MY_JHR_RUBBER_01/24

Document prepared by Carbon Vault Sdn Bhd

Name of the project	MY_JHR_RUBBER_01/24
Project holder	Carbon Vault Sdn Bhd
Project holder's contact information	Email: umairah@co2bank.asia Tel: +(60) 17-213 1887 Address: No.11A, Lorong Kurau, Bangsar, 59100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.
Project participants	Project Activity 1 : Kwang Hup Agribusiness Sdn Bhd Project Activity 2 : Kwang Hup Agricultural Development Project Holder : Carbon Vault Sdn Bhd
Version	Version 1.0
Date	19th February 2024
Project type	Project Activity 1 : Kwang Hup Agribusiness Sdn Bhd - Activities in the AFOLU sector, other than REDD+ Project Activity 2 : Kwang Hup Agricultural Development - Activities in the AFOLU sector, other than REDD+

Grouped project	Yes, this project articulates the classification of the MY_JHR_RUBBER_01/24 as a grouped initiative, diverging from the model of independent GHG project. 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 Emission Reductions (GHG Removal Activities), Version 3.2 AR-ACM0003. A/R Large-scale Consolidated Methodology. Afforestation and reforestation of lands except wetlands. Version 3.0 Project Activity 2: BCR0001: Quantification of GHG Emission Reductions (GHG Removal Activities), Version 3.2 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 : Kwang Hup Agribusiness Sdn Bhd - Labis, Segamat, Johor, Malaysia - 2.56733° N, 102.97420° E - 230 km from central office in Bangsar, Kuala Lumpur Project Activity 2 : Kwang Hup Agricultural Development - Labis, Segamat, Johor, Malaysia - 2.56733° N, 102.97420° E - 230 km from central office in Bangsar, Kuala Lumpur
Starting date	Project Activity 1 : Kwang Hup Agribusiness Sdn Bhd - 26th february 2012 Project Activity 2 : Kwang Hup Agricultural Development - 26th february 2012

Quantification period of GHG emissions reduction	Project Activity 1 : Kwang Hup Agribusiness Sdn Bhd - 20 years Project Activity 2 : Kwang Hup Agricultural Development - 20 years
Estimated total and average annual GHG emission reduction amount	Total estimated of GHG emissions reductions (during the quantification period): - Project Activity 1 : 30,148.88 tCO_2e - Project Activity 2 : 36,458.98 tCO_2e Estimated average annual amount of GHG emission reductions: - Project Activity 1 : 1,530.40 tCO_2e/year - Project Activity 2 : 1,850.71 tCO_2e/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	Community Benefit

Table of contents

1 Project type and eligibility

1.1 Scope in the BCR Standard

The project is eligible under the scope of the BCR Standard by meeting one or more of the following conditions (Mark with an X).

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).	
GHG projects using a methodology developed or approved by BioCarbon Registry, 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).	
GHG projects using a methodology developed or approved by BioCarbon Registry, 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.	

Similarly, clearly describe and justify how the project is eligible under the scope of the BCR Standard.

The Project 1 and Project 2 under MY_JHR_RUBBER_01/24 are both align with the BCR001 standard, strictly following approved methodologies by the BioCarbon Registry and actively contributing to the removal of greenhouse gasses or preventing GHGs from being released into the air. Embracing BCR001 underscores our commitment to environmental stewardship, prioritizing ecological integrity over profit-driven motives.

BCR001 standards provide guidelines for accurate measurement, monitoring, and verification of emission reductions or removals, preventing the issuance of credits for activities that do not result in genuine carbon mitigation. Adhering to BCR standards, the projects demonstrate its commitment to environmental integrity, and effectiveness of larger initiatives to address climate change as well as for achieving sustainable development objectives, biodiversity conservation, and community well-being. Additionally, there is a greater chance that carbon credits produced by project activities that adhere to BCR standards will be acknowledged and accepted in both domestic and international carbon markets. This accreditation gives project developers access to a larger pool of purchasers, making it easier to trade and monetize carbon credits.

In conclusion, compliance with BCR standards is vital to the effectiveness and impact of carbon offset projects. This is because it improves the projects' environmental integrity, transparency, and credibility, all of which add to the overall efficacy of international efforts to combat climate change through market-based mechanisms.

1.2 Project type

Select the type of project under which the project activities are developed (Mark with an X).

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 information and evaluation according to the AR-ACM0003 methodologies, the project scale for MY_JHR_RUBBER_01/24, involving the rubber plantation area in Segamat, Johor, is justified as a large-scale project.

1. **Net Anthropogenic GHG Removals by Sinks Criteria**

According to the AR-ACM0003 methodologies, a project may be classified as small-scale if its annual net anthropogenic greenhouse gas (GHG) removals by sinks are less than 16,000 tons of CO_2. Hence, the project's overall CO_2 emissions are lower than this cutoff. Project Activity 2 generates 1,588.38 tons of CO_2 annually, compared to 1,057.89 tons produced by Project Activity 1. With 2646.27 tons CO_2 emitted annually from both activities combined, the project scale does not exceed the threshold for a small-scale project.

2. Involvement of Low-Income Communities Criterion

The AR-ACM0003 methodologies additionally stipulate that project activities must be carried out or executed by low-income communities and individuals, as determined by the host party. Nevertheless, the project pertains to a reputable corporation rather than disadvantaged communities. Therefore, it fails to satisfy the specified requirements for small-scale projects.

Given these assessments:

- The project scale, based on the net anthropogenic GHG removals by sinks criterion, meets the defined threshold for a small-scale project.
- The involvement of a well-established corporation instead of low-income communities solidifies that the project does not meet the criteria for a small-scale endeavor.

Therefore, the project scale for MY_JHR_RUBBER_01/24 cannot be considered small scale. It would likely fall into a larger-scale category, necessitating different considerations and evaluations for its implementation and potential mitigation strategies. Further analysis and planning would be required to address the environmental impact and ensure sustainable practices within the scope of this project.

2 General description of the project

Describe the project objectives and activities, including any activities that will result in GHG emission reductions. Include the following in the description:

(a) A brief description of the existing scenario prior to the implementation of the project activities.

Project Activity 1:

The project activity is located at coordinates 2°04'30"N, 103°21'58"E, on 67.38 hectares of land in Labis, Segamat, Johor, Malaysia, approximately 235 km from our central office, which is located in Bangsar, Kuala Lumpur. In the current circumstances, this land is primarily used for rubber plantation. Rubber will be sold frozen with an estimated production of 50 tons per month.

A notable feature of our project is the well-maintained plantation road, ensuring smooth accessibility throughout the expansive site. This infrastructure not only enhances operational efficiency but also prioritizes safety for all stakeholders involved, reflecting our dedication to sustainable practices and responsible management. In addition, the projects also use sustainable management practices that aim to balance resource extraction with the long-term health and integrity of the rubber ecosystems.

Project Activity 2:

The project activity is located at coordinates 2°04'30"N, 103°21'58"E, on 101.17 hectares of land in Labis, Segamat, Johor, Malaysia, approximately 235 km from our central office, which is located in Bangsar, Kuala Lumpur. In the current circumstances, this land is primarily used for rubber plantation. Rubber will be sold frozen with an estimated production of 50 tons per month.

A notable feature of our project is the well-maintained plantation road, ensuring smooth accessibility throughout the expansive site. This infrastructure not only enhances operational efficiency but also prioritizes safety for all stakeholders involved, reflecting our dedication to sustainable practices and responsible management. In addition, the projects also use sustainable management practices that aim to balance resource extraction with the long-term health and integrity of the rubber ecosystems.

(b) Details of how the project activities will result in GHG emission reductions.

The project activities within the rubber plantation are strategically designed to achieve significant greenhouse gas (GHG) emission reductions and are often employed as key strategies in carbon offset projects such as:

1. Carbon Sequestration in Tree Planting

Rubber trees as part of a carbon offset project can contribute to greenhouse gas (GHG) emission reductions through a process known as carbon sequestration. They act as carbon sinks, storing carbon dioxide (CO_2) in the soil and biomass (trees, roots, and other plant materials) after it is taken up from the atmosphere through photosynthesis.This helps to remove CO_2 from the atmosphere, mitigating the greenhouse effect and reducing the overall concentration of greenhouse gasses which may additionally reduce deforestation and lead to better carbon management overall.

2. Reduction of Deforestation Emissions

Establishing rubber plantations on degraded or non-forested land helps to reverse the emissions caused by deforestation. As the trees grow, they capture carbon, which helps to offset emissions from human activities that emit CO_2. Furthermore, by preventing the clearing of natural forests for agriculture or other purposes that release stored carbon, the project helps to maintain carbon stocks in these ecosystems, which contributes to emissions reductions.

3. Practices of Agricultural Management

Adopting sustainable and environmentally friendly agricultural practices in rubber plantations, such as reduced fertilizer use and responsible water management, can minimize emissions associated with conventional agricultural activities. In addition, proper management of rubber processing waste, such as using rubber wood for timber or energy production, can reduce emissions that would occur if the waste were left to decompose or be burned.

(c) The special category(ies) to which the project is proposed to apply, with a brief description of the criteria under which the project demonstrates compliance.

MY_JHR_RUBBER_01/24 project, while primarily focused on mitigating greenhouse gas (GHG) emissions through carbon sequestration, offers one co-benefit that contributes to environmental, social, and economic sustainability.

Community Benefit

MY_JHR_RUBBER_01/24 project provided employment opportunities and supported local economies. This could be achieved by providing training and employment opportunities related to reforestation activities, such as tree planting, maintenance, and monitoring. Sustainable rubber management practices also create long-term benefits for communities. By implementing ethical and environmentally responsible cultivation methods, such as agroforestry and sustainable rubber management minimizes the negative impact on local ecosystems and biodiversity. This approach promotes soil health, water conservation, and overall ecosystem resilience, safeguarding the natural resources upon which communities depend. Moreover, sustainable rubber practices often involve community engagement, ensuring fair labor practices, and providing economic opportunities for local residents. This holistic approach not only preserves the environment but also creates socio-economic stability, empowering communities with improved livelihoods, education, and infrastructure.

(d) A brief summary of how the project activities will contribute to the achievement of the Sustainable Development Goals.

The following Sustainable Development Goals (SDGs) are greatly aided by the project's activities:

SDG 8: Decent Work and Economic Growth

The rubber industry can create employment opportunities, particularly in rural areas. Activities such as planting, harvesting, processing, and other related activities require a workforce, providing jobs for local communities. This aligns with SDG 8's focus on promoting full and productive employment. Furthermore, the establishment and operation of a rubber plantation contribute to economic growth in the region by fostering agricultural development and creating a sustainable source of income for workers and communities while also protecting ecosystems.

SDG 13: Climate Action

SDG 13 focuses on taking urgent action to prevent climate change and its consequences. Carbon sequestration by rubber trees and the avoidance of deforestation can help achieve SDG 13 by mitigating climate change, increasing climate resilience, and promoting sustainable land use practices. By planting trees, these projects improve trees' potential to trap more carbon, so aiding attempts to meet the goals. Additionally, the two approaches help to promote sustainable land use by preserving or restoring landscape ecological integrity, reducing land degradation, and assuring ecosystem health throughout time.

SDG 15: Life on Land

Rubber plantations can combat deforestation and contribute to the restoration of degraded lands,which play a crucial role in advancing SDG 15, which focuses on "Life on Land." Reforestation activities as part of climate action approaches contribute to SDG 15 by sequestering carbon, preventing deforestation, and aligning with SDG 15's goal to halt and reverse land degradation and promote sustainable land use. Simultaneously, implementing sustainable rubber plantation practices that preserve natural habitats and promote biodiversity within and around plantations supports SDG 15's objectives of conserving terrestrial ecosystems and fostering biodiversity.

