Organization Name: *Carbon Solution (Thailand) Limited Partnership*

Address/Location of the organization: *No. 199, Village No. 13, Samrong Mai Subdistrict, Lahan Sai District, Buriram Province*

Reporting date: *June 30, 2025*

The follow-up period: *Is between January 1, 2024 and December 31, 2024.*

For the verification and certification of the organization's carbon footprint results

By ETM Group Co., Ltd.

Carbon Footprint for Organization (CFO) Report

Carbon Capture and Greenhouse Gas Emission Reduction Project in Rubber Plantations in Buriram Province Using Cryptocurrency, Blockchain, and Satellite Technology

1. Introduction

Organization/Project Name Carbon Solution (Thailand) Limited Partnership, as the operator of the Carbon Capture and Greenhouse Gas Emission Reduction Project in Rubber Plantations, Buriram Province, using Cryptocurrency, Blockchain and Satellite technologies (Group 01/BR01S1)

Project office location No. 199, Village No. 13, Samrong Mai Subdistrict, Lahan Sai District, Buriram Province

CFO reporting

(1) To demonstrate environmental responsibility and the project's impact on climate change.
(2) To identify the main sources of greenhouse gas emissions from project operations.
(3) To plan and determine effective measures to reduce greenhouse gas emissions
(4) To align with stakeholder requirements and expectations, including preparation for the assessment and issuance of Carbon Credit Tokens.

Scope of the organization/related activities This project focuses on carbon sequestration and greenhouse gas emission reduction in rubber plantations in Buriram Province, utilizing cryptocurrency, blockchain , and satellite technologies to enhance efficiency and transparency in tracking and reporting processes. Activities cover everything from rubber plantation management , transportation , and office energy use.

Overall project information

- Samrong Mai Subdistrict
- Number of members participating in the project : 131
- Total area 1936.15 rai
- Total number of rubber trees 151,032 Trees (average 78 trees/rai)
- The average age of rubber trees is 17 years.
- Total rubber production per year is 1,161.69 tons (average 0.6 tons/rai/year)

The reference standard is ISO 14064-1:2018 or Greenhouse Gas (GHG) Protocol Corporate Standard.

Reporting Period : 1 January 2024 - 31 December 2024

2. Organizational Boundary Definition

Methodology used To define the organizational scope for this CFO report , the following method will be used: **Operational Control Approach** As the organization has full authority to make decisions and implement operational policies in the project activities, it is appropriate for projects with direct operational control.

Agencies/activities included in the scope

(1) Project Office, Carbon Solution (Thailand) Limited Partnership, located at 199 Moo 13, Samrong Mai Subdistrict, Lahansai District, Buriram Province.
(2) Field teams working in rubber plantations average 100 rai per case.

(3) Rubber plantations under the management and control of the project (total area 1936.15 rai)

(4) Primary processing plants owned or controlled by the project/ ***None*** (Only 2 private "purchasing points" in the area that have no direct relationship with the project owner)

3. Operational Boundary Definition

Classification of greenhouse gas emission sources into Scope 1, Scope 2, and Scope 3 according to the GHG Protocol or ISO 14064-1 guidelines.

3.1 *Scope 1* Direct Greenhouse Gas Emissions

Greenhouse gas emissions from sources owned or controlled by the organization

Burning of fuels from stationary sources

☒ Fuel use in backup generators for offices/ ***do not have***

☒ Fuel use in the rubber oven (if available in the primary processing plant under the project control)/ ***No*** (because the primary processing plant is not under direct control)

Mobile fuel combustion

☒ Fuel use in the organization's vehicles, such as cars for travel by officials , motorcycles for field teams , tractors for preparing areas or maintaining rubber plantations , trucks for transporting production factors or rubber products / ***none***

☑ **Available information** Diesel (tractor - preparation) 15,489.16 liters , vehicle fuel (travel) 19,361.45 liters

Agricultural emissions

☒ Gas emissions N2O Directly from the soil after nitrogen fertilizer application in rubber plantations under the project management control (must be calculated according to IPCC guidelines) / ***None***

☑ **Available information** NPK chemical fertilizer 151,019.31 kilograms

Refrigerant leak

☒ Leakage of refrigerant from air conditioner in office/ ***do not have***

3.2 *Scope 2* Indirect GHG Emissions from Imported Energy

Greenhouse gas emissions from the production of energy purchased and used by the organization

Electricity use

☑ Electricity usage in the office averages 950 baht per month or 11,400 baht per year.

