MY_OILPALM_Q1/24

Document prepared by Carbon Vault Sdn Bhd

Name of the project	MY_OILPALM_Q1/24
Project holder	Carbon Vault Sdn Bhd
Project holder's contact information	Email: naqibah@co2bank.asia Tel: +(60) 11-23062561 Address: No.11A, Lorong Kurau, Bangsar, 59100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.
Project participants	Project Activity 1 : Quenny Chwa Project Activity 2 : Tokoh Nuri Sdn Bhd Project Holder : Carbon Vault Sdn Bhd
Version	Version 2.0
Date	27/03/2024
Project type	**Project Activity 1** : Quenny Chwa • Activities in the AFOLU sector, other than REDD+ **Project Activity 2** : Tokoh Nuri Sdn Bhd

	• Activities in the AFOLU sector, other than REDD+
Grouped project	Yes, this project articulates the classification of the MY_OILPALM_Q1/24 as a grouped initiative, diverging from the model of independent GHG projects. Despite its grouped nature, the project maintains a well-defined and transparent scope, a robust and conservative baseline, and a rigorous and dependable sampling strategy.
Applied Methodology	**Project Activity 1**: BCR0001: Quantification of GHG Removal - ARR, Version 4.0 AR-ACM0003. A/R Large-scale Consolidated Methodology. Afforestation and reforestation of lands except wetlands. Version 3.0 **Project Activity 2**: BCR0001: BCR0001: Quantification of GHG Removal - ARR, Version 4.0 AR-ACM0003. A/R Large-scale Consolidated Methodology. Afforestation and reforestation of lands except wetlands. Version 3.0
Project location (City, Region, Country)	**Project Activity 1** : Quenny Chwa • Mukim Triang, Bera, Pahang, Malaysia • 3°146'901"N,102°383'116"E • 165 km from central office in Bangsar, Kuala Lumpur **Project Activity 2**: Tokoh Nuri Sdn Bhd • Tampin, Gemencheh, Negeri Sembilan, Malaysia • 2°27'43"N 102°26'57"E

	• 158 km from central office in Bangsar, Kuala Lumpur
Starting date	Project Activity 1 : Quenny Chwa • 2006 Project Activity 2 : Tokoh Nuri Sdn Bhd • 2006
Quantification period of GHG emissions reduction	Project Activity 1 : Quenny Chwa • 20 years Project Activity 2 : Tokoh Nuri Sdn Bhd • 20 years
Estimated total and average annual GHG emission reduction amount	Total estimated of GHG emissions reductions (during the quantification period): • Project Activity 1 : 15173.14 tCO2e • Project Activity 2 : 203,256.78 tCO2e Estimated average annual amount of GHG emission reductions: • Project Activity 1 : 770.21 tCO2e/year • Project Activity 2 : 10,317.60 tCO2e/year

Sustainable Development Goals	**SDG 8** : Decent Work and Economic Growth – Projects contribute to economic growth and employment opportunities. **SDG 13** : Climate Action – Projects contribute to climate change mitigation and enhancing carbon sequestration. **SDG 15** : Life on Land – Projects contribute to protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation. **SDG 17** : Partnerships for the Goals – Projects collaborate among stakeholders for successful forest conservation and sustainable management.
Special category, related to co-benefits	Non applicable

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1 Project type and eligibility

1.1 Scope in the BCR Standard

The scope of the BCR Standard is limited to:	
The following greenhouse gases, included in the Kyoto Protocol: Carbon Dioxide (CO_2), Methane (CH_4) and Nitrous Oxide (N_2O).	*X*
GHG projects using a methodology developed or approved by BioCarbon, applicable to GHG removal activities and REDD+ activities (AFOLU Sector).	*X*
Quantifiable GHG emission reductions and/or removals generated by the implementation of GHG removal activities and/or REDD+ activities (AFOLU Sector).	*X*
GHG projects using a methodology developed or approved by BioCarbon, applicable to activities in the energy, transportation and waste sectors.	
Quantifiable GHG emission reductions generated by the implementation of activities in the energy, transportation and waste sectors.	

Project 1 and Project 2 under MY_OILPALM_Q1/24 adhere strictly to the BCR0001 standard, aligning with approved methodologies by the BioCarbon Registry to actively mitigate greenhouse gas emissions and prevent their release into the atmosphere. This commitment underscores our dedication to environmental stewardship, placing ecological integrity above profit-driven motives.

Compliance with BCR0001 reflects a shared commitment to environmental responsibility, highlighting our focus on preserving ecosystems, biodiversity, and fostering a sustainable future. These efforts garner recognition within the carbon

market and environmental sectors, emphasizing our collective dedication to sustainable and eco-friendly practices. Adhering to this established standard enhances the environmental value of the carbon credits generated, emphasizing the positive impact of our projects on the planet.

Moreover, BCR0001 compliance extends beyond financial considerations, emphasizing genuine contributions to environmental preservation. This approach appeals to a diverse range of stakeholders prioritizing sustainability and environmental well-being. By upholding this standard, our projects become more attractive to socially responsible investors, fostering a shared commitment to environmental preservation. Our emphasis on environmental responsibility ensures that both projects significantly contribute to a sustainable and ecologically balanced future, amplifying their positive environmental footprint.

1.2 Project type

Activities in the AFOLU sector, other than REDD+	*X*
REDD+ Activities	
Activities in the energy sector	
Activities in the transportation sector	
Activities related to Handling and disposing of waste	

1.3 Project scale

Based on the provided assessment using the AR-ACM0003 methodologies, the Project Activity 1 and Project Activity 2 does not meet the criteria for classification as a small-scale A/R project activity due to the following reasons:

1. **Net anthropogenic GHG removals by sinks exceed the limit**

   According to the AR-ACM0003 methodology guidelines, a project cannot be classified as small-scale if its annual net anthropogenic greenhouse gas (GHG) removals by sinks exceed 16,000 tons of CO_2. In the case of Project Activity 1, it generates 770.21 tons of CO_2 annually, while Project Activity 2 produces 10317.60 tons annually. Combining the emissions from both activities results in a total of 11087.81 tons of CO_2 emitted annually. This exceeds the threshold for a small-scale project.

2. **Development by established company**

   Project Activity 1 and Project Activity 2 are led by a well-established corporation, indicating that they may not meet the criterion of being developed or implemented by low-income communities and individuals, as mandated by the host party. This criterion is essential for eligibility as a small-scale A/R project activity.

Given that the project does not meet the criteria for a small-scale A/R project, it presents an opportunity to transition to an A/R large-scale methodology. This transition involves adopting the guidelines and procedures tailored for large-scale A/R projects, which encompass more comprehensive requirements for project design, monitoring, and reporting. Additionally, it emphasises the importance of ensuring full compliance with all relevant regulations and procedures outlined by the Clean Development Mechanism (CDM) Executive Board and the authorities of the host country for large-scale A/R projects.

2 General description of the project

Project Activity 1: Quenny Chwa

Before our project's inception, the area in Mukim Triang, Bera, Pahang, Malaysia, boasted a dense forest covering 39.29 hectares. Situated at coordinates 3°146'901°N,102°383'116°E and approximately 165 kilometres away from Bangsar, Kuala Lumpur, this agroforestry primarily served as a palm oil plantation. The

palm oil plantation produces 30 tons of Fresh Fruit Bunches (FFB) per hectare per month, with mature trees aged 18 years.

One notable aspect of this project is the exceptional condition of the plantation road, ensuring smooth accessibility across the vast site. The well-maintained road infrastructure facilitates the use of 4X4 vehicles, enhancing efficiency and safety for all activities within the plantation.

Project Activity 2: Tokoh Nuri Sdn Bhd

Before our project commenced, the area in Gemencheh, Tampin, Negeri Sembilan, Malaysia, featured a significant rubber plantation spanning 526.33 hectares. However, approximately 121 hectares of land surrounding the plantation remained unused due to the presence of a large rock. Situated at coordinates 2°27'43"N,102°26'57"E and approximately 158 kilometres away from Bangsar, Kuala Lumpur, this agroforestry primarily served as a palm oil plantation. The palm oil plantation has roughly 60000 trees ranging in age from 11 to 18 years old.

One of the notable aspects of this project is the excellent state of the plantation road, which provides easy access throughout the large area. The usage of 4X4 vehicles is made easier by the well-maintained road infrastructure, which improves productivity and safety for all plantation operations.

Both project activities signify more than just a plantation; it embodies innovative agricultural practices, environmental stewardship, and community integration. With its holistic approach to create sustainable palm oil production, this project serves as a model of progress in the region, aiming to establish new standards for efficiency, sustainability, and social responsibility in the industry.

In the MY_OILPALM_Q1/24, project activities 1 and 2 play a vital part in reducing greenhouse gas (GHG) emissions and are frequently adopted as important strategies for carbon offset projects such as:

1. **Carbon Sequestration through Growth**

   The primary mechanism for carbon emission reduction involves the development and growth of palm trees. As palm trees mature, they actively

absorb carbon dioxide from the environment through photosynthesis, storing it in their biomass. This natural process enables the extraction of carbon from the atmosphere, effectively reducing total greenhouse gas emissions.

2. **Avoidance of Deforestation**

   The project effectively mitigates the emission of stored carbon in existing ecosystems by prioritising sustainable palm oil farming methods and preventing deforestation. By adopting this proactive approach, the carbon reserves inside the plantation region are preserved, reducing the potential emissions that would arise from clearing natural habitats for palm oil development.

3. **Efficient Management Practices**

   Implementing optimal strategies in plantation management, such as enhanced fertilization and water management methods, improves the efficiency of palm oil output. This increased efficiency reduces the resources required, resulting in a lower carbon footprint per unit of palm oil produced.

Upon careful evaluation, it has been determined that these special categories are not applicable to MY_OILPALM_Q1/24. The rationale behind this conclusion stems from two primary factors:

1. **No Nearby Living Community**: The project area lacks a surrounding community, meaning community-focused benefits or impacts are not relevant here.
2. **Limited Wildlife Interaction**: Wildlife presence is minimal, indicating the project's operations have little to no impact on local wildlife.

Given these considerations, all project activities do not engage with the special categories of Biodiversity Conservation and Community Benefit. This determination acknowledges the project's unique context and ensures that its compliance and sustainability efforts are appropriately tailored to its specific environmental and social landscape.

The project activities significantly contribute to the attainment of many Sustainable Development Goals (SDGs), specifically emphasising SDG 8 (Decent Work and Economic Growth), SDG 13 (Climate Action), SDG 15 (Life on Land), and SDG 17 (Partnerships for the Goals). The following Sustainable Development Goals (SDGs) are greatly aided by the project's activities:

SDG 8: Decent Work and Economic Growth

Agroforestry can generate employment opportunities, especially in rural regions. Tasks such as sustainable logging, planting management, and tree planting necessitate a workforce, thereby creating jobs for local communities. This aligns with SDG 8's objective of promoting full and productive employment. Sustainable plantation management also guarantees the sustained availability of timber and non-timber forest products, fostering economic growth while simultaneously preserving ecosystems.

SDG 13: Climate Action

The project significantly contributes to Sustainable Development Goal 13 by actively mitigating the impact of climate change. Through sustainable palm oil production practices, carbon sequestration, and emissions reduction strategies, it aligns with the goal of mitigating climate change and its repercussions. Demonstrating a commitment to climate resilience, the project implements strategies like preventing deforestation, enhancing waste management efficiency, and integrating renewable energy sources.

SDG 15: Life on Land

The initiative's focus on terrestrial ecosystems and biodiversity aligns with SDG 15. By implementing sustainable land management methods, minimizing deforestation, and promoting biodiversity conservation within the plantation area, the initiative contributes to the preservation of terrestrial habitats and the promotion of sustainable land use. This commitment supports the overarching objective of halting the decline in biodiversity and preserving the integrity of ecosystems.

SDG 17: Partnerships for the Goals:

The initiative actively fosters partnerships and collaboration in accordance with SDG 17. By engaging local communities, collaborating with stakeholders, and adhering to global standards like the BioCarbon Registry, the initiative demonstrates the significance of collaborations in achieving sustainable development. This collaborative approach ensures a comprehensive approach to addressing environmental and social issues associated with palm oil cultivation.

In essence, the project's actions contribute directly to SDG 13 by mitigating climate change impacts, SDG 15 by promoting sustainable land use and biodiversity conservation, and SDG 17 by fostering partnerships for sustainable development goals. This multi-dimensional strategy reflects a commitment to addressing global challenges comprehensively and contributing actively to sustainable development goals.

Estimated average annual amount of GHG emission reductions:

Project Activity 1 : 770.21 tCO2e/year

Project Activity 2 : 10,317.60 tCO2e/year

Total estimated of GHG emissions reductions (during the quantification period):

Project Activity 1 : (654.68 x 2 years) +(770.21 x 18 years) = 15,173.14 tCO2e

Project Activity 2 : (8,769.96 x 2 years) +(10,317.60x 18 years) = 203,256.78 tCO2e

2.1 GHG project name

This GHG project shall continuously be referred to as "**MY_OILPALM_Q1/24**" throughout the whole documentation and registration procedure.

2.2 Objectives

The goals of MY_OILPALM_Q1/24 are designed to ensure the well-being of local communities, address environmental sustainability, and mitigate the effects of climate change through effective greenhouse gas (GHG) mitigation strategies.

1. **Promote Carbon Sequestration through Sustainable Palm Cultivation**

   Establishing and managing a palm oil plantation with a primary focus on long-term carbon storage involves nurturing and cultivating palm trees to leverage their capacity for carbon dioxide absorption. Ensuring the overall health and resilience of the plantation ecosystem is essential in this process.

2. **Avoid Deforestation and Preserve Biodiversity**

   Implementing measures to mitigate deforestation within the plantation area involves enforcing policies that prohibit deforestation, thereby conserving pre-existing natural habitats and biodiversity. The initiative aims to establish a balanced and mutually beneficial relationship between agricultural activities and the surrounding ecosystems.

3. **Enhance Community Welfare and Engagement**

   Promote active engagement with nearby communities and prioritize their well-being by creating job opportunities and acknowledging indigenous knowledge. The initiative seeks to ensure that its activities positively impact the social and economic welfare of the communities residing near the plantation.

4. **Biodiversity Conservation and Habitat Protection**

   To conserve biodiversity, establish policies to protect and enhance the natural ecosystem of the plantation. Implement water and soil conservation measures to reduce erosion and maintain water availability.

Preserve indigenous flora and fauna, create wildlife corridors, and designate protection zones to minimize ecological disturbances.

5. **Align with Sustainable Goal Development (SDGs)**

   To align with the sustainable development goals, advocate for a comprehensive approach to sustainable development that integrates environmental, social, and economic considerations throughout the planning and implementation phases. Both projects can maximize positive impacts on the environment, society, and economy while upholding the principles of sustainable development outlined in the SDGs.

2.3 Project activities

For MY_OILPALM_Q1/24, the project focuses on reducing greenhouse gas (GHG) emissions by enhancing forests' capacity to absorb and sequester CO_2. Significant reductions in GHG emissions are accomplished through the application of technologies and strategies identified through thorough field surveys.

1. **Strategic Site Selection and Planning**

   Comprehensive assessments conducted during the initial survey meticulously evaluate potential planting sites, considering factors such as soil quality, climatic conditions, and terrain. This ensures ideal conditions for selected tree species, maximizing carbon sequestration and overall project effectiveness.

2. **Species Selection and Targeted Areas**

   Careful selection of tree species adapted to local environmental conditions prioritizes fast-growing varieties with high carbon sequestration potential. Focusing on areas with the greatest carbon sequestration capacity enhances the project's effectiveness in reducing greenhouse gas emissions.

3. **Biodiversity Preservation and Ecological Integration**

   Comprehensive surveys evaluate local biodiversity and ecological dynamics, informing the selection of tree species that complement the

ecosystem while protecting native flora and fauna. This approach enhances the sustainability of the reforestation effort.

4. **Risk Assessment and Mitigation**

   Comprehensive surveys identify and assess potential risks, such as invasive species and vulnerability to diseases or extreme weather events. Mitigation strategies are incorporated into the project plan to proactively address these challenges.

5. **Community Engagement and Stakeholder Collaboration**

   Engagement with local communities and stakeholders facilitates collaboration and knowledge exchange during the initial survey phase. This ensures alignment with local goals and fosters sustainable development by understanding community perspectives and needs.

6. **Compliance with Legal and Regulatory Standards**

   The initial survey ensures compliance with relevant legal and regulatory frameworks governing land use and reforestation efforts. This compliance is essential for securing necessary approvals and ensuring the project's long-term viability.

The initial survey represents a pivotal step in the carbon offset project lifecycle, providing essential data and insights that optimise strategy, execution, and overall success. This enhances the project's capacity to effectively mitigate greenhouse gas emissions, contributing to environmental sustainability.

2.4 Project location

Project Activity 1 : Quenny Chwa

The project is strategically situated in Malaysia, specifically within the state of Pahang Darul Makmur in the east coast region part of the peninsula. The plantation, located at Mukim Triang, Bera, Pahang, Malaysia is accessible via 4-by-4 vehicles. This project site has coordinates 3°146'901°N,102°383'116°E and the distance from our central office which is located in Bangsar, Kuala Lumpur to the

plantation is approximately 165 kilometres. The site can be accessed by car easily or 4x4 vehicles.