SDG 17: Partnerships for the Goals

The project activities at a rubber plantation can significantly contribute to the fulfillment of Sustainable Development Goal 17 (SDG 17) by fostering partnerships, increasing collaboration, and encouraging sustainable resource management. The rubber plantation project can develop inclusive and resilient value chains by forming strategic collaborations with local people, governments, and industry. The project aligns with SDG 17's goal of renewing global partnerships for sustainable development by promoting responsible land use, reducing the effects of climate change, and implementing sustainable agriculture methods.

(e) An average estimate of emission reductions attributable to the project activities.

Estimated average annual amount of GHG emission reductions:

Project Activity 1 : 1,530.40 tCO2e/year

Project Activity 2 : 1,850.71 tCO2e/year

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

Project Activity 1 : (1,300.84 x 2 years) +(1,530.40 x 18 years) = 30,148.88 tCO_2e

Project Activity 2 : (1,573.10 x 2 years) +(1,850.71 x 18 years) = 36,458.98 tCO_2e

2.1 GHG project name

Throughout the entire documentation and registration process, this GHG project will be referred to as "MY_JHR_RUBBER_01/24".

2.2 Objectives

This GHG project within a carbon credit framework aims to actively combat climate change by engaging in activities that result in measured and verifiable reductions in greenhouse gas emissions.

Objectives:

1. **Mitigate Climate Change**

   To contribute to reducing climate change by reducing or offsetting emissions of greenhouse gasses, such as carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). This aligns with international agreements and frameworks, including the Paris Agreement, which aims to limit global temperature increases.

2. **Assessment of Carbon Sequestration Impact**

   To quantify and verify the actual carbon sequestration impact of the project through the reforestation and afforestation project. This objective aims to provide a clear and accurate measurement of the project's contribution to carbon offsetting. It involves assessing the efficiency of rubber plantation in capturing and storing atmospheric carbon dioxide and effectively balancing the carbon footprint.

3. **Promote Sustainable Land Use Practices**

To promote and ensure that land use practices, such as rubber plantation management, are consistent with international sustainability standards. This goal highlights the significance of responsible and sustainable land use. It additionally assures that the project not only reduces carbon emissions, but also actively promotes biodiversity conservation, soil health, and ecosystem resilience.

4. **Community Engagement and Socio-economic Impact Assessment**

   To assess the level of community engagement and evaluate the socio-economic impact of the project within the local community. Beyond environmental considerations, this objective recognizes the social dimension of sustainability. It involves evaluating the extent to which the project creates local employment opportunities, fosters economic resilience, and engages with the community in promoting environmental awareness and sustainable practices.

5. **To align with Sustainable Goal Development (SDGs)**

   To align with the sustainable development goals, promote a holistic and integrated approach to sustainable development that incorporates concerns related to the environment, society, and economy into the planning and implementation phases. Both projects have the potential to maximize the beneficial impact on the environment, society, and the economy while adhering to the SDGs' principles of sustainable development.

2.3 Project activities

Describe the project activities, including the technologies or measures used. Describe in detail how the project activities will result in GHG emission reductions.

All the project activities in the MY_JHR_RUBBER_01/24 projects aim to reduce greenhouse gas (GHG) emissions by increasing rubber trees' abilities to absorb and store CO_2. The project activities result in GHG emission reductions, highlighting the technologies and strategies involved, which field supervisors conducted an initial survey for:

1. **Site selection and planning:**

   The initial survey helps assess the suitability of potential rubber plantation sites. It considers factors such as soil quality, climate conditions, and topography to ensure that the chosen location is conducive to the growth of selected tree species. This helps optimize carbon sequestration and overall project success.

2. **Identification of tree species & high-impact areas:**

   Choose tree species that are well-suited to the local climate and soil conditions, with a preference for fast-growing, long-lived species that keep large amounts of carbon. These aid in identifying areas with the best potential for carbon sequestration, ensuring that the project focuses on planting trees where they can make the most contribution to reducing greenhouse gas emissions.

3. **Biodiversity and ecological considerations:**

   A detailed survey includes evaluations of local biodiversity and ecological conditions. This knowledge is critical for selecting tree species that are well-adapted to the ecosystem while limiting detrimental effects on local flora and fauna. It adds to the overall sustainability of the reforestation project.

4. **Identification of risk assessment:**

   The survey enables the identification and assessment of potential risks and problems that may have an impact on the project's success. This includes elements such as the existence of invasive species, disease susceptibility, and sensitivity to severe weather occurrences. Mitigation methods can then be incorporated into the project timeline.

5. **Community Engagement and Stakeholder Involvement:**

   Engaging with local communities and stakeholders during the initial survey helps build relationships and gather valuable insights. Understanding local perspectives, needs, and concerns ensures that the project aligns with the community's goals and contributes to sustainable development.

6. **Legal and Regulatory Compliance:**

   The initial survey helps identify and navigate legal and regulatory requirements related to land use and reforestation. Complying with local laws and regulations is essential for obtaining necessary permits and ensuring the project's long-term viability.

The initial survey is an essential milestone in the carbon offset project lifecycle. It provides critical data and insights that improve the reforestation initiative's strategy, implementation, and success, thereby improving the project's potential to effectively reduce greenhouse gas emissions.

2.4 Project location

Project Activity 1:

The project is strategically situated in Malaysia, specifically within the state of Johor Darul Takzim in the southern part of the peninsula. The project is located at Labis, Segamat District of Johor, Malaysia. It is approximately 235 km from our central office in Bangsar, Kuala Lumpur. The site's geographical coordinates are 2°04'30"N, 103°21'58"E. All the transportation can be accessed via 4 by 4 vehicles.

Project Activity 2:

The project is strategically situated in Malaysia, specifically within the state of Johor Darul Takzim in the southern part of the peninsula. The project is located at Labis, Segamat District of Johor, Malaysia. It is approximately 235 km from our central office in Bangsar, Kuala Lumpur. The site's geographical coordinates are 2°04'30"N, 103°21'58"E. All the transportation can be accessed via 4 by 4 vehicles.

2.5 Additional information about the GHG Project

N/A

3 Quantification of GHG emissions reduction

3.1 Quantification methodology

Provide the title, reference and version of the methodology or methodologies used to quantify emission reductions from project activities.

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

Title of the Methodology: BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities, Version 3.2

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

Explain and justify how the project meets the applicability conditions of the methodology used to quantify the project's emission reductions.

If the project holder uses more than one methodology, separate information must be provided for each methodology used.

The projects meet the applicability conditions of the methodology used to quantify the project's emission reductions by following the criteria and procedures of the Clean Development Mechanism (CDM), one of the mechanisms under the Kyoto Protocol that allows developing countries to implement emission-reduction projects and generate certified emission reductions (CERs) that can be traded and used by industrialized countries to meet their emission reduction targets.

The projects use the BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities, Version 3.2 to estimate the net greenhouse gas removals by sinks from the establishment of the forest reserve. This methodology is applicable to project activities that meet the following conditions:

1. The areas in the project boundary shall not correspond to the forest category (according to the national definition adopted by the country in which the project activity is proposed), nor natural vegetation different to a forest, at the beginning of project activities and not five years before the project start date;
2. The areas in the project boundary do not fall in the wetland category;
3. The areas in the project boundary do not contain organic soils;
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;
5. Flood irrigation is not used;
6. The effects of drainage are negligible, so GHG emissions, other than CO_2, can be omitted;
7. Soil disturbances due to project activities, if any, are carried out following appropriate soil conservation practices and have not been repeated for less than 20 years.

The selection of BCR0001 as the methodology for quantifying GHG emission reductions in both Project Activity 1 and Project Activity 2 is justified by the inherent characteristics of sustainable rubber management practices. The applicability conditions of BCR0001 align seamlessly with the nature of these projects, justifying their choice in the following ways:

1. **GHG Removal Activities for Carbon Sequestration.**

   Justification: BCR0001 is specifically tailored for projects engaging in greenhouse gas (GHG) removal activities, making it highly compatible with agroforestry systems. Both projects actively contribute to carbon sequestration, with project activities 1 and 2 integrating trees into agricultural landscapes, implementing sustainable land management practices, and promoting biodiversity within agroforestry systems.

2. **Consistent Land Use Practices**

   Justification: The methodology requires projects to adhere to uniform land use practices. Project activities 1 and 2 prioritizes sustainable agroforestry practices, with a focus on responsible land utilization, deforestation prevention, and the adoption of practices that promote long-term carbon sequestration while enhancing agricultural productivity.

3. **Conservation of Carbon Stocks**

   Justification: BCR0001 mandates the preservation of carbon stocks within the designated project area. Both Project Activities 1 and 2 comply with this requirement by prioritizing the establishment and maintenance of diverse tree species, and implementing sustainable methods for rubber plantation management. These projects contribute to the stability and potential enhancement of the carbon store by avoiding land-use changes that would deplete carbon stocks, aligning with the methodology's focus on activities that remove greenhouse gasses.

By adhering to these key conditions outlined in BCR0001, both projects ensure the accurate and relevant quantification of GHG emission reductions. The methodology's applicability is justified by the shared commitment of Project Activity 1 and Project Activity 2 to sustainable rubber plantation 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

Present descriptions and explanations of the project delimitation.

In a reforestation project for a carbon offset initiative, project boundaries refer to the specific limits or constraints that define the scope and extent of the project.

The project delimitation for both the **Project Activity 1 and 2** is as follows:

- This project is under Kwang Hup Agribusiness Sdn Bhd and Kwang Hup Agricultural Development Sdn Bhd have been given a use permit issued by the Johor State Forestry Department (JSFD) under Chapter 4 of Part IV National Forestry Act 1984 (NFA) (Amend.1993) to develop a rubber plantation project.
- The project has a total area of 67.38 hectares and 101.17 hectares allotted for rubber plantation in project activities 1 and 2, respectively.
- Project activity 1 consists of two distinct areas for rubber plantations, whereas project activity 2 consists of five smaller separated areas that were leased for rubber plantations by the Johor State Government as Figure 1.
- The project's goal is to establish a rubber forest plantation to help create a sustainable supply of rubber from the latex sap of these trees, which will be sold to markets by project participants.
- The project involves planting rubber trees (Hevea brasiliensis) on the project area, and using the rubber wood and the forest residues as renewable biomass for thermal applications.
- It is estimated that these plantations contain up to 82,050 rubber trees, which range in age from 11 to 17 years.

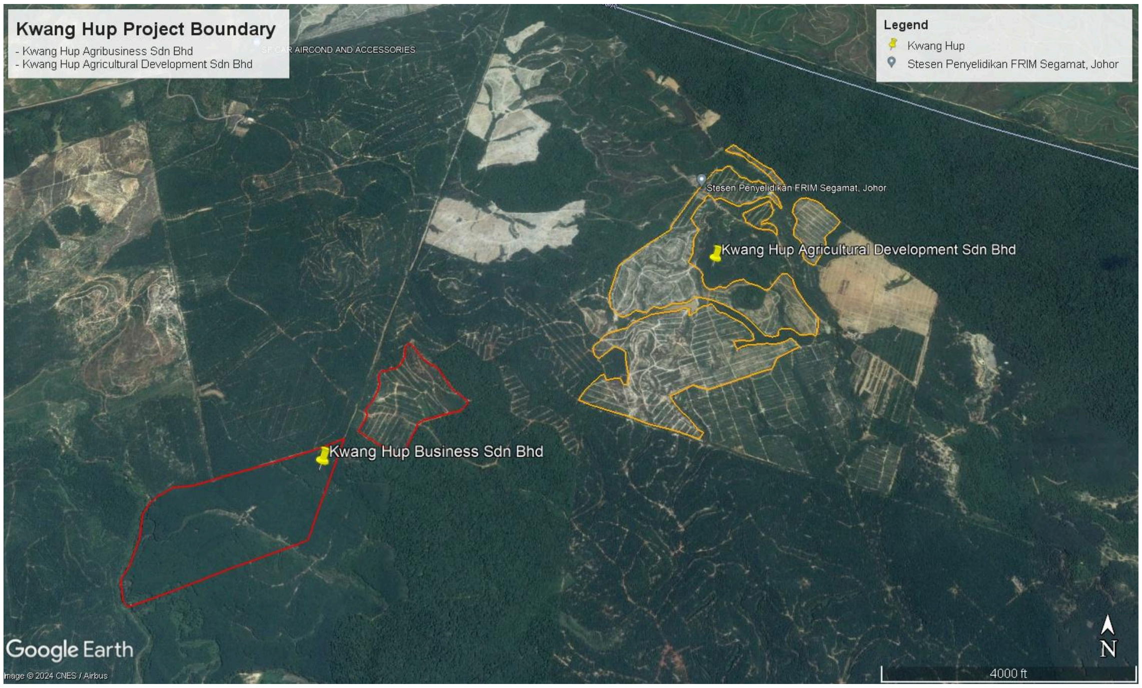


Figure 1 : Project Boundary for Kwang Hup Agribusiness and Kwang Hup Agricultural Development Sdn Bhd as well as the existing surrounding lots.

