of the communities. During the validation, PP has provided justification which is as follows: “Please note that none of the project activities lead to involuntary removal or relocation of property rights holders from their lands or territories and do not force them to relocate activities important to their culture or livelihood. Furthermore, the project area contains no permanent human settlements. Evidence of further consultations and assurance that customary rights of the local communities will be respected through the project crediting period will be provided prior to first verification.” Kindly address.				
Project participant response				Date : 09/05/2023
There were no activities implemented during the monitoring period reported due to restrictions related to COVID pandemic and internal elections in the communities. Please also note that the communities are located outside the project boundary, The ongoing project activities have not led to involuntary removal or relocation of property rights holders from their land or territories, nor has it forced the communities to relocate activities important to their culture or livelihood. Though there are related issues raised by the communities regarding their land and territories, these occurred when part of their territory was gazetted as the Kuamut Forest Reserve in 1984 by the State Government. This was long before the project was implemented. The project has actually opened opportunities for the communities to discuss this issue in a positive manner and move forward to finding solutions to their grievances. The PP has made assurances to the communities that the project will respect customary tenure and resources use of the communities. Evidence includes the report of the consultations with communities as well as the interviews with communities conducted by the auditor.				
Documentation provided by project participant				
Consultation report from PACOS				
VVB assessment				Date: 02/06/2023

PP had shared the Consultation report from PACOS from that report it is concluded by the assessment team that project has no negative impact on the LSC and the project activities do not lead to involuntary removal or relocation of property rights holders from their lands or territories and do not force them to relocate activities important to their culture or livelihood.

Hence, as per section G5 of CCB standard v3.1 the criteria of project activities do not lead to involuntary removal or relocation of property rights holders from their lands or territories and do not force them to relocate activities important to their culture or livelihood and Consultation report from PACOS is provided as evidence.

FAR #01 is closed.

FAR ID	02	Section no.	3.4.15	Date	22/03/2023
Description of FAR					
In Section 4.5.2 of the PD, PP claims for gold level criteria for Short-term and Long-term Community Benefits and has listed number of activities. However, during the audit it was found that as of now due to different constraints no such activities could be implemented. Hence, to continue the claim PP is required to provide the evidence that all the listed activities are implemented before the first verification.					
Project participant response					Date
The community activities were not implemented during the monitoring period given the restrictions related to the pandemic and internal governance process after the project started. For this monitoring period we will not claim gold level criteria for community benefits.					09/05/2023
Documentation provided by project participant					
Monitoring report					
VVB assessment					Date
PP has clearly mentioned that they are not claiming gold level criteria for Short-term and Long-term Community Benefits for the first monitoring period. However, VVB would like to further clarify how the details provided in the MR and submitted evidence are supporting the gold level criteria for community benefits. PP shall clarify and correct the inconsistencies in the MR and response to this FAR for further assessment.					06/03/2024
Project participant response					Date
Throughout the monitoring period from 2016 to 2021, the project faced several logistical challenges, notably stemming from internal elections to establish the Management Committee (spanning from 2017 to 2020) and the pandemic (from 2020 to 2022), which restricted access to the project zone communities for extended periods. Project activities on the ground during this period, especially direct engagement with local communities, were however, carried out by the project partner organizations, including SEARRP, PACOS Trust, RBJ, and the Sabah Forestry Department. Evidence of both the local community election appointments (see folder 'PRR Round 3 > Local Elections and Appointments') and the COVID movement restrictions orders for Malaysia, Sabah and local communities (see folder 'PRR Round 3 > COVID Restrictions') have been provided.					07/03/2024
We recognize that, due to the unprecedented circumstances, there were misunderstandings and breakdowns in communication between the local and central teams across the different project partner organizations. Additionally, there was a lack of accessibility to data and archives during this challenging period. As a consequence, the previous submission of activities undertaken and impacts achieved was inaccurately reported or, more precisely, underreported. Since our previous response, we the Project Proponent, have addressed the communication issues, and completed a thorough assessment and archival process of all activities carried out by the project partners. The outcome of that process was to conclude that the project had unequivocally achieved CCB gold level criteria. Furthermore, we have provided solid evidence to substantiate all claims made in the Monitoring Report, ensuring compliance with the requirements for achieving the Gold Level for community benefits. These are as follows: 1. Demonstrate that the project zone is in a low human development country: Official data from the Malaysian Department of Statistics demonstrates that Sabah had the highest poverty incidence in Malaysia during the reported monitoring period. This can be further confirmed by other sources, like: https://www.nst.com.my/news/nation/2020/09/625711/sabah-ranks-malaysias-poorest-state-again https://www.statista.com/statistics/1196343/poverty-rate-by-state-malaysia/ https://dapmalaysia.org/english/2007/july07/lge/lge696.htm 2. Demonstrate that the project generates short-term and long-term net positive well-being benefits for smallholders/community members: Vast evidence was provided to support the claims described in section 4.4.1 of the monitoring report. These include provision of piped					

- clean water, agricultural advice and training, employment opportunities, health care and food support during the COVID pandemic, among others.
3. Identify, through a participatory process, risks for the smallholders/community members to participate in the project: Section 4.3.1 and Appendix 5 of the MR provide details of the process for involving community stakeholders with corresponding evidence including meeting reports, attendance lists and photographic recordings.
 4. Marginalized and/or vulnerable community groups: Section 4.4.2 identifies the women from Karamuak and Kuamut clusters as the most vulnerable group, for whom the provide provided targeted training programs and also benefited from the access to clean water. Supporting evidence includes lists of participants to the trainings and documented process for the installation of water pipes.
 5. Net impact on women: Section 4.4.3 provides a clear description of the process conducted to ensure women participation in the project and evidence of the benefits provided in the form of attendance lists to trainings.
 6. Benefit sharing mechanism: the project provided benefits to the communities as described in section 4.4.1 of the Monitoring Report. Although the full extent of activities were not entirely executed during the monitoring period reported due to limited access to the project zone communities as explained above. Community members effectively participated in this process (see point 8 below).
 7. Explain how relevant and adequate information about predicted and actual benefits, costs and risks has been communicated to smallholders/community members: Detailed list of community engagement activities is provided in Appendix 5 of the MR, the corresponding evidence includes detailed reports, social baseline study, brochures of the project in local language and others.
 8. Governance and implementation structures: The project governance is established following the state level regulations. The implementation of the community livelihood improvement activities are decided by the communities themselves through their existing self-governance and cultural practices. Section 4.4.5 of the MR provides further details.
 9. Capacity development: a total of 111 people in total have been trained as a result of project activities during the monitoring period. The evidence includes a list of participants, reports and material used in such trainings.

The above information was further validated during the series of interviews with all the stakeholders in the project including individuals from the project partner organizations who actually carried out the activities on behalf of the project during the monitoring period.

Documentation provided by project participant

1. Official data from the Department of statistics of Malaysia (https://v1.dosm.gov.my/v1/index.php?r=column/cone&menu_id=dTZ0K2o4YXgrSDRtaEJyVmZ1R2h5dz09)
2. Social baseline report, FPIC documents (Find evidence in folder PRR 9)
3. Evidence on trainings conducted and women participation (Find evidence in folder PRR#10_#14 under PRR round 3)
4. Recordings of the additional interviews with community members and representatives from partner organizations conducted on 5th and 6th March 2024.

VVB assessment

Date: 08/03/2024

VVB has reviewed the PP's responses and further reconfirmed the Short-term and Long-term Community Benefits claimed in this project. It was found that PP has followed the monitoring plan as per the registered PD and successfully carried out the monitoring activities to demonstrate the project's CCB benefits. All the logistical constraints and other hindrances caused due to COVID pandemic were recorded. According to MR version 3.8, dated 08/03/2024, project is claiming Gold Level Criteria only for "Climate" component. FAR#02 stands closed with the confirmation of that all the evidence supporting the implementation of CCB benefits are complete and appropriate and the project is only claiming Gold level Climate benefit in this verification.

FAR ID	03	Section no.	3.4.19	Date : 22/03/2023
Description of FAR				
In Section 4.5.6 of the PD, PP claims for gold level criteria for community benefit sharing mechanism. Details have been provided in the section. However, during the audit it was found that as of now due to different constraints the BSM is still not finalized. Hence, to continue the claim PP is required to provide the evidence that the BSM has been finalized and approved by the communities before the first verification.				
Project participant response				Date : 09/05/2023
For this monitoring period we will not claim gold level criteria for community benefits. The BSM was designed based on the consultations conducted by PACOS with the communities in Kuamut and Karamuak Cluster in 22-23 November 2022 and produced Community Development Plans (CDP). The CDP developed based on priorities identified by the community.				
Documentation provided by project participant				
Community development plans for Kuamut and Karamuak clusters of communities.				
VVB assessment				Date: 06/03/2024
PP has clearly mentioned that they are not claiming gold level criteria for BSM benefits for the first monitoring period. However, FAR still cannot be closed as there is no clarity provided in the MR or PP's response. However, VVB would like to further clarify how the details provided in the MR and submitted evidence are supporting the gold level criteria for community benefits. PP shall clarify and correct the inconsistencies in the MR and response to this FAR for further assessment.				
Project participant response				Date : 07/03/2024
As explained in FAR 02, and considering the unprecedented circumstances, we acknowledge there were breakdowns in communication between the local and central teams and across project partner organizations. Additionally, accessibility to data and archives was limited during this challenging period, leading to inaccuracies in the previous submission of activities and impacts achieved. The benefits to the communities provided by the project started right after receiving consent from communities from 2016 onwards as part of the benefit sharing mechanism which became fully operational after restrictions from entering to the communities were lifted after the pandemic period As the Project Proponent, we have taken steps to address said communication issues and completed a thorough assessment and archival process of all project activities. This assessment confirmed that the project unequivocally conferred benefits upon the communities throughout the monitoring period, in line with the benefit-sharing mechanism. Furthermore, we have provided substantial evidence to support all claims made in relation to this area in the Monitoring Report.				
Documentation provided by project participant				
Updated monitoring report				
VVB assessment				Date: 08/03/2024
VVB has reviewed the PP's responses and further reconfirmed the Short-term and Long-term Community Benefits claimed in this project. It was found that PP has followed the monitoring plan as per the registered PD and successfully carried out the monitoring activities to demonstrate the project's CCB benefits. All the logistical constraints and other hindrances caused due to COVID pandemic were recorded. According to MR version 3.8, dated 08/03/2024, project is claiming Gold Level Criteria for "Climate" component. FAR#02 stands closed with the confirmation of that all the evidence supporting the implementation of CCB benefits are complete and appropriate and the project is only claiming Gold level Climate benefit in this verification.				