Project Activity 2 : Tokoh Nuri Sdn Bhd

The project is strategically situated in Malaysia, specifically within the state of Negeri Sembilan Darul Khusus in the north east part of the peninsula. The plantation, located at Gemencheh, Tampin, Negeri Sembilan, is accessible vi4-by-4 vehicles. This project site has coordinates 2°27'43"N 102°26'57" and the distance from our central office which is located in Bangsar, Kuala Lumpur to the plantation is approximately 158 kilometres. The site can be accessed by 4x4 vehicles.

2.5 Additional information about the GHG Project

N/A

3 Quantification of GHG emissions reduction

3.1 Quantification methodology

Both Project Activity 1 and 2 adhere to the same methodology which is:

Title of the Methodology: BCR0001 Quantification of GHG Removal - Afforestation, Reforestation and Revegetation (ARR), Version 4.0

Reference of the Methodology: CDM Methodology, AR-ACM0003. A/R Large-scale Consolidated Methodology. Afforestation and reforestation of lands except wetlands. (Version 3.0)

3.1.1 Applicability conditions of the methodology

In the MY_OILPALM_Q1/24 project, the chosen methodology aligns seamlessly with the project's focus on agricultural practices within a palm oil plantation. By adhering to the criteria and procedures of the Clean Development Mechanism (CDM) under the Kyoto Protocol, the project aims to reduce greenhouse gas (GHG) emissions through sustainable management of palm oil cultivation.

Project Activity 1 and 2 : Quenny Chwa & Tokoh Nuri Sdn Bhd

No	Applicability Criteria	Applicability to the Project
The project uses the **BCR0001 Quantification of GHG Removal - ARR, Version 4.0** to estimate the net greenhouse gas removals by sinks from the establishment of the rubber plantation. The following conditions apply:		
1	The areas in the project boundary shall not correspond to the forest category, nor natural vegetation different to a forest, at the beginning of project activities and not five years before the project start date.	Not Applicable. Even though palm oil plantations do not belong to natural vegetation cover, nor to the forest category, the project activity began 5 years before the project start date and it is still ongoing.
2	The areas in the project boundary do not fall in the wetland category.	Applicable. All palm oil plantations within the project boundary do not exhibit the permanent water saturation and unique ecological characteristics of wetlands, and therefore are not classified as wetlands.
3	The areas in the project boundary do not contain organic soils.	Applicable. The absence of organic soils within the project boundary of a palm oil plantation may result from a combination of land preparation, soil type, management practices, and historical land use factors that have influenced soil composition and suitability for palm oil cultivation.

4	Carbon stocks in soil organic matter, litter, and deadwood decrease or remain stable, in the absence of project activities, that is, relative to the baseline scenario.	Applicable. The projects contribute to long-term viability and potential augmentation of the carbon storage by preventing land-use changes from the environment that might deplete or maintain carbon stocks, aligning with the methodology's focus on activities that remove greenhouse gases.
5	Flood irrigation is not used.	Applicable. Flood irrigation is not used in palm oil plantations to maintain ideal soil moisture levels, conserve water resources, minimise soil erosion, and promote uniform growth and yield of rubber trees.
6	The effects of drainage are negligible, so GHG emissions, other than CO_2, can be omitted.	Applicable. Oil palm plantations and forest are not drained. Therefore, GHG emissions/removals from these practices are not estimated.
7	Soil disturbances due to project activities are carried out following appropriate soil conservation practices and have not been repeated for less than 20 years.	Applicable. Soil disturbance in palm oil plantations is used to facilitate land preparation, soil aeration, nutrient management, and pest/disease management through proper sustainable soil management practices, minimising negative impacts on soil health and environmental quality while promoting long-term productivity and resilience of rubber plantations.

By complying to the main conditions indicated in BCR0001, both projects ensure that GHG emission reductions are quantified accurately and appropriately. The methodology's applicability is supported by Project Activity 1 and Activity 2's

common commitment to sustainable management practices and environmental conservation.

3.1.2 Methodology deviations (if applicable)

There are no deviations from the selected methodology.

3.2 Project boundaries, sources and GHGs

In the MY_OILPALM_Q1/24 carbon offset initiative project, project boundaries refer to the specific limits or constraints that define the scope and extent of the project.

The project delimitation for the **Project Activity 1** is as follows:

1. This project is operated by Agro Love Carbon Trading, owned by Quenny Chwa, and focuses on palm oil cultivation and production.
2. The project operates with a licence from the Malaysian Palm Oil Board (PELESENAN 2005), allowing the sale and movement of palm oil fruits within legal standards.
3. The project covers a total area of 39.29 hectares allocated for palm oil plantations.
4. The project's objective area is designed to achieve optimal outcomes and maximise in obtaining palm oil yield.
5. The plantation is easily accessible via 4x4 vehicles through well maintained farm roads, with ongoing improvements, particularly during the rainy season.

The project delimitation for the **Project Activity 2** is as follows:

1. This project is operated by Kean Hoe Holdings Sdn Bhd, owned by Tokoh Nuri Sdn Bhd , and focuses on palm oil cultivation and production.
2. The project operates with a licence from the Malaysian Palm Oil Board (PELESENAN 2005), allowing the sale and movement of palm oil fruits within legal standards.

3. The project covers a total area of 526.33 hectares allocated for palm oil plantations.
4. The objective of the project is to contribute to the supply chain of Kean Hoe Holdings Sdn Bhd in providing a source of palm oil for industries.
5. The plantation is easily accessible by car.

3.2.1 Spatial limits of the project

The project boundaries for the MY_OILPALM_Q1/24 project are shown in the map below, which is based on the geospatial data provided by the project proponent and verified by the verifier.

Geographical Overview:

The **Project 1** is located in Mukim Triang, Bera, Pahang, Malaysia.

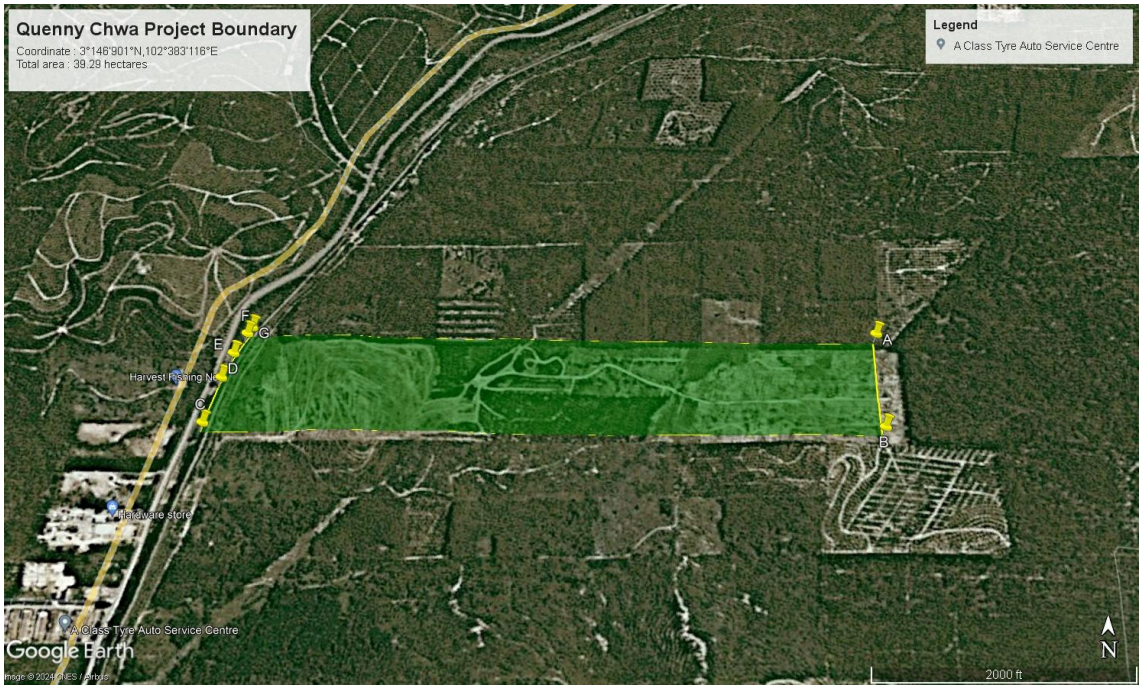

Figure 1: Project boundary for Quenny Chwa Palm Oil plantation.

Site-Specific Information:

Coordinate : 3°146'901°N,102°383'116°E

Total area : 39.29 hectares

Description : The entire palm oil plantation is planted with mature oil palm trees that have produced an average age of the trees is 18 years.

Geographical Overview:

The **Project 2** is located in Tampin, Gemencheh, Negeri Sembilan, Malaysia

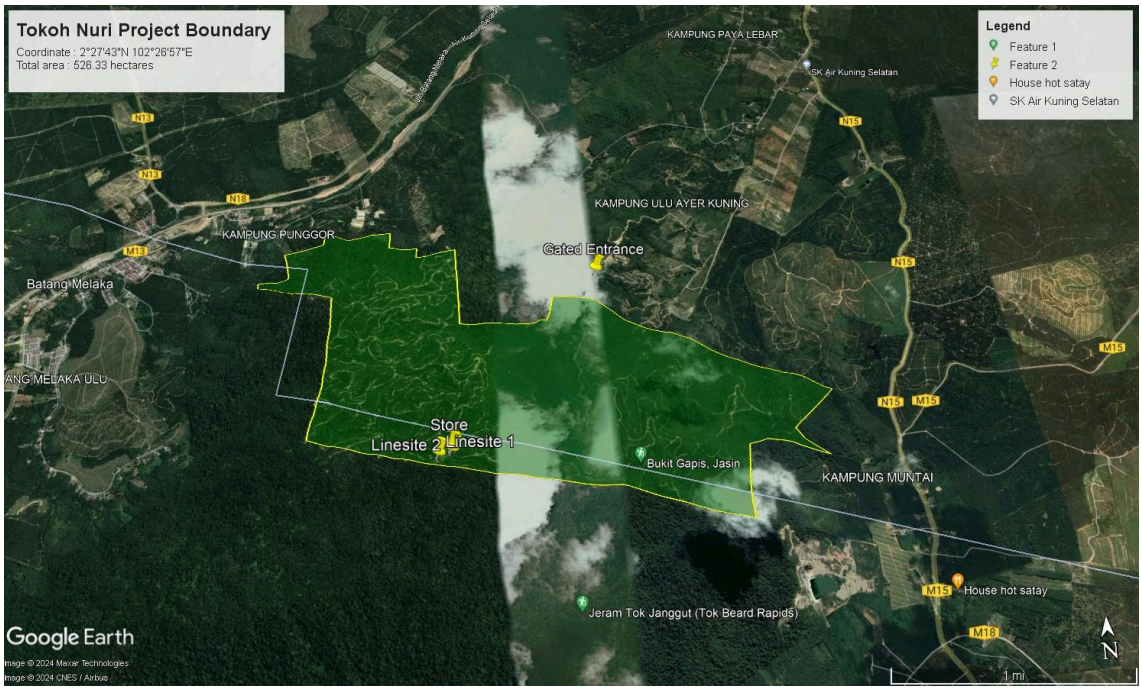

Figure 2: Project boundary for Tokoh Nuri Palm Oil Plantation.

Site-Specific Information:

Coordinate : 2°27'43"N 102°26'57"E

Total area : 526.33 hectares

Description : The entire palm oil plantation is planted with mature oil palm trees that have produced an average age of the trees is 11-18 years.

3.2.2 Carbon reservoirs and GHG sources

The selection of carbon reservoirs to quantify changes in carbon stocks at the project boundaries for Project Activity 1 and Project Activity 2 are shown below:

Source or reservoir	Included (Yes/No/Optional)	Justification
Above-ground biomass	Yes	Carbon stock in this reservoir is expected to increase due to the implementation of the project activity.
Below-ground biomass	Yes	Carbon stock in this reservoir is expected to increase due to the implementation of the project activity.
Deadwood and litter	Optional	Carbon stock in this pool may increase due to the implementation of the project activity.
Soil organic carbon	Optional	Carbon stock in this pool may increase due to the implementation of the project activity.

The emission sources and associated GHGs selected for accounting are shown below:

Carbon reservoir	GHG	Included (Yes/No/Optional)	Justification

Fertilizer application	CO_2	No	Carbon dioxide is not directly released during typical fertilizer application in oil palm plantations. However, indirect emissions may occur if land-use change or deforestation is associated with plantation establishment.
	CH_4	No	Methane is not directly linked to fertilizer application in oil palm plantations. Its production is more associated with anaerobic conditions during processes like biomass burning or waterlogged areas.
	N_2O	Yes	The application of nitrogen-based fertilisers in oil palm plantations can lead to the release of nitrous oxide, a potent greenhouse gas.
Methane from Anaerobic Decomposition	CO_2	No	Anaerobic conditions, which are conducive to methane production, generally result in limited CO2 production. Instead, organic matter undergoes anaerobic processes such as methanogenesis, leading to the production of methane.
	CH_4	Yes	In waterlogged or poorly drained areas of plantations, anaerobic conditions can lead to the production and release of methane during the

			decomposition of organic matter.
	N_2O	No	The application of nitrogen-based fertilisers in plantations can lead to the release of nitrous oxide

3.2.3 Time limits and analysis periods

The quantification periods are determined by the project proponent and must align with the selected methodology, relevant standards, and regulations. These timeframes are tailored to the type and attributes of the project, as well as the targeted standard and market. Generally, project timeframes encompass the following components:

1. Project Start Date

The project start date marks the commencement of implementation, construction, or any actual activities related to a GHG project. It holds significance in determining the project's eligibility and additionality, as well as in calculating the emission reductions or removals achieved.

- Project Activity 1 start date : 2006
- Project Activity 2 start date : 2006

2. Project Lifetime

The project lifetime for MY_OILPALM_Q1/24 refers to the duration during which the project is anticipated to generate greenhouse gas (GHG) emission reductions or removals. This timeframe is determined by the project proponent and should be both realistic and credible, considering various technical, economic, social, and environmental factors that could impact project performance and sustainability. Additionally, the project lifetime must adhere to the guidelines and

standards specified by the selected methodology and relevant regulations to ensure compliance and credibility.

- Project Activity 1 : 20 years
- Project Activity 2 : 20 years

3. Monitoring Period

The monitoring period for MY_OILPALM_Q1/24 encompasses the duration during which the project's emission reductions or removals are systematically observed, documented, and reported. It is determined by the project proponent in accordance with the specified procedures and frequency outlined by the selected methodology, as well as relevant standards and regulations. This period is designed to ensure the accuracy, completeness, consistency, transparency, and verifiability of the project's data and records. Depending on the specific characteristics of the project, the monitoring period may occur annually or at shorter intervals.

- Project Activity 1 : 6 - 8 months
- Project Activity 2 : 6 - 8 months

4. Verification Period

The verification period for MY_OILPALM_Q1/24 signifies the duration during which the project's emission reductions or removals undergo validation and certification by an independent, qualified third-party verifier. This timeframe, determined by the verifier, extends throughout the entirety of the monitoring period. It adheres to the principles and criteria outlined in the ISO 14064-3 standard for validating and verifying greenhouse gas assertions. While the length of the verification period may vary depending on the project's type and characteristics, it typically aligns with the monitoring period, which could be annual or shorter.

- Project Activity 1 : 2 months
- Project Activity 2 : 2 months

5. Crediting Period

The crediting period is the period during which the project is eligible to generate certified emission reductions (CERs) or verified emission reductions (VERs) that can be traded and used by other entities to meet their emission reduction targets or commitments. The crediting period is determined by the project proponent and must be approved by the competent authority or body. The crediting period must also follow the rules and requirements of the selected methodology and the relevant standards and regulations. The crediting period can be either fixed or renewable, depending on the type and characteristics of the project. The crediting period for MY_OILPALM_Q1/24 is as follows:

- Project Activity 1 : 20 years
- Project Activity 2 : 20years

3.2.3.1 Project start date

The project start date for a palm oil plantation is the initiation of activities related to project implementation, construction, or any substantial action. It plays a pivotal role in evaluating eligibility, additionality, and quantifying emission reductions or removals. The specific start date may vary based on the nature of the project, its characteristics, and the applicable standards and market considerations. For GHG removal projects, such as afforestation and reforestation, the start date is usually the date when any action related to the start of GHG project activities begins, such as land acquisition, site preparation, planting, or monitoring.

Both project activities in MY_OILPALM_Q1/24 began in 2006, and aims to establish a palm oil forest plantation on existing forested land which the project holder began the initial survey. The purposes of the initial survey is:

1. To assess and collect significant details about the project area, determining the groundwork for effective planning and implementation.

2. To identify essential variables such as land use, existing vegetation, soil conditions, and potential carbon reserves.
3. To aid in calculating baseline carbon levels and estimating the potential for carbon sequestration by reforestation or afforestation activities.
4. To select appropriate tree species, develop appropriate monitoring and verification processes, and comprehend the socioeconomic background of the community involved.
5. To provide a full overview of the project area, allows for the development of a specific and sustainable carbon offset strategy that matches with environmental, social, and economic goals.
6. To develop the Project Design Document (PDD), a comprehensive document that outlines the project's design, methodology, baseline emissions, and anticipated emissions reductions for successful project implementation.