3.2.1 Spatial limits of the project

Present information showing the spatial (geographical) boundaries of the project.

For projects in sectors other than AFOLU, you may include diagrams or lists of the location of project facilities.

For projects in the AFOLU sector, provide complete information on the sites within the project boundaries including the coordinates and area of each site.

The project boundaries for the MY_JHR_RUBBER_01/24 project are shown in the map below, which is based on the geospatial data provided by the project proponent and verified by the verifier.

Both of the project area is located in Labis, Segamat, Johor, Malaysia, with:

Project Activity 1

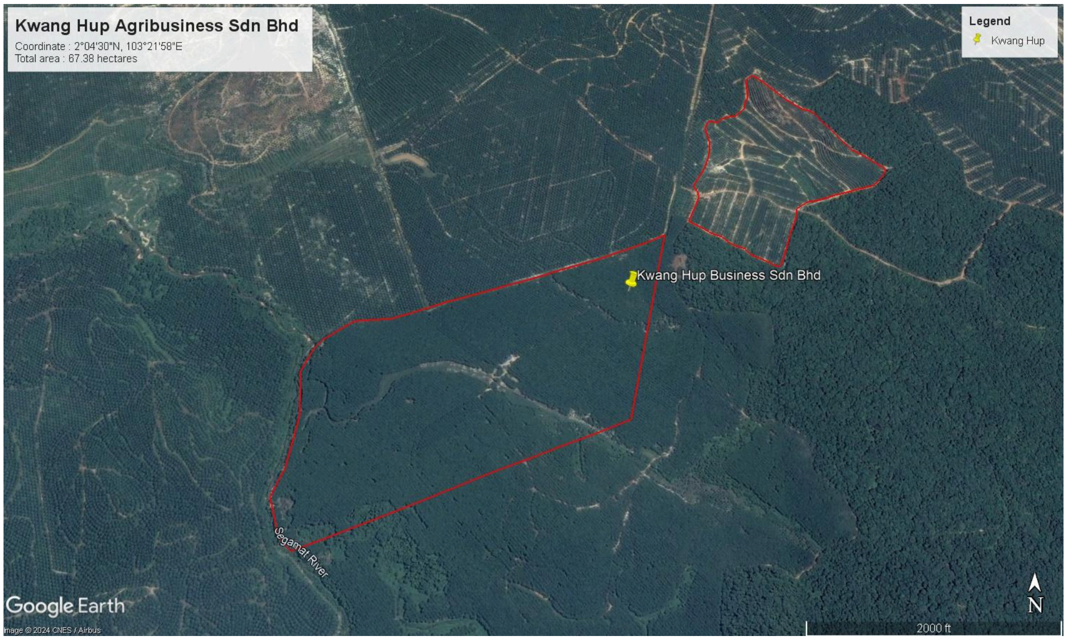


Figure 2: Kwang Hup Agribusiness Plantation Area within the project boundary of KMZ image.

Coordinate : 2°04'30"N, 103°21'58"E

Total area : 67.38 hectares

Description : Afforestation and reforestation of rubber plantations for rubber production.

Project Activity 2

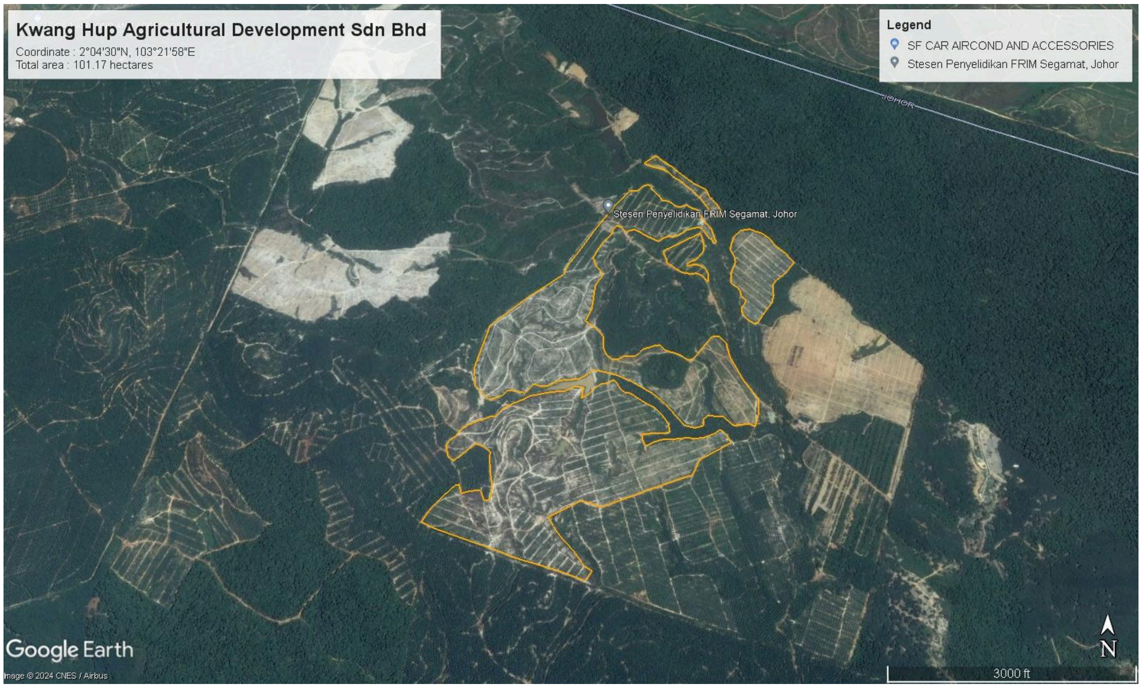


Figure 3: Kwang Hup Agricultural Development Plantation Area within the project boundary of KMZ image.

Coordinate : 2°04'30"N, 103°21'58"E

Total area : 101.17 hectares

Description : Afforestation and reforestation of rubber plantations for rubber production.

3.2.2 *Carbon reservoirs and GHG sources*

Identify GHG sources and reservoirs relevant to the project. Consider the pools and sources included in the methodology(ies) applied in the project scope.

The selection of carbon reservoirs to quantify changes in carbon stocks at the project boundaries are shown below:

Carbon 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
Burning of woody biomass	CO_2	No	CO2 emissions due to the burning of biomass are not accounted as a change in carbon stock.
	CH_4	Yes	Burning of woody biomass for site preparation or as part of forest management is allowed under this methodology.
	N_2O	Yes	Burning of woody biomass for site preparation or as part of forest management is allowed under this methodology.
Fertilizer application	CO_2	No	Carbon dioxide is not directly released during typical fertilizer application in rubber 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 plantations. Its production is more associated with anaerobic conditions.
	N_2O	Yes	The application of nitrogen-based fertilizers in plantations can lead to the release of nitrous oxide.

3.2.3 Time limits and analysis periods

Project timeframes correspond to the periods during which GHG emission reductions are quantified. The quantification periods are defined in section 10.5 of the BCR Standard.

The quantification periods are defined by the project proponent and must be consistent with the selected methodology and the relevant standards and regulations. The project timeframes may vary depending on the type and characteristics of the project, as well as the standard and market that the project is aiming for. The project timeframes typically include the following:

1. Project Start Date

The date when implementation, construction or actual action of a GHG project begins. The project start date is important for determining the eligibility and additionality of the project, as well as the calculation of the emission reductions or removals. The project of MY_JHR_RUBBER_01/24 start date must be justified and documented by the project proponent, and validated and verified by an independent third-party verifier.

- Project Activity 1 start date : 26th february 2012
- Project Activity 2 start date : 26th february 2012

2. Project Lifetime

The period during which the project is expected to generate GHG emission reductions or removals. The project lifetime is determined by the project proponent and must be realistic and credible, taking into account the technical, economic, social, and environmental factors that may affect the project performance and sustainability. The project lifetime must also comply with the rules and requirements of the selected methodology and the relevant standards and regulations.The project lifetime for MY_JHR_RUBBER_01/24 is as follows:

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

3. Monitoring Period

The monitoring period is the period during which the project's emission reductions or removals are measured, recorded, and reported. The monitoring period is determined by the project proponent and must follow the procedures and frequency specified by the selected methodology and the relevant standards and regulations. The monitoring period must also ensure the accuracy, completeness, consistency, transparency, and verifiability of the project's data and documentation. The monitoring period can be either annual or shorter, depending on the type and characteristics of the project. The monitoring period for MY_JHR_RUBBER_01/24 is as follows:

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

4. Verification Period

The verification period is the period during which the project's emission reductions or removals are confirmed and attested by an independent and qualified third-party verifier. The verification period is determined by the verifier and must cover the entire monitoring period. The verification period must also follow the principles and requirements of the ISO 14064-3 standard for the validation and verification of greenhouse gas assertions. The verification period can be either annual or shorter, depending on the type and characteristics of the project. The verification period for MY_JHR_RUBBER_01/24 is as follows:

- 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_JHR_RUBBER_01/24 is as follows:

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

3.2.3.1 Project start date

Indicate the date when implementation, construction or actual action of a GHG project begins (Section 10.4 of the BCR Standard).

For GHG removal projects, the start date is to the date when any action related to the start of GHG project activities begins.

Justify how the project start date conforms with the BCR Standard requirements.

The project start date is the date that a GHG project's implementation, construction, or actual action begins. The project's start date is crucial for assessing eligibility and additionality, as well as calculating emission reductions or removals. The project's start date may vary depending on the project's nature and characteristics, as well as the standard and market for which the project is intended.

Both project activities aiming at establishing a rubber plantation on available land began in 26th february 2012, when the project holder conducted an initial survey following the signing of the agreement. 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

Indicate the time period for quantification of GHG emission removals and/or reductions, depending on the type of project. (Section 10.5 of the BCR Standard). Consider one of the following options:

(a) for activities in the AFOLU sector, a minimum of 20 years and a maximum of 30 years;

The crediting period is the time period for quantifying GHG emission removals and/or reductions, which varies according to the type of project. The crediting period is the time when the project is eligible to generate certified emission reductions (CERs) or verified emission reductions (VERs), which can then be traded and used by other entities to achieve their own emission reduction targets or obligations. The project proponent determines the crediting period, which must be approved by the responsible authority or organization. The crediting time must also adhere to the guidelines and requirements of the selected technique, as well as the applicable standards and laws.

According to section 10.5 of the BCR Standard, activities in the AFOLU sector, MY_JHR_RUBBER_01/24 consists of project activity 1, the period of quantification of GHG emission removals/reductions is 20 years, starting from 26th November 2023 and ending on 26th November 2043 whereas project activity 2 is 20 years, starting from 26th November 2023 and ending on 26th November 2043. This typically covers the entire duration of the project, from its initiation to its completion.