Table 2. CL from this verification

CL ID	01	Section no.	Date : 22/03/2023
Description of CL			
The documents shared by PP in folder 'SOPs' and file named as "SOP_field measurements_V1.0", it is that tree height, Plot photos and Slope measurements were taken during measurement however in document named as "SOP_field measurements_V1.1", it removed the tree height, Plot photos and Slope measurements. PP shall clarify the reason for the change in SOP for field measurement.			
Project participant response			Date : 10/05/2023
Tree height's were originally measured in the field plots in 2016 as there was no local tree height model for Sabah. This data has now been combined with other datasets and used to produce a local height model for Sabah, and published in a peer reviewed journal (Philipson et al., 2020). Plot photos were originally taken to show the existence of a plot, but do not add anything when repeated. Slope measurements were originally taken as a backup for slope correction, but average slope from the LiDAR measurements proved more useful. Due to access difficulties for the plot remeasure, time was limited at the plots, and minimizing additional these three unnecessary items of data collection allowed more careful data collection for the critical DBH measurements.			
Documentation provided by project participant			
The details and explanation have been added to the section 'version log' at the end of the file SOP_field measurements_V1.1.pdf. This file is in the 'Kuamut MR' sharepoint in folder SOP's within the Climate folder.			
VVB assessment			Date: 02/06/2023
PP has provided the detailed explanation in 'version log' at the end of the file SOP_field measurements_V1.1.pdf, however PP is requested to mention about this deviation in detailed in the MR also. CL #01 stands open.			
Project participant response			Date : 05/06/2023
The details and explanation have now been added to the section ' Field Inventory ' in the MR document at the start of 'APPENDIX 1. Changes to the baseline due to the use of more accurate and up-to-date datasets'.			
Documentation provided by project participant			
Updated CCB_VCS_Monitoring_Report_Kuamut_Commented_PG.docx file.			
VVB assessment			Date: 07/06/2023
Detailed explanation has been added in the APPENDIX 1 in field inventory section. The explanation is correct and consistent in the MR. CL #01 is closed now.			

CL ID	02	Section no.		Date	22/03/2023
Description of CL					

In section 2.3.12 'Grievances (G3.8)' of MR, it is mentioned that 'The grievance redress mechanism is part of Community Work Plan but has not yet been set up.' At the time of current audit, the grievance mechanism is not fully developed by the PP.
PP is requested to clarify the grievance redressal mechanism in the monitoring report.

Project participant response

Date : 10/05/2023

There were no complaints received nor addressed by the project during that period due to no implementation of activities with communities during the reported monitoring period. Detail system of Project GRM will be set up in 2023.

For the time being the GRM is addressed through PACOS. PACOS has SOP comprises of code of conduct and complain channel (page 31-32) and complain procedure (page 62); and the project have Community Organisers in Karamuak and Kuamut Clusters, and Community Executive member (AJK) in 7 villages.

While the GRM set up, the complaint may address directly through the Community Organizer and AJK, then to be forwarded to PACOS.

Documentation provided by project participant

None,

VVB assessment

Date: 02/06/2023

PP is requested to add this explanation in their MR section 2.3.12. that currently how they are addressing GRM by using PACOS and also mentioned about how they will planning to set up the GRM for the project in future. In MR it is not mentioned.

CL #02 stands open.

Project participant response

Date : 06/06/2023

The explanation was included in the MR section 2.3.12. It was also mentioned that the possibility to include a third party as part of the GRM is currently being considered and to be reported in the following monitoring period.

Documentation provided by project participant

Updated MR

VVB assessment

Date: 07/06/2023

PP has clearly mentioned the grievance redress mechanism in the MR, section 2.3.12. For current monitoring period GRM has been addressed by PACOS and for the future PP mentioned in MR that in 2023 the detailed system of Project GRM will be set up.

CL #02 is closed.

CL ID	03	Section no.		Date : 22/03/2023
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Description of CL

In Appendix 2 'High Conservation Value (Rare, Threatened, Endemic) Species Possibly Found In Kuamut Rainforest Project Area, With Status Update During This Reporting Period' of MR, species like Flat-headed Cat, White-crowned Hornbill, Wrinkled Hornbill, Spiny Terrapin, Asian Giant Tortoise, Western Tarsier, Kayan Slow Loris, Smooth Otter and species from 34 to 51, it is mentioned that there is no specific update is available for these species but still believe that there are safe.
It is not clear, how it is believed that these species are protected in the project area. PP is requested to please clarify it.

Project participant response

Date : 05/05/2023

The HCV (Rare, Threatened and Endangered/RTE) Species that are listed as the main monitoring target in Kuamut Rainforest Project Area are being benefited from the project intervention through improvement in habitat conditions (compared to what could have happened with baseline scenario). Forest conditions as the habitat of these species in the project area are improving and recovering following project intervention that stopped logging, mosaic plantation development, and other associated human disturbances. In addition, based on observations by the project team and partners such as from the border patrol and carbon plot monitoring, there is no indication to suggest any hunting threat specifically targeting these species (cats, hornbill etc) in the project area during the monitoring period.

Documentation provided by project participant

An account on the status of each of the HCV/RTE species as the monitoring target are already submitted as Appendix 2 of the MR.
Activities related to border patrol, carbon plot monitoring are already reported in Section 2.1.1 of the MR.

VVB assessment

Date: 02/06/2023

PP has clearly defined the HCV species and how these species are protected in the project area. In section 2.1.1 and in appendix 2 the detailed explanation is provided that the project area are improving and recovering following project intervention that stopped logging, mosaic plantation development, and other associated human disturbances. These activities ultimately have positive impact on the HCV. During monitoring PP's team and partners observed it through border patrol and carbon plot monitoring.

CL #03 is closed.

CL ID	04	Section no.	Date : 22/03/2023
Description of CL			
In Appendix 2 'High Conservation Value (Rare, Threatened, Endemic) Species Possibly Found In Kuamut Rainforest Project Area, With Status Update During This Reporting Period' of MR, for several species the suggested monitoring scheme is Acoustic. PP is requested to clarify and provide supportive evidences to verify the monitoring status of these species.			
Project participant response			Date : 05/05/2023
The reported status is specified for each of the species listed in Appendix 2. The status of orang utan in the Project Area was confirmed during a 2017 survey, i.e. within the scope of the current monitoring period. Bioacoustic devices will be used for biodiversity monitoring and results reported in subsequent monitoring periods. These data will be supplemented by the use of camera trap data, dung beetle sampling and repeat surveys of orang utan. For several of the species listed in Appendix 2, the use of acoustic for the monitoring of biodiversity will be implemented and reported in the subsequent monitoring period.			
Documentation provided by project participant			
Monitoring report.			
VVB assessment			Date: 02/06/2023
PP will be used the Bioacoustic devices, camera trap data and dung beetle sampling in future monitoring period. For the current monitoring period a 2017 orangutan survey was conducted only.			
CL #04 is closed.			

CL ID	05	Section no.	Date : 22/03/2023
Description of CL			
Site visit finding:			
1. During site visit it is observed that "FPIC is important element that conducted in 2022, to ensure that the community willing to participate in project implementation, resulted MOU with 7 villages that agree to participate in project activities and part of decision making", however, total 8 villages are involved in this project but the MOU is signed with only 7 villages.			

PP is requested to substantiate the finding with supportive evidences.

2. The assessment team found that no steps were taken during this monitoring period due to covid for community development, only a social baseline study has conducted.

PP is requested to mention clearly in the monitoring report if any steps taken for community development or not. If any steps are taken for community, then please provide evidence which substantiate that statement.

Project participant response

Date : 10/05/2023

1. The FPIC was conducted in 8 villages to get consent from the community in the format of the MOU that was signed by the Community representative. Out of 8 villages, [1 village \(Tenaga Baru\)](#) has not yet made their decision to give consent through MOU to participate in project activities.

2. There were no steps taken for community development during the current monitoring period. Section 2.1.1 of the MR indicates the following *"During MP, the project has not yet conducted livelihood improvement but focus on project preparation and set up target for community work, based on social survey conducted in 2019."* Also, section 2.3 indicates that no activities with communities were implemented during the monitoring period.

Documentation provided by project participant

A letter to this [village \(Tenaga Baru\)](#) is provided as supportive evidence

VVB assessment

Date: 02/06/2023

1. The FPIC was conducted in 8 villages but only seven villages signed the MOU and one village (Tenaga Baru) has not signed the MOU yet. PP is clearly mentioned the same in the section 2.3.3 of MR.

2. PP has clearly mentioned that during the current monitoring period no community development activities were took place. It is also indicated by PP in section 2.3 of MR.

CL #05 is closed now.