☒ Employee accommodation/ ***do not have***

Use of steam/heat/cooling (If there is an external purchase)/ ***do not have***

3.3 *Scope 3* Other Indirect GHG Emissions

Greenhouse gas emissions that arise from the organization's activities but are controlled by other sources

Business travel

☑ Travel by personal vehicle of employees who claim expenses for project activities/ approximately 30,000 baht

Upstream/downstream transportation of goods and services

☒ Transportation of production factors to rubber plantations/ ***There is no clear information.***

☒ Transportation of finished rubber products (cup lump rubber) from the rubber purchasing point to the customer or distribution point/ ***There is no clear information.***

Production of purchased production factors

☒ Greenhouse gas emissions from the production of fertilizers, chemicals (such as formic acid), and various materials and equipment used in the project.

☑ **Available information** Chemical fertilizer NPK 151,019.31 kilograms, formic acid 92,934.96 cc.

Operational waste management

☒ Greenhouse gas emissions resulting from wastewater treatment or waste management of the organization/ ***Not related***

Employee travel to and from work/ *No substance*

Customer Journey / *Not related to the project*

4. Data Collection and Calculation Methodology

4.1 Data sources

Primary Data

- Record fuel usage of vehicles/machines (quantity , fuel type)
- Office electricity bill
- Record of purchase and use of fertilizer/chemicals (type, quantity , frequency)
- Record of employee travel expense reimbursement

The role of Blockchain It is used to record the use of production factors , energy consumption , and transportation in a transparent and verifiable manner to ensure the accuracy of " Activity Data". The data recorded on the Blockchain will serve as reliable evidence for CFO calculations.

The role of satellites It is used to verify planting areas , land use change (for land change emissions/absorption assessments where applicable) , and to monitor plant health that may impact carbon sequestration assessments. Satellite data can support some activity data.

Secondary Data

Emission Factors Refer to accepted databases such as the Greenhouse Gas Management Organization (TGO) for Thailand's Emission Factor , IPCC Guidelines for agriculture and energy use , or the Eco invent database . For production factors and services

Warming Potential (GWP) Refer to IPCC reports (e.g. IPCC AR5 or the latest version).

4.2 Calculation method

The basic calculation principle is:

emissions (kg CO2e) = Activity Data × Emission Factor × GWP

Emission Factors and GWP Assumptions (for calculation purposes)

(1) **Diesel** 2.68 kg CO2 / liter (CO2), 0.0000039 kg CH4 / liter (CH4), 0.0000002 kg N2O / liter (N2O)
(2) **Chemical fertilizer NPK** 1.5 kg CO2e /kg (including production and emissions) N2O From the soil)
(3) **Gasoline** 2.31 kg CO2 / liter (CO2), 0.0000030 kg CH4 / liter (CH4), 0.0000002 kg N2O / liter (N2O)
(4) **Formic acid** 0.8 kg CO2e /kg (for production)
(5) **Electricity (from grid)** 0.5 kg CO2 e /kWh (average from TGO Grid EF)
(6) **GWP (IPCC AR5)** CO2 = 1, CH4 = 28, N2 O = 265

Additional assumptions

- **The average electricity price in Thailand** is 4 baht/ kWh (to convert electricity costs to kWh).
- **The average price of gasoline is** 30 baht/liter (to convert travel expenses into fuel volume)
- **Formic acid density** 1.22 g/cc

5. Corporate Carbon Footprint Results (CFO Results)

5.1 Greenhouse gas emissions from operations

Scope 1 (Direct GHG Emissions)

1.1 Use of diesel fuel (tractor - plot preparation)

- Diesel volume 15,489.16 liters
- GHG Emission = 15,489.16 × (2.68 + 0.0000039 × 28 + 0.0000002 × 265) = **41,494.46 kg** CO2e