3.2.3.3 Monitoring periods

Indicate the monitoring periods foreseen during project implementation. Please note that the periodicity of the monitoring periods shall be consistent with the methodologies and the BCR Standard.

Monitoring periods for MY_JHR_RUBBER_01/24 projects are critical to ensuring the ongoing success and effectiveness of the projects. Monitoring is typically conducted at various stages throughout the project implementation to assess and verify the carbon sequestration, biodiversity conservation, and overall project performance. It's important to note that the specific monitoring periods may vary based on project size, location, and duration.

Based on our proposed project timeline for MY_JHR_RUBBER_01/24, each of the projects will undergo **6-8 months** for organized plantation according to the:

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.

3.3 Identification and description of the baseline or reference scenario

Describe the steps taken to identify the baseline or reference scenario, i.e., the scenario that represents the GHG emissions that would occur in the absence of the project.

Explain how the baseline meets the requirements of the methodology/tool applicable to the project´s GHG activities and the provisions of the BCR Standard.

Take note that the baseline shall be defined in accordance with the provisions of the latest version of the methodological documents, and also as described in section 11.2 of the BCR Standard.

Both project activities in MY_JHR_RUBBER_01/24 consist of converting the available lands by turning them into highly productive rubber plantations. In alignment with BCR001 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.

These baseline scenarios can be identify through the following steps:

Step 1: Identification of alternative land use scenarios

An alternative land-use scenario of rubber plantations could involve the widespread conversion of natural ecosystems, such as diverse tropical rainforests or native grasslands, into monoculture rubber plantations. In this scenario, large expanses of biodiverse and ecologically valuable habitats would be cleared to make way for the cultivation of rubber trees, leading to the loss of crucial plant and animal species. The conversion of these natural ecosystems into monoculture plantations often results in the disruption of intricate ecological relationships and the fragmentation of habitats, leading to a decline in biodiversity. It may also contribute to deforestation, leading to the release of large amounts of carbon stored in trees and soil, exacerbating climate change.

Step 2 : Investment Analysis

The investment analysis for the alternative land-use scenario described would involve the conversion of natural ecosystems into rubber plantations involving clearing land, which can be an expensive process. The initial investment required for clearing, preparing the land, and planting rubber trees may pose a financial barrier. The reliance on agrochemicals, including pesticides and fertilizers, in monoculture rubber 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 rubber cultivation. Ongoing operational expenses, such as labor, 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 rubber 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

The impact of project registration for the alternative land-use scenario in rubber plantations is multifaceted. Firstly, it facilitates the formal recognition and documentation of projects aimed at diversifying and enhancing sustainable land use, ensuring that these projects adhere to environmental regulations and standards. Project registration can attract financial support and investments, fostering the implementation of agroforestry systems, biodiversity conservation measures, and sustainable agriculture practices. By being formally registered, these projects may also gain credibility and support from governmental and non-governmental organizations, encouraging collaboration and knowledge-sharing. Moreover, project registration can contribute to monitoring and evaluation efforts, allowing for the assessment of the social, economic, and environmental impacts of the alternative land-use scenario over time. Ultimately, the registration process plays a pivotal role in integrating diverse stakeholders, promoting transparency, and facilitating the long-term success and replicability of sustainable land-use projects in former rubber forest plantations.

3.4 Additionality

Demonstrate the additionality of the project according to the provisions of the BCR Standard and the project sector. In this sense, demonstrate that project activities generate emission reductions that represent additional emission reductions, avoidances, or removals.

Explain whether the demonstration of additionality met the requirements provided in BCR's "Baseline and Additionality Guidance", which is available https://biocarbonregistry.com/tools/additionality.pdf.

Justify reliably that all the assumptions, justifications, and documentation considered are adequate to identify the baseline scenario and the project additionality.

On the other hand, GHG project holders must demonstrate that emission reductions (or removals) do not correspond to emission reductions attributable to the implementation of legally required actions.

To demonstrate the additionality of the project in accordance with the BCR Standard and the project sector, we utilize the "Baseline and Additionality Guidance" provided by BioCarbon Registry. Firstly, we establish the baseline scenario, which entails the baseline reflections of project activities 1 and 2 of the hypothetical situation in which the project activities are not implemented, resulting in 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 the prevailing market conditions to determine whether the emission reductions generated by the project activities are additional. Our analysis considers factors such as the financial viability of implementing sustainable practices, regulatory requirements, and the availability of alternative land use options. By comparing the emission reductions achieved by the project to those that would occur under the baseline scenario, we ensure that the project's impact is indeed incremental.

Moreover, we employ robust documentation and thorough justifications to support our assessment of additionality. This includes detailed records of project planning and stakeholder consultations. By documenting our assumptions and methodologies transparently, we provide clear evidence of the project's contribution to emission reductions beyond what would occur in the absence of the project.

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

Furthermore, the project's implementation not only leads to environmental benefits but also brings about economic advantages. Through the adoption of sustainable land management practices, the project enhances the productivity and resilience of the land, thereby improving long-term profitability for landowners and stakeholders. Additionally, by demonstrating additionality, the project reduces the risk of carbon credit involvement due to the unmanaged nature of the baseline scenario, making it a more attractive investment opportunity for potential stakeholders.

3.5 Uncertainty management

In line with the principle of conservative attitude, demonstrate that you use conservative assumptions, values, and procedures to ensure that you do not overestimate emission reductions or increases in GHG removals.

Present and justify how mechanisms are established and applied to manage uncertainty in the quantification of baseline and mitigation results.

The principle of conservative attitude is one of the principles that guide the quantification and reporting of greenhouse gas emissions and removals, according to the ISO 14064-1 standard. The principle of conservative attitude states that the assumptions, values, and procedures used to estimate the emission reductions or increases in GHG removals should be chosen to avoid overestimation of the climate impact of the project.

In line with the principle of conservative attitude, the projects use conservative assumptions, values, and procedures to ensure that it does not overestimate emission reductions or increases in GHG removals. These projects applies the principle of conservative attitude by:

1) The project uses the 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 the carbon stocks and the emission factors of the project area and the biomass consumption.
2) To demonstrate the project's additionality, the CDM A/R Tool for the Demonstration and Assessment of Additionality in A/R CDM Project is used as a reference for BC0001 Project Activities. These methods provide a step-by-step approach to demonstrating that the project is not the baseline scenario, that it confronts challenges, or that it is not commonly used in the area. To avoid inflating the emission reductions or removals attributed to the project, the

project employs conservative criteria and benchmarks to determine the baseline scenario, barriers, and common practice.

3) The project accounts for the leakage from the displacement of pre-project activities and the use of fossil fuels for transportation and machinery. Leakage is the increase in emissions outside the project boundary as a result of the project activities. The project uses the procedures and equations provided by the selected methodology to calculate the leakage, and subtracts it from the emission reductions or removals achieved by the project. The project also uses conservative assumptions and values to estimate the leakage, to avoid underestimating the emissions that may occur outside the project boundary.
4) The project also establishes and applies mechanisms to manage uncertainty in the quantification of baseline and mitigation results. Uncertainty is the degree of doubt or variability associated with the estimation of the emission reductions or removals. The project uses the following mechanisms to manage uncertainty:

   - The project conducts a quantitative uncertainty analysis, using the procedures and equations provided by the selected methodology and the IPCC Guidelines for National Greenhouse Gas Inventories. The uncertainty analysis estimates the uncertainty range and the confidence interval of the emission reductions or removals, based on the uncertainty of the input data, parameters, and models. The uncertainty analysis also identifies the main sources of uncertainty and the potential ways to reduce them.

   - The project applies a discount factor, using the procedures and equations provided by the selected methodology and the CDM Executive Board. The discount factor is a coefficient that reduces the emission reductions or removals claimed by the project, based on the level of uncertainty and the confidence interval. The discount factor ensures that the project does not overclaim the emission reductions or removals, and that the project provides a net positive climate impact.

Table 1: Quality discounts and applicability of GHG estimation models

Source of the estimation model and data/parameters	**Discount factor (%)**
Project-specific above-ground and below-ground biomass data, and density values of the project	0
Project-specific above-ground biomass data and (R:S)[i] for below-ground biomass factor	5
Regional above-ground and below-ground biomass data	10

Regional above-ground data[ii] and (R:S) factor for below-ground biomass	15
National data for above-ground and below-ground biomass	15
National data for above-ground and y (R:S) factor for below-ground biomass	20
Above-ground and below-ground biomass data from other countries or regions with similar environmental conditions (climate-soils)	25
Above-ground biomass data and (R:S) factor for below-ground biomass from other countries or regions with similar environmental conditions (climate-soils)	30
Project-specific density values and factor (R:S) for below-ground biomass	15
IPCC density values and factor (R:S) for below-ground biomass	20
IPCC density and (R:S) factor for below-ground biomass	30
Volume equations from other countries or IPCC data, in areas with similar environmental conditions (climate-soils), IPCC density, and (R:S) factor for below- ground biomass	40
(i) The ratio between above-ground biomass and below-ground biomass (ii)Regional is the Project area where approximately the same climatic conditions are maintained	

- The project implements a monitoring plan, using the procedures and frequency specified by the selected methodology and the BioCarbon standard. The monitoring plan ensures that the project collects, records, and reports the relevant data and information for the quantification of the emission reductions or removals, and that the project complies with the quality assurance and quality control procedures. It also ensures that the project's performance, data, and documentation are independently audited and verified by a qualified third-party verifier.

3.6 Leakage and non-permanence

Describe the procedures used to quantify and manage the risk of leakage, according to the applied methodology. Where appropriate, explain and justify the data and parameters chosen and provide the relevant equations.

Likewise, explain how it ensures the permanence of the project activities, following the condition set forth by the standard. The monitoring of project activities, through verification, shall evaluate the permanence of project activities.

According to the AR-ACM0003, by applying AR-Tool15 A/R Methodological Tool, Version 2.0, potential leakage in a MY_JHR_RUBBER_01/24 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 rubber plantation lead 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**

   Expansion of rubber plantations may lead to the conversion of other land types such as forests or natural habitats into agricultural land, potentially increasing deforestation or habitat loss in those areas.

2. **Infrastructure development**

   The establishment of ponds with a water pump for plant irrigation associated with rubber plantations may facilitate further land conversion or degradation in surrounding areas.

Figure 4: Ponds with a water pump for plant irrigation are established within the project boundaries of project activity 1, at coordinates N 02° 33.645', E 102° 57.467'.

The risks associated with potential leakage in a rubber plantation include;

1. **Economic impacts**

   Leakage may undermine efforts to achieve sustainable development goals by perpetuating unsustainable land use practices and compromising ecosystem services that support local livelihoods and economies.

2. **Environmental impacts**

   Leakage can lead to increased deforestation, habitat loss, biodiversity decline, and other environmental impacts in areas outside of the rubber plantation.

3. **Social impacts**

   Displacement of local communities, loss of traditional land rights, and conflicts over land use can occur if leakage results in changes to land tenure or land management practices in neighboring areas.

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, the construction of ponds for water irrigation in a rubber plantation would generally not be considered leakage in MY_JHR_RUBBER_01/24 project, where it is properly accounted for and does not lead to unintended negative environmental impacts. This is because the construction of ponds for water irrigation is a management practice aimed at enhancing agricultural productivity, including rubber yield, potentially enhancing carbon sequestration through increased biomass production and soil carbon storage. In addition, while the construction itself may involve some emissions (e.g., from equipment use or land clearing), these emissions are typically accounted for in the project's baseline and monitoring plan.

3.7 Mitigation results

Justify and demonstrate that the mitigation results achieved as a result of the implementation of the project activities are verifiable within the framework of ISO 14064-3:2019, or its amendment.