CL ID	06	Section No.	4.5.6, 4.6.4, 4.6.11	Date : 14/06/2023
Description of CL				

TR comments

1. In the section 4.4.2 of the MR, it is mentioned for the marginalised and/ or vulnerable community that "project will implement targeted consultation processes with women to collect their views and feedback to project implementation, respecting the community processes and mechanisms for engaging with women". PP is required to explain what is the protocol for the targeted consultation process how the women representation will be addressed in these processes?
2. In the section 4.4.3 of the MR, it is given that "the project aims to generate positive impacts on the livelihoods of women and ensuring that women participate in decision-making together with involvement in project implementation activities". Please explain how this has been achieved in this monitoring period. Also, is there any protocol that talks about the women participation?
3. Section 5.1.4 of the MR
Please clarify what are the identified HCVs in the protected area. Is there any document that presents or lists out those HCV components that the project takes into account?
4. Section 5.2.1 of the MR
VVB has checked the biodiversity monitoring plan, however, it is not clear whether there is any monitoring plan on hunting. How the reduction in number is measured and what are the achieved no. in this verification period.
5. Additionally, it is not clear in the section 5.3.1 whether the results of the targets given in biodiversity monitoring plan of the project has been achieved or not.
6. Please add relevant literature source in section 5.3.1 of the MR.

Project participant response

Date : 14/06/2023

1. The consultation process followed the FPIC process described in the PD which ensures equal participation from all relevant stakeholders, including ensuring participation of women and marginalized groups. Evidence of FPIC consultation process was provided during validation.
2. The consultation process followed the FPIC process described in the PD which ensures equal participation from all relevant stakeholders, including ensuring participation of women and marginalized groups. Evidence of FPIC consultation process was provided during validation.
3. The following was added to the MR: *As described in the PD section 2.1.7, although the community development activities are not expected to be negatively impacted by the project activities, the project has conducted a series of participatory mapping exercises with communities, using scaled base maps to record data on High Conservation Value (HCV) areas of importance to communities, agricultural sites, settlement areas and main infrastructure. Some HCV 5 (gathering of natural resources for subsistence) and HCV 6 (sites of cultural significance) are situated within the northern part of the project area near both the Kuamut and Karamuak clusters, though no agricultural areas were identified inside the project area.*
4. The patrolling report conducted by the Forestry Division of Yayasan Sabah was provided as evidence of preventing illegal activities within the project area, including hunting. This was also discussed during the field visit and the auditor onsite interviewed the officer in charge of the Forestry Division
5. Evidence of the achievement of the monitoring target was provided through scientific publications and quoted in the MR
6. All relevant literature was added to the MR.

Documentation provided by project participant

Updated MR

VVB assessment

Date: 20/06/2023

PP has provided an explanation for all the findings raised in the TR round and updated the MR as per the comments. VVB confirmed that this information has been discussed and confirmed during on-site visit. CL#06 stands closed.

Table 3. CAR from this verification

CAR ID	01	Section no.		Date : 22/03/2023
Description of CAR				
In MR, section 2.1.4 Other Entities Involved in the Project, The table is found inconsistent with the Monitoring Report template: CCB v.3, VCS v.3.4 section 2 'Role in the project' is not mentioned in the table. PP is requested to make it consistent with the updated version of monitoring report CCB and VCS				
Project participant response				Date : 10/05/2023
The table was amended to make it consistent with the updated version of monitoring report CCB and VCS				
Documentation provided by project participant				
Monitoring report				
VVB assessment				Date: 02/06/2023
PP has revised and updated the section 2.1.4 Other Entities Involved in the Project. The table is now inline with the template. CAR #01 is closed.				

CAR ID	02	Section no.		Date : 22/03/2023
Description of CAR				
1. On page number 2 of MR, the page number mentioned in the table of contents is found inconsistent with the real page number of the sections. 2. Font size is not consistent in table 1.1 Unique Project Benefits in the monitoring report. PP is requested to update the Table of contents and make the monitoring report consistent.				
Project participant response				Date : 10/05/2023
The table of contents is now updated in the clean version of the Monitoring Report				
Documentation provided by project participant				
Monitoring report				
VVB assessment				Date: 02/06/2023

All the inconsistencies in table of contents and font size in the table 1.1 has be revised and updated correctly.
CAR #02 is closed.

CAR ID	03	Section no.		Date : 22/03/2023
Description of CAR				
In MR, section 1.1 Unique project benefits, in the table on page no.3 two columns (Section reference and Achievements during the Project Lifetime) are blank. PP is requested to fill the Section reference and Achievements during the Project Lifetime in the blank column.				
Project participant response				Date : 10/05/2023
The table of Unique project benefits is now complete.				
Documentation provided by project participant				
Monitoring report				
VVB assessment				Date: 02/06/2023
Section 1.1 Unique project benefits, Section reference and Achievements during the Project Lifetime are appropriately defined in the table. PP has appropriately addressed the finding. CAR #03 is closed.				

CAR ID	04	Section no.		Date : 22/03/2023
Description of CAR				
In MR "section 2.3.3 Informational Meetings with Stakeholders (G3.1)", it is mentioned that 'In September-October 2022, PACOS Trust conducted FPIC in Kuamut and Karamuak clusters (8 villages), attended by communities.' But in the same paragraph it is mentioned that the community from 7 villages elected their representative. It is not clear that whether 7 villages or 8 villages are part of FPIC meeting. It is found inconsistent throughout the monitoring report.				
Project participant response				Date : 10/05/2023
The FPIC was conducted in 8 villages to get consent from the community in the format of the MOU that was signed by the Community representative. Out of 8 villages, 1 village (Tenaga Baru) has not yet made their decision to give consent through MOU to participate in project activities. Section 2.3.3 includes the following sentence for clarification: "One of the villages, Tenaga Baru, has not yet made their decision to give consent through MOU to participate in the project activities."				
Documentation provided by project participant				
The letter to this village (Tenaga Baru) is provided as supportive evidence.				
VVB assessment				Date: 02/06/2023
The FPIC was conducted in 8 villages but only seven villages signed the MOU and one village (Tenaga Baru) has not signed the MOU yet. PP is clearly mentioned the same in the section 2.3.3 of MR. CAR #04 is closed now.				

CAR ID	05	Section no.		Date : 22/03/2023
Description of CAR				

In section 3.1.2 Data and Parameters Monitored of MR,

1. The data / parameter PMPi is not mentioned in the monitoring report, however in PD the parameter is mentioned.
2. The data unit for parameter Bi,t|PRJ is mentioned as t d. m. ha which is found inconsistent with PD. According to PD version 3.3, page no. 170 the unit for parameter Bi,t|PRJ is t d. m. ha⁻¹.

PP is requested to make the monitoring report consistent with the PD.

Project participant response

Date : 10/05/2023

1. PMPi has been inserted under the monitored parameters as per the PD.

It is noted that the analysis to estimate the value of PMPi has not changed compared to the PD. This is because the value is used in the calculation of market leakage. It is used in the calculation of a leakage factor that is used to determine where in the country logging will be increased as a result of the decreased timber supply caused by the project.

The methodology states that if harvesting is displaced to forests where a lower proportion of forest biomass is merchantable material from harvestable species than in the project area, then in order to extract a given volume higher emissions should be expected as more trees will need to be cut to supply the same volume. In contrast if a higher proportion of the total biomass of commercial species is merchantable in the displacement forest than in the project forests, then a smaller area would have to be harvested and lower emissions would result. According to the methodology, each project must therefore calculate within each stratum the ratio of merchantable biomass to total biomass (PMPi). This shall then be compared to the ratio of merchantable biomass to total biomass for each forest type (PMLFT).

It is our understanding that market leakage is about the timber that would have been harvested under the baseline scenario but is not harvested under the project. Therefore, it is also our understanding that for the calculation of PMPi, both the merchantable biomass and the total biomass in the project area (which are the 2 parameters going into the calculation of the ratio), should be estimated for the baseline scenario to represent what would have been harvested under the baseline scenario. Recalculating PMPi for all strata based on the monitored growth in the project scenario and re-calculating the leakage factor based on such an updated PMPi therefore does not seem appropriate since this wouldn't represent anymore the expected timber harvest under the baseline scenario (ie the timber harvest plan for the baseline scenario does not change because of the biomass present under the project scenario).

So we have included PMPi in the PD and the MR in the list of parameters to be monitored to follow the list in the methodology, However, based on the above it does not seem to make sense to update PMPi and recalculate the leakage factor. **This is also our understanding from the comment on PMPi in section 9.2 of the methodology which states that “Ex-ante a time zero measurement must be made of this factor.** The timber harvest plan sets the allowable mean extracted volume from the merchantable volume of timber in the forest inventory ($V_{j,i|BSL}$), based on legal limits”. We read this to confirm that PMPi and the leakage factor are based on the timber harvest plan and not updated. That said, while we keep our analysis to estimate PMPi the same, an update to the DEM does result in a slight change in the PMPi value since the PD due to updated input data. The resulting Leakage Factor, LF_{ME} remains the same. We have described this in ‘**Appendix 1: Changes to the baseline due to the use of more accurate and up-to-date datasets.**’

2. Parameter ‘Bi,t|PRJ’ is indeed expressed on a per area basis, and the superscript ‘-1’ has been added to the units. t d. m. ha⁻¹ currently on page 35-36 in the MR.

Documentation provided by project participant

VVB assessment

Date: 02/06/2023

1. The table has been added by PP in the MR but the following deviation observed in the PMPi parameter table:
 - i. Frequency of monitoring/recording is inconsistent with PD
 - ii. Value applied in the table is inconsistent with the PD (OPEN)

2. Data unit for parameter Bi,t|PRJ is now correctly mentioned in the MR section 3.1.2. (Closed)

CAR #05 stands OPEN.