3.2.3.2 Quantification period of GHG emission reductions

The crediting period for MY_OILPALM_Q1/24, in accordance with the BCR Standard, defines the time frame during which greenhouse gas (GHG) emission reductions or removals are evaluated. This duration varies depending on the project's characteristics and type. It represents the period during which the project is eligible to generate certified emission reductions (CERs) or verified emission reductions (VERs) for trading and utilization by other entities to fulfill their emission reduction objectives.

For MY_OILPALM_Q1/24, which involves a palm oil plantation project, the crediting period is determined by the project proponent and requires approval from relevant authorities or organizations. It must comply with the guidelines and criteria outlined in the chosen methodology, as well as relevant standards and regulations.

As per section 10.5 of the BCR Standard, for activities in the AFOLU sector, the crediting period for project activity 1 spans 20 years, starting from October 20, 2023, and ending on October 20, 2043. Similarly, for project activity 2, the

crediting period also covers 20 years, starting from October 16, 2023, and ending on October 16, 2043. This duration typically encompasses the entire lifecycle of the project, from its inception to its conclusion

3.2.3.3 Monitoring periods

For MY_OILPALM_Q1/24, the monitoring period plays a vital role in ensuring the continual success and effectiveness of the palm oil plantation project. Monitoring activities are conducted periodically to evaluate and validate various parameters, including carbon sequestration, biodiversity conservation, and overall project performance. It's important to note that the monitoring period may vary depending on factors such as project size, location, and duration.

In the context of MY_OILPALM_Q1/24, the monitoring period is customised to meet the specific needs of a palm oil plantation. Given the project's nature, monitoring activities are initially more frequent during the plantation's establishment phase and subsequently conducted at regular intervals to monitor progress and assess environmental impacts.

Based on our proposed project timeline for MY_OILPALM_Q1/24, both of the projects will undergo **6-8 months** for organised plantation according to the:

Project Activity 1 : Quenny Chwa

1. **Baseline Monitoring Period**

- Purpose : Establish the baseline emissions or removals scenario.
- Duration : Data collection and analysis over a specific historical period are required prior to project implementation, which takes approximately 1 month.
- Activities :
    - Assess historical land use, carbon stocks, and emissions data to determine the baseline against which the project's performance will be measured.

2. **Implementation Monitoring Period**

- Purpose : Observe and document the actual implementation of project activities.

- Duration : Starts at the commencement of reforestation or afforestation activities and continues throughout the implementation phase, which takes approximately 2 months.
  Activities :
  - Monitor tree planting, maintenance, and other relevant activities.
  - Collect data on survival rates, growth, and any unexpected events that may affect project outcomes.

3. Growth and Sequestration Monitoring Period

- Purpose : Track the growth of planted trees and the sequestration of carbon.
- Duration : Typically takes approximately 2 months, depending on the chosen accounting period and project lifespan.
  Activities :
  - Regular measurement of tree growth, biomass, and carbon sequestration. This may involve periodic field measurements, remote sensing, or other monitoring techniques.

4.Verification Monitoring Period

- Purpose : Prepare for and conduct third-party verification.
- Duration : Occurs periodically in preparation for verification, which takes approximately 2 months.
- Activities :
  - Ensure that all required data is collected and maintained according to the chosen methodology and project requirements.
  - Prepare documentation for verification.

5.Verification Period

- Purpose : Independent assessment of the project's adherence to standards and methodologies.
- Duration : Occurs at defined intervals, often takes approximately 2 months.
- Activities :
  - Third-party auditors assess project documentation, conduct site visits, and verify that the project is meeting the requirements set by the chosen standard.

6.Reporting Period

- Purpose : Report the project performance and outcomes.

- Duration : Typically aligned with verification periods, which takes approximately 2 months.
- Activities :
    - Compile and submit comprehensive reports that detail the project's performance, emissions reductions, and other relevant information.

Project Activity 2 : Tokoh Nuri Sdn Bhd

1.Baseline Monitoring Period

- Purpose : Establish the baseline emissions or removals scenario.
- Duration : Data collection and analysis over a specific historical period are required prior to project implementation, which takes approximately 1 month.
- Activities :
    - Assess historical land use, carbon stocks, and emissions data to determine the baseline against which the project's performance will be measured.

2.Implementation Monitoring Period

- Purpose : Observe and document the actual implementation of project activities.
- Duration : Starts at the commencement of reforestation or afforestation activities and continues throughout the implementation phase, which takes approximately 2 months.
  Activities :
    - Monitor tree planting, maintenance, and other relevant activities.
    - Collect data on survival rates, growth, and any unexpected events that may affect project outcomes.

3.Growth and Sequestration Monitoring Period

- Purpose : Track the growth of planted trees and the sequestration of carbon.
- Duration : Typically takes approximately 2 months, depending on the chosen accounting period and project lifespan.
  Activities :

- Regular measurement of tree growth, biomass, and carbon sequestration. This may involve periodic field measurements, remote sensing, or other monitoring techniques.

4.Verification Monitoring Period

- Purpose : Prepare for and conduct third-party verification.
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6.Reporting Period

- Purpose : Report the project performance and outcomes.
- Duration : Typically aligned with verification periods, which takes approximately 2 months.
- Activities :
  - Compile and submit comprehensive reports that detail the project's performance, emissions reductions, and other relevant information.

3.3 Identification and description of the baseline or reference scenario

<u>Project Activity 1: Quenny Chwa</u>

Project activity 1 consists of converting from rubber by turning them into highly productive palm oil forest plantations. In alignment with BCR0001 Methodology, the baseline scenario relies on changes in carbon stocks within the project boundary, due to the land use which represents an attractive course of action considering the barriers to investment.

Step 1: Identification of alternative land use scenarios

Transitioning from rubber to palm oil cultivation presents an opportunity to reshape the environment and local communities. However, without sustainable management, this shift may adversely affect biodiversity, soil, and water resources due to intensive farming practices and chemical usage. Ecosystem disruption and increased greenhouse gas emissions, particularly from clearing high carbon areas like peatlands, are potential consequences.

Moreover, this transition may impact local livelihoods and provoke disputes over land rights. Yet, embracing sustainable practices and adhering to standards such as the Malaysia Sustainable Palm Oil (MSPO) can mitigate these challenges. Implementation of methods like agroforestry and eco-friendly farming can safeguard nature, bolster community support, and foster long-term well-being in the area.

Step 2 : Investment Analysis

Investing in short-term activities like logging or intensive agriculture might offer immediate financial benefits but can lead to long-term drawbacks. These practices risk depleting natural resources and damaging ecosystems. Environmental degradation can increase costs for soil restoration, water purification, and loss of ecosystem services. Moreover, harming biodiversity and disrupting climate regulation can have broader economic impacts, including higher healthcare expenses due to environmental damage.

Step 3 : Barrier Analysis

Barrier analysis for transitioning from rubber to palm oil cultivation highlights several challenges. Key obstacles include weak enforcement of land use and agricultural regulations, allowing unsustainable practices that could harm the

environment. Additionally, insufficient involvement of local communities and stakeholders in the transition process can impede the adoption of sustainable methods. A lack of awareness and understanding about the benefits of sustainable palm oil production among both the local population and policymakers may further obstruct efforts to implement effective conservation and sustainable farming practices.

Step 4 : Impact of Project registration

Barrier analysis for transitioning from a forested area to palm oil cultivation underscores several challenges. Chief among these is the inadequate enforcement of land use and agricultural regulations, allowing unsustainable practices that pose environmental risks. Furthermore, the limited engagement of local communities and stakeholders in the transition process may hinder the uptake of sustainable methods. Additionally, a lack of awareness and understanding regarding the advantages of sustainable palm oil production among both the local populace and policymakers could further hinder efforts to promote effective conservation and sustainable farming practices.

Project Activity 2: Tokoh Nuri Sdn Bhd

Project activity 2 consists of converting the available lands from forest reserves by turning them into highly productive palm oil plantations. In alignment with BCR0001 Methodology, the baseline scenario relies on changes in carbon stocks within the project boundary, due to the land use which represents an attractive course of action considering the barriers to investment.

Step 1: Identification of alternative land use scenarios

Palm oil cultivation has the potential to reshape the environment and local communities. Without sustainable management, this shift could harm biodiversity, soil, and water resources due to intensive farming and chemical use. Such changes might disrupt ecosystems and increase greenhouse gas emissions, especially if it leads to clearing high carbon areas like peatlands.

The move could also affect local livelihoods and lead to disputes over land rights. Yet, embracing sustainable practices and adhering to standards like the Malaysia Sustainable Palm Oil (MSPO) can turn these challenges into opportunities. By implementing methods like agroforestry and eco-friendly farming, the project can protect nature, support communities, and contribute to the area's lasting well-being.

Step 2 : Investment Analysis

The investment analysis for the alternative land-use scenario described would involve the conversion of natural ecosystems into palm oil plantations involving clearing land, which can be an expensive process. The initial investment required for clearing, preparing the land, and planting palm oil trees may pose a financial barrier. The reliance on agrochemicals, including pesticides and fertilisers, in monoculture palm oil plantations can lead to ongoing and substantial operational costs. The financial burden associated with the purchase of these inputs, along with potential health and environmental consequences, may present a barrier to sustainable and economically viable palm oil cultivation. Ongoing operational expenses, such as labour, maintenance, and any additional inputs required for plantation, would also need to be assessed. On the revenue side, large-scale conversion of natural ecosystems to palm oil plantations may provide short-term economic gains for plantation owners and investors. However, the focus on immediate profits may hinder the consideration of long-term environmental and social costs, leading to unsustainable practices.

Step 3 : Barrier Analysis

Barrier analysis of the alternative land-use scenario involves identifying potential challenges and obstacles that may impede its successful implementation. One potential barrier could be the establishment of large-scale rubber plantations that can disrupt ecosystems by altering soil composition, water cycles, and nutrient flows. This barrier impedes the ability of the landscape to provide essential ecosystem services, such as water purification, pollination, and carbon sequestration, leading to a decline in overall ecosystem health and resilience. The scenario may also involve unsustainable land management practices, such as clear-cutting and intensive monoculture cultivation. This barrier stems from a

lack of awareness, education and adherence to principles of sustainable forest management, leading to soil degradation, increased vulnerability to pests and diseases, and reduced long-term productivity.

Step 4 : Impact of Project registration

Barrier analysis for transitioning from a forested area to palm oil cultivation underscores several challenges. Chief among these is the inadequate enforcement of land use and agricultural regulations, allowing unsustainable practices that pose environmental risks. Furthermore, the limited engagement of local communities and stakeholders in the transition process may hinder the uptake of sustainable methods. Additionally, a lack of awareness and understanding regarding the advantages of sustainable palm oil production among both the local populace and policymakers could further hinder efforts to promote effective conservation and sustainable farming practices.

3.4 Additionality

To demonstrate the additionality of the project according to the BCR Standard and project sector, we employ the "Baseline and Additionality Guidance" provided by the BioCarbon Registry. Initially, we establish the baseline scenario, reflecting the conditions of project activities 1 and 2 in a hypothetical situation where these activities are not implemented. This scenario assumes the absence of sustainable land management practices and the continuation of unsustainable land use methods.

In assessing additionality, we meticulously evaluate the project's unique characteristics and prevailing market conditions to determine whether the emission reductions generated are additional. Factors such as the financial viability of implementing sustainable practices, regulatory requirements, and alternative land use options are considered. By comparing the emission reductions achieved by the project to those in the baseline scenario, we ensure its impact is incremental.

We provide robust documentation and thorough justifications to support our assessment of additionality. This includes detailed records of project planning and stakeholder consultations. Transparent documentation of assumptions and methodologies provides clear evidence of the project's contribution to emission reductions beyond what would occur without the project.

Additionally, we verify that emission reductions from the project do not result from legally required actions or regulatory mandates. This involves assessing relevant laws and regulations to confirm that project activities go beyond compliance obligations and represent genuine efforts to reduce emissions and enhance environmental sustainability.

Moreover, the project's implementation yields economic benefits. Through sustainable land management practices, it enhances land productivity and resilience, improving long-term profitability for landowners and stakeholders. Demonstrating additionality reduces carbon credit involvement risk, making the project a more attractive investment opportunity for potential stakeholders.

3.5 Uncertainty management

The principle of conservative attitude, as outlined in the ISO 14064-1 standard, guides the quantification and reporting of greenhouse gas emissions and removals. This principle dictates that assumptions, values, and procedures used to estimate emission reductions or increases in GHG removals should be selected to prevent overestimation of the project's climate impact.

In adherence to this principle, the project employs conservative assumptions, values, and procedures to avoid overestimating emission reductions or increases in GHG removals. Examples of how the project applies the principle of conservative attitude include:

1) Utilizing default values and parameters from the IPCC Guidelines for National Greenhouse Gas Inventories and the IPCC Good Practice Guidance for Land Use, Land-Use Change, and Forestry (LULUCF) to

estimate carbon stocks and emission factors of the project area and biomass consumption.

2) Accounting for leakage resulting from the displacement of pre-project activities and the use of fossil fuels for transportation and machinery. The project employs procedures and equations provided by the selected methodology to calculate leakage and subtracts it from the emission reductions or removals achieved. Conservative assumptions and values are used to estimate leakage to prevent underestimating emissions occurring outside the project boundary.

3) Establishing and applying mechanisms to manage uncertainty in the quantification of baseline and mitigation results. Uncertainty, representing doubt or variability associated with estimating emission reductions or removals, is managed through:
    - Applying a 15% discount factor to national data for above-ground and below-ground biomass, using default values and parameters from the selected methodology's procedures and equations. This discount factor serves to reduce claimed emission reductions or removals based on uncertainty levels and confidence intervals, ensuring the project does not overclaim its impact and provides a net positive climate impact.

3.6 Leakage and non-permanence

According to the AR-ACM0003, by applying AR-Tool15 A/R Methodological Tool, Version 2.0, potential leakage in a MY_OILPALM_Q1/24 projects refer to the unintended consequences or displacement of environmental impacts to other areas or sectors as a result of implementing the project. Leakage can occur when activities undertaken within the palm oil plantation leads to changes in land use or management practices that indirectly contribute to deforestation, degradation, or other adverse environmental impacts elsewhere such as:

1. **Indirect Land Use Change**

The expansion of palm oil plantations might prompt the conversion of forests or natural habitats into agricultural or plantation land elsewhere, risking deforestation and habitat loss in those regions.

2. **Infrastructure Development**

   Developing infrastructure like roads and processing facilities for the palm oil project could encourage further land conversion or environmental degradation in adjacent areas.

<u>Risks of Potential Leakage in Palm Oil Plantation</u>

1. **Economic Impacts**

   Leakage could counteract sustainable development efforts by promoting unsustainable land uses, affecting ecosystem services crucial for local economies and livelihoods.

2. **Environmental Impacts**

   Potential leakage may result in increased deforestation, loss of biodiversity, and environmental degradation outside the project area, undermining conservation efforts.

3. **Social Impacts**

   Leakage could lead to displacement, loss of traditional land rights, and land use conflicts if it changes land management practices in neighbouring communities.

Addressing these leakage risks requires careful planning and implementation of mitigation strategies, such as buffer zones, sustainable land management practices, and stakeholder engagement, to ensure the MY_OILPALM_Q1/24 project contributes positively to local sustainability and conservation goals.

The leakage emission resulting from the activities displacement is estimated as follows:

$$LK_t = LK_{AGRIC,t}$$

$$LK_{AGRIC,t} = \frac{44}{12} \times (\Delta C_{BIoMASS,t} + \Delta SOC_{LUC,t}) \quad \text{E (1)}$$

$$\Delta C_{BIoMASS,t} = [1.1 \times b_{TREE} \times (1 + R_{TREE}) + b_{SHRUB} \times (1 + RS)] \times CF \times A_{DISP,t} \quad \text{E (2)}$$

$$\Delta SOC_{LUC,t} = SOC_{REF} \times (f_{LUP} \times f_{MGP} \times f_{INP} - f_{LUD} \times f_{MGD} \times f_{IND}) \times A_{DISP,t} \quad \text{E (3)}$$

Where,

LK_t = Leakages t; tCO2-e

$LK_{AGRIC,t}$ = Leakage emission result from agricultural activities displacement in year t; tCO2-e

$\Delta C_{BIoMASS,t}$ = Decrease in carbon stock in the carbon pools of the land receiving the activity displaced in year t; t d.m.

Note. The factor of 1.1 is used to account for the carbon stock in the dead wood and litter pools as a fixed percentage of the carbon stock in living trees.

CF = Carbon fraction of woody biomass; dimensionless.

A default value of 0.47 is used unless transparent and verifiable information can be provided to justify a different value.

$A_{DISP,t}$ = Area of land from which agricultural activity is being displaced in year-t; ha

b_{TREE} = Mean above-ground tree biomass in land receiving the displaced activity; t d.m. ha-1

The value of this parameter is obtained by applying one of the applicable methods from the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" to the land receiving the displaced activity.

Where the land receiving the displaced activity is unidentified, value of *bTREE* is set equal to the applicable value of mean above- ground biomass in forest in the region or country where the A/R CDM project activity is located, as obtained from Table 3A.1.4 of the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC GPG-LULUCF 2003) unless transparent and verifiable information can be provided to justify a different value.

R_{TREE} = Root-shoot ratio for trees in the land receiving the displaced activity; dimensionless.