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_JHR_RUBBER_01/24 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_JHR_RUBBER_01/24, 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)

Present a description that allows to demonstrate that the areas within the geographical boundaries of the project correspond to the land cover/land use categories according to the requirements of the methodology used. Demonstrate compliance with the requirement taking into account the country definitions (if applicable) for the applicable land use categories.

Similarly, demonstrate that the areas within the geographical boundaries of the project comply with the land cover presence/absence condition as defined by the methodology applied, and in the reference, data set by the BCR STANDARD.

Indicate and justify the choice of the cartographic scale used for the multi-temporal land cover/land use analysis. Demonstrate that you have identified land covers/uses according to the land use and/or land cover classifications applicable to the country in which the project activities are proposed.

Demonstrate that geographic data are handled according to international standards defined by organizations such as ISO, OGC or the American Society for Photogrammetry and Remote Sensing.

The project MY_JHR_RUBBER_01/24 adheres to the specific geographical boundaries that are in line with the rigorous criteria of the chosen methodology, namely the "BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities." 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 utilized 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 or non-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 organizations 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 order to improve the accuracy of the carbon stock change calculations, describe the stratification process carried out, whether the distribution of carbon reservoirs considered in the project areas is not homogeneous.

Demonstrate that you have identified the strata for the identification of the baseline scenario and for the with-project scenario. Explain how you optimized accuracy in estimating GHG reductions/removals.

We have brought a targeted strategy to our rubber plantation with the MY_JHR_RUBBER_01/24 project in order to improve the accuracy of carbon stock change calculations. Our customized stratification technique tries to capture the variety of carbon distribution in these contexts:

- Stratification for Rubber Plantation:

Various zones have been designated inside the rubber plantation, taking into account distinct vegetation characteristics and the land's historical use. Strata are identified using parameters such as tree age, density, and particular land management practices used in the plantation.

- Identification of Baseline and With-Project Strata:

In the baseline scenario, we identified regions with widespread conversion of natural ecosystems, such as forested land, to monoculture and well-established rubber plantations.. In the project scenario, the area was developed to create a rubber forest plantation. Certain strata comprise areas that have been built for implementing sustainable technologies, such as an agroforestry system and improved sustainable land management. This plantation has 82,050 rubber trees, which will be marketed frozen, with an expected monthly yield of 50 tons. Rubber trees in this area range in age from 11 to 17 years.

- Optimizing Accuracy in Oil Palm Context:

Accuracy sampling requires completing on-site assessments of certain rubber tree 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 analyzing carbon stock changes over time.

- Tailoring the Approach:

This method ensures that our calculations are in compliance with the specific complexities of a rubber environment. Our project aims to precisely analyze 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_JHR_RUBBER_01/24.

3.7.3 GHG emissions reduction/removal in the baseline scenario

Describe the procedures applied to quantify GHG emission reductions, including all the provisions of the methodology used.

Include relevant data, parameters, and equations. Detail any additional assumptions or considerations needed. Explain and justify the choice of data and parameters and include an assessment of uncertainty.

In order to ensure precise and transparent quantification, the MY_JHR_RUBBER_01/24 projects fully follow the requirements provided in "BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities." 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:

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

Where:

$\Delta C_{BSL,t}$	=	Baseline net GHG removals by sinks in year t; t CO_2-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 CO_2-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 CO_2-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 CO_2-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

Carbon stock in tree biomass within the project boundary at the baseline:

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

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

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:

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

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

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

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:

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

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

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

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 CO_2e yr^{-1}

$C_{DW,t2}$ = Carbon stock in dead wood within the project boundary at a point of time in year t2; t CO_2e

$C_{DW,t1}$ = Carbon stock in dead wood within the project boundary at a point of time in year t1; t CO_2e

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 CO_2e

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

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

$$C_{LI},(t_1,t_2) = \frac{C_{LI},t_2 - C_{LI},t_1}{T} \quad E(11)$$

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

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 CO_2e yr^{-1}

$C_{LI,t2}$ = Carbon stock in litter within the project boundary at a point of time in year t2; t CO_2e

$C_{LI,t1}$ = Carbon stock in litter within the project boundary at a point of time in year t1; t CO_2e

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 CO_2e

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 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
$CC_{TREE\_BSL,i}$	-	0.2
A_i	ha	Project activity 1: 67.38 Project activity 2 : 101.17

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

Project activity 1:

$$\Delta C_{TREE\_BSL,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.2 \times 67.38 = 377.38 \text{ t CO2-e}$$

Project activity 2:

$$\Delta C_{TREE\_BSL,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.2 \times 101.17 = 566.64 \text{ t CO2-e}$$

CF_S	t C (t.d.m.)-1	0.47
R_S	-	0.40
$A_{SHRUB,i}$	ha	Project activity 1: 67.38 Project activity 2 : 101.17
$b_{SHRUB,i}$	t d.m. ha-1	$b_{SHRUB,t1} = 2.05$ $b_{SHRUB,t2} = 6.15$

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

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

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

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

Project activity 1:

$$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 67.38 \times 2.05 = 333.26 \text{ t CO2-e}$$

$$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 67.38 \times 6.15 = 999.78 \text{ t CO2-e}$$

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

$= 999.78 - 333.26 = 666.52$ t CO2-e

Project activity 2:

$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 101.17 \times 2.05 = 500.38$ tCO2-e

$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 101.17 \times 6.15 = 1{,}501.15$ tCO2-e

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

$= 1{,}501.15 - 500.38 = 1{,}000.77$ t CO2-e

Project Activity 1:

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

$$= 377.38 + 666.52 + 0 + 0 = 1{,}043.9 \text{ t CO2-e}$$

Project Activity 2:

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

$$= 566.64 + 1{,}000.77 + 0 + 0 = 1{,}567.41 \text{ t CO2-e}$$

3.7.4 GHG emissions reduction/removal in the project scenario

Fully describe the procedures for ex-ante quantification of GHG emission reductions or removals attributable to project activities. Include relevant data, parameters, and equations. Also explain and justify the assumptions used. Provide information o f the uncertainty management.

In order to ensure precise and transparent quantification, the MY_JHR_RUBBER_01/24 projects fully follow the requirements provided in "BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities." 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:

$$\Delta C_{ACTUAL,t} = \Delta C_t - GHG_{E,t} \qquad \text{E(8)}$$

Where:

$\Delta C_{ACTUAL,t}$ = Actual net GHG removals by sinks, in year t; t CO_2-e

ΔC_t = Change in the carbon stocks in Project, occurring in the selected carbon pools, in year t; t CO_2-e

$GHG_{E,t}$ = Increase in non-CO_2 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-CO_2 GHG emissions resulting from burning of biomass attributable to an A/R CDM project activity"; tCO_2-e

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

$$\Delta C_{P,t} = \Delta C_{\mathrm{TREE}\_PROJ,t} + \Delta C_{SHRUB\_PROJ,t} + \Delta C_{DW\_PROJ,t} + \Delta C_{LI\_PROJ,t} + \Delta \mathrm{SOC}_{A,t} \quad \text{E(9)}$$

Where:

$\Delta C_{P,t}$ = Change in the carbon stocks in Project, occurring in the selected carbon pools, in year t; t CO_2-e

$\Delta C_{\mathrm{TREE}\_PROJ,t}$ = 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"; tCO_2-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

Carbon stock in tree biomass within the project boundary for project scenario:

$$\Delta C_{TREE\_PROJ,t} = \sum_{i=1}^{M} \Delta C_{TREE\_PROJ,i} \qquad E(10)$$

$$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times CF_{TREE} \times \Delta b_{FOREST} \times (1 + R_{TREE}) \times CC_{TREE\_PROJ,i} \times A_i \qquad E(11)$$

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.

<u>Note.</u> 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:

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

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

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

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:

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

$$dC_{DW,(t_1,t_2)} = \frac{C_{DW,t_2} - C_{DW,t_1}}{T} \qquad E(21)$$

$$\Delta C_{DW,t} = dC_{DW,(t_1,t_2)} \times 1 \text{ year for } t_1 \leq t \leq t_2 \qquad E(22)$$

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 CO_2e

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

$dC_{DW,(t_1,t_2)}$ = Rate of change in carbon stock in dead wood within the project boundary during the period between a point of time in year t_1 and a point of time in year t_2; t CO_2e yr^{-1}

C_{DW,t_2} = Carbon stock in dead wood within the project boundary at a point of time in year t_2; t CO_2e

C_{DW,t_1} = Carbon stock in dead wood within the project boundary at a point of time in year t_1; t CO_2e

T = Time elapsed between two successive estimations ($T=t_2 - t_1$); yr

$\Delta C_{DW,t}$ = Change in carbon stock in dead wood within the project boundary in year t; t CO_2e

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

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

$$C_{LI,(t_1,t_2)} = \frac{C_{LI,t_2} - C_{LI,t_1}}{T} \quad E(24)$$

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

Where:

$C_{LI,i,t}$	=	Carbon stock in deadwood in stratum i at a given point of time in year t; t CO_2e
$C_{TREE,i,t}$	=	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 CO_2e
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

$dC_{LI,(t_1,t_2)}$	=	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,t_2}	=	Carbon stock in litter within the project boundary at a point of time in year t2; t CO2e
C_{LI,t_1}	=	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
$CC_{TREE\_PROJ,i}$	-	0.5
A_i	ha	Project activity 1: 67.38 Project activity 2 : 101.17

$$\Delta C_{TREE\_PROJ,t} = \sum_{i=1}^{M} \Delta C_{TREE\_PROJ,i}$$ $$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times CF_{TREE} \times \Delta b_{FOREST} \times (1 + R_{TREE}) \times CC_{TREE\_PROJ,i} \times A_i$$ **Project activity 1:** $$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.5 \times 67.38 = 943.46 \text{ t CO2-e}$$ **Project activity 2:** $$\Delta C_{TREE\_PROJ,i} = \frac{44}{12} \times 0.47 \times 13.0 \times (1 + 0.25) \times 0.5 \times 101.17 = 1{,}416.59 \text{ t CO2-e}$$

CF_S	t C (t.d.m.)-1	0.47
R_S	-	0.40
$A_{SHRUB,i}$	ha	Project activity 1: 67.38 Project activity 2 : 101.17
$b_{SHRUB,i}$	t d.m. ha-1	$b_{SHRUB,t1} = 12.3$ $b_{SHRUB,t2} = 16.4$

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

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

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

$$b_{SHRUB,t2} = 0.10 \times 205 \times 1.0 = 20.5$$

Project activity 1:

$$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 67.38 \times 12.3 = 1{,}701.75 \text{ t CO2-e}$$

$$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 67.38 \times 20.5 = 3{,}332.59 \text{ t CO2-e}$$

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

$$= 3{,}332.59 - 1{,}701.75 = 1{,}630.84 \text{ t CO2-e}$$

Project activity 2:

$$C_{SHRUB,t1} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 101.17 \times 12.3 = 3{,}002.30 \text{ tCO2-e}$$

$$C_{SHRUB,t2} = \frac{44}{12} \times 0.47 \times (1 + 0.40) \times 101.17 \times 20.5 = 5{,}003.83 \text{ tCO2-e}$$

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

$$= 5{,}003.83 - 3{,}002.30 = 2{,}001.53 \text{ t CO2-e}$$

Project Activity 1:

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

$$= 943.46 + 1{,}630.84 + 0 + 0 = 2{,}574.3 \text{ t CO2-e}$$

Project Activity 2:

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

$$= 1{,}416.59 + 2{,}001.53 + 0 + 0 = 3{,}418.12 \text{ t CO2-e}$$

Present in the table below the ex-ante calculations, these are the estimated GHG emission reductions over the entire quantification period of the proposed project.