Project participant response	Date : 06/06/2023
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i. We have updated the information on PMPi in the table 'Data and Parameters Monitored' to read "At each monitoring event we will reassess if *PMPi* should be updated."

ii. It is correct that The PMPi value has changed a very small amount because of minor changes in the DEM result in minor changes in the strata, which we had not made sufficiently clear. We have now clarified the text (both above and in the MR). The overall leakage value LF_{ME} remains unchanged.

We have therefor updated the text in the MR for section '3.2.3 Leakage' and specifically the phraseology in section 'Analysis for leakage due to market effects (section 8.3.2 of the methodology)'. This is also described in the Appendix 1, APPENDIX 1: CHANGES TO THE BASELINE DUE TO THE USE OF MORE ACCURATE AND UP-TO-DATE DATASETS

Documentation provided by project participant

VVB assessment	Date: 07/06/2023
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i. PP has updated the PMPi parameter Frequency of monitoring/recording and found consistent with PD.

ii. The value of parameter PMPi has slightly changed as compared to PD. The change is appropriately explained in the MR in Appendix 1: Changes To The Baseline Due To The Use Of More Accurate And Up-To-Date Datasets.

CAR #05 is closed.

CAR ID	06	Section no.		Date : 22/03/2023
Description of CAR				
The document named "Kuamut_ComparingFieldTeamReportAndDeforestationAnalysis" shared by PP is empty and no information is provided in the shared document. PP is requested to provide information regarding deforestation and to verify the deforestation area in the project boundary. The data is required to verify the numbers mentioned in the section 3.2.2 Project Emissions, Table 6: Annual deforestation figures resulting from illegal logging activities within the Kuamut project area.				
Project participant response				Date : 10/05/2023
The file Kuamut_ComparingFieldTeamReportAndDeforestationAnalysis.docx has been uploaded again to sharepoint and also emailed for clarity.				
Documentation provided by project participant				
File Kuamut_ComparingFieldTeamReportAndDeforestationAnalysis.docx				
VVB assessment				Date: 02/06/2023
Kuamut_ComparingFieldTeamReportAndDeforestationAnalysis has been shared by PP.				
CAR #06 is closed.				

CAR ID	07	Section no.		Date : 22/03/2023
Description of CAR				

In section 2.1.4 of MR:-

The table is found inconsistent with the MR: CCB v.3, VCS v.3.4 section 2 'Role in the project' is not mentioned in the table.

PP is requested to make it consistent with the updated version of monitoring report CCB and VCS.

Project start date is inconsistent.

On cover page the crediting period is from 01/01/2016 to 31/12/2045 and in section 2.1.6 the crediting period is from 11/12/2015 to 01/12/2045, which is inconsistent in the MR.

Project participant response	Date : 10/05/2023
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Section 2.1.4 of the MR has been amended, including 'Role in the project' in the table.

The project start date is now consistent through the document. The correct start date is 11/12/2015

Documentation provided by project participant

VVB assessment	Date: 02/06/2023
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Section 2.1.4 has been revised.

Section 2.1.6 has been revised and the start date is now consistent in the document.

CAR #07 is closed.

CAR ID	08	Section no.		Date : 22/03/2023
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Description of CAR

In section 2.1.6 of MR:-

Project crediting period start date is inconsistent.

On cover page the crediting period is from 01/01/2016 to 31/12/2045 and in section 2.1.6 the crediting period is from 11/12/2015 to 01/12/2045, which is inconsistent in the MR.

PP is requested to make it consistent and substantiate with evidence.

Project participant response	Date : 10/05/2023
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This is now corrected. The correct start date is 11/12/2015

Documentation provided by project participant

Monitoring report

VVB assessment	Date: 02/06/2023
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The crediting period is now consistent throughout the MR.

CAR #08 is closed.

CAR ID	09	Section no.		Date : 22/03/2023
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Description of CAR

The training evidences provided by PP are for the year 2022, but the monitoring period is 1st-January-2016 – 31st December 2021.

PP is requested to provide training evidences and other evidences which are provided in between the monitoring period.

Section 2.1.10

Assessment team observed during site visit that due to covid no community development activities were performed. If no such activity performed by PP then how PP claim for SDG 01, 02, 03, 04, 06, 07 and 12.

PP is requested to substantiate with evidences.

Project participant response	Date : 10/05/2023
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There were no activities related to training during the reported monitoring period. The following text was added in section 2.3.13 Worker Training: *"No activities related to worker training are reported during this monitoring period."*

The following text was added in section 2.1.10: *"Given the restrictions related to COVID pandemic during the monitoring period, it was not possible to implement activities that contribute to all UN SDGs in the previous years, thus this monitoring report only claims contribution to SDG 13 and SDG 15 in this monitoring period."*

Documentation provided by project participant

Monitoring report

VVB assessment

Date: 02/06/2023

1. PP is only claiming SDG 13 and 15 for this current monitoring period. It is also explained by PP in section 2.1.10 of MR.
2. In section 2.1.10. the MR is mentioned SDG 2, 3, 4, 6 which are not mentioned in the PD. These SDGs are inconsistent with the PD.
PP is requested to make it consistent with the PD. (OPEN)

CAR #09 stands OPEN.

Project participant response

Date : 06/06/2023

Table in section 2.1.10 is now consistent with the PD. Nonetheless, please note that as the project implementation continues, the opportunity to contribute to additional SDGs such as 2,3,4,6 increases and also demonstrates improvement of the impact of the project with the communities.

Documentation provided by project participant

Updated MR section 2.1.10

VVB assessment

Date: 07/06/2023

PP removed the SDG 2, 3, 4 and 6 from the 'Table 1: Kuamut project support of UN SDGs'. For the current monitoring period SDG 13 and 15 are claimed by PP. PP also mentioned that in future it is possible that SDG 2, 3, 4 and 6 may be included in the future monitoring period.

CAR #09 is closed.

CAR ID	10	Section No.	4.4.1, 4.4.4	Date :	14/06/2023
Description of CAR					
TR comments					
1. VVB has checked the emission reduction calculation through R coding files, however, final calculation table of ER (actual ERs achieved in this monitoring) in tabulated format to cross-check the total ER value.					
Project participant response					Date : 14/06/2023
1. We have now added both tables in .csv for excel and tables exported to word.docx files for easy viewing. These as exports from our code pipeline, and so can also additionally be directly recreated from the R code.					
2.					
Documentation provided by project participant					
1. Tables 4, 5, 7, 8 and 11 updated in excel and word formats.					
2. Updated MR					
VVB assessment					Date: 2006/2023
VVB has checked the updated files for the ER calculation, and it was found that PP has sufficiently provided the calculations files to reproduce the calculation, achieved ERs are verifiable and correctly calculated. CAR#10 stands closed.					

CAR ID	11	Section no.		Date: 06/03/2024
Description of CAR				
MR Section 4.1.1 – Community benefits				
It is given under section 4.1.1 that Karamuak Cluster is getting direct benefits of repaired community buildings that are used for community gatherings, training and accommodation, contributing to the broader goals of community infrastructure improvement, and fostering a sense of pride and security. Given these are community buildings, the repairs impacted up to 30-50 people. Other benefits given in MR are as follows. • Karamuak Cluster - Community Building (rest houses, hostel and community hall) Repairs • Karamuak Cluster – Construction of Community Hall Toilet • Karamuak Cluster - Tree Felling for Safety • Karamuak Cluster - Construction of Protective Fence • Karamuak Cluster - Provision of Polypipes for Water System • Tongod Communities - Youth Day Event • Karamuak and Kuamut Clusters - Community Learning Centre Training • Karamuak and Kuamut Clusters - Environmentally-Friendly Farming Training • Karamuak and Kuamut Clusters - Food Processing and Entrepreneurship Training • Karamuak and Kuamut Clusters - Handicraft and Ecotourism Training • Karamuak and Kuamut Clusters – Annual Joint Tactics (2018-21) • Karamuak and Kuamut Clusters – Annual Paralegal Training (2016-21) It was found that MR also reports additional community impact considerations which are covered in registered PD. PP shall explain how the new claims made in the MR (as listed above) are in line with the - registered PD and - community monitoring plan - whether demonstrated under qualitative or quantitative benefits				
Project participant response				Date: 07/03/2024
Alignment with Registered PD				
Community Building Repairs and Infrastructure Improvements: The repair of community buildings, construction of community hall toilets, tree felling for safety, construction of protective fences, and provision of polypipes align with the PD's emphasis on improving community infrastructure (section 4.4.1). These actions contribute to the broader goals of enhancing community facilities, which is in line with the PD's focus on infrastructure improvement and other changes to livelihoods and wellbeing. Training Programs: The wide array of training programs (e.g., Community Learning Centre Training, Environmentally-Friendly Farming, Food Processing and Entrepreneurship, Handicraft and Ecotourism) directly supports the PD's objectives of improving opportunities, capacity, and livelihoods (section 4.4.1). These training programs are aimed at building skills and knowledge that enhance economic opportunities and promote sustainable practices, resonating with the PD's goals. Conservation Efforts: Activities such as the Annual Joint Tactics and Annual Paralegal Training contribute to the project's conservation efforts by enhancing community understanding of legal frameworks and conservation strategies (section 4.4.1). This is consistent with the PD's emphasis on promoting environmental stewardship and sustainable resource management.				
Alignment with Community Monitoring Plan				
Monitoring Methods: The MR (section 4.3.1) reflects the use of various monitoring methods outlined in the Community Monitoring Plan (PD- section 4.4.1), such as field visits, direct observations, stakeholder engagements, and informal interviews. These methods enable the collection of both qualitative and quantitative data on the project's impacts, aligning with the plan's comprehensive monitoring approach.				