A default value of 0.25 is used unless transparent and verifiable information can be provided to justify a different value.

b_{SHRUB} = Mean above-ground shrub biomass in land receiving the displaced activity; t d.m. ha-1.

The value of this parameter is obtained by applying one of the applicable methods from the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" to the land receiving the displaced activity.

R_s = Root-shoot ratio for shrubs in the land receiving the displaced activity; dimensionless.

The default value of 0.40 is used unless transparent and verifiable information can be provided to justify a different value.

$\Delta SOC_{LUC,t}$ = Change in soil organic carbon (SOC) stock due to land-use change in the land receiving the displaced activity in year t; tC ha-1.

The value of this parameter may be set to zero if:

(a) The only displaced activity being received in the land is grazing activity; or
(b) The value of the parameter as estimated from Equation (3) is less than zero (i.e. negative)

SOC_{REF} = SOC stock corresponds to the reference condition in native lands by climate region and soil type applicable to the land receiving the displaced activity; t C ha-1.

The value of this parameter is taken from Table 3 of the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities".

$f_{LUP}, f_{MGP}, f_{INP}$ = Relative SOC stock change factors for land-use, management practices, and inputs respectively, applicable to the receiving land before the -displaced activity is received; dimensionless.

The value of these parameters is taken from Tables 4, 5, and 6 of the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities".

$f_{LUD}, f_{MGD}, f_{IND}$ = Relative SOC stock change factors for land-use, management practices, and inputs respectively, applicable to the receiving land after the-displaced activity has been received; dimensionless.

The value of these parameters is taken from Tables 4, 5, and 6 of the "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities".

t = 1, 2, 3, ...years elapsed since the start of the A/R CDM project activity

However, neither oil palm plantation location in the MY_OILPALM_Q1/24 project has any leakage for project activities that do not have unanticipated negative

environmental consequences. This is because the land reserve area is well-managed using good agricultural practices, which can boost yields from agriculture and thus carbon sequestration through higher biomass production and soil carbon storage. Furthermore, it would help to reduce carbon emissions and conserve biodiversity.

7.1 Mitigation results

ISO 14064-3:2019 is a standard that specifies how to verify and validate greenhouse gas (GHG) statements, especially those relating to climate change mitigation efforts. Some significant points to justify and demonstrate the verifiability of mitigation results within the framework of ISO 14064-3:2019 based on MY_OILPALM_Q1/24 are:

1. **Project Design and Planning (ISO 14064-3:2019, Section 5.1):**
   - Provide a detailed project design and planning documentation that includes a clear description of the reforestation or afforestation activities.
   - Clearly define the project boundary, scope, and the baseline scenario against which the emission reductions or removals will be measured.

2. **Monitoring and Measurement (ISO 14064-3:2019, Section 5.2):**
   - Implement a robust monitoring and measurement plan that includes both direct and indirect measurements of GHG emissions or removals associated with the project.
   - Use appropriate and accurate measurement techniques, tools, and methodologies to ensure the reliability of data collected.

3. **Data Management (ISO 14064-3:2019, Section 5.3):**
   - Establish a comprehensive data management system to store and manage all relevant data related to the project.
   - Ensure transparency and traceability of data, allowing for independent verification and validation.

4. **Uncertainty and Quality Management (ISO 14064-3:2019, Section 5.4):**

- Address and quantify uncertainties associated with data, measurement methods, and assumptions in the project.
- Implement quality management procedures to ensure the accuracy and reliability of data.

5. **Completeness and Consistency (ISO 14064-3:2019, Section 5.5):**
   - Ensure that the project's emissions or removals are complete by including all relevant sources and sinks within the defined project boundary.
   - Verify consistency in data and calculations to avoid errors or discrepancies.

6. **Verification (ISO 14064-3:2019, Section 5.6):**
   - Engage an independent third-party verifier to assess the project's adherence to the standard and the accuracy of the reported data.
   - Provide the verifier with access to all necessary documentation, data, and information required for a thorough evaluation.

7. **Validation (ISO 14064-3:2019, Section 5.7):**
   - Demonstrate that the project activities have achieved the anticipated emission reductions or removals by comparing the actual performance against the baseline scenario.
   - Ensure that any deviations from the expected outcomes are properly documented and explained.

8. **Reporting (ISO 14064-3:2019, Section 5.8):**
   - Develop a comprehensive and transparent report that communicates the project's results, methodologies, and any relevant findings from the verification process.
   - Comply with the reporting requirements outlined in the standard.

By following the guidelines outlined in ISO 14064-3:2019, project activities can demonstrate the verifiability of mitigation results achieved through reforestation and afforestation projects based on MY_OILPALM_Q1/24, thereby providing a strong framework for assessing and validating the environmental benefits of these activities.

3.7.1 Eligible areas within GHG project boundaries (AFOLU sector projects)

The project MY_OILPALM_Q1/24 adheres to the specific geographical boundaries that are in line with the rigorous criteria of the chosen methodology, namely the "BCR0001: Quantification of GHG Removal - ARR, Version 4.0." In order to prove adherence to the land cover/land use categories outlined in the methodology and the relevant definitions within the country, we have utilised a thorough analysis of land cover/land use throughout many time periods.

1. **Compliance with Land Use Categories**

   The analysis takes into account the particular definitions and classifications of land use in the nation where the project is situated. We have made sure that the recognized land cover/land use categories precisely match the methodology's standards by working with local authorities and specialists. For us to accurately quantify the reductions in greenhouse gas emissions linked to our GHG removal activities, compliance with this requirement is essential.

2. **Land Cover Presence/Absence Condition**

   The land cover presence/absence condition as stipulated by the BioCarbon Registry (BCR) Standard's reference data set and the applicable methodology have both been closely followed by us. We have confirmed the existence of particular land covers within our project boundaries through thorough analysis of satellite data and ground truthing, guaranteeing compliance with the methodology and BCR Standard standards.

3. **Identification According to Applicable Classifications**

   In order to show adherence to land use and land cover classifications that are relevant to the country, we have employed globally accepted criteria established by organisations like ISO. Our treatment of geographic data adheres completely to these standards, guaranteeing interoperability, precision, and dependability in the analysis and presentation of land cover/land use information.

3.7.2 Stratification (Projects in the AFOLU sector)

In the MY_OILPALM_Q1/24 project, stratification plays a crucial role in refining the precision of carbon stock change calculations. This is particularly essential due to the varied distribution of carbon reservoirs within the project area. Stratification entails dividing the project land into distinct strata or segments, each with its unique conditions and carbon storage capacities. The goal of this process is to enhance the accuracy of estimating GHG reductions and carbon removals by considering the variability across different parts of the plantation.

1. **Palm Oil Plantation Stratification**

Project Activity 1: Quenny Chwa

A strategic layout plan is essential when transitioning from rubber to palm oil cultivation to enhance palm oil production effectively and sustainably. This strategy categorises the land according to criteria such as the species of palm tree, their developmental phases, and soil characteristics. Thorough organisation aids in optimising palm growth, increasing yields, and utilising land efficiently. It enables precise farming techniques like targeted fertilisation and pest management to enhance productivity and preserve environmental standards. It is important to acknowledge the historical connection of the land to rubber cultivation, as it has had a significant impact on soil health and the landscape. Adapting this land for palm oil involves evaluating previous effects and incorporating them into the requirements of palm oil cultivation. This deliberate transition ensures efficient land utilisation while minimising environmental effects, demonstrating a harmonious approach to agricultural progress and ecological preservation.

Project Activity 2: Tokoh Nuri Sdn Bhd

In MY_OILPALM_Q1/24, a targeted strategy has been implemented to enhance the precision of carbon stock change estimates in oil palm plantations, utilising a

customised stratification technique to capture the diverse distribution of carbon and address variability within the project area.

2. Baseline Scenario and With-Project Stratification

The baseline scenario considers the land's natural conditions and past non-agricultural uses, specifically focusing on areas adjacent to forest reserves and durian orchards. These areas provide a diverse range of plant and animal species and have the possibility for creating environmentally friendly farming initiatives. The project's goal is to convert the land into productive palm oil plantations by implementing advanced and environmentally friendly farming methods such as agroforestry. This strategy guarantees both high productivity and environmental protection. The project advances in planned phases in collaboration with local environmental authorities, tailoring each section for optimal palm oil cultivation. The project also deals with challenges related to wildlife conservation, especially concerning nearby elephants, through strategies for replanting and preserving natural habitats. The project's location near forest reserves and durian orchards demonstrates its dedication to conserving biodiversity and ecosystem services, underscoring the importance of sustainable practices to minimise the impact on surrounding natural areas and communities.

3. Optimising Accuracy in Palm Oil Plantation Context

Accuracy sampling requires completing on-site assessments of certain palm oil trees parameters, such as tree count and general condition. The quantitative models are specifically built to capture the dynamics of rubber growth by integrating satellite data and on-site measurements obtained through extensive surveys, drone flying, and mapping during the initial survey. Continuous monitoring responds to the specific features of a rubber plantation, ensuring accuracy in analysing carbon stock changes over time.

4. Tailoring the Approach

Project Activity 1 & 2: Quenny Chwa & Tokoh Nuri Sdn Bhd

Integrating field surveys with drone technology and mapping techniques creates a synergistic approach for optimising accuracy in estimating GHG reductions/removals in palm oil plantations. This combination allows for a more thorough and reliable assessment of carbon dynamics, supporting sustainable forest management practices and contributing to effective climate change mitigation strategies.

This method ensures that our calculations are in compliance with the specific complexities of a palm oil environment. Our project aims to precisely analyse and increase carbon sequestration activities inside plantations by focusing on tree features, land use, and sustainable practices. This will help to ensure the success of MY_OILPALM_Q1/24.

3.7.3 GHG emissions reduction/removal in the baseline scenario

In order to ensure precise and transparent quantification, the MY_OILPALM_Q1/24 projects fully follow the requirements provided in "BCR0001: Quantification of GHG Removal - ARR, Version 4.0." To ensure accuracy and clarity, our measurement and calculation methods use extensive approaches that include key data, parameters, equations, and other elements.

The baseline scenario can be calculated as follows:

$$\Delta C_{BSL,t} = \Delta C_{TREE\_BSL,t} + \Delta C_{SHRUB\_BSL,t} + \Delta C_{DW\_BSL,t} + \Delta C_{LI\_BSL,t} \quad \text{E(1)}$$

Where:

$\Delta C_{BSL,t}$ = Baseline net GHG removals by sinks in year t; t CO2-e

$\Delta C_{TREE\_BSL,t}$ = Change in carbon stock in baseline tree biomass within the project boundary in year t, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t CO2-e

$\Delta C_{SHRUB\_BSL,t}$ = Change in carbon stock in baseline shrub biomass within the project boundary, in year t, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t CO2-e

$\Delta C_{DW\_BSL,t}$ = Change in carbon stock in baseline dead wood biomass within the project boundary, in year t, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks in deadwood and litter in A/R CDM project activities"; t CO2-e

$\Delta C_{LI\_BSL,t}$ = Change in carbon stock in baseline litter biomass within the project boundary, in year t, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks in deadwood and litter in A/R CDM project activities"; t CO2-e

Change in carbon stock in tree biomass within the project boundary at the baseline:

$$\Delta C_{TREE\_BSL,t} = \sum_{i=1}^{M} \Delta C_{TREE\_BSL,i} \qquad E(2)$$

$$\Delta C_{TREE\_BSL,i} = \frac{44}{12} \times CF_{TREE} \times \Delta b_{FOREST} \times (1 + R_{TREE}) \times CC_{TREE\_BSL,i} \times A_i \qquad E(3)$$

Where:

$\Delta C_{TREE\_BSL,t}$ = Mean annual change in carbon stock in trees in the baseline; tCO2e yr-1

$\Delta C_{TREE\_BSL,i}$ = Mean annual change in carbon stock in trees in the baseline, in baseline stratum i; t CO2e yr-1

CF_{TREE} = Carbon fraction of tree biomass; t C (t.d.m.)-1.

A default value of 0.47 t C (t.d.m.)-1 is used unless transparent and verifiable information can be provided to justify a different value.

Δb_{FOREST} = Default means annual increment of above-ground biomass in forest in the region or country where the A/R CDM project activity is located; t d.m. ha-1 yr-1.

Values of ΔbF_{OREST} are taken from Table 3A.1.5 of the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC GPG-LULUCF 2003) unless transparent and verifiable information can be provided to justify different values.

Note. Tree biomass may reach a steady state in which biomass growth becomes zero or insignificant, either because of biological maturity of trees or because the rate of anthropogenic biomass extraction from the area is equal to the rate of biomass growth. Therefore, this parameter should be taken to be zero after the year in which tree biomass in the baseline reaches a steady state. The year in which tree biomass in the baseline reaches a steady-state is taken to be the 20th year from the start of the CDM project activity, unless transparent and verifiable information can be provided to justify a different year.

R_{TREE} = Root-shoot ratio for the trees in the baseline; dimensionless.

A default value of 0.25 is used unless transparent and verifiable information can be provided to justify a different value.

$CC_{TREE\_BSL,i}$ = Crown cover of trees in the baseline, in baseline stratum i, at the start of the A/R CDM project activity, expressed as a fraction(e.g. 10 percent crown cover implies $CCTREE\_BSL,i$ = 0.10); -dimensionless.

A_i = Area of baseline stratum i, delineated on the basis of tree crown cover at the start of the A/R CDM project activity; ha

Change in carbon stock in shrub biomass within the project boundary at the baseline:

$$C_{SHRUB,t} = \frac{44}{12} \times CF_S \times (1 + R_S) \times \sum_{i=1} A_{SHRUB,i} \times b_{SHRUB,i} \quad \text{E(4)}$$

$$b_{SHRUB,i} = BDR_{SF} \times b_{FoREST} \times CC_{SHRUB,i} \quad \text{E(5)}$$

$$\Delta C_{SHRUB} = C_{SHRUB,t2} - C_{SHRUB,t1} \quad \text{E(6)}$$

Where,

$C_{SHRUB,t}$ = Carbon stock in shrubs within the project boundary at a given -point of time in year t; t CO2-e

CF_S = Carbon fraction of shrub biomass; t C (t.d.m.)-1.

A default value of 0.47 is used unless transparent and verifiable information can be provided to justify a different value.

R_s = Root-shoot ratio for shrubs; dimensionless.

The default value of 0.40 is used unless transparent and verifiable information can be provided to justify a different value.

$A_{SHRUB,i}$ = Area of shrub biomass estimation stratum i; ha

$b_{SHRUB,i}$ = Shrub biomass per hectare in shrub biomass estimation stratum i; t d.m. ha-1

BDR_{SF} = Ratio of shrub biomass per hectare in land having a shrub crown cover of 1.0 (i.e. 100 per cent) and the default above-ground biomass content per hectare in forest in the region/country where the A/R CDM project activity is located;-dimensionless.

A default value of 0.10 should be used unless transparent and verifiable information can be provided to justify a different value.

b_{FOREST} = Default above-ground biomass content in forest in the region/country where the A/R CDM project activity is located; -t d.m. ha-1.

Values from Table 3A.1.4 of IPCC GPG-LULUCF 2003 are used unless transparent and verifiable information can be provided to justify different values.

$CC_{SHRUB,i}$ = Crown cover of shrubs in shrub biomass estimation stratum i at the time of estimation, expressed as a fraction (e.g. 10 percent crown cover implies $CCSHRUB,i$ = 0.10); dimensionless

Change in carbon stock in deadwood within the project boundary at the baseline:

$$C_{DW,i,t} = C_{TREE,i,t} \times DF_{Dw} \quad \text{E(7)}$$

$$dC_{DW},(t1,t2) = \frac{C_{DW},t2 - C_{DW},t1}{T} \quad \text{E(8)}$$

$$\Delta C_{DW,t} = dC_{DW},(t1,t2) \times 1 \text{ year for } t_1 \leq t \leq t_2 \quad E(9)$$

Where:

$C_{DW,i,t}$	=	Carbon stock in deadwood in stratum i at a given point of time in year t; t CO2e
$C_{TREE,i,t}$	=	Carbon stock in trees biomass in stratum i at a point of time in year t, as calculated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t CO2e
DF_{DW}	=	Conservative default factor expressing carbon stock in deadwood as a percentage of carbon stock in tree biomass, percent A default value of 0.37 t C t-1 d.m. may be used unless transparent and verifiable information can be provided to justify a different value
i	=	1, 2, 3. … biomass estimation strata within the project boundary
v	=	1, 2, 3. … years elapsed since the start of the project activity
dC_{DW},(t1,t2)	=	Rate of change in carbon stock in dead wood within the project boundary during the period between a point of time in year t1 and a point of time in year t2; t CO2e yr-1
C_{DW},t2	=	Carbon stock in dead wood within the project boundary at a point of time in year t2; t CO2e
C_{DW},t1	=	Carbon stock in dead wood within the project boundary at a point of time in year t1; t CO2e
T	=	Time elapsed between two successive estimations (T=t2 – t1); yr

$\Delta C_{DW,t}$ = Change in carbon stock in dead wood within the project boundary in year t; t CO2e

Change in carbon stock in a litter within the project boundary at the baseline:

$$C_{LI,i,t} = C_{TREE,i,t} \times DF_{LI} \quad \text{E(10)}$$

$$C_{LI},(t1,t2) = \frac{C_{LI},t2 - C_{LI},t1}{T} \quad \text{E(11)}$$

$$\Delta C_{DW,t} = dC_{LI},(t1,t2) \times 1 \text{ year for } t_1 \leq t \leq t_2 \quad \text{E(12)}$$

Where:

$C_{DW,i,t}$ = Carbon stock in deadwood in stratum i at a given point of time in year t; t CO2e

$C_{LI,i,t}$ = Carbon stock in trees biomass in stratum i at a point of time in year t, as calculated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t CO2e

$C_{TREE,i,t}$ = Conservative default factor expressing carbon stock in deadwood as a percentage of carbon stock in tree biomass, percent

A default value of 0.37 t C t-1 d.m. may be used unless transparent and verifiable information can be provided to justify a different value

DF_{LI}	=	Conservative default factor expressing carbon stock in the litter as a percentage of carbon stock in tree biomass, percent A default value of 0.37 t C t-1 d.m. may be used unless transparent and verifiable information can be provided to justify a different value.
i	=	1, 2, 3. … biomass estimation strata within the project boundary
t	=	1, 2, 3. … years elapsed since the start of the project activity
dC_{LI},(t1,t2)	=	Rate of change in carbon stock in litter within the project boundary during the period between a point of time in year t1 and a point of time in year t2; t CO2e yr-1
C_{LI},,t2	=	Carbon stock in litter within the project boundary at a point of time in year t2; t CO2e
C_{LI},,t1	=	Carbon stock in litter within the project boundary at a point of time in year t1; t CO2e
T	=	Time elapsed between two successive estimations (T=t2 – t1); yr
$\Delta C_{LI},_t$	=	Change in carbon stock in litter within the project boundary in year t; t CO2e

This rigorous method ensures that our quantification practices are consistent with industry standards, providing a solid foundation for accurately assessing greenhouse gas emission reductions in this project.