Project Activity 1:

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	887.32	2,188.155	0	1,300.84
Year 2	887.32	2,188.155	0	1,300.84
Year 3	1,043.9	2,574.3	0	1,530.4
Year...	1,043.9	2,574.3	0	1,530.4
Total	20,564.84	50,713.71	0	30,148.88

Project Activity 2:

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	1,332.30	2,905.40	0	1,573.10
Year 2	1,332.30	2,905.40	0	1,573.10
Year 3	1,567.41	3,418.12	0	1,850.71
Year...	1,567.41	3,418.12	0	1,850.71
Total	30,877.98	67,336.96	0	36,458.98

Indicate the total estimated emission reductions during the project's quantification period and the estimated annual average.

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

Project Activity 1 : (1,300.84 x 2 years) +(1,530.40 x 18 years) = 30,148.88 tCO2e

Project Activity 2 : (1,573.10 x 2 years) +(1,850.71 x 18 years) = 36,458.98 tCO2e

Estimated average annual amount of GHG emission reductions:

Project Activity 1 : 1,530.40 tCO_2e/year

Project Activity 2 : 1,850.71 tCO_2e/year

4 Compliance with applicable legislation

Demonstrate that you have implemented a documented process (Document Management System) to identify and access relevant laws and regulations on an ongoing basis and demonstrate that you have a process in place to periodically review compliance with them.

Describe the manner in the project activities met the legal compliance including, among others, the laws related to the protection of human and indigenous peoples' rights, in accordance with international regulations, such as the United Nations Declaration on the Rights of Indigenous Peoples and ILO Convention 169 on Indigenous Peoples.

MY_JHR_RUBBER_01/24 project has implemented a Document Management System (DMS) to systematically organize and manage all relevant legal documents, including Malaysian laws and international regulations governing forest reserves and rubber forest plantations. The project conducts regular legal audits to identify and update the applicable laws and regulations. This includes a comprehensive review of local and national legal frameworks that may impact the project. The project has categorized the documents based on topics such as land use, environmental regulations, labor laws, and human rights.

All relevant Malaysia laws and regulations applicable to MY_JHR_RUBBER_01/24 projects as following:

1. **Land Acquisition and Land Use:**
    - National Land Code 1965
    - Land Acquisition Act 1960
2. **Environmental Regulations:**
    - Environmental Quality Act 1974
    - Environmental Impact Assessment (EIA) Order 1987
3. **Pesticides Laws:**
    - Pesticides Act 1974
4. **Rubber Board:**

- Malaysian Rubber Board (MRB) Act 1996

5. **Labor Laws:**
   - Employment Act 1955
   - Occupational Safety and Health Act 1994

To ensure legal compliance, especially in relation to the protection of human and indigenous peoples' rights in a MY_JHR_RUBBER_01/24 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 labor 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_JHR_RUBBER_01/24 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

Provide contact information for the GHG Project holder.

Individual or organization	Carbon Vault Sdn Bhd
Contact person	Umairah Qistina Husainy
Job position	Program Executive
Address	No. 11A, Lorong Kurau, Bangsar, 59100 Kuala Lumpur, Wilayah Persekutuan Kuala Lumpur.
Phone number	+60 17 - 213 1887
Email	umairah@co2bank.asia

5.2 Other project participants

Provide contact information for GHG Project participants (add rows if necessary).

Individual or organization	Kwang Hup Agribusiness Sdn Bhd
Contact person	Mr Wong Jia Seng
Job position	Plantation Manager

Address	PTD14869 Mukim Sg Segamat, 85000 Segamat, Johor
Phone number	+6012-7182788
Email	kwanghup88@yahoo.com.my

Individual or organization	Kwang Hup Agricultural Development Sdn Bhd
Contact person	Mr Wong Jia Seng
Job position	Plantation Manager
Address	PTD14869 Mukim Sg Segamat, 85000 Segamat, Johor
Phone number	+6012-7182788
Email	kwanghup88@yahoo.com.my

5.3 Agreements related to carbon rights

Explain, justify and demonstrate that all project stakeholders agree to the management of carbon rights. Demonstrate transparency and, where appropriate, evidence of a process based on full, prior and informed consent. In particular, if the project develops activities within the territories of ethnic groups and/or local traditional communities, both their members, individuals, and the environmental authorities need to ensure that their rights are respected, warn them and develop the procedures required by law.

Consequently, in cases where the project owner is a natural or legal person other than the ethnic groups and/or local traditional communities, the project owner must first request a certificate from the appropriate person to determine whether or not there are Ethnic Communities in the project area in which case the Fundamental Right to Prior Consultation must be guaranteed.

Demonstrate 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);

(b) purpose of the agreement;

(c) date of the agreement;

(d) name of the GHG project;

(e) period of quantification of GHG emission removals/reductions;

(f) responsibilities, obligations, and rights of each of the signatory parties.

Both the projects in MY_JHR_RUBBER_01/24 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 Owner : Carbon Vault Sdn Bhd

Parent Company : Love Agro Carbon Trading Sdn Bhd

(b) Purpose of the agreement:

The purpose of the agreement is to define and transfer the carbon rights from the landowners and the local communities to the project participants, and to establish the terms and conditions for the sharing of the benefits from the carbon credits generated by the project. The agreement also specifies the roles and responsibilities of each party, and the mechanisms for monitoring, reporting, verification, and dispute resolution.

(c) Date of the agreement:

The agreement was signed on 26th November 2023, prior to the project start date of the initial survey from the project holder on 15th January 2024, and following validation and acceptance of the project design document by the BioCarbon Technical Committee.

(d) Name of the GHG project:

The name of the GHG project is MY_JHR_RUBBER_01/24 which aims to combat climate change by engaging in activities that result in measured and verifiable reductions in greenhouse gas emissions in Kluang, Johor, Malaysia.

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

The period of quantification of GHG emission removals/reductions is 20 years, starting from 26th November 2023 and ending on 26th November 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:

- 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.
- 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.
- 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)

Demonstrate in detail that the project participants own the land or land parcels on which the GHG project activities take place, at least during the period of quantification of GHG emission reductions or removals.

In this MY_JHR_RUBBER_01/24 project, Love Agro Carbon Trading Sdn Bhd and Kwang Hup Agribusiness Sdn Bhd were the project participants for project activity 1. Whereas, Love Agro Carbon Trading Sdn Bhd and Kwang Hup Agricultural Development Sdn Bhd were the project participants 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, licenses, 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 compliance with the BCR Standard, use appropriate criteria and indicators to demonstrate that the project owner is undertaking climate change adaptation activities and that these are derived from the GHG project activities.

In compliance with the BioCarbon Registry (BCR) Standard, this document describes Kwang Hup Agribusiness and Kwang Hup Agricultural Development Sdn Bhd's climate change adaptation activities resulting from GHG project operations. The chosen adaptation measures are consistent with the relevant criteria and indicators provided by the BCR Standard.

Adaptation Criteria and Indicators for Rubber Forest Plantation:

- **Diversification of Tree Species**

  Criteria : Select tree variety (such as rubber trees (*Hevea brasiliensis*) that is known for being more adaptable to changing temperature and precipitation patterns, helping the plantation cope with climatic variations.

  Indicators : Monitor soil moisture levels, leaf water potential, temperature variations, and their effects on rubber tree growth. Evaluate the survival and growth of rubber trees under different water availability and temperature tolerance conditions.

- **Adaptive Silviculture Practices**

  Criteria : Implement adaptive silviculture techniques, such as thinning and selective harvesting, to maintain the health and productivity of the plantation under changing conditions.

  Indicators : Assess the effectiveness of silvicultural interventions in promoting tree growth, optimizing stand density, and mitigating potential stressors to ensure that the rubber trees remain intact, as they represent a considerable amount of timber that can be harvested.

- **Adaptive Management Planning**

  Criteria : Develop and implement adaptive management plans that can be changed in response to ongoing monitoring and assessment to optimize rubber production while addressing environmental, economic, and social considerations.

  Indicator : Analyze how well the management plan (such as sustainable rubber management practices and Integrated Pest Management (IPM)), responds to biodiversity and shifting climatic conditions. Evaluate how well adaptable strategies have worked to increase the rubber plantation's resilience.

By incorporating these criteria and indicators, rubber forest plantation owners can create sustainable environment plans that increase plantation resilience, minimize vulnerability to climate change, and contribute to long-term rubber production.

7 Risk management

The projects have carried out risk assessment and risk management, to identify the environmental, financial and social risks associated with the implementation of the project activities, and to justify the measures designed to manage the risks so that GHG emission reductions and/or removals are maintained throughout the project quantification period. The project has followed the guidelines and best practices of the ISO 31000 standard for risk management, and the ISO 14091 standard for adaptation to climate change. The project has also used the web search results to obtain relevant information and data on the potential risks and mitigation measures.

Both the projects have identified the following risks in the environmental, financial and social dimensions, and has proposed the following measures to manage them:

a) Environmental Risks:

These are the potential natural and anthropogenic risks to which the GHG mitigation activities may be exposed, such as storms, fire, pests, diseases, land use change, and illegal logging. These risks may affect the survival, growth, and health of the trees, and the carbon stocks and sequestration potential of the project area. The project has assessed the likelihood and impact of these risks, and has developed the following measures to mitigate them:

1) The project has selected rubber trees (*Hevea brasiliensis*) that are suitable and adapted to the local climate and soil conditions, and that are resistant or tolerant to the common pests and diseases in the region.
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 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.
4) 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.

5) The project has established a buffer zone and a contingency reserve, which are areas or pools of carbon credits that are set aside to compensate for any potential or actual losses or reversals of carbon stocks due to the environmental risks.

b) Financial Risks:

These are the potential financial risks associated with the expected costs and cash flow of the project, such as the fluctuations in the carbon price, the delays or failures in the validation, verification, and certification of the emission reductions or removals, and the operational or maintenance costs of the project activities. These risks may affect the profitability and viability of the project, and the incentives and motivations of the project participants and stakeholders. The project has assessed the probability and magnitude of these risks, and has developed the following measures to mitigate them:

1) The project has conducted a financial analysis and a sensitivity analysis, which include the estimation and projection of the costs and revenues of the project, and the evaluation of the net present value, the internal rate of return, and the break-even point of the project, to assess the financial feasibility and attractiveness of the project.
2) The project has secured the funding and financing of the project, which include the equity, debt, and grant contributions from the project participants and other entities, such as the project proponent, the project developer, the project manager, the project financier, and the BioCarbon Fund, to cover the upfront and ongoing costs of the project activities.
3) The project has followed the procedures and requirements of the selected methodology and the relevant standards and regulations, such as the BCR001 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.
4) 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 minimize the negative impacts and maximize the positive outcomes of the project.

c) Social Risks:

These are the potential social risks associated with the participation of local communities and stakeholders in the activities proposed by the project owner, such as the conflicts or disputes over the land or carbon rights, the impacts or trade-offs on the livelihoods and well-being of the local people, and the expectations or perceptions of the project benefits and costs. These risks may affect the acceptance, support, and cooperation of the local communities and stakeholders, and the sustainability and legitimacy of the project. The project has assessed the frequency and severity of these risks, and has developed the following measures to mitigate them:

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 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.
3) The project has established a benefit-sharing mechanism, which includes the definition and allocation of the benefits from the carbon credits and other sources of income, and the distribution and delivery of the benefits to the local communities and stakeholders, based on their contribution and involvement in the project.
4) 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.

7.1 Reversal Risk

Explain and justify the measures taken to ensure that the project is maintained over time, as reflected in agreements or contracts, clauses or provisions focused on this objective, or through the implementation of a management plan associated with the risk of reversion.