Impact Indicators: The reported outcomes, such as the number of participants trained, employment opportunities created, and improvements in infrastructure, correspond to the specific indicators mentioned in the Community Monitoring Plan (PD- section 4.4.1). These indicators include positive impacts on household incomes, infrastructure improvements, and changes to livelihood and well-being, demonstrating an alignment with the plan's focus on measuring both positive and negative project impacts.

Engagement and Evaluation: The MR's (section 4.1.1) emphasis on stakeholder engagements, community workshops, and targeted discussions reflects the Community Monitoring Plan's strategy for assessing project progress and impacts. These engagements allow for an open discussion of project outcomes and facilitate a community-based evaluation, which is in line with the monitoring plan's objectives.

Demonstrated Benefits

The MR illustrates both qualitative and quantitative benefits that align with the PD and Community Monitoring Plan. Qualitatively, the project has fostered a sense of pride, security, and community cohesion through infrastructure improvements and engagement activities. Quantitatively, the training programs and infrastructure projects have directly benefited community members by enhancing skills, creating employment opportunities, and improving living conditions.

Economic Empowerment and Livelihood Enhancement

Training Programs: The MR (Section 4.4.1) highlights numerous training initiatives, including those focused on environmentally-friendly farming, food processing and entrepreneurship, handicraft and ecotourism. Such programs directly contribute to economic empowerment by equipping participants with new skills and knowledge, enabling them to access new employment opportunities or start their own businesses. For instance, the 111 people (MR - Section 1.1) trained across various programs would have improved employability and the potential to increase their household incomes.

Direct Employment: The project created direct employment opportunities, employing 24 individuals (MR - Section 1.1) in roles essential for management, implementation, and monitoring, plus additional roles through project partners. This not only provides immediate income for those employed but also contributes to the local economy.

Infrastructure and Community Facility Improvements

Infrastructure Development: Projects like toilet construction, protective fencing, and water system improvements have direct, tangible benefits for the community. The provision of clean water to 245 people (98 households) and improved sanitation facilities are significant for enhancing living conditions and public health.

Safety and Security Enhancements: Activities such as tree felling for safety and construction of protective fences contribute to the physical safety and security of community members, protecting them from potential hazards and improving overall community well-being.

Environmental Conservation and Sustainability

Biodiversity Conservation: The project's efforts in protecting large areas of habitat, implementing patrols to prevent illegal logging and poaching, and promoting sustainable practices have direct benefits for local wildlife and ecosystems. This not only helps in preserving biodiversity but also supports eco-tourism initiatives that can provide sustainable income sources for communities.

Sustainable Practices Training: By training community members in environmentally-friendly farming and other sustainable practices, the project contributes to long-term environmental sustainability. These practices help in minimizing the environmental footprint of agricultural activities and ensuring the conservation of natural resources for future generations.

Social and Cultural Cohesion

Community Engagement: The project fostered a strong sense of community through active participation in decision-making processes, training programs, and other engagement activities. This has enhanced social cohesion, fostering a shared identity and a collective commitment to the project's goals.

Cultural Preservation and Enhancement: Training programs related to handicraft and eco-tourism not only provide economic benefits but also help in preserving and promoting local cultures and traditions. By integrating these elements into livelihood initiatives, the project supports the cultural richness of the community.

Health and Education

Health Services Improvements: Infrastructure developments such as clean water supply and sanitation facilities directly contribute to improved public health within the community.

Educational Opportunities: Initiatives that support education, either directly through training programs or indirectly through community development, contribute to the overall well-being and future prospects of community members, especially children.

Adaptability and Resilience

Enhanced Community Resilience: By diversifying income sources through training and creating sustainable alternatives to traditional practices like hunting, the project enhances community resilience against economic and environmental challenges.

Capacity Building for Future Challenges: The skills and knowledge transferred through the project's various activities equip the community to better adapt to future changes, whether they are environmental, economic, or social.

Documentation provided by project participant

Evidence provided for PRR 10 and 14, and in the tables of CAR 02.

VVB assessment

Date: 08/03/2024

VVB has reviewed the PP's responses and checked the submitted evidence. Community benefits are now consistently reported in the MR. CAR#11 stands closed.

CAR ID	12	Section no.		Date: 06/03/2024
Description of CAR				
MR Section 4.1.1 – Community benefits				
1. VVB has checked the community and biodiversity benefits claimed in this monitoring period. PP shall explain how the benefits or outcomes of community claims for this monitoring period are recorded. 2. VVB has reviewed the submitted evidence and found that there is missing data for marked years included in the monitoring period (11/12/2015 to 31/12/2021). Please justify and substantiate with evidence if required.				
Claims made in MR section 4.1.1	Description of community benefit claimed and described in MR		VVB assessment – request for missing information and/ or evidence	
Karamuak Cluster - Community Building (rest houses, hostel and community hall) Repairs	30-50 people impacted through repaired community buildings that are used for community gatherings, training and accommodation, contributing to the broader goals of community infrastructure improvement		No qualitative or quantitative data to demonstrate the benefit is provided. Substantiate for claim made for 30-50 people	
Karamuak Cluster – Construction of Community Hall Toilet	construction of the community hall toilet		Please provide sufficient evidence to cross check this information.	
Karamuak Cluster - Tree Felling for Safety	general safety and well-being improvements		No qualitative or quantitative data to demonstrate the benefit is provided.	
Karamuak Cluster - Construction	construction of the protective fence		(a) Please provide	

of Protective Fence	around the SESB power station	sufficient evidence to cross check this information
Karamuak Cluster - Provision of Polypipes for Water System	Improved access to clean water with the provision of polypipes, 98 households received access to this clean water supply.	(a) Please provide sufficient evidence to cross check this information. Submitted evidence only has photographs. (b) What is the frequency of these trainings?
Tongod Communities - Youth Day Event	training of 123 individuals in various skills Increased participation of youth in community decision-making processes was observed	(a) Please provide sufficient evidence to cross check this information. Submitted evidence only has photographs. (b) What is the frequency of these trainings?
Karamuak and Kuamut Clusters - Community Learning Centre Training	15 individuals were trained, promoting gender equality and financial literacy.	(a) Please provide sufficient evidence to cross check this information. Submitted evidence only has photographs. (b) What is the frequency of these trainings?
Karamuak and Kuamut Clusters - Environmentally-Friendly Farming Training	15 individuals trained in organic agricultural skills	(a) Please provide sufficient evidence to cross check this information. (b) What is the frequency of these trainings?
Karamuak and Kuamut Clusters - Food Processing and Entrepreneurship Training	18 individuals received this training	(a) Though PP has provided the report, but the quantitative data is not provided to check the claim of training 18 individuals. (b) What is the frequency of these trainings?
Karamuak and Kuamut Clusters - Handicraft and Ecotourism Training	35 individuals trained in handicraft making and community-based ecotourism	(a) Though PP has provided the report, but the quantitative data is not provided to check the claim of training 18 individuals. (b) What is the frequency of these trainings?
Karamuak and Kuamut Clusters – Annual Joint Tactics (2018-21)	Annual joint tactic sessions (2018 – 2021) for community activity planning and knowledge sharing, including 6	JTS reported in MR are for period 2018 to 2021, however,

	people in total (3 female). (Kuamut 2 people x 3 sessions = 6 people)	submitted evidence include only 2018 and 2020-2021 report. (a) Justify the missing data for 2019 year included in the first monitoring period. (b) How can VVB check the data of 6 people?
Karamuak and Kuamut Clusters – Annual Paralegal Training (2016-21)	Annual paralegal training (2016-2021) for 20 people	Training reported in MR are for period 2016 to 2021, however, submitted evidence include only 2019 and 2021 report. (a) Justify the missing data for other years included in the first monitoring period. (b) Are 20 people trained in two years? Explain how it is planned to identify the need and train the number the people.

3. Furthermore, VVB request for clarification on how above listed benefits are covered and consistently presented in the Section 1.1 and 1.2 of the MR.

MR reference	Description of community benefit claimed and described in MR	VVB assessment – request for missing information and/ or evidence
Section 1.1 Unique project benefits 3) Increased sustainable job opportunities for local community groups.	The project has set up a plan to employ at least 40 full-time employees, in which 50% will be female during the project lifetime.	(a) Inconsistent with the claims made in section 4.1.1 of the MR
Section 1.1 Unique project benefits 4) Protection of RTE flora	18 RTE tree species. In 2021, Permian Malaysia conducted a survey to monitor the IUCN status' of all the tree species in a selected number of plots. In total we found that there are 18 species of critically endangered (7), endangered (3), and vulnerable (8) tree species.	(a) Incomplete details in row "Achievements during the Project Lifetime". (b) Substantiate to prove the protection of number of species reported for this monitoring period
Section 1.1 Unique project benefits 5) Habitat protection for three species of fauna that have a significant threat category.	A 2014-2017 survey estimated 630 Bornean orangutans in the Kuamut project area during this period 2017 (Simon, Davies & Ancrenaz 2019).	(a) Clarification requested whether the estimated Bornean orangutan is a result of only implementation of project activity. Also, the justification of using the research paper rather than project

		monitoring records. (b) Section 5.3.1 cites two biodiversity studies conducted within the project area to substantiate the biodiversity impacts being claimed for this monitoring period. It is unclear if these studies were conducted by the project or if they were conducted by external parties. Please justifies how the project is able to attribute population increases proposed in the Simon, Davies & Ancrenaz 2019 study to project activities during this monitoring period.
Section 1.1 Unique project benefits 6) Improved conditions for communities by improving health services, education, job creation and entrepreneurship opportunities supported.	123 people in total have been trained as a result of project activities during the MP. Various training programs have been run during the monitoring period, including Accounts and Management Training at the Community Learning Centre (15), organic agricultural skills (15), food processing and entrepreneurship (18), handicraft making and community based ecotourism (35), socio-economic training (6), joint tactics knowledge sharing session (6) and annual paralegal training (20). 2 Pre School teachers in Kg Kuamut & Tangkuyan have been supported by the project funds. 245 people received food aid via PACOS during COVID pandemic	(a) These records were not found to be completely inconsistent with the records provided in section 4.1.1 of the MR. Clarify and substantiate.
MR 1.2 Standardized Benefit Metrics Trainings	8 people employed and trained for regular patrols of the project area to monitor illegal logging and poaching	Please mention the evidence and explain the monitoring and recording procedure for the same.
MR 1.2 Standardized Benefit Metrics Trainings	80 women in total have been trained as a result of project activities during the MP	Please mention the evidence and explain the monitoring and recording procedure for the same.
MR 1.2 Standardized Benefit Metrics Employment	24 people (plus an additional 38 from our project partner, RBJ) were employed in relation to management, implementation of project activities and monitoring. 7 women (plus an additional 10 from our	Please mention the evidence and explain the monitoring and recording procedure for the same.