The baseline emissions in year y (B*E*) are calculated as:

CF_{TREE}	t C (t.d.m.)-1	0.47

Δb_{FOREST}	t d.m. ha-1 yr-1.	13.0 (≤20 years)
R_{TREE}	-	0.25
$CC_{TREE\_BSL,i}$	-	0.1
A_i	ha	Project activity 1 : 39.29 Project activity 2 : 526.33

$$\Delta C_{TREE\_BSL,t} = \sum_{i=1}^{M} \Delta C_{TREE\_BSL,i}$$

$$\Delta C_{TREE\_BSL,i} = \frac{44}{12} \times CF_{TREE} \times \Delta b_{FOREST} \times (1 + R_{TREE}) \times CC_{TREE\_BSL,i} \times A_i$$

Project activity 1:

$$\Delta C_{TREE\_BSL,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.1 \times 39.29 = 110.03 \text{ t CO2-e}$$

Project activity 2:

$$\Delta C_{TREE\_BSL,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.1 \times 526.33 = 1{,}473.94 \text{ t CO2-e}$$

CF_S	t C (t.d.m.)-1	0.47
R_S	-	0.40
$A_{SHRUB,i}$	ha	Project activity 1 : 39.29 Project activity 2 : 526.33
$b_{SHRUB,i}$	t d.m. ha-1	**Project activity 1 & 2 :** $b_{SHRUB,t1}$ = 2.05 $b_{SHRUB,t2}$ = 6.15

$$C_{SHRUB,t} = \frac{44}{12} \times CF_S \times (1 + R_S) \times \sum_{i=1} A_{SHRUB,i} \times b_{SHRUB,i}$$

$$b_{SHRUB,i} = BDR_{SF} \times b_{FoREST} \times CC_{SHRUB,i}$$

Project activity 1:

$b_{SHRUB,t1}$ = 0.10 × 205 × 0.1 = 2.05

$b_{SHRUB,t1}$ = 0.10 × 205 × 0.3 = 6.15

Project activity 1:

$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 39.29 \times 2.05 = 194.33$ t CO2-e

$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 39.29 \times 6.15 = 582.98$ t CO2-e

$\Delta C_{SHRUB} = C_{SHRUB,t2} - C_{SHRUB,t1}$

= 582.98 - 194.33 = 388.65 t CO2-e

Project activity 2:

$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 526.33 \times 2.05 = 2,603.21$ t CO2-e

$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 526.33 \times 6.15 = 7,809.63$ t CO2-e

$\Delta C_{SHRUB} = C_{SHRUB,t2} - C_{SHRUB,t1}$

= 7,809.63 - 2,603.21 = 5,206.42 t CO2-e

Project Activity 1:

$$\Delta C_{BSL,t} = \Delta C_{TREE\_BSL,t} + \Delta C_{SHRUB\_BSL,t} + \Delta C_{DW\_BSL,t} + \Delta C_{LI\_BSL,t}$$

= 110.03 + 388.65 + 0 + 0 = 498.68 t CO2-e

Project Activity 2:

$$\Delta C_{BSL,t} = \Delta C_{TREE\_BSL,t} + \Delta C_{SHRUB\_BSL,t} + \Delta C_{DW\_BSL,t} + \Delta C_{LI\_BSL,t}$$

= 1,473.94 + 5,206.420 + 0 + 0 = 6,680.36 t CO2-e

3.7.4 GHG emissions reduction/removal in the project scenario

In order to ensure precise and transparent quantification, the MY_OILPALM_Q1/24 projects fully follow the requirements provided in "BCR0001: Quantification of GHG Removal - ARR, Version 4.0." To ensure accuracy and clarity, our measurement and calculation methods use extensive approaches that include key data, parameters, equations, and other elements.

The actual net GHG removals for project scenario can be calculated as follows:

$$\Delta C_{ACTUAL,t} = \Delta C_t - GHG_{E,t} \quad \text{E(13)}$$

Where:

$\Delta C_{ACTUAL,t}$	=	Actual net GHG removals by sinks, in year t; t CO2-e
ΔC_t	=	Change in the carbon stocks in Project, occurring in the selected carbon pools, in year t; t CO2-e
$GHG_{E,t}$	=	Increase in non-CO2 GHG emissions within the project boundary as a result of the implementation of the A/R CDM - project activity, in year t, as estimated in the tool "Estimation of non-CO2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity"; tCO2-e

Change in the carbon stocks in Project, occurring in the selected carbon pools in year t shall be calculated as follows:

$$\Delta C_{P,t} = \Delta C_{TREE\_PROJ,t} + \Delta C_{SHRUB\_PROJ,t} + \Delta C_{DW\_PROJ,t} + \Delta C_{LI\_PROJ,t} + \Delta SOC_{A,t} \quad \text{E(14)}$$

Where:

$\Delta C_{P,t}$ = Change in the carbon stocks in Project, occurring in the selected carbon pools, in year t; t CO2-e

$\Delta C_{TREE\_PROJ,t}$ = Change in carbon stock in tree biomass in Project in year t, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project -activities"; tCO2-e

$\Delta C_{DW\_PROJ,t}$ = Change in carbon stock in deadwood in Project in year t, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks in deadwood and litter in A/R CDM project activities"; tCO2-e

$\Delta C_{LI\_PROJ,t}$ = Change in carbon stock in litter in Project in year t, as estimated-in the tool "Estimation of carbon stocks and change in carbon -stocks in deadwood and litter in A/R CDM project activities"; tCO2-e

$\Delta SOC_{AL,t}$ = Change in carbon stock in SOC in Project, in year t, in areas of land meeting the applicability conditions of the tool "Tool for estimation of change in soil organic carbon stocks due to the implementation of A/R CDM project activities,"22 as estimated-in the same tool; t CO2-e

Change in carbon stock in tree biomass within the project boundary for project scenario:

$$\Delta C_{TREE\_PROJ,t} = \sum_{i=1}^{M} \Delta C_{TREE\_PROJ,i} \quad \text{E(15)}$$

$$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times CF_{TREE} \times \Delta b_{FOREST} \times (1 + R_{TREE}) \times CC_{TREE\_PROJ,i} \times A_i \quad \text{E(16)}$$

Where:

$\Delta C_{TREE\_PROJ,t}$ = Mean annual change in carbon stock in trees in the project; tCO2e yr-1

CF_{TREE} = Carbon fraction of tree biomass; t C (t.d.m.)-1.

A default value of 0.47 t C (t.d.m.)-1 is used unless transparent and verifiable information can be provided to justify a different value.

Δb_{FOREST} = Default means annual increment of above-ground biomass in-forest in the region or country where the A/R CDM project activity is located; t d.m. ha-1 yr-1.

Values of ΔbF_{OREST} are taken from Table 3A.1.5 of the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC GPG-LULUCF 2003) unless transparent and verifiable information can be provided to justify different values.

Note. Tree biomass may reach a steady state in which biomass growth becomes zero or insignificant, either because of biological maturity of trees or because the rate of anthropogenic biomass extraction from the area is equal to the rate of biomass growth. Therefore, this parameter should be taken to be zero after the year in which tree biomass in the baseline reaches a steady state. The year in which tree biomass in the baseline reaches a steady-state is taken to be the 20th year from the start of the CDM project activity, unless transparent and verifiable information can be provided to justify a different year.

R_{TREE} = Root-shoot ratio for the trees in the project; dimensionless.

A default value of 0.25 is used unless transparent and verifiable information can be provided to justify a different value.

$CC_{TREE\_PROJ,i}$ = Crown cover of trees in the project, in project stratum i, at the start of the A/R CDM project activity, expressed as a fraction(e.g. 10 percent crown cover implies $CCTREE\_BSL,i$ = 0.10); -dimensionless

A_i = Area of project stratum i, delineated on the basis of tree crown-cover at the start of the A/R CDM project activity; ha

Change in carbon stock in shrub biomass within the project boundary for project scenario:

$$C_{SHRUB,t} = \frac{44}{12} \times CF_S \times (1 + R_S) \times \sum_{i=1} A_{SHRUB,i} \times b_{SHRUB,i} \quad \text{E(17)}$$

$$b_{SHRUB,i} = BDR_{SF} \times b_{FoREST} \times CC_{SHRUB,i} \quad \text{E(18)}$$

$$\Delta C_{SHRUB} = C_{SHRUB,t2} - C_{SHRUB,t1} \quad \text{E(19)}$$

Where:

$C_{SHRUB,t}$ = Carbon stock in shrubs within the project boundary at a given point of time in year t; t CO2-e

CF_S = Carbon fraction of shrub biomass; t C (t.d.m.)-1.

A default value of 0.47 t C (t.d.m.)-1 is used unless transparent and verifiable information can be provided to justify a different value.

R_s = Root-shoot ratio for shrubs; dimensionless.

The default value of 0.40 is used unless transparent and verifiable information can be provided to justify a different value.

$A_{SHRUB,i}$ = Area of shrub biomass estimation stratum i; ha

$b_{SHRUB,i}$ = Shrub biomass per hectare in shrub biomass estimation stratum-i; t d.m. ha-1

BDR_{SF} = Ratio of shrub biomass per hectare in land having a shrub crown cover of 1.0 (i.e. 100 per cent) and the default-above-ground biomass content per hectare in forest in the -region/country where the A/R CDM project activity is located;-dimensionless.

A default value of 0.10 should be used unless transparent and verifiable information can be provided to justify a different value.

b_{FOREST} = Default above-ground biomass content in forest in the region/country where the A/R CDM project activity is located; t d.m. ha-1.

Values from Table 3A.1.4 of IPCC GPG-LULUCF 2003 are used unless transparent and verifiable information can be provided to justify different values.

$CC_{SHRUB,i}$ = Crown cover of shrubs in shrub biomass estimation stratum i at the time of estimation, expressed as a fraction (e.g. 10 percent crown cover implies $CCSHRUB,i$ = 0.10); dimensionless

Change in carbon stock in deadwood within the project boundary for project scenario:

$$C_{DW,i,t} = C_{TREE,i,t} \times DF_{Dw} \quad \text{E(20)}$$

$$dC_{DW},(t1,t2) = \frac{C_{DW},t2 - C_{DW},t1}{T} \quad \text{E(21)}$$

$$\Delta C_{DW,t} = dC_{DW},(t1,t2) \times 1 \text{ year for } t_1 \le t \le t_2 \quad \text{E(22)}$$

Where:

$C_{DW,i,t}$	=	Carbon stock in deadwood in stratum i at a given point of time in year t; t CO2e
$C_{TREE,i,t}$	=	Carbon stock in trees biomass in stratum i at a point of time in year t, as calculated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM -project activities"; t CO2e
DF_{DW}	=	Conservative default factor expressing carbon stock in deadwood as a percentage of carbon stock in tree biomass, percent A default value of 0.37 t C t-1 d.m. may be used unless transparent and verifiable information can be provided to justify a different value
i	=	1, 2, 3. … biomass estimation strata within the project boundary
t_i	=	1, 2, 3. … years elapsed since the start of the project activity
dC_{DW},(t1,t2)	=	Rate of change in carbon stock in dead wood within the project boundary during the period between a point of time in year t1 and a point of time in year t2; t CO2e yr-1
C_{DW},t2	=	Carbon stock in dead wood within the project boundary at a point of time in year t2; t CO2e
C_{DW},t1	=	Carbon stock in dead wood within the project boundary at a point of time in year t1; t CO2e
T	=	Time elapsed between two successive estimations (T=t2 – t1); yr

$\Delta C_{DW,t}$ = Change in carbon stock in dead wood within the project boundary in year t; t CO2e

Change in carbon stock in a litter within the project boundary for the project scenario:

$$C_{LI,i,t} = C_{TREE,i,t} \times DF_{LI} \quad \text{E(23)}$$

$$C_{LI},(t1,t2) = \frac{C_{LI},t2 - C_{LI},t1}{T} \quad \text{E(24)}$$

$$\Delta C_{DW,t} = dC_{LI},(t1,t2) \times 1 \text{ year for } t_1 \leq t \leq t_2 \quad \text{E(25)}$$

Where:

$C_{LI,i,t}$ = Carbon stock in deadwood in stratum i at a given point of time in year t; t CO2e

$C_{TREE,i,t}$ = Carbon stock in trees biomass in stratum i at a point of time in year t, as calculated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; t CO2e

DF_{LI} = Conservative default factor expressing carbon stock in the litter as a percentage of carbon stock in tree biomass, percent

A default value of 0.37 t C t-1 d.m. may be used unless transparent and verifiable information can be provided to justify a different value.

i	=	1, 2, 3. … biomass estimation strata within the project boundary
t_i	=	1, 2, 3. … years elapsed since the start of the project activity
dC_{LI},(t1,t2)	=	Rate of change in carbon stock in litter within the project boundary during the period between a point of time in year t1 and a point of time in year t2; t CO2e yr-1
C_{LI},t2	=	Carbon stock in litter within the project boundary at a point of time in year t2; t CO2e
C_{LI},t1	=	Carbon stock in litter within the project boundary at a point of time in year t1; t CO2e
T	=	Time elapsed between two successive estimations (T=t2 – t1); yr
$\Delta C_{LI,t}$	=	Change in carbon stock in litter within the project boundary in year t; t CO2e

This rigorous method ensures that our quantification practices are consistent with industry standards, providing a solid foundation for accurately assessing greenhouse gas emission reductions in both project activity 1 and project activity 2.