1.2 Emissions from agriculture (N2O from fertilizers)

- NPK chemical fertilizer 151,019.31 kilograms
- ***Note: The EF*** *value of 1.5 kg* CO2 e */kg of fertilizer previously used includes both fertilizer production (Scope 3) and emissions.* N2O *From the soil (Scope 1) already in order to separate the Scope more clearly, for Scope 1 only the release will be considered.* N2O *Directly from the soil*
- *Release* ***assumptions*** N2O *Directly from the soil (IPCC Tier 1) approximately 1% of the N applied if the NPK fertilizer contains 15% N assuming NPK 15-15-15).*
- Amount of N in fertilizer = 151,019.31 kg × 0.15 = 22,652.90 kg N
- N2 O Emission = 22,652.90 kg N × 0.01 kg N2 O /kg N = 226.53 kg N2O
- GHG Emission (N2O) = 226.53 kg N2 O × 265 GWP = **60,030.45 kg** CO2e

Scope 1 included 41,494.46 + 60,030.45 = **101,524.91 kg** CO2e

Scope 2 (Indirect GHG Emissions from Imported Energy)

2.1 Electricity use in the office

- Annual electricity costs: 11,400 baht
- Amount of electricity used (assuming price 4 baht/ kWh) 11,400 baht / 4 baht/ kWh = 2,850 kWh
- GHG Emission = 2,850 kWh × 0.5 kg CO2e /kWh = **1,425.00 kg** CO2e

Scope 2 included **1,425.00 kg** CO2e

Scope 3 (Other Indirect GHG Emissions)

3.1 Business travel (personal car with reimbursement)

- Travel expenses: 30,000 baht
- Oil volume (assuming the price of gasoline is 30 baht/liter) 30,000 baht / 30 baht/liter = 1,000 liters
- GHG Emission = 1,000 × (2.31 + 0.0000030 × 28 + 0.0000002 × 265) = **2,311.63 kg** CO2e

3.2 Production of production factors (NPK chemical fertilizers)

- Fertilizer quantity 151,019.31 kilograms
- ***Assumptions:*** *Emissions from chemical fertilizer production (excluding soil emissions) use an EF of 1.0 kg* CO2e */kg fertilizer (estimated from the range of 1.5 - 2.5 including soil emissions).*
- GHG Emission = 151,019.31 kg × 1.0 kg CO2 e /kg = **151,019.31 kg** CO2e

3.3 Production of production factors (Formic acid)

- Formic acid content 92,934.96 cc (converted to 113.38 kg)
- GHG Emission = 113.38 kg × 0.8 kg CO2 e /kg = **90.70 kg** CO2e

Scope 3 included 2,311.63 + 151,019.31 + 90.70 = **153,421.64 kg** CO2e

Total GHG Emissions

Scope 1 + Scope 2 + Scope 3 = 101,524.91 + 1,425.00 + 153,421.64 = **256,371.55 kg** CO2e or approximately **256.37 tons** CO2e

5.2 Greenhouse Gas Removals (GHG Removals)

fee CO2 **Stolen (from Above Ground Biomass - ABG) Total** 31,650 ton CO2 (for an area of 1,936.15 rai)

5.3 Net Carbon Footprint of the Organization (Net CFO)

Net CFO = GHG emissions - GHG absorption

Net CFO = 256.37 tons CO2e - 31,650 ton CO2 = **-31,393.63 tons** CO2e

The negative results indicate that the project has a significantly higher net carbon sequestration potential than its operational greenhouse gas emissions.

5.4 Distribution of results by Scope

Scope	Emission (kg CO2e)	Proportion (%)
Scope 1	101,524.91	39.60
Scope 2	1,425.00	0.56
Scope 3	153,421.64	59.84
Total	**256,371.55**	**100.00**

5.5 Distribution of results by main emission source (Hotspot Analysis)

From the calculation results

(1) Production of NPK chemical fertilizers (Scope 3) It is the largest source of GHG emissions , accounting for approximately 58.9% of total emissions (151,019.31 kg CO2e).
(2) Release N2O **From fertilizer (Scope 1)** It is the second most important emission source, accounting for approximately 23.4% (60,030.45 kg CO2e).
(3) Diesel Fuel Use (Tractors - Scope 1) It accounts for approximately 16.2% (41,494.46 kg CO2e).
(4) Business travel (Scope 3) It accounts for approximately 0.9% (2,311.63 kg CO2e).
(5) Electricity use in the office (Scope 2) It is approximately 0.6% (1,425.00 kg CO2e).
(6) Formic acid production (Scope 3) It accounts for approximately 0.04% (90.70 kg CO2e).

This analysis indicates that **Production and use of chemical fertilizers, including the use of fuel in agricultural machinery** It remains a key hot spot that should be prioritized in reducing GHG emissions.