	project partner, RBJ) were employed in relation to management	
MR 1.2 Standardized Benefit Metrics Livelihoods	141 people with improved livelihoods from job creation and training.	Please mention the evidence and explain the monitoring and recording procedure for the same.
MR 1.2 Standardized Benefit Metrics Livelihoods	82 women with improved livelihoods from training and job creation.	Please mention the evidence and explain the monitoring and recording procedure for the same.

Following the requirements of the above table, please also justify the claims and substantiate for other benefits viz., health, education, water, well-being, and biodiversity conservation.

4. It is not clear from MR if PP is responsible for carrying out and record the outcomes of these activities. Indicate the entity that is responsible for these activities and their means of recording and updating data for this monitoring period.

Project participant response

Date: 07/03/2024

1. VVB has checked the community and biodiversity benefits claimed in this monitoring period. PP shall explain how the benefits or outcomes of community claims for this monitoring period are recorded.

The activities related to trainings and capacity building are recorded in the form of reports and photographic images by PACOS. This data is collected from the field officers and subsequent reports are produced. These reports are provided and referred to specifically as evidence throughout this CAR 02 (however please see evidence folder 'PRR Round 3' provided to the VVB for comprehensive evidence).

The activities related to infrastructure and patrolling activities are also recorded in reports produced by RBJ on a monthly and quarterly basis. These reports are provided and referred to specifically as evidence throughout this CAR 02 (however please see evidence folder 'PRR Round 3' provided to the VVB for comprehensive evidence).

2. VVB has reviewed the submitted evidence and found that there is missing data for marked years included in the monitoring period (11/12/2015 to 31/12/2021). Please justify and substantiate with evidence if required.

Claims made in MR section 4.1.1	Description of community benefit claimed and described in MR	VVB assessment – request for missing information and/ or evidence
Karamuak Cluster - Community Building (rest houses, hostel and community hall) Repairs	30-50 people impacted through repaired community buildings that are used for community gatherings, training and accommodation, contributing to the broader goals of community infrastructure improvement	No qualitative or quantitative data to demonstrate the benefit is provided. Substantiate for claim made for 30-50 people PP response: Additional evidence is provided in the evidence folder 'PRR#10_#14 > RBJ Community Activities > 2018 Summary Community Activities.pdf'. Evidence is dated 9th July 2018 and is part of RBJ's monthly Community Forestry Progress Report for the month of June 2018. According to page 25 of the 'A60 Kuamut Social Baseline Survey...' report conducted

		by the project (see evidence folder PRR#10_#14), the number of households in the Karamuak Dalam and Luar village clusters is a combined 170 households (907 inhabitants), however we estimate that 30-50 people will benefit based on the level of use of the community building witnessed and fed back by the team.
Karamuak Cluster – Construction of Community Hall Toilet	construction of the community hall toilet	Please provide sufficient evidence to cross check this information. PP response: Additional evidence is provided in the evidence folder 'PRR#10_#14 > RBJ Community Activities > 2018 Summary Community Activities.pdf'. The evidence is dated 4th April 2018 and is part of RBJ's monthly Community Forestry Progress Report for the month of March 2018.
Karamuak Cluster - Tree Felling for Safety	general safety and well-being improvements	No qualitative or quantitative data to demonstrate the benefit is provided. PP response: Additional evidence is provided in the evidence folder 'PRR#10_#14 > RBJ Community Activities > 2018 Summary Community Activities.pdf'. The evidence is dated 7th September 2018 and is part of RBJ's monthly Community Forestry Progress Report for the month of August 2018.
Karamuak Cluster - Construction of Protective Fence	construction of the protective fence around the SESB power station	Please provide sufficient evidence to cross check this information PP response: Additional evidence is provided in the evidence folder 'PRR#10_#14 > RBJ Community Activities > 2018 Summary Community Activities.pdf'. The evidence is in the form of three letters exchanged by Sabah Electricity Sdn and RBJ's Community Forestry Unit, dated between the 27th February 2018 until 28th March 2018. The evidence from the letter dated 22nd March 2018 shows that RBJ approved SESB's request to construct the fence surrounding the area for health and safety reasons. Additional photos of the before and after have been provided in the same folder.
Karamuak Cluster - Provision of Polypipes for Water System	Improved access to clean water with the provision of polypipes, 98 households received access to this clean water supply.	(a) Please provide sufficient evidence to cross check this information. Submitted evidence only has photographs. (b) What is the frequency of these trainings? PP response: Additional evidence for the provision of clean water materials has been provided in the evidence folder 'PRR#10_#14 > RBJ Community Activities > Polypipe Clean Water Installation'. The evidence is in the form of two documents,

		the first being signed letters from the community leaders of the Karamuak Dalam village requesting contributions from RBJ for construction materials for clean gravity water feed supplies. The second piece of evidence is in the form of invoices and receipts confirming the order and payment of the materials. Additional photos have been provided in the same folder. According to page 25 of the 'A60 Kuamut Social Baseline Survey...' report conducted by the project (see evidence folder PRR#10_#14), the number of households in the Karamuak Dalam village is 116, however the clean gravity water is accessible to 98 households. For clarity, this is not a training activity and was provided as a single community activity upon request.
Tongod Communities - Youth Day Event	training of 123 individuals in various skills Increased participation of youth in community decision-making processes was observed	(a) Please provide sufficient evidence to cross check this information. Submitted evidence only has photographs. (b) What is the frequency of these trainings? PP response: For clarity, this is not a training activity. This is a one-off project activity that is being claimed as a qualitative benefit. Likewise the project is not claiming that 123 individuals were trained as part of this activity. This figure references the broader number of community members trained throughout the monitoring period. Evidence of the activity has been recorded and provided by RBJ in the form of expenses and receipts for the participants and organisers in the folder 'PRR#10_#14 > 2020 Summary Community Activities.pdf'. Please note that following reconciliation of the evidence available, the total number of community members in the project zone receiving training was 111. The number of women who received training was therefore 74.
Karamuak and Kuamut Clusters - Community Learning Centre Training	15 individuals were trained, promoting gender equality and financial literacy.	(a) Please provide sufficient evidence to cross check this information. Submitted evidence only has photographs. (b) What is the frequency of these trainings? PP response: Additional evidence for the provision of this training has been recorded and provided by PACOS in the evidence folder 'PRR#10_#14 > Training > CLC Accounts Training 2017'. The evidence is in the form of the participants lists. Regarding the frequency of this training, it has been confirmed that the training event

		occurred only once in 2017.
Karamuak and Kuamut Clusters - Environmentally-Friendly Farming Training	15 individuals trained in organic agricultural skills	(a) Please provide sufficient evidence to cross check this information. (b) What is the frequency of these trainings? PP response: To verify the information provided, we have received additional evidence regarding Environmentally Friendly Farming training in the evidence folder named 'PRR#10_#14 > Training > Environmentally Friendly Farming 2020'. This additional documentation consists of two documents: the environmental friendly farming training report and the participant lists from the trainings. The training was provided and reported on by PACOS. Regarding the frequency of these trainings, it has been confirmed that the training event occurred only once, from the 29th to the 31st of January 2020.
Karamuak and Kuamut Clusters - Food Processing and Entrepreneurship Training	18 individuals received this training	(a) Though PP has provided the report, but the quantitative data is not provided to check the claim of training 18 individuals. (b) What is the frequency of these trainings? PP response: Additional evidence for the provision of the food processing training has been provided in the evidence folder 'PRR#10_#14 > Training > Food Processing Training 2020'. The evidence includes two documents, a participant list, clearly indicating that there were 18 participants, alongside photos of the products developed during the training and the food processing training report. This substantiates the delivery of the training to the specified number of individuals. The training was provided and reported on by PACOS. The training was conducted as a one-time event, taking place from the 19th to the 21st of February 2020.
Karamuak and Kuamut Clusters - Handicraft and Ecotourism Training	35 individuals trained in handicraft making and community-based ecotourism	(a) Though PP has provided the report, but the quantitative data is not provided to check the claim of training 35 individuals. (b) What is the frequency of these trainings? PP response: Additional evidence for the provision of the food processing training has been provided in the evidence folder 'PRR#10_#14 > Training > Handicraft 2021'. The evidence includes two documents, a participant list, clearly indicating that there