Demonstrate that you have used appropriately the "Risk and permanence" tool. The tool is available at the BCR website, make sure you are using the latest version. Present a *conclusion about the expected risks (direct and indirect) and the consideration or mitigation measures as part of adaptive management.*

MY_JHR_RUBBER_01/24 project has maintained a carbon offset project over time that requires a comprehensive approach that includes legal agreements, contractual clauses, and a robust management plan to mitigate the risk of reversion. By referring to BCR website by using "Risk and Permanence" tool, key measures taken to ensure the longevity of project activities 1 and 2:

- **Legally Agreements and contracts:**

  Establish clear and legally binding land use agreements that specify that the selected area will only be used for the rubber plantation in project activities 1 and 2 of the carbon offset project. This helps to prevent the property from being converted for other purposes, which could weaken the project's carbon sequestration goals. Contracts with stakeholders, including project developers, investors, and carbon offset buyers, should outline the terms and conditions of the carbon offset project. This can include the duration of the project and the responsibilities of each party.

- **Monitoring and Verification:**

  Establish a method for regular monitoring and verification of carbon sequestration levels. This includes independent third-party audits to track changes in carbon stocks, tree health, and overall project performance. Remote sensing technologies, on-the-ground surveys, and other monitoring methods should be employed. It also includes elements in the management plan that enable for changes based on monitoring data. If problems emerge, such as falling carbon sequestration rates, the plan should specify corrective actions to be implemented.

- **Management Plan:**

  Create a detailed management strategy that explains the project's objectives, major achievements, and the measures required to maintain and improve carbon sequestration over time. Identify potential risks, including the risk of reversion, and design strategies to mitigate them. This could include regular maintenance, pest and disease control, and adaptive management strategies.

- **Financial Mechanisms:**

Secure long-term financing commitments or endowments that can be used to cover continuing maintenance costs by establishing escrow accounts to keep funds specifically allocated for project maintenance, with disbursement restrictions tied to achieving established milestones. Implementing insurance policies also can provide financial protection against unforeseen events, such as natural disasters or fires, which could jeopardize the project's success.

- **Long-Term Contracts:**

  Establish contracts with entities that purchase carbon offsets to assure a long-term commitment to the project. These contracts should detail the agreed-upon terms, such as the period of the offsetting commitment, pricing techniques, and consequences for noncompliance. Furthermore, these contracts include conditions requiring offset purchasers to give financial guarantees or insurance to cover the risk of reversion, guaranteeing that money is available for project maintenance.

- **Community Engagement and Benefit Sharing:**

  Create agreements with local communities to assure their cooperation and participation in the project. This could include revenue-sharing arrangements, job opportunities, or additional benefits that establish a vested interest in the project's success.

In conclusion, the success of MY_JHR_RUBBER_01/24 projects hinges on anticipating and effectively mitigating both expected risks (direct and indirect) through adaptive management strategies where :

Direct Risks:

- These can include natural disasters like wildfires, storms, or droughts, pest infestations that could jeopardize the health of the forest ecosystem and unauthorized land use such as illegal logging and land encroachment.

Indirect Risks:

- Changes in government policies, economic fluctuations in the carbon market can impact the economic viability of carbon offset projects. In addition, economic uncertainties can affect the availability of funds for ongoing project maintenance.

Adaptive Management:

- Planting a diverse range of tree species can enhance the project's resilience to environmental changes, diseases, and pests, contributing to long-term sustainability.
- Regular monitoring of carbon sequestration, tree health, and overall project performance is fundamental for early detection of issues and informed decision-making.
- Adaptive management involves maintaining flexibility in project planning. This could include the ability to adjust planting strategies, land use agreements, and financial allocations in response to changing circumstances.

8 Environmental Aspects

Present and explain in detail the results of the environmental assessment, analyzing the foreseeable impacts on biodiversity and ecosystems within the project boundaries. Demonstrate that the analysis is supported by reliable and up-to-date references.

If it is determined that the project activities could have negative impacts, explain the actions and corrective measures that will be implemented in order to manage and minimize the impacts resulting from the development of the GHG project activities.

In order to demonstrate that the project activities cause no net harm to the environment, the project holder must use a No Net Harm tool developed by the BIOCARBON REGISTRY and available at https://biocarbonregistry.com/tools/no-net-harm.pdf.

Both the project activities in MY_JHR_RUBBER_01/24 have conducted an environmental assessment, analyzing the foreseeable impacts on biodiversity and ecosystems within the project boundaries. The environmental assessment is supported by reliable and up-to-date references, such as the initial survey data collection form, which was completely filled out by our field supervisor as well as inquiries about the plantation from project participants.

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

- The project restores and conserves forested land that was previously used for shifting cultivation and logging, and enhances the carbon stocks and sequestration potential of the land.

- The project area establishes a rubber forest plantation, using rubber trees (*Hevea brasiliensis)* that are suitable and adapted to the local climate and soil conditions, and that provide 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.

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

- The project may cause soil erosion, nutrient depletion, or water contamination due to the site preparation, planting, harvesting, or replanting of the trees, or the use of fertilizers, pesticides, or herbicides.

- The project may affect the hydrological cycle, water availability, or water quality due to the changes in land use or cover, or the water consumption by the trees.

- The project may generate waste, noise, or dust during the construction, operation, or maintenance of the project facilities or equipment.

The project has proposed the following **actions and corrective measures** to manage and minimize the impacts resulting from the development of the GHG project activities, such as:

- The project will implement a silvicultural management plan, which includes the proper site preparation, planting, pruning, thinning, harvesting, and replanting of the trees, and the application of organic or low-toxicity fertilizers, pesticides, or herbicides, to prevent or reduce the soil erosion, nutrient depletion, or water contamination.

- The project will conduct a hydrological assessment, which includes the estimation and monitoring of the water balance, water demand, and water quality of the project area and the surrounding areas, and will implement water conservation and protection measures, such as rainwater harvesting, drip irrigation, or buffer strips, to prevent or reduce the impacts on the hydrological cycle, water availability, or water quality.

- The project will implement a waste management plan, which includes the reduction, reuse, recycling, or disposal of the waste generated by the project activities, and will follow the noise and dust control regulations and standards, to prevent or reduce the 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

Explain and justify in detail the 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 assessment should also refer to relevant documentation and evidence.

If such an assessment leads to the conclusion that relevant negative impacts would be generated, corrective actions and measures to prevent and/or reduce the socioeconomic impacts resulting from the development of the GHG project activities should be defined.

In this order, the project holder should demonstrate that the project activities do not cause net harm to local communities and society, to support this, the project holder will use a No Net Harm tool developed by BioCarbon Registry and available at https://biocarbonregistry.com/tools/no-net-harm.pdf.

Both the project activities in MY_JHR_RUBBER_01/24 have 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, such as the initial survey data collection form where the form, which was completely filled out by our field supervisor as well as inquiries about the plantation from project participants.

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 marginalized 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, the indigenous peoples, 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)

Explain and demonstrate that stakeholder consultation has been carried out through appropriate and widespread consultation processes.

Described the stakeholder consultation process and demonstrate how the process meets the relevant requirements:

(a) the scope of stakeholder consultations;

(b) the number of stakeholders consulted;

(c) the means used to invite interested parties to participate in the consultations;

(d) the information that was made available to stakeholders during the consultation process;

(e) the meetings, workshops and other processes developed in the framework of the stakeholder consultation;

In addition, provide documentary (or other) evidence to ensure that invitations were sent to relevant stakeholders, inviting them to comment.

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 organizations, 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 marginalized 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.

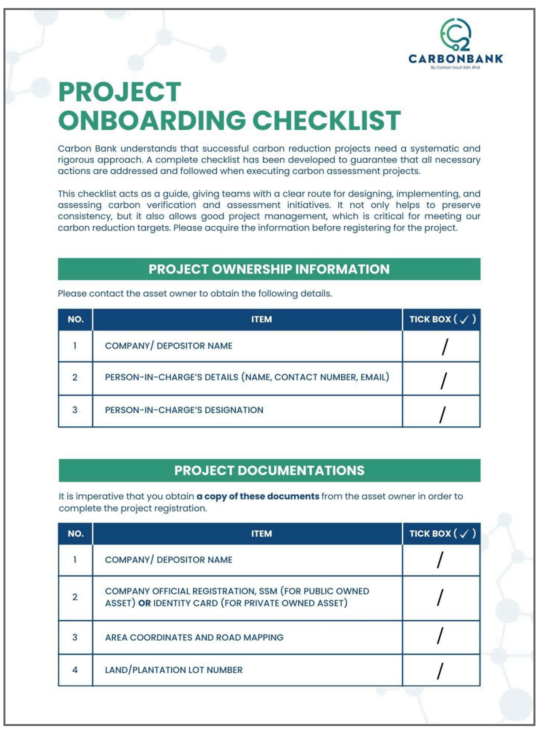
d) The information that was made available to stakeholders during the consultation process:

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
By Carbon Vault Sdn. Bhd.

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
By Carbon Vault Sdn. Bhd.

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/umRYnaZ8PTGwQ56J6* 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 6: Meet and perform a field survey with project participants and stakeholders from Kwang Hup Sdn Bhd.

1.1 Summary of comments received (any issues)

N/A

1.2 Consideration of comments received

N/A

11 Sustainable Development Goals (SDGs)

Demonstrate the project's contribution to the sustainable development goals applicable to the project activities proposed by the project owner using relevant criteria and indicators.

To demonstrate compliance with the SDGs, you should use the Tool for Determining the Contributions of GHG Projects to Achieving the Sustainable Development Goals (SDGs). This tool has been developed by BIOCARBON REGISTRY, and is available at https://biocarbonregistry.com/es_en/ods/.

The following is a particular description of how the MY_JHR_RUBBER_01/24, which includes project activities 1 and 2, contributes to the Sustainable Development Goals (SDGs). The BioCarbon Registry established the Tool for Determining the Contributions of GHG Projects to Achieving the SDGs, which is used for the assessment can be referred from https://biocarbonregistry.com/es_en/ods/.

SDG 8: Decent Work and Economic Growth – Projects contribute to economic growth and employment opportunities.

Criteria and Indicators:

- Gross Domestic Product (GDP) growth to local economic growth.
- Job creation and decent work opportunities

Project's Contribution:

- Establishing job possibilities at various phases, as well as 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 involved in the project.

SDG 13: Climate Action – Projects contribute to climate change mitigation and enhancing carbon sequestration.

Criteria and Indicators:

- Adoption of sustainable forest practices to reduce the carbon footprint.
- Implementation of climate-resilient measures in plantation cultivation

Project's Contribution:

- Implementation of optimal methods for sustainable forest management, minimizing deforestation and fostering carbon sequestration.
- Introducing climate-resilient rubber types and Kelampayan trees to improve 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.

Criteria and Indicators

- Implementation of practices to avoid negative impacts on biodiversity and ecosystems.
- Conservation of natural habitats within and around the plantation.

Project's Contribution

- Strict adherence to optimal management strategies to minimize 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.

Criteria and Indicators

- Collaboration with local communities and stakeholders for sustainable timber and non-timber production.
- Contribution to local economic development and capacity-building.

Project's Contribution

- Conducting open and honest discussions with local communities to address their concerns and collect their input.
- Executing community development endeavors, 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_JHR_RUBBER_01/24 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 reforestation and afforestation. It specifically supports sustainable methods in the timber business, protects biodiversity, and works 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)

N/A

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

If the project intends to achieve one of the special categories, demonstrate that it has defined additional measures for the social and environmental components and explain that it has developed a model of criteria and indicators to monitor and verify compliance.

Demonstrate compliance with the conditions defined for the component(s) that represent additional benefits (biodiversity conservation, community benefits, gender equity and climate change adaptation), consistent with those proposed to be achieved. The categories and conditions required to obtain a special category are described in the BCR Standard.

Explain in detail the model of criteria and indicators that will allow each condition to be monitored and compliance to be demonstrated. The monitoring plan should include a section on measuring and tracking co-benefits.

Co-benefits are the additional benefits that are generated by the project, such as the improvement of the livelihoods, health, education, gender equality, or human rights of the local communities, or the conservation of biodiversity and ecosystem services. The BCR STANDARD recognizes and encourages the generation of co-benefits by the project, and offers the possibility of obtaining a special category for the project, if it meets certain conditions and criteria related to the co-benefits.