The project emissions in year y (*PE*) are calculated as:

CF_{TREE}	t C (t.d.m.)-1	0.47
Δb_{FOREST}	t d.m. ha-1 yr-1.	13.0 (≤20 years)
R_{TREE}	-	0.25
$CC_{TREE\_PROJ,i}$	-	0.8

A_i	ha	Project activity 1 : 39.29 Project activity 2 : 526.33

$$\Delta C_{TREE\_PROJ,t} = \sum_{i=1}^{M} \Delta C_{TREE\_PROJ,i}$$

$$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times CF_{TREE} \times \Delta b_{FOREST} \times (1 + R_{TREE}) \times CC_{TREE\_PROJ,i} \times A_i$$

Project activity 1:

$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.8 \times 39.29 = 880.23$ t CO2-e

Project activity 2:

$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.8 \times 526.33 = 11{,}791.55$ t CO2-e

CF_S	t C (t.d.m.)-1	0.47
R_S	-	0.40
$A_{SHRUB,i}$	ha	Project activity 1 : 39.29 Project activity 2 : 526.33
$b_{SHRUB,i}$	t d.m. ha-1	$b_{SHRUB,t1} = 12.3$ $b_{SHRUB,t2} = 16.4$

$$C_{SHRUB,t} = \frac{44}{12} \times CF_S \times (1 + R_S) \times \sum_{i=1} A_{SHRUB,i} \times b_{SHRUB,i}$$

$$b_{SHRUB,i} = BDR_{SF} \times b_{FOREST} \times CC_{SHRUB,i}$$

Project activity 1:

$b_{SHRUB,t1} = 0.10 \times 205 \times 0.6 = 12.3$

$b_{SHRUB,t2}$ = 0.10 × 205 × 0.8 = 16.4

Project activity 2:

$b_{SHRUB,t1}$ = 0.10 × 205 × 0.6 = 12.3

$b_{SHRUB,t2}$ = 0.10 × 205 × 0.8 = 16.4

Project activity 1:

$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 39.29 \times 12.3 = 1{,}165.96$ t CO2-e

$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 39.29 \times 16.4 = 1{,}554.62$ t CO2-e

$\Delta C_{SHRUB} = C_{SHRUB,t2} - C_{SHRUB,t1}$

= 1,554.62 - 1,165.96 = 388.66 t CO2-e

Project activity 2:

$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 526.33 \times 12.3 = 15{,}619.26$ t CO2-e

$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 526.33 \times 16.4 = 20{,}825.69$ t CO2-e

$\Delta C_{SHRUB} = C_{SHRUB,t2} - C_{SHRUB,t1}$

= 20,825.69 - 15,619.26 = 5,206.43 t CO2-e

Project Activity 1: Quenny Chwa

$$\Delta C_{P,t} = \Delta C_{TREE\_PROJ,t} + \Delta C_{SHRUB\_PROJ,t} + \Delta C_{DW\_PROJ,t} + \Delta C_{LI\_PROJ,t} + \Delta SOC_{A,t}$$

= 880.23 + 388.66 +0 + 0 + 0 = 1,268.89 t CO2-e

Project Activity 2 : Tokoh Nuri Sdn Bhd

$$\Delta C_{P,t} = \Delta C_{TREE\_PROJ,t} + \Delta C_{SHRUB\_PROJ,t} + \Delta C_{DW\_PROJ,t} + \Delta C_{LI\_PROJ,t} + \Delta SOC_{A,t}$$

= 11,791.55 + 5,206.43 + 0 + 0 = 16,997.98 t CO2-e

The table below the ex-ante calculations, the estimated GHG emission reductions over the entire quantification period of the MY_OILPALM_Q1/24 project:

Project Activity 1 : Quenny Chwa

Year	GHG emission reductions in the baseline scenario (tCO2e)	GHG emission reductions in the project scenario (tCO_{2e})	GHG emissions attributable to leakages (tCO_{2e})	Estimated Net GHG Reduction (tCO_{2e})
Year 1	423.88	1078.56	0	654.68
Year 2	423.88	1078.56	0	654.68
Year 3	498.68	1,268.89	0	770.21
Year...	498.68	1,268.89	0	770.21
Total	9824.00	24997.14	0	15173.14

Project Activity 2 : Tokoh Nuri Sdn Bhd

Year	GHG emission reductions in the baseline scenario (tCO2e)	GHG emission reductions in the project scenario (tCO_{2e})	GHG emissions attributable to leakages (tCO_{2e})	Estimated Net GHG Reduction (tCO_{2e})
Year 1	5,678.31	14,448.27	0	8,769.96

Year 2	5,678.31	14,448.27	0	8,769.96
Year 3	6,680.36	16,997.97	0	10,317.60
Year...	6,680.36	16,997.97	0	10,317.60
Total	131,603.10	334,859	0	203,256.78

Total estimated of GHG emissions reductions (during the quantification period):

Project Activity 1 : (654.68 x 2 years) +(770.21 x 18 years) = 15173.14 tCO2e

Project Activity 2 : (8,7669.96 x 2 years) +(10,317.60 x 18 years) = 203,256.78 tCO2e

Estimated average annual amount of GHG emission reductions:

Project Activity 1 : 770.21 tCO2e/year

Project Activity 2 : 10,317.60 tCO2e/year

4 Compliance with applicable legislation

The MY _PALMOIL_Q1/24 project upholds strict legal compliance by implementing a documented process to continuously identify and adhere to relevant laws and regulations, particularly those concerning environmental protection and sustainable agriculture. This adherence is exemplified by its certification under the Malaysian Sustainable Palm Oil (MSPO) standards and the acquisition of a permit from the Malaysian Palm Oil Board (MPOB). These

certifications demonstrate the project's commitment to sustainable practices and regulatory compliance, ensuring that all project activities are conducted in an environmentally responsible and legally compliant manner.

The compliance with the MSPO and adherence to regulations set forth by the MPOB demonstrates a commitment to sustainable and responsible palm oil production. This includes meeting stringent standards that cover various aspects of production, from environmental stewardship to social responsibility and economic viability, ensuring that the project not only contributes positively to the industry but also to the broader goals of sustainability and environmental protection.

All relevant Malaysia laws and regulations applicable to MY_OILPALM_Q1/24 projects as following:

1. **Land Acquisition and Land Use:**
    - National Land Code 1965
    - State Land Rules
2. **Biodiversity Conservation:**
    - Biodiversity Conservation Act 2010
3. **Labour Laws:**
    - Employment Act 1955
    - Occupational Safety and Health Act 1994
4. **Malaysian Palm Oil Board (MPOB)**
    - Research, regulation, and support for palm oil producers to adhere to best practices and sustainability standards
5. **Malaysian Sustainable Palm Oil (MSPO)**
    - Sustainable management, aiming to bring positive social, environmental, and economic impacts while minimising negative ones, particularly on people and the environment.

To ensure legal compliance, especially in relation to the protection of human and indigenous peoples' rights in a MY_OILPALM_Q1/24 project, specific measures have be implemented, which can align with relevant laws and international regulations:

1. **Labor Rights and Safety:**

   Description: The project ensures compliance with Malaysian labour laws and international standards.

   Implementation: Employment practices adhere to the Employment Act 1955, and occupational safety measures follow the Occupational Safety and Health Act 1994, protecting workers' rights and well-being.

2. **Social Impact Assessments:**

   Description: Social impact assessments are conducted to identify potential impacts on local communities, with a particular focus on indigenous peoples.

   Implementation: The assessments are comprehensive, covering aspects such as land tenure, cultural practices, and social structures to find guide project planning and mitigation strategies.

3. **Community Engagement and Free, Prior, and Informed Consent (FPIC):**

   Description: The project engages with local communities, especially indigenous groups, in a meaningful way. FPIC is obtained before implementing any activities that may affect their land, resources, or cultural heritage.

Implementation: Regular consultations, community meetings, and the establishment of grievance mechanisms ensure that the project respects the rights and decisions of indigenous communities.

4. **Monitoring and Reporting:**

   Description: Regular monitoring of project activities is conducted, with a focus on human and indigenous peoples' rights.

   Implementation: The project maintains transparent reporting mechanisms, providing updates to relevant stakeholders, regulatory bodies, and communities. This includes reporting in alignment with international standards and agreements.

By implementing these measures, MY_OILPALM_Q1/24 project can demonstrate its commitment to legal compliance, human rights, and the protection of indigenous peoples' rights in accordance with international regulations.

5 Carbon ownership and rights

5.1 Project holder

Individual or organisation	Carbon Vault Sdn Bhd
Contact person	Nur Naqibah Ali
Job position	Operation Executive
Address	No. 11A, Lorong Kurau, Bangsar, 59100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.
Phone number	+(60)11 - 23062561

Email	naqibah@co2bank.asia

5.2 Other project participants

Project Activity 1:

Individual or organisation	Love Agro Carbon Trading
Contact person	Quenny Chwa
Job position	Manager
Address	Mukim Triang, Bera, Pahang
Phone number	+(60)11 - 56609309
Email	dotomeo904@gmail.com

Project Activity 2:

Individual or organisation	Bong Chin Hong
Contact person	Tokoh Nuri Sdn Bhd
Job position	Director
Address	Gemencheh, Tampin, Negeri Sembilan
Phone number	+(60)12 - 6519932

Email	ch.bong@hotmail.com

5.3 Agreements related to carbon rights

Both the projects have obtained the agreement of all the project stakeholders to the management of carbon rights, and have demonstrated transparency and, where appropriate, evidence of a process based on full, prior and informed consent. The project has respected the rights of the local traditional communities that inhabit or use the project area, and has ensured that they are informed and consulted about the project activities and benefits. The project has demonstrated carbon rights based on agreements and documents that ensure that the requirement is met, with at least the following information:

(a) Parties signing the agreement(s):

Project Activity 1: Quenny Chwa

Project Owner : Carbon Vault Sdn Bhd

Parent Company : Love Agro Carbon Trading Sdn Bhd

Project Activity 2: Tokoh Nuri Sdn Bhd

Project Owner : Carbon Vault Sdn Bhd

Parent Company : Kean Hoe Holdings Sdn Bhd

(b) Purpose of the agreement:

The agreement for Project Activity 1 and Project Activity 2 serves to formalize the transfer of carbon rights from the landowners and local communities to the project participants. Its primary objective is to establish the terms and conditions for sharing the benefits derived from the carbon credits generated by the project. Additionally, the agreement delineates the roles and responsibilities of each party involved and outlines

the mechanisms for monitoring, reporting, verification, and dispute resolution.

(c) Date of the agreement:

Project Activity 1: Quenny Chwa

The agreement was signed on 20/10/2023, before the project start date of 31/01/2024, and after the validation and approval of the project design document by the BioCarbon Technical Committee.

Project Activity 2: Tokoh Nuri Sdn Bhd

The agreement was signed on 16/10/2023, before the project start date of 20/02/2024, and after the validation and approval of the project design document by the BioCarbon Technical Committee.

(d) Name of the GHG project:

Project Activity 1: Quenny Chwa

The name of the GHG project is MY_OILPALM_Q1/24 which aims to combat climate change by engaging in activities that result in measured and verifiable reductions in greenhouse gas emissions in Bera, Pahang.

Project Activity 2: Tokoh Nuri Sdn Bhd

The name of the GHG project is MY_OILPALM_Q1/24 which aims to combat climate change by engaging in activities that result in measured and verifiable reductions in greenhouse gas emissions in Gemencheh, Negeri Sembilan.

(e) Period of quantification of GHG emission removals/reductions:

Project Activity 1: Quenny Chwa

The period of quantification of GHG emission removals/reductions is 20 years, starting from 20/10/2023 and ending on 20/10/2043. This typically covers the entire duration of the project, from its initiation to its completion.

Project Activity 2: Tokoh Nuri Sdn Bhd

The period of quantification of GHG emission removals/reductions is 20 years, starting from 16/10/2023 and ending on 16/10/2043. This typically covers the entire duration of the project, from its initiation to its completion.

(f) Responsibilities, obligations, and rights of each of the signatory parties are as follows:

Project Activity 1 & 2: Quenny Chwa & Tokoh Nuri Sdn Bhd

Landowners:

- The landowners agree to grant the carbon rights to the project participants, and to allow the project activities to take place on their land.
- The landowners also agree to maintain and protect the land and the trees, and to refrain from any activities that may harm or reduce the carbon stocks.
- The landowners have the right to receive a fair and equitable share of the benefits from the carbon credits, based on the area and the quality of their land.

Local communities:

- The local communities agree to support and cooperate with the project activities, and to respect the carbon rights of the project participants.
- The local communities also agree to participate in the monitoring and reporting of the project performance, and to provide feedback and suggestions for improvement.
- The local communities have the right to receive a fair and equitable share of the benefits from the carbon credits, based on their contribution and involvement in the project.

Project Participants:

- The project participants agree to implement and manage the project activities, and to comply with the selected methodology and the relevant standards and regulations.
- The project participants also agree to monitor and report the project performance, and to verify and certify the emission reductions or removals.
- The project participants have the right to own and sell the carbon credits generated by the project, and to retain a reasonable share of the benefits from the carbon credits, based on their investment and risk in the project.

5.4 Land tenure (Projects in the AFOLU sector)

Project participants in MY_OILPALM_Q1/24 include Quenny Chwa for Project Activity 1 and Tokoh Nuri Sdn Bhd for Project Activity 2.

The project participants can demonstrate their land ownership by providing evidence and information that support their legal rights and claims to the land or land parcels. The evidence and information may include:

- Land titles, deeds, or certificates that show the name, location, area, and boundaries of the land or land parcels, and the date and terms of acquisition, transfer, or lease.

- Land contracts, agreements, or leases that show the name, role, and responsibilities of the parties involved in the land or land parcels, and the duration and conditions of the land use or management.
- Land maps, surveys, or records that show the geospatial data and characteristics of the land or land parcels, and the land use or cover types and changes over time.
- Land permits, licences, or approvals that show the authorization and compliance of the project activities with the relevant laws, regulations, and policies of the national or local authorities.
- Land registries, databases, or systems that show the official and updated information and documentation of the land or land parcels, and the verification and validation of the land ownership and the project activities.

6 Climate change adaptation

In adherence to the BioCarbon Registry (BCR) Standard, this document outlines the climate change adaptation activities undertaken by Project Activity 1 and Project Activity 2, as derived from the GHG project activities. The adaptation measures implemented align with the relevant criteria and indicators specified by the BCR Standard.

Project Activity 1 & 2 : Quenny Chwa & Tokoh Nuri Sdn Bhd

	Criteria	Indicator
Integration of Climate Resilience in Sustainable Practices	Integration of climate-resilient practices within palm oil plantation management.	Adoption of sustainable agroforestry practices, including intercropping with shade-providing tree species to enhance ecosystem resilience to climate variability and reduce the vulnerability of palm oil

		crops.
Identification and Mitigation of Climate Risks	Identification and proactive mitigation of climate-related risks specific to palm oil cultivation.	Conducting risk assessments to assess potential impacts of climate change on palm oil production and implementing strategies to mitigate risks, such as improved water management practices and pest control measures.
Enhanced Soil Conservation Techniques	Adoption of sustainable soil management and erosion control practices.	Measurement of soil organic matter content, reduction in soil erosion rates observed through satellite imagery or ground surveys, and implementation of cover cropping or terracing practices.
Biodiversity Conservation for Climate Resilience	Promoting biodiversity conservation within and around the palm oil plantation.	Establishing buffer zones with diverse vegetation to enhance biodiversity, providing habitats for beneficial species that contribute to ecosystem resilience and pest control.

Comprehensive documentation, which includes assessments of climate risks, records of community engagement, and reports on progress, is kept to show adherence to the requirements and indicators of the BCR Standard. This report presents concrete evidence of the palpable endeavours undertaken by the palm oil plantation operation to adapt to climate change.

The adaptation measures implemented in the palm oil plantation project demonstrate a dedication to enhancing climate resilience and promoting sustainability. The project's adherence to the criteria and indicators of the BCR Standard for climate change adaptation helps to the overarching objective of

promoting resilience in palm oil farming against the challenges posed by a shifting climate.

7 Risk management

Project Activity 1 & 2 : Quenny Chwa & Tokoh Nuri Sdn Bhd

a. Environmental risks

The projects conducted risk assessment and risk management to identify environmental, financial, and social risks related to project activities. The aim was to justify measures to manage the risks and ensure that greenhouse gas emission reductions and/or removals are sustained during the project quantification period. The project has adhered to the guidelines and best practices outlined in the ISO 31000 standard for risk management, as well as the ISO 14091 standard for climate change adaptation. The project utilised web search results to gather pertinent information and data regarding potential risks and mitigation strategies.

1. The projects have identified risks in the environmental, financial, and social dimensions and have proposed measures to manage them.

2. The project has implemented a silvicultural management plan, which includes the proper site preparation, planting, pruning, thinning, harvesting, and replanting of the trees, to enhance the productivity and resilience of the plantation.

3. The project has established a fire prevention and control system, which includes the creation and maintenance of firebreaks, the provision and training of fire-fighting equipment and personnel, and the coordination and cooperation with the local fire authorities and communities.

4. The project area is resilient to climate change-related challenges such as droughts, floods, and pest outbreaks. This boosts the plantation's ability to

maintain consistent crop yields and contributes positively to its long-term viability.

5. The project has implemented a pest and disease monitoring and control system, which includes the regular inspection and diagnosis of the trees, the application of biological or chemical treatments when necessary, and the quarantine and removal of infected or infested trees.

6. The project has secured the legal ownership and tenure of the land and the carbon rights, and has obtained the necessary permits and approvals from the relevant authorities, to prevent or reduce the risk of land use change or illegal logging in the project area.

(b) Financial Risk

The financial risks for the MY_OILPALM_Q1/24 palm oil plantation project, related to expected costs and cash flows, include fluctuations in palm oil market prices, potential delays or failures in obtaining necessary sustainability certifications like MSPO, and the ongoing operational and maintenance costs of palm oil cultivation and processing activities. These factors could impact the project's profitability, its long-term sustainability, and the engagement of project participants and stakeholders.

1. The project utilises forward selling and futures contracts when possible to secure prices for its production. This approach seeks to mitigate the financial instability resulting from fluctuations in prices.

2. The project has provided funding for a specialised certification team to guarantee adherence to all certification requirements, expediting the procedure for validating and confirming sustainable practices. Additionally, it is the duty of this team to stay updated on any modifications to certification requirements and to modify the project's procedures as necessary.

3. The project is investing in efficient technologies and practices, such as precision agriculture to optimise fertiliser and water use, in order to control the operational costs associated with palm oil production. In order to increase efficiency and decrease waste, staff training programmes are also scheduled on a regular basis.

4. The project has followed the procedures and requirements of the selected methodology and the relevant standards and regulations, such as the BCR0001 Quantification of GHG Emission Reductions (GHG Removal Activities) where the CDM Afforestation and Reforestation (A/R) Large-Scale Consolidated Methodology ACM0003, and the BioCarbon standard become references, to ensure the quality and credibility of the emission reductions or removals, and to facilitate the validation, verification, and certification of the project by the competent authority or body.