		were 35 participants, and the handcraft training report. This substantiates the delivery of the training to the specified number of individuals. The training was provided and reported on by PACOS. The training was conducted as a one-time event, taking place from March 30th to April 1st, 2021.
Karamuak and Kuamut Clusters – Annual Joint Tactics (2018-21)	Annual joint tactic sessions (2018 – 2021) for community activity planning and knowledge sharing, including 6 people in total (3 female). (Kuamut 2 people x 3 sessions = 6 people)	<i>JTS reported in MR are for period 2018 to 2021, however, submitted evidence include only 2018 and 2020-2021 report. (a) Justify the missing data for 2019 year included in the first monitoring period. (b) How can VVB check the data of 6 people?</i> PP response: To clarify (and as acknowledged by the VVB as being mentioned in the MR), there were only three training sessions claimed to be conducted between 2018 – 2021. These took place in 2018, 2020 and 2021. Therefore, 2019 data is not missing. The participants for each can be seen in the folder 'PRR#10_#14 > Training > Joint Tactic Session 2018-21'. 2018 participants are on page 4 & 5 of the respective report. 2020 and 2021 participants are on pages 150, 157 and 172 of the respective report.
Karamuak and Kuamut Clusters – Annual Paralegal Training (2016-21)	Annual paralegal training (2016-2021) for 20 people	<i>Training reported in MR are for period 2016 to 2021, however, submitted evidence include only 2019 and 2021 report. (a) Justify the missing data for other years included in the first monitoring period. (b) Are 20 people trained in two years? Explain how it is planned to identify the need and train the number the people.</i> PP response: The participants for each can be seen in the folder 'PRR#10_#14 > Training > Paralegal Training'. 2016 participants are on pages 3 and 4. 2019 participants are on page 39. List of participants were not collected for the years 2017, 2018 and 2021 – therefore, we've revised the benefit metric in the MR to reflect 8 people received training instead of 20. Each of the years that the training has taken place, 4 representatives from the Kuamut project zone communities are selected to attend alongside other community representatives.

		The training was provided and reported on by PACOS. Regarding the identification of the need for the training, the training supports the communities to understand their basic customary rights to empower them as indigenous peoples.
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3. Furthermore, VVB request for clarification on how above listed benefits are covered and consistently presented in the Section 1.1 and 1.2 of the MR.

MR reference	Description of community benefit claimed and described in MR	VVB assessment – request for missing information and/ or evidence
Section 1.1 Unique project benefits 3) Increased sustainable job opportunities for local community groups.	The project has set up a plan to employ at least 40 full-time employees, in which 50% will be female during the project lifetime.	(a) Inconsistent with the claims made in section 4.1.1 of the MR PP response: to clarify, this is a target across the lifetime of the project only and is NOT being claimed as the benefits during this monitoring period.
Section 1.1 Unique project benefits 4) Protection of RTE flora	18 RTE tree species. In 2021, Permian Malaysia conducted a survey to monitor the IUCN status of all the tree species in a selected number of plots. In total we found that there are 18 species of critically endangered (7), endangered (3), and vulnerable (8) tree species.	Please see PP response below this table marked: “Section 1.1 Unique project benefits 4) Protection of RTE flora”
Section 1.1 Unique project benefits 5) Habitat protection for three species of fauna that have a significant threat category.	A 2014-2017 survey estimated 630 Bornean orangutans in the Kuamut project area during this period 2017 (Simon, Davies & Ancrenaz 2019).	Please see PP response below this table marked: “**5) Habitat protection for three species of fauna that have a significant threat category”
Section 1.1 Unique project benefits 6) Improved conditions for communities by improving health services, education, job creation and entrepreneurship opportunities supported.	123 people in total have been trained as a result of project activities during the MP. Various training programs have been run during the monitoring period, including Accounts and Management Training at the Community Learning Centre (15), organic agricultural skills (15),	(a) These records were not found to be completely inconsistent with the records provided in section 4.1.1 of the MR. Clarify and substantiate. PP response: The numbers in the brackets refer to the number of people attending the training. The justification and evidence has been provided to substantiate the training of 123 people in total during the monitoring period throughout the table above. Evidence for the 2 CLC pre-school teachers employed by the project are evidenced in

	food processing and entrepreneurship (18), handicraft making and community based ecotourism (35), socio-economic training (6), joint tactics knowledge sharing session (6) and annual paralegal training (20). 2 Pre School teachers in Kg Kuamut & Tangkuyan have been supported by the project funds. 245 people received food aid via PACOS during COVID pandemic	the folder 'PRR#10_#14 > Training > PACOS > CLC Teacher Payroll'. As per the evidence provided in folder 'PRR#10_#14 > Health – 2021 PACOS Food Aid', PACOS provided food aid to the Kg Kuamut community for at least 245 people. According to page 25 of the 'A60 Kuamut Social Baseline Survey...' report conducted by the project (see evidence folder PRR#10_#14), the number of inhabitants in the Kg. Kuamut village is estimated to be 352. Please note that following reconciliation of the evidence available, the total number of community members in the project zone receiving training was 111. The number of women who received training was therefore 74.
MR 1.2 Standardized Benefit Metrics Trainings	8 people employed and trained for regular patrols of the project area to monitor illegal logging and poaching	Please mention the evidence and explain the monitoring and recording procedure for the same. PP response: RBJ employed 8 staff members during the monitoring period. Evidence of employment has been provided in the form of 5 sample contracts in the folder 'PRR#10_#14 > employment > RBJ > Patroller Contract & Payroll Samples'. The monitoring procedure and results for illegal logging and poaching are detailed in the table in section 5.3.1 of the monitoring report, in particular under 'Signs of anthropogenic disturbance' and 'status of hunting activities'. Further evidence has been provided in the form of monthly patrol reports covering 65 months across the monitoring period (see folder 'PRR#17 > Anthropogenic Disturbance and anti logging > Anti logging and hunting patrols') and a deforestation report made by the field team reporting on information collected from visiting areas where deforestation activities potentially occurred (see folder 'PRR#17 > Anthropogenic Disturbance and anti logging').
MR 1.2 Standardized Benefit Metrics Trainings	80 women in total have been trained as a result of project activities during the MP	Please mention the evidence and explain the monitoring and recording procedure for the same. PP response: As per the table above, comprehensive participant lists, including men and women, have been evidenced for each training session in the folder 'PRR#10_#14 > Training'. The monitoring and recording procedure for the same are included in section 4.3.1 of the MR.

		Please note that following reconciliation of the evidence available, the total number of community members in the project zone receiving training was 111. The number of women who received training was therefore 74.
MR 1.2 Standardized Benefit Metrics Employment	24 people (plus an additional 38 from our project partner, RBJ) were employed in relation to management, implementation of project activities and monitoring. 7 women (plus an additional 10 from our project partner, RBJ) were employed in relation to management	Please mention the evidence and explain the monitoring and recording procedure for the same. PP response: Evidence of local staff employed during the monitoring period is provided in the folder 'PRR#10_#14 > employment.' SEARRP have employed 10 local staff in relation to management, implementation and monitoring of project activities during this monitoring period, with 2 being women. Evidence of the recorded payroll, sample payslips and sample local community employee IDs have been provided in the folder 'PRR#10_14 > Employment SEARRP Payroll'. This is recorded and monitored via internal payroll. RBJ have employed 8 local staff in relation to management, implementation and monitoring of project activities during this monitoring period. Evidence of the recorded payroll, sample payslips and sample local community employee IDs have been provided in the folder 'PRR#10_14 > Employment > RBJ'. This is recorded and monitored via internal payroll. PACOS have employed 6 local staff in relation to management, implementation and monitoring of project activities during this monitoring period, with 5 being women. Evidence of the recorded payroll, sample payslips and sample local community employee IDs have been provided in the folder 'PRR#10_14 > Employment > PACOS'. This is recorded and monitored via internal payroll. This means that the total number of local staff employed in relation to the project management, implementation and monitoring of the project is 24, with 7 women employed. The additional 38 staff from RBJ (including 10 women) were temporary employees and have been removed from the Benefit Metrics in MR section 1.1. and 1.2.
MR 1.2 Standardized Benefit Metrics Livelihoods	141 people with improved livelihoods from job creation and	Please mention the evidence and explain the monitoring and recording procedure for the same.

	training.	PP response: As per the reconciliation from the evidence provided in this CAR, this benefit metric in 1.2 of the MR has been updated and refers to the total sum of the people employed by the project (24) plus the total number of people trained by the project (123). Please note that following reconciliation of the evidence available, the total number of community members in the project zone receiving training was 111. This brings the total number of people with improved livelihoods to 135.
MR 1.2 Standardized Benefit Metrics Livelihoods	82 women with improved livelihoods from training and job creation.	Please mention the evidence and explain the monitoring and recording procedure for the same. PP response: As per the reconciliation from the evidence provided in this CAR, this benefit metric in 1.2 of the MR has been updated and refers to the total sum of the people employed by the project (24) plus the total number of people trained by the project (123). Please note that following reconciliation of the evidence available, the total number of community members in the project zone receiving training was 111. The number of women who received training was therefore 74. 7 local women were employed by the project. This means the total number of women with improved livelihoods from the project was 81.

***Section 1.1 Unique project benefits**

4) Protection of RTE flora

Sampling for RTE tree species took place as part of the carbon plot monitoring in 2016 (not 2021 as incorrectly stated in the MR document), and the number of RTE Tree species was 34 and not 18. Note that when we refer to RTE trees, we are referring to those species that are listed as Critically Endangered (CR), Endangered (EN) and vulnerable (VU) on the IUCN Red List. We have updated the text in the MR to reflect this change in the date of monitoring, as well as the number of RTE tree species. We have also added text to clarify how the protection of the Project Area has resulted in the protection of these RTE tree species. In short, the implementation of the project (i.e. the designation of the area as a Class I FR) has resulted in the termination of logging activities, which means that trees are no longer extracted from the area for timber; this process also damages trees and negatively affects forest structure. The project's implementation has also prevented the remaining forest from being converted into mosaic plantings, where some small natural forest areas are left and where open areas are planted with forest plantation species. In the carbon section of the MR report, we have shown that aboveground biomass (i.e., from trees and vegetation) is increasing, hence evidencing that disturbance (i.e., logging activities) has been terminated. Hence, through project implementation, the 34 RTE tree species recorded at the start of the project have been conserved and protected as a result of project activities. The specific VVB assessment requests have been addressed below:

(a) "Incomplete details in row "Achievements during the Project Lifetime."