MY_JHR_RUBBER_01/24 reforestation and afforestation projects, while primarily focused on mitigating greenhouse gas (GHG) emissions through carbon sequestration, offer one co-benefits that contribute to environmental, social, and economic sustainability.

Community Benefit

Both project activities 1 and 2 provided employment opportunities and supported local economies. This could be achieved by providing training and employment opportunities related to reforestation activities, such as tree planting, maintenance, and monitoring. Sustainable rubber management practices also create long-term benefits for communities through non-timber forest products, and other sustainable uses of forest resources. Furthermore, it also increases awareness about the value of forests in climate change mitigation and environmental protection by developing educational programs that enable communities to actively participate in sustainable land management practices.

Hence, the monitoring plan should include a section on measuring and tracking of co-benefits, which should specify the following information:

- The data and parameters that are required to measure and quantify the co-benefits achieved by the project, and how they will be collected, recorded, and archived.
- The indicators and methods that will be used to demonstrate and verify compliance with the conditions and criteria for the special category, and how they will be calculated, reported, and validated.
- The quality control and quality assurance procedures that will be applied to ensure the reliability and validity of the data and information on co-benefits, and how they will be documented and reviewed.
- The frequency and timing of the monitoring and reporting of co-benefits, and the reporting formats and templates that will be used.

14 Grouped projects (if applicable)

If the project holder proposes to develop a clustered project, it must demonstrate compliance with the conditions applicable to clustered projects, as described in the BCR STANDARD and methodologies.

Describe and fully explain compliance with the conditions applicable to clustered projects.

In the context of the MY_JHR_RUBBER_01/24 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_JHR_RUBBER_01/24 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

N/A

16 Double counting avoidance

Apply the related requirements with the double counting avoidance, considering the requirement that prohibits the accounting, issuance, and retirement of GHG mitigation results.

Provide a complete description of the application of the BCR Tool "Avoiding Double Counting (ADC)" which sets out the principles and requirements for the BCR Program, to avoid double counting of emission reductions or removals.

Double counting of emission reductions or removals occurs when the same emission reduction or removal is claimed or used by more than one entity or for more than one purpose. Double counting can undermine the environmental integrity and effectiveness of the climate actions and the GHG accounting systems, and can reduce the trust and confidence among the stakeholders and the public.

MY_JHR_RUBBER_01/24 implements the measures to prevent double counting, with a focus on the concepts and requirements specified in the BioCarbon Registry's "Avoiding Double Counting (ADC)" tool. The objective is to guarantee that the accounting, issuance, and retirement of GHG reduction outcomes comply with the most rigorous criteria and avoid any occurrences of duplicative counting.

Double Counting Avoidance Requirements:

1. **Prohibition on Accounting**

MY_JHR_RUBBER_01/24 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_JHR_RUBBER_01/24 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_JHR_RUBBER_01/24 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_JHR_RUBBER_01/24 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_JHR_RUBBER_01/24 has designed and explained a monitoring plan that, as required by the BCR Standard and the applied methodology, contains the following:

a) **Project boundary monitoring:** This is the process of measuring and recording the physical and geographical boundaries of the project area, where the GHG emission reductions or removals occur. The project boundary monitoring includes the following:

- The projects use a Global Positioning System (GPS) device and a Google Earth Pro software to map and mark the coordinates and the area of the project boundary, and to update them periodically or whenever there are changes in the land use or cover.
- The projects use drones equipped with cameras and sensors to capture high-resolution images and data to verify and validate the land use or cover types and changes within the project boundary, and to compare them with the baseline scenario.
- The projects use field surveys and ground truthing to collect and confirm the data and information on the land use or cover types and changes within the project boundary, and to calibrate and correct the satellite imagery and aerial photography.

b) **Monitoring of the execution of project activities:** This is the process of tracking and reporting on the progress and outcomes of project activities. It entails assessing and ensuring that the project is moving in accordance with the specified objectives, timelines, and compliance standards. The monitoring of the execution of project activities involves the internal audit, which includes the following:
- The project activities will be reviewed to ensure compliance with relevant laws and regulations related to carbon offset projects. This includes adherence to emissions reduction methodologies, accounting standards, and any other legal requirements.
- Auditors assess whether the project execution aligns with the original plans and objectives. This involves reviewing project documentation, timelines, milestones, and assessing any deviations from the initial project plan.
- The internal audit assesses the effectiveness of risk management processes associated with the carbon offset project. This includes identifying and evaluating risks, as well as reviewing the adequacy of risk mitigation strategies in place.
- The internal audit assesses the robustness of internal controls, tracking financial expenditures, and confirming that carbon offset credits generated are legitimate and verifiable.

c) **Monitoring of the quantification of project emission reduction/removals:** This is the process of estimating and calculating the GHG emission reductions or removals achieved by the project activities, compared to the baseline scenario. The monitoring of the quantification of project emission reduction/removals includes the following:

- The projects use the BCR0001 Quantification of GHG Emission Reductions - GHG Removal Activities, Version 3.2 Methodology, ACM0003 Afforestation and Reforestation (A/R) Large-Scale Consolidated Methodology and the BioCarbon standard, to determine the parameters, equations, and procedures for the quantification of the project emission reduction/removals.

- The projects use the BCR Tool: Monitoring, Reporting and Verification (MRV), which is a spreadsheet that provides a framework and a checklist for the monitoring, reporting, and verification of the project emission reduction/removals, and for the development and implementation of the environmental and social safeguards and mitigation measures[1].

- The projects use the BCR Tool: Risk and Permanence, which is a spreadsheet that defines the step-wise approach for conducting the non-permanence risk analysis to determine the number of buffer credits that the project shall deposit into the AFOLU Pooled Buffer Account[2].

d) **Quality control and quality assurance procedures:** These are the processes of ensuring and verifying the accuracy, completeness, consistency, transparency, and verifiability of the data and information collected and reported by the project, and of the emission reductions or removals estimated and calculated by the project. The quality control and quality assurance procedures include the following:
   - The projects encompass regular monitoring of data collection, emissions measurements, and project implementation to verify that the methodologies employed are consistent with industry standards and best practices.
   - The projects establish and maintain high standards for project documentation by including developing clear and comprehensive protocols for data collection, measurement methodologies, and reporting.
   - The projects involve conducting audits of the entire project process, from data collection to reporting in identifying any systemic issues or gaps in the procedures that may impact the accuracy and reliability of the project outcomes.

e) **Verification of field data:** This is the process of confirming and attesting the validity and reliability of the data and information collected from the field, such as the land use or cover types and changes, the number and type of the trees planted, pruned, thinned, harvested, and replanted. The verification of field data includes the following:

- The projects conduct multiple on-site visits and inspections to validate the physical existence of emission reduction measures or carbon sequestration activities. This may involve inspecting equipment, facilities, or natural ecosystems to confirm that they align with project documentation.
- Scrutinize all relevant project documentation, including monitoring reports, maintenance records, and any other records that support the reported emissions reductions or removals which helps ensure transparency and accountability in the project's operations.
- The projects use an independent and qualified third-party verifier, who is accredited and approved by the BioCarbon Technical Committee, to conduct the verification of the field data, and to issue a verification report and a verification statement.

f) **Review of information processing:** This is the process of checking and evaluating the quality and consistency of the data and information processing, such as the data entry, analysis, calculation, and disclosure, and of the emission reductions or removals estimation and reporting. The review of information processing includes the following:

- The projects use Google Sheets to store, organize, and retrieve the data and information collected and reported by the project, and to ensure the security, integrity, and accessibility of the data and information.
- The project uses a data quality assessment and a data quality control, which include the application of the data quality indicators, such as accuracy, precision, completeness, consistency, transparency, and verifiability, and the data quality procedures, such as calibration, validation, correction, and documentation, to ensure and improve the quality and consistency of the data and information processing.
- The projects utilize Google Forms as a feedback mechanism, which includes soliciting and incorporating project information, data, comments, and suggestions from project participants and stakeholders.

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 is a tool for monitoring, reporting and verification of emissions, reductions and removals from carbon dioxide removal (CDR) projects under Article 6 of the Paris Agreement. The tool provides guidance on how to update existing CDM methodologies to align with the requirements of Article 6.2 and 6.4, as well as the enhanced transparency framework. The tool covers the following aspects of MRV:

- 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.

- Data and additional information to establish the baseline or reference scenario are also specified in the monitoring plan, following the same principles as for the project scenario. The baseline scenario is the hypothetical situation that would have occurred in the absence of the CDR project, and it is determined by applying the baseline approach and procedures defined in the CDM methodology and updated according to the tool.

- Specification of any potential emissions that would occur outside the project boundary as a result of GHG project activities (leakage) are also included in the monitoring plan, following the same principles as for the project and baseline scenarios. Leakage is the net change of anthropogenic emissions by sources of greenhouse gases that occurs outside the project boundary, and that is measurable and attributable to the CDR project. The leakage sources and effects, the methods of estimation, and the leakage deduction factors are defined in the CDM methodology and updated according to the tool.

- Information related to the environmental impact assessment of the GHG project activities are provided in the project design document (PDD), which is the main document that describes the CDR project and its expected outcomes. The PDD includes an analysis of the environmental impacts of the project, such as changes in land use, water quality, biodiversity, and social aspects, and the measures taken to mitigate any negative impacts. The PDD also includes a stakeholder consultation process, where the views and concerns of the affected parties are solicited and addressed.

- 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.

- Description of established procedures for periodic calculation of GHG emission reductions or removals and leakage are also included in the PDD and the monitoring plan. The procedures 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.

- The assignment of roles and responsibilities for monitoring and reporting of variables relevant to the calculation of GHG emission reductions or removals are also specified in the PDD and the monitoring plan. The roles and responsibilities include the project participants, the designated operational entities (DOEs), the host country, the buyer country, and the supervisory body. The DOEs are independent entities accredited by the CMA to validate and verify the CDR projects and their outcomes. The host country is the country where the CDR project is implemented, and the buyer country is the country that acquires the ITMOs from the host country. The supervisory body is the body established by the CMA to oversee the implementation of Article 6.4.

- Procedures for assessing the project's contribution to the Sustainable Development Goals (SDGs) are also provided in the PDD and the monitoring plan, following the guidance of the SDG Tool. The SDG Tool is a tool that provides a standardized template to clearly and transparently monitor SDG impact alongside carbon reductions, making the process more efficient and minimizing the cost of MRV. The SDG Tool helps the project participants to identify the relevant SDGs, set the SDG indicators and targets, collect and report the SDG data, and verify the SDG outcomes.

- Criteria and indicators related to the project's contribution to sustainable development goals, applicable to the project activities proposed by the project holder, are also defined in the PDD and the monitoring plan, following the guidance of the SDG Tool1. The criteria and indicators are based on the 17 SDGs and their 169 targets, as well as the national and local priorities and circumstances. The criteria and indicators are specific, measurable, achievable, relevant, and time-bound, and they reflect the positive and negative impacts of the project on the SDGs.

- 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. Co-benefits are the additional benefits of the CDR project that are not directly related to GHG emission reductions or removals, such as improved livelihoods, health, education, gender equality, and biodiversity. Special category monitoring is the monitoring of specific aspects of the CDR project that require special attention, such as permanence, reversibility, uncertainty, and risk. The procedures include the identification, quantification, verification, and reporting of the co-benefits and the special category aspects.

- The criteria and indicators established to demonstrate the additional co-benefits and the measurement of co-benefits and the special category, when applicable, are also specified in the PDD and the monitoring plan, following the guidance of the CDM methodologies and the tool. The criteria and indicators are based on the best available data and methods, and they reflect the expected outcomes and impacts 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 harmonized, 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.