5. The project has implemented a risk management plan, which includes the identification, assessment, treatment, monitoring, and reporting of the financial risks, and the application of the risk mitigation measures, to minimise the negative impacts and maximise the positive outcomes of the project.

c) Social Risks

This project carries potential social risks, including disputes over land use and carbon rights, impacts on local livelihoods and well-being, and varying expectations about the project's benefits and costs. Such issues could influence the community's support, collaboration, and the project's overall sustainability and legitimacy. Recognizing these concerns, the project has undertaken an in-depth analysis of these risks' frequency and severity, leading to the formulation of targeted mitigation strategies:

1. The project has conducted a stakeholder analysis and a social impact assessment, which include the identification and mapping of the relevant

and affected stakeholders, such as the landowners, the local communities, and the environmental authorities, and the evaluation of the potential positive and negative impacts of the project on their rights, interests, and needs.

2. The project has established a monitoring and evaluation system, which includes the collection, analysis, and disclosure of the relevant data and information on the social performance and impacts of the project, and the application of the quality assurance and quality control procedures.

3. The project has implemented several strategies to overcome short-term disruptions to local economies and traditional practices caused by its operations. These strategies aim to ensure the project's sustainable integration into the local context, preserving economic stability and cultural practices.

4. The project has engaged and consulted with the local communities and stakeholders, using the principles and methods of free, prior and informed consent (FPIC), to inform and educate them about the project objectives, activities, and benefits, and to obtain their feedback and suggestions for improvement.

7.1 Reversal Risk

For MY _PALMOIL_Q1/24, a palm oil plantation project, ensuring its long-term viability requires a comprehensive approach to risk management and permanence measures. By referring to BCR website by using “Risk and Permanence” tool, key measures taken to ensure the longevity of project activities 1 and 2:

1. **Legal Agreements and Contracts**

- Establishing clear and legally binding land use agreements that designate the project area solely for palm oil plantation activities, preventing conversion to other land uses.

- Drafting contracts with stakeholders outlining project terms, responsibilities, and duration to ensure commitment and accountability.

2. **Monitoring and Verification**

- Implementing regular monitoring and verification mechanisms, including third-party audits, to track carbon sequestration levels and project performance.

- Utilising remote sensing technologies and on-the-ground surveys for accurate data collection.

3. **Management Plan**

- Developing a detailed management strategy outlining project objectives, achievements, and measures to maintain and enhance carbon sequestration.

- Identifying and mitigating potential risks, such as reversion, through adaptive management strategies.

4. **Financial Mechanisms**

- Securing long-term financing commitments or endowments to cover ongoing maintenance costs, possibly through escrow accounts with disbursement tied to milestones.

- Implementing insurance policies to mitigate financial risks associated with unforeseen events.

5. **Long-Term Contracts**

- Establishing contracts with carbon offset purchasers to ensure a sustained commitment to the project, with pricing terms and consequences for noncompliance clearly defined.

- Including provisions for financial guarantees or insurance to cover reversion risks.

In summary, MY _PALMOIL_Q1/24 success relies on proactive risk mitigation strategies that address both direct (natural disasters, pest infestations, unauthorised land use) and indirect risks (policy changes, market fluctuations). Adaptive management practices, including diverse tree planting and regular monitoring, ensure flexibility and resilience to evolving challenges, contributing to the project's long-term sustainability.

8 Environmental Aspects

Project Activity 1 : Quenny Chwa

The project has undergone a comprehensive environmental assessment, meticulously analysing the potential impacts on biodiversity and ecosystems within its designated boundaries. This assessment has been conducted with the support of reliable and current references, ensuring accuracy and credibility in the evaluation process.

The environmental assessment has found that the project activities have mostly **positive impacts** on biodiversity and ecosystems, such as:

- The project transitions and revitalises land that was previously designated as a rubber plantation, repurposing it into a palm oil plantation. This transformation entails a shift in land use from rubber conservation to palm oil production while incorporating practices aimed at maximising carbon capture and storage capabilities. By leveraging this conversion, the project seeks to enhance carbon sequestration potential, thereby promoting environmental sustainability and playing a proactive role in combating climate change.

- The surrounding project area establishes a palm oil plantation that is suitable and adapted to the local climate and soil conditions, and that provides multiple ecosystem services and benefits.

- The project has implemented a silvicultural management plan, which includes the proper site preparation, planting, pruning, thinning, harvesting, and replanting of the trees, to enhance the productivity and resilience of the plantation.

- The project switches from non-renewable biomass to renewable biomass for thermal energy generation by the project participants, and reduces the emissions and pollution from fossil fuels.

Project Activity 2 : Tokoh Nuri Sdn Bhd

The project has conducted an environmental assessment, analysing the foreseeable impacts on biodiversity and ecosystems within the project boundaries. The environmental assessment is supported by reliable and up-to-date references.

The environmental assessment has found that the project activities have mostly **positive impacts** on biodiversity and ecosystems, such as:

- The project involves the restoration and conservation of forested land, previously utilised for shifting cultivation and logging, to enhance carbon stocks and sequestration potential.

- A palm oil plantation is established in the project area, tailored to local climate and soil conditions, while providing multiple ecosystem services and benefits.

- A silvicultural management plan has been implemented, encompassing site preparation, planting, pruning, thinning, harvesting, and replanting of trees to enhance plantation productivity and resilience.

- The project facilitates the transition from non-renewable biomass to renewable biomass for thermal energy generation among project participants, thereby reducing emissions and pollution from fossil fuels.

The environmental assessment has also identified some potential **negative impacts** in the both project activities in MY_OILPALM_Q1/24, such as:

- The project could potentially lead to soil erosion, nutrient depletion, or water contamination arising from activities such as site preparation, tree planting, harvesting, or the application of fertilisers, pesticides, or herbicides.

- Changes in land use or cover associated with the project may impact the hydrological cycle, water availability, or water quality, as well as water consumption by the trees.

- Construction, operation, or maintenance activities of project facilities or equipment may result in the generation of waste, noise, or dust.

Both project activities in MY_OILPALM_Q1/24 provided recommendations for the following **actions and corrective measures** to manage and minimise the impacts resulting from the development of the GHG project activities, such as:

- The project will execute a silvicultural management plan, encompassing meticulous site preparation, tree planting, pruning, thinning, harvesting, and replanting procedures. Additionally, it will employ organic or low-toxicity fertilisers, pesticides, or herbicides to mitigate soil erosion, nutrient depletion, or water contamination risks.

- A hydrological assessment will be conducted, involving the estimation and monitoring of water balance, demand, and quality within the project area and its surroundings. Water conservation and protection measures, such as rainwater harvesting, drip irrigation, or buffer strips, will be implemented to mitigate impacts on the hydrological cycle, water availability, or water quality.

- The project will implement a waste management plan focusing on waste reduction, reuse, recycling, or appropriate disposal of generated waste. It

will also adhere to noise and dust control regulations and standards to minimize waste, noise, or dust pollution.

In order to demonstrate that the project activities cause no net harm to the environment, the project holder has used a No Net Harm tool developed by the BioCarbon Registry. The tool is a spreadsheet that provides a framework and a checklist for assessing the environmental impacts and risks of the project activities, and for developing and implementing the environmental safeguards and mitigation measures. The tool also provides guidance and examples for the application of the tool, and for the reporting and verification of the environmental performance and outcomes of the project.

9 Socio-economic aspects

Project Activity 1 & 2 : Quenny Chwa & Tokoh Nuri Sdn Bhd

MY_OILPALM_Q1/24 project has conducted an analysis of the potential socio-economic impacts of the activities, within the scope of the project, clearly explaining the assumptions used and justifying the results of the analysis. The analysis is supported by relevant documentation and evidence.

The analysis has found that the project activities have mostly **positive impacts** on the socio-economic aspects, such as:

- The project creates jobs and income opportunities for the local communities and foreigners, by employing them as workers, technicians, or managers for the project activities.
- The project improves the livelihoods and well-being of the local communities, by providing them with access to clean and renewable energy, health and education services, and capacity building and training programs.
- The project contributes to the sustainable development goals and the national development plans, by aligning and complying with the relevant

policies, regulations, and standards, and by addressing the key challenges and priorities of the country and the region, such as poverty reduction, climate change mitigation and adaptation, and biodiversity conservation.

The analysis has also identified some potential **negative impacts** of the project activities, such as:

- The project may generate or increase the inequality or vulnerability of the local communities, especially the marginalised or disadvantaged groups, such as women, youth, or ethnic minorities, who may face barriers or discrimination in accessing or benefiting from the project activities and resources.

- The project may create or reinforce the dependency or expectations of the local communities on the project activities and benefits, which may not be sustainable or reliable in the long term, or which may crowd out or displace other sources of livelihoods or income.

The project has proposed the following **actions and corrective measures** to prevent and/or reduce the socio-economic impacts resulting from the development of the GHG project activities, such as:

- The project will conduct a stakeholder analysis and a conflict analysis, which include the identification and mapping of the relevant and affected stakeholders, such as the landowners, the local communities, and the environmental authorities, and the assessment and management of the potential or actual conflicts or disputes related to the project activities and impacts.

- The project will implement a grievance redress mechanism, which includes the provision and facilitation of a transparent and accessible process for the local communities and stakeholders to raise and resolve

any complaints or concerns related to the project activities and impacts, and to seek and obtain remedies or compensation when appropriate.

- The project will implement a monitoring and evaluation system, which includes the collection, analysis, and disclosure of the relevant data and information on the socio-economic performance and impacts of the project, and the application of the quality assurance and quality control procedures.

In order to demonstrate that the project activities do not cause net harm to local communities and society, the project holder has used a No Net Harm tool developed by the BioCarbon Registry.

10 Consultation with interested parties (stakeholders)

The project has carried out stakeholder consultation through appropriate and widespread consultation processes. The stakeholder consultation is a process of engaging and communicating with the relevant and affected stakeholders, such as the landowners, the local communities, the indigenous peoples, the environmental authorities, and the civil society organisations, to inform and educate them about the project objectives, activities, and benefits, and to obtain their feedback and suggestions for improvement.

The stakeholder consultation process meets the relevant requirements, as follows:

a) The scope of stakeholder consultations:

The stakeholder consultations cover the entire project cycle, from the project design, implementation, monitoring, and verification, to the benefit-sharing and grievance redress. The stakeholder consultations also address the key issues and topics related to the project, such as the additionality, baseline, leakage, permanence, environmental and social impacts, and safeguards of the project.

b) The number of stakeholders consulted:

The projects have consulted around 50 stakeholders, representing a diverse and representative sample of the relevant and affected stakeholders. The project has ensured that the stakeholder consultations are inclusive and participatory, and that the views and interests of the marginalised or disadvantaged groups, such as women, youth, or ethnic minorities, are adequately considered and respected.

c) **The means used to invite interested parties to participate in the consultations:**

The projects have used several means to invite interested parties to participate in the consultations, such as emails, phone calls, and social media platforms. Furthermore, engage with local businesses and chambers of commerce to seek their support in spreading information about the consultations to their members and employees. In addition, the projects have also used local languages, media, and channels, to ensure that the invitations are accessible and understandable to the stakeholders.

d) **The information that was made available to stakeholders during the consultation process:**

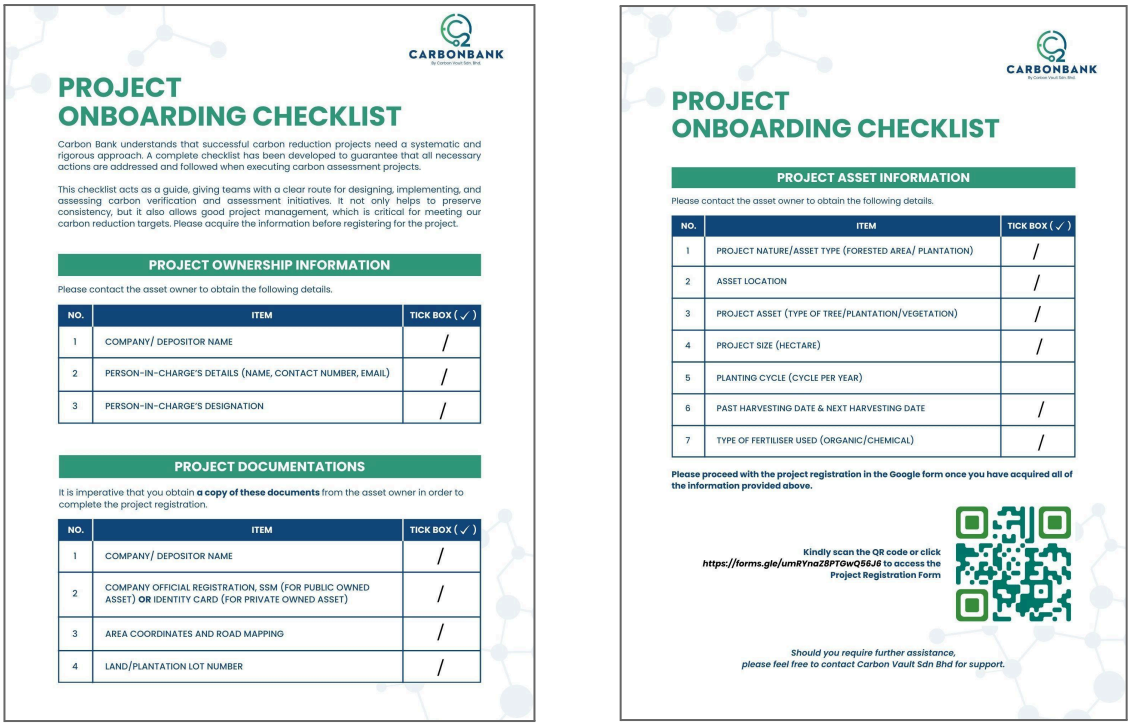
The projects have made available the relevant information and documentation to stakeholders during the consultation process, such as the project design document, the monitoring report, the validation and verification reports, the environmental and social impact assessment, and the benefit-sharing and grievance redress mechanisms. The project has also provided the information and documentation in local languages, formats, and media, to ensure that they are comprehensible and transparent to the stakeholders.

e) **The meetings, workshops and other processes developed in the framework of the stakeholder consultation:**

The projects have arranged and facilitated informational meetings as part of the stakeholder consultation process, including focus group discussions, surveys, interviews, field visits, and feedback sessions. The

project has also ensured that the meetings are conducted in a timely, respectful, and culturally appropriate manner, and that the outcomes and recommendations are recorded and reported.

The project has provided documentary (or other) evidence to ensure that invitations were sent to relevant stakeholders. The evidence includes:



CARBONBANK

PROJECT ONBOARDING CHECKLIST

Carbon Bank understands that successful carbon reduction projects need a systematic and rigorous approach. A complete checklist has been developed to guarantee that all necessary actions are addressed and followed when executing carbon assessment projects.

This checklist acts as a guide, giving teams with a clear route for designing, implementing, and assessing carbon verification and assessment initiatives. It not only helps to preserve consistency, but it also allows good project management, which is critical for meeting our carbon reduction targets. Please acquire the information before registering for the project.

PROJECT OWNERSHIP INFORMATION

Please contact the asset owner to obtain the following details.

NO.	ITEM	TICK BOX (✓)
1	COMPANY/ DEPOSITOR NAME	/
2	PERSON-IN-CHARGE'S DETAILS (NAME, CONTACT NUMBER, EMAIL)	/
3	PERSON-IN-CHARGE'S DESIGNATION	/

PROJECT DOCUMENTATIONS

It is imperative that you obtain **a copy of these documents** from the asset owner in order to complete the project registration.

NO.	ITEM	TICK BOX (✓)
1	COMPANY/ DEPOSITOR NAME	/
2	COMPANY OFFICIAL REGISTRATION, SSM (FOR PUBLIC OWNED ASSET) **OR** IDENTITY CARD (FOR PRIVATE OWNED ASSET)	/
3	AREA COORDINATES AND ROAD MAPPING	/
4	LAND/PLANTATION LOT NUMBER	/

CARBONBANK

PROJECT ONBOARDING CHECKLIST

PROJECT ASSET INFORMATION

Please contact the asset owner to obtain the following details.

NO.	ITEM	TICK BOX (✓)
1	PROJECT NATURE/ASSET TYPE (FORESTED AREA/ PLANTATION)	/
2	ASSET LOCATION	/
3	PROJECT ASSET (TYPE OF TREE/PLANTATION/VEGETATION)	/
4	PROJECT SIZE (HECTARE)	/
5	PLANTING CYCLE (CYCLE PER YEAR)	
6	PAST HARVESTING DATE & NEXT HARVESTING DATE	/
7	TYPE OF FERTILISER USED (ORGANIC/CHEMICAL)	/

Please proceed with the project registration in the Google form once you have acquired all of the information provided above.

Kindly scan the QR code or click *https://forms.gle/umRYnaZBPTGwQ56J6* to access the Project Registration Form

Should you require further assistance, please feel free to contact Carbon Vault Sdn Bhd for support.

Figure 5: Documentation of the Project Onboarding Checklist, specifically for information on ownership, plantation assets, and other associated documentation.

Figure 4: Meet and perform a field survey with project participants and stakeholders from Quenny Chwa.

Figure 4: Meet and perform a field survey with project participants and stakeholders from Tokoh Nuri Sdn Bhd.

10.1 Summary of comments received

Non Applicable

10.2 Consideration of comments received

Non Applicable

11 Sustainable Development Goals (SDGs)

This section provides a tailored demonstration of how the MY _PALMOIL_Q1/24 contributes to the Sustainable Development Goals (SDGs) applicable to the proposed project activities. The assessment is conducted using the Tool for Determining the Contributions of GHG Projects to Achieving the SDGs, developed by the BioCarbon Registry.