Text has been added in the MR document in section 1.1 to clarify that the protection of the forest results in the protection of the RTE tree species, as trees are not extracted via logging activities or converted into mosaic plantings. The number “2021” has also been changed to “2016” in the MR document in sections 1.1 and 5.3.1.

(b) “Substantiate to prove the protection of number of species reported for this monitoring period.”

See comment above; protection of the forest leads to the avoidance of logging and other forms of disturbances which subsequently results in the protection of the RTE tree species identified in the survey in 2016. We have added text to the MR document in sections 1.1 and 5.3.1. that explains this point more explicitly.

****5) Habitat protection for three species of fauna that have a significant threat category**

(a) “Clarification requested whether the estimated Bornean orangutan is a result of only implementation of project activity. Also, the justification of using the research paper rather than project monitoring records.”

The Bornean orangutan population estimate for the Kuamut Project Area was estimated at approximately 630 for the 2014-2017 monitoring period (Simon, Davies & Ancrenaz 2019). If the project had not been implemented, then much of the suitable forested habitat for orangutans would have been lost to mosaic plantings and the population would have declined due to a lack of suitable habitat (Marc Ancrenaz Pers. Coms.). This is evidenced by the protection of the project area through its designation as a Class I Forest Reserve in 2016, which has resulted in the termination of anthropogenic activities (e.g., logging, conversion to mosaic plantings). Forest habitat comprising taller trees is needed to provide adequate food sources (e.g., concentrated fruiting sites) and nesting habitats (e.g., emergent nesting crowns) (Davies et al., 2017). The majority of resident females in particular would disappear, as they are unlikely to survive in mosaic plantings over the long term (Marc Ancrenaz Pers. Coms.). In dry lowland dipterocarp production forests, orangutan abundance has been shown to be directly related to the degree of logging and associated damage (when hunting pressure is low) (see study by Ancrenaz et al. 2005). Given the very low incidence of hunting activities within the Project Area since project implementation, it is reasonable to assume that if logging activities are terminated as a direct consequence of project implementation, then orangutan abundance will at least remain stable within the Project Area and may increase as the population recovers. This has been clearly stated in the MR document in sections 5.1.1., 5.2.2. and 5.3.1.

We have cited the Simon, Davies & Ancrenaz (2019) study instead of using project monitoring records, as the highly skilled task of conducting aerial nest counts needed to be completed by trained experts. The monitoring was also part of an extensive state-wide monitoring study examining the changes to Sabah’s orangutan population to inform effective conservation management of this HCV 1 species across the state. HUTAN, the external experts and project consultants, who carried out the orangutan monitoring were, and still are, collaborating with SEARRP and Permian Global, and this has been evidenced with a signed letter from Dr Marc Ancrenaz who is the lead scientist at HUTAN and one of the lead authors on the Simon, Davies & Ancrenaz (2019) study. The letter is available as evidence in the folder ‘PRR#17 > Biodiversity Activities > Orangutan Survey’, confirming that the study was able to take place in the project area with the permission of Sabah Forestry Department and RBJ. As the monitoring by HUTAN was explicitly carried out during the project monitoring period (2016-2021) and within the Project Area following project implementation, we chose to cite the methods and results of this published and peer-reviewed study to accurately describe the population size and density of this HCV 1/trigger species within the Project Area.

(b) “Section 5.3.1 cites two biodiversity studies conducted within the project area to substantiate the biodiversity impacts being claimed for this monitoring period. It is unclear if these studies were conducted by the project or if they were conducted by external parties. Please justifies how the project is able to attribute population increases proposed in the Simon, Davies & Ancrenaz 2019 study to project activities during this monitoring period.”

We clearly and explicitly state in the most recent MR document that the population of orangutans has remained stable during the project monitoring period, and we have previously amended any text that refers to population increases that are a result of project activities. The studies we refer to (Ancrenaz et al. 2005 and Simon, Davies & Ancrenaz 2019) were performed by the external experts/consultants, HUTAN, and the justification for this is clarified in point (a) above. We also clearly and explicitly state that

the 2002-2003 study (Ancrenaz et al. 2005) was outside of the monitoring period, but it is cited because we felt that it is important when considering the wider population trends of the trigger species over the last two decades. The VVB is to review the updated MR text.

In addition, a new survey of the orangutan population within the Project Area (and specific to it) was completed by HUTAN in November 2023. Analyses of the data obtained from this survey are currently underway, with preliminary results indicating continued population stability, with modest increases in certain parts of the Project Area.

References:

Ancrenaz, M., Gimenez, O., Ambu, L., Ancrenaz, K., Andau, P., Goossens, B., Payne, J., Sawang, A., Tuuga, A. and Lackman-Ancrenaz, I., 2005. Aerial surveys give new estimates for orangutans in Sabah, Malaysia. PLoS Biology, 3(1), p.e3.

Davies, A.B., Ancrenaz, M., Oram, F. and Asner, G.P., 2017. Canopy structure drives orangutan habitat selection in disturbed Bornean forests. Proceedings of the National Academy of Sciences, 114(31), pp.8307-8312.

Simon, D., Davies, G. and Ancrenaz, M., 2019. Changes to Sabah's orangutan population in recent times: 2002–2017. PLoS One, 14(7), p.e0218819.

Following the requirements of the above table, please also justify the claims and substantiate for other benefits viz., health, education, water, well-being, and biodiversity conservation.

PP response: All evidence substantiating the claims relating to these benefits have been provided throughout the tables in this CAR.

4. It is not clear from MR if PP is responsible for carrying out and record the outcomes of these activities. Indicate the entity that is responsible for these activities and their means of recording and updating data for this monitoring period.

PP response: As per section 2.1 of the MR, Permian Global (and its operating subsidiary Permian Malaysia Sdn. Bhd.) and Rakyat Berjaya SDN BHD ('RBJ') are collaborating with Partners of Community Organisation (PACOS) Trust, and the South East Asia Rainforest Research Partnership (SEARRP) to provide technical assistance in the research, project design and monitoring in accordance with each of the carbon, biodiversity and community components of the standards. During this monitoring period, the project proponents deployed the FPIC process through the instigation of a desk-based community scoping exercise in 2016, followed by a programme of community engagements and reports from 2017-2019 to identify relevant communities, socialise the project and establish social baseline conditions. Further engagement activities, as detailed in the tables of this CAR, were carried out during this monitoring period by RBJ, PACOS and SEARRP on behalf of the Project to generate net positive benefits to the target communities. The PP has now updated section 4.1.1 of the MR to indicate the partnering entity responsible for these activities and their recorded frequency.

Throughout the monitoring period from 2016 to 2021, the project faced several logistical challenges, notably stemming from internal elections to establish the Management Committee (spanning from 2017 to 2020) and the pandemic (from 2020 to 2022), which restricted access to the project zone communities for extended periods. Project activities on the ground during this period, especially direct engagement with local communities, were however, carried out by the project partner organizations, including SEARRP, PACOS Trust, RBJ, and the Sabah Forestry Department. Evidence of both the local community election appointments (see folder 'PRR Round 3 > Local Elections and Appointments') and the COVID movement restrictions orders for Malaysia, Sabah and local communities (see folder 'PRR Round 3 > COVID Restrictions') have been provided.

We recognize that, due to the unprecedented circumstances, there were misunderstandings and breakdowns in communication between the local and central teams across the different project partner organizations. Additionally, there was a lack of accessibility to data and archives during this challenging period. As a consequence, the means of recording and updating data for this monitoring period was impacted, but has now been substantiated as per the references in this CAR and the MR.

Documentation provided by project participant

PP response: All evidence substantiating the claims relating to these benefits have been provided throughout the tables in this CAR. Regarding biodiversity:

Section 1.1 Unique project benefits

4) Protection of RTE flora

(a) A new table (Table 15) has now been added in Section 5.4. of the MR document, which details the 34 tree RTE species that were identified during the 2016 field surveys of the carbon plot monitoring,

5) Habitat protection for three species of fauna that have a significant threat category

(a) A signed letter from Dr Marc Ancrenaz who is the lead scientist at HUTAN and one of the lead authors on the Simon, Davies & Ancrenaz (2019) study has been provided in the folder 'PRR#17 > Biodiversity Activities > Orangutan Survey' that states that the monitoring was done within the Kuamut Project Area during the monitoring period with the permission of Sabah Forestry Department and RBJ. The letter also states that HUTAN are collaborating with both SEARRP and Permian Global for the orangutan monitoring and that without the implementation of the project, there would be a decline in the orangutan population as the species would not be able to persist in any areas converted into mosaic plantings in the long term.

VVB assessment

Date: 08/03/2024

VVB has reviewed the PP's responses and checked the submitted evidence. Community as well as biodiversity benefits are now consistently reported in the MR. CAR#12 stands closed.

Table 4. FAR from this verification

FAR ID	Section No.	Date : DD/MM/YYYY
Description of FAR		
No FARs from this verification.		
Project participant response		Date : DD/MM/YYYY
NA		
Documentation provided by project participant		
NA		
VVB assessment		Date: DD/MM/YYYY
NA		