SDG Goal	Criteria and Indicator	Project's Contribution
SDG 8: Decent Work and Economic Growth Projects contribute to economic growth and employment opportunities.	• Gross Domestic Product (GDP) growth to local economic growth. • Job creation and decent work opportunities	• Establishing job possibilities at various phases and generating income for local people through sustainable forest management methods including non-timber forest product collection. • Increased employment rates include providing fair

		wages, safe working conditions, and skill development for workers that are involved.
SDG 13: Climate Action Projects contribute to climate change mitigation and enhancing carbon sequestration.	• Adoption of sustainable forest practices to reduce the carbon footprint. • Implementation of climate-resilient measures in plantation cultivation	• Implementation of optimal methods for sustainable forest management, minimising deforestation and fostering carbon sequestration. • Introducing climate-resilient palm oil trees and their ability to adapt to changing climate conditions.
SDG 15: Life on Land Projects contribute to protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation.	• Implementation of practices to avoid negative impacts on biodiversity and ecosystems. • Conservation of natural habitats within and around the plantation.	• Strict adherence to optimal management strategies to minimise negative effects on the local biodiversity and ecosystems. • Implementation of conservation zones within the plantation to enhance biodiversity and preserve habitats.

SDG 17: Partnerships for the Goals Projects collaborate among stakeholders for successful forest conservation and sustainable management.	• Collaboration with local communities and stakeholders for sustainable timber and non-timber production. • Contribution to local economic development and capacity-building.	• Conducting open and honest discussions with local communities to address their concerns and collect their input. • Executing community development endeavours, such as educational programmes and vocational training, to augment the local capability and foster economic advancement.

Using the BioCarbon Registry's SDG Tool, it reveals that MY _PALMOIL_Q1/24 exceeds the given criteria and indicators for SDGs 8, 13, 15, and 17. The tool provides insights into the project's positive contributions to sustainable development goals through sustainable palm oil cultivation. It supports sustainable methods in the palm oil industry, conserves biodiversity, and engages with local communities. This aligns with the larger worldwide goal for sustainable development and illustrates the BioCarbon Registry's commitment to ensuring that greenhouse gas projects have beneficial impacts.

12 REDD+ Safeguards (For REDD+ projects)

Non-applicable

13 Special categories, related to co-benefits (optional)

Since special categories such as biodiversity conservation and community benefits are not applicable to the MY_OILPALM_Q1/24 project due to minimal wildlife threats and community involvement, the project's focus shifts to enhancing sustainability through other means. Given the unique context of transitioning from a rubber plantation to a palm oil plantation, the primary co-benefits are:

- **Biodiversity Conservation**

The project emphasizes sustainable agriculture as fundamental to responsible palm oil production. Through the adoption of best practices in plantation management, it aims to mitigate environmental impacts and preserve soil health, thereby contributing to ecosystem sustainability. Key practices such as cover cropping, judicious use of agrochemicals, and efficient water management play crucial roles. These approaches safeguard soil fertility, minimize erosion, and sustain productivity, obviating the necessity for special categorizations related to wildlife conservation.

- **Economic Sustainability**

In the absence of direct community benefit initiatives linked to local community involvement or wildlife conservation, the project contributes to economic sustainability by providing employment opportunities in the palm oil sector. The focus is on creating a skilled workforce through training in sustainable palm oil cultivation techniques, enhancing workers' livelihoods, and contributing to the local economy. This approach aligns with sustainable development goals by promoting economic growth and decent work for all.

14 Grouped projects (if applicable)

In the context of the MY_OILPALM_Q1/24 grouped project, compliance with the conditions applicable to clustered projects is demonstrated through the following key aspects:

1. **Defined Project Boundaries**

- Clear demarcation of well-defined project boundaries for each project activity within the grouped structure.
- Detailed documentation specifying the extent and limits of each project's operational areas.

2. **Independent Project Activities**

- Acknowledgment that each project activity, despite being part of a grouped project, operates independently with its unique set of activities and objectives.
- Documentation outlining the autonomy of each project activity in terms of planning, implementation, and monitoring.

3. **Transparent Accounting and Reporting**

- Establishing a transparent accounting system that enables accurate measurement and reporting of emissions and removals for each project activity.
- Compliance with methodology and reporting standards ensures consistency and dependability in quantifying emission reductions.

4. **Risk Assessment and Management:**

- Comprehensive risk assessment and management plan addressing potential risks associated with each project activity independently.
- Risk mitigation and management measures have been implemented for particular project activities.

5. **Commonality in Compliance Standards**

- Adherence to a common set of compliance standards, ensuring that each project activity complies with the same regulatory frameworks, methodologies, and BCR Standard requirements.

6. Independent Validation and Verification

- Independent validation and verification processes conducted separately for each project activity.
- Verification of emission reductions and adherence to methodologies independently for the grouped projects.

7. Benefit Sharing and Stakeholder Engagement

- Implementation of benefit-sharing mechanisms that consider the unique circumstances of each project activity.
- Robust stakeholder engagement strategies tailored to the specific context and community dynamics of each project.

By addressing these aspects, the MY_OILPALM_Q1/24 grouped project ensures compliance with the conditions applicable to clustered projects, maintaining the integrity and independence of each project activity within the group.

15 Other GHG program

Non-applicable

16 Double counting avoidance

Double counting of emission reductions or removals occurs when the same reduction or removal is claimed or used by multiple entities or for various purposes. This can undermine climate actions' effectiveness and the integrity of greenhouse gas accounting systems, eroding trust among stakeholders and the public.

In MY_OILPALM_Q1/24, measures are in place to prevent double counting, adhering to the principles outlined in the BioCarbon Registry's "Avoiding Double Counting (ADC)" tool. The goal is to ensure that GHG reduction outcomes'

accounting, issuance, and retirement meet stringent criteria, eliminating any instances of duplicative counting.

Double Counting Avoidance Requirements:

1. Prohibition on Accounting

MY_OILPALM_Q1/24 strictly follows the restriction on double-counting GHG reduction outcomes. This requires reporting emissions in a clear and precise manner, ensuring that each metric tonne of emission reduction or removal is accurately accounted for.

2. Prohibition on Issuance

Carbon credit allotment is meticulously examined to guarantee that no duplication occurs. Every credit provided implies a definite and proven decrease or removal of emissions, and the approach follows the ADC tool's guidelines.

3. Prohibition on Retirement

The retirement of carbon credits is carefully handled. MY_OILPALM_Q1/24 ensures that retired credits are precisely associated with verifiable emission reductions or removals and are completely restricted from being used for any type of compensation or assertion.

Application of BCR Tool "Avoiding Double Counting (ADC):

1. Transparent Documentation

MY_OILPALM_Q1/24 maintains clear and thorough documentation throughout the project cycle. This includes thorough documentation of verifiable emission reductions or removals, as well as credit issuance and retirement. All documentation is given to enable independent third-party verification.

2. Verification Process

The ideas from the ADC tool are included into the verification process. Independent third-party verifiers use the tool to determine whether a project complies with double counting avoidance guidelines. Any errors are thoroughly evaluated and resolved before carbon credits are issued.

Continuous Monitoring and Improvement:

1. Regular Audits

Regular internal and external audits are carried out to assess the effectiveness of the methods employed to prevent duplicate counting. Any vulnerabilities discovered are quickly changed to ensure the project's integrity.

2. Stakeholder Awareness

Stakeholders, including project participants, local communities, and investors, are educated on the need of eliminating double counting. This awareness promotes a culture of responsibility and ensures that all persons involved understand their role in preventing repeated tallying.

MY_OILPALM_Q1/24 is committed to the highest standards of integrity in its GHG mitigation efforts. Through the strict application of the BCR Tool "Avoiding Double Counting (ADC)," the project ensures that each ton of emission reduction or removal is accurately accounted for, issued, and retired only once, contributing to the credibility and transparency of the BioCarbon Registry Program.

17 Monitoring plan

The project MY_OILPALM_Q1/24 has outlined a comprehensive monitoring plan in compliance with the BCR Standard and relevant methodology. This plan includes:

a) **Project boundary monitoring**: The project utilises a combination of a Global Positioning System (GPS) device and Google Earth Pro software to precisely delineate and demarcate the project's boundary, ensuring accurate mapping of coordinates and area coverage. These tools undergo regular updates to promptly capture any alterations in land use or land cover within the project area.

- Drones equipped with cameras and sensors are utilised to capture high-resolution images and data within the project boundary. This data is crucial for verifying and validating land use or cover types, comparing them with the baseline scenario, and detecting any changes over time.
- Field surveys and ground truthing to ensure accuracy, the project conducts field surveys and ground truthing to collect and confirm data on land use or cover types within the project boundary. This information is used to calibrate and correct satellite imagery and aerial photography, providing a more reliable assessment of project impacts.
- By implementing these monitoring techniques, MY_OILPALM_Q1/24 ensures effective oversight of GHG emission reductions or removals within the project area, contributing to transparency and accountability in its environmental efforts.

b) **Monitoring of the execution of project activities**: This project activity entails monitoring and reporting on progress and outcomes to ensure consistency with established objectives, timelines, and standards. Key components of this process include:

Compliance review: Project activities undergo regular reviews to verify compliance with pertinent laws, regulations, and standards governing carbon offset initiatives. This includes assessing adherence to emissions reduction methodologies and accounting standards.

Objective alignment: Auditors meticulously evaluate whether project execution aligns with the initial plans and objectives. This entails scrutinising project documentation, timelines, milestones, and identifying any deviations from the original plan.

- Risk management evaluation: Auditors thoroughly assess the effectiveness of risk management processes, which includes evaluating the identification, assessment, and mitigation of risks associated with the project. They carefully review the adequacy of risk mitigation strategies implemented.
- Internal controls assessment: Auditors scrutinise the robustness of internal controls, encompassing the tracking of financial expenditures and verifying the legitimacy and verifiability of carbon offset credits generated.

Through internal audits, the project upholds transparency, accountability, and adherence to regulatory requirements across all activities.

c) The monitoring of the quantification of project emission reduction/removals involves the following steps:

- Methodology selection: The projects rely on established methodologies such as BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities, Version 3.2, and ACM0003 Afforestation and Reforestation (A/R) Large-Scale Consolidated Methodology. These methodologies offer clear parameters, equations, and procedures essential for accurately quantifying emission reductions or removals relative to the baseline scenario.
- MRV Tool utilisation: The projects employ the BCR Tool: Monitoring, Reporting, and Verification (MRV), a spreadsheet tool that offers a framework and checklist for monitoring, reporting, and verifying emission reduction/removals. Additionally, the MRV tool aids in developing and implementing environmental and social safeguards and mitigation measures.
- Risk and Permanence Tool application: The projects utilise the BCR Tool: Risk and Permanence, another spreadsheet tool that guides the non-permanence risk analysis. This analysis determines the number of buffer credits required for deposit into the AFOLU Pooled Buffer Account, ensuring mitigation of non-permanence risks.

By following these steps and utilising the appropriate tools and methodologies, the projects ensure accurate and reliable quantification of GHG emission reductions or removals achieved through project activities.

d) Quality control and quality assurance procedures: These processes are vital for ensuring the accuracy, completeness, consistency, transparency, and verifiability of the collected and reported data, as well as the estimated emission reductions or removals.

- Regular monitoring: Projects maintain continuous monitoring of data collection, emissions measurements, and project implementation to ensure alignment with industry standards and best practices.
- High standards for documentation: Clear and comprehensive protocols are developed for data collection, measurement methodologies, and reporting to maintain high standards for project documentation.
- Audits: Audits of the entire project process, from data collection to reporting, are conducted to identify any systemic issues or gaps that may impact the accuracy and reliability of project outcomes.

e) **Verification of field data**: Verification of field data involves confirming the accuracy and reliability of collected data from the field.

- On-site inspections: Regular visits are conducted by the projects to verify the implementation of emission reduction measures or carbon sequestration activities. These visits involve inspecting equipment, facilities, and natural ecosystems to ensure alignment with project documentation..
- Documentation scrutiny: All pertinent project documentation, including monitoring reports and maintenance records, undergoes thorough examination. This rigorous review process ensures transparency and accountability in the project's operations.
- Third-party verification: An accredited and approved independent third-party verifier, qualified by the BioCarbon Technical Committee, conducts the verification process. They issue a verification report and statement to validate the field data, ensuring its accuracy and reliability.

f) **Review of information processing**: This process ensures the quality and consistency of data processing and reporting, including data entry, analysis, and estimation of emission reductions.

- Google Sheets: Projects use Google Sheets to store and organise collected data, ensuring its security, integrity, and accessibility.
- Data quality assessment and control: This includes applying data quality indicators like accuracy, precision, completeness, consistency, transparency, and verifiability. Procedures such as calibration, validation, correction, and documentation are used to ensure and enhance data quality and consistency.
- Feedback mechanism: Google Forms are utilised as a feedback mechanism, allowing project participants and stakeholders to provide information, data, comments, and suggestions, which are then incorporated into the project.

g) **Data recording and archiving system**: This is the system of recording and archiving the data and information collected and reported by the project, and of the emission reductions or removals estimated and calculated by the project, for the purpose of verification, certification, and transparency. The data recording and archiving system includes the following:

- The project uses a data recording and archiving software and a database to record and archive the data and information collected and reported by the project, and of the emission reductions or removals estimated and calculated by the project, in a consistent, transparent, and verifiable format and manner.
- The project uses the BCR Registry, which is an online platform that registers and tracks the emission reductions or removals generated and transferred by the project, and that provides access and information to the project participants, stakeholders, and the public.
- The project uses the BCR Tool. Data Recording and Archiving, which is a spreadsheet that provides a framework and a checklist for the data recording and archiving of the project, and for the compliance with the BCR Registry rules and requirements.

The BCR Tool serves as a comprehensive framework for monitoring, reporting, and verifying emissions, reductions, and removals from carbon dioxide removal (CDR) projects under Article 6 of the Paris Agreement. It offers guidance on updating existing Clean Development Mechanism (CDM) methodologies to meet the criteria outlined in Article 6.2 and 6.4, along with the enhanced transparency framework. The tool encompasses the following aspects of MRV (Monitoring, Reporting, and Verification):

1. **Monitoring Plan Specification:**

   The data and information needed to estimate GHG emission removals or reductions during the project quantification period are specified in the monitoring plan, which is based on the approved CDM methodology and updated according to the tool. The data and information include the parameters to be monitored, the sources and methods of data collection, the frequency and duration of monitoring, the quality assurance and quality control procedures, and the data management system.

2. **Baseline Establishment:**

   Data and additional information for establishing the baseline or reference scenario are specified in the monitoring plan, following the same principles as for the project scenario. The baseline scenario represents the hypothetical situation in the absence of the CDR project and is determined using baseline approaches defined in CDM methodology.

3. **Leakage Identification:**

   The monitoring plan includes specifications on potential emissions occurring outside the project boundary as a result of GHG project activities (leakage). It defines leakage sources, estimation methods, and leakage deduction factors, adhering to CDM methodology.

4. **Environmental Impact Assessment:**

The Project Design Document (PDD) provides information on environmental impact assessment of GHG project activities, including changes in land use, water quality, biodiversity, and social aspects, along with mitigation measures and stakeholder consultations.

5. **Quality Control and Assurance:**

Established procedures for the management of GHG emission reductions or removals and associated quality control for monitoring activities are also described in the PDD and the monitoring plan. The procedures include the roles and responsibilities of the project participants, the operational and management structure, the internal and external audits, the corrective and preventive actions, and the record keeping and reporting system.

6. **Calculation Procedures:**

Description of established procedures for periodic calculation of GHG emission reductions or removals and leakage which include the methods and formulas for calculating the net GHG emission reductions or removals, which are the difference between the baseline emissions and the sum of the project emissions and the leakage emissions.

7. **Stakeholder Roles and Responsibilities:**

Assignment of roles and responsibilities for monitoring and reporting relevant variables is specified in the PDD and monitoring plan, involving project participants, designated operational entities (DOEs), host country, buyer country, and supervisory body.

8. **Identification of Sustainable Development Goals (SDGs):**

Procedures for assessing the project's contribution to Sustainable Development Goals (SDGs) are outlined in the PDD and monitoring plan, following guidance from the SDG Tool. This includes identifying relevant SDGs, setting indicators and targets, collecting and reporting data, and verifying outcomes.

9. **Co-Benefits and Special Category Monitor :**

Procedures related to co-benefits and special category monitoring, where applicable, are also included in the PDD and the monitoring plan, following the guidance of the CDM methodologies and the tool. The procedures include the identification, quantification, verification, and reporting of the co-benefits and the special category aspects.

The BCR Tool ensures that the MRV process is rigorous and meets a high level of accuracy and strict data collecting and archiving, by following the principles and requirements of Article 6 of the Paris Agreement and the enhanced transparency framework. The tool also ensures that the MRV process is consistent, comparable, complete, transparent, and verifiable, by applying the methodologies and metrics assessed by the Intergovernmental Panel on Climate Change and adopted by the CMA2. The tool also ensures that the MRV process is cost-effective and harmonised, by building on the existing CDM methodologies and tools, and by providing guidance, templates, examples, and further tools for the project participants and the DOEs.

NOTE: This Project Document (PD) shall be completed following the instructions included. However, it is important to highlight that these instructions are complementary to the BCR Standard, and the Methodology applied by the project holder, in which more information on each section can be found.