6. Interpretation of results and recommendations

6.1 Analysis of results

- The CFO assessment results show that greenhouse gas emissions from the organization's operations are approximately **256.37 tons** CO2e the main emission sources are Scope 3 (factor production) and Scope 1 (agricultural emissions and fuel use).

- However, the project has the potential to absorb carbon from rubber trees planted in an area of 1,936.15 rai as high as **31,650 ton** CO2 Which results in The **company's Net CFO was significantly negative (- 31,393.63 tons.** CO2e) This indicates that the project contributes significantly to the net reduction of greenhouse gases in the atmosphere and is a project with a positive environmental impact.

- GHG emissions are the production and use of chemical fertilizers, as well as the use of fuel in agricultural machinery, which are important activities in the cultivation and maintenance of rubber plantations.

6.2 Recommendations for reducing greenhouse gas emissions

- **For Scope 1 (direct release)**

(1) Fertilizer management Promote the use of organic fertilizers , biological fertilizers , or slow-release fertilizers to reduce emissions. N2O Directly from the soil, improve fertilization techniques to achieve maximum efficiency according to the needs of the plants (e.g., spot fertilization).

(2) Fuel consumption Maintain agricultural machinery (tractors) and vehicles for maximum fuel efficiency. Plan work and transportation routes appropriately to reduce distance and fuel consumption. Consider the use of alternative energy sources such as electric power for small machinery or future vehicles.

- **For Scope 2 (Purchased Energy Use)**

Electricity use Consider installing solar panels in the office , switching to high-efficiency electrical appliances (e.g. LED bulbs, energy-saving air conditioners), and promoting energy-saving campaigns in the office.

- **For Scope 3 (Other indirect emissions)**

(1) Business travel Promote online meetings to reduce travel frequency , plan your journeys efficiently , and consider using shared transportation or public transportation if appropriate.

(2) Production of production factors Consider purchasing fertilizers and chemicals from suppliers with environmentally friendly manufacturing processes and a low carbon footprint .

- **Increasing carbon sequestration efficiency**

(1) Maintain and promote the growth of rubber trees in the project area.
(2) Consider rubber plantation management approaches that increase soil carbon sequestration (e.g. crop residue management, organic fertilizer use).

6.3 The role of Cryptocurrency in supporting the goals

☑ The CFO assessment results showing the project's high net carbon absorption potential (Net CFO is negative) provide a strong foundation for development. **Carbon Credit Tokens**

☑ The use of Cryptocurrency or Carbon Credit Tokens can provide financial incentives for farmers and stakeholders to undertake activities that reduce GHG emissions and increase carbon sequestration.

☑ The transparency of the data recorded via blockchain and satellite verification will help these Carbon Credit Tokens gain credibility and acceptance in the carbon market.

7. Conclusion

☑ *A carbon capture and greenhouse gas emission reduction project in a rubber plantation in Buriram Province, using cryptocurrency, blockchain, and satellite technologies, has achieved a preliminary Carbon Footprint for Organization (CFO) assessment that demonstrates a remarkable net carbon sequestration potential of -31,115.63 tons. CO2e Despite the greenhouse gas emissions from operations, particularly from fertilizer production and use, as well as fuel use, the carbon sequestration by rubber trees significantly offsets and exceeds these emissions.*

☑ *The organization is committed to reducing greenhouse gas emissions and sustainable development, implementing recommendations to reduce emissions from various sources and maintaining carbon sequestration potential. The use of blockchain, satellite, and*

cryptocurrency technologies will be key mechanisms to drive the project's environmental goals , increase transparency , and create added value for farmers and the environment.

Appendices

- Activity Data Details Table (Activity Data) collected
- Greenhouse gas emission factor table used in calculations
- Global Warming Potential (GWP) values table
- System Boundary Diagram (if any)
- References and bibliography

Appendix 1

Activity Data Details Table (Activity Data) collected

This table compiles the Activity Data used to calculate the Carbon Footprint for Organization (CFO) of Carbon Solution (Thailand) Limited Partnership for the Carbon Capture and Greenhouse Gas Emission Reduction Project in a Rubber Plantation in Buriram Province using Cryptocurrency, Blockchain and Satellite technologies in the reporting year 2024.

Overall project information

Organization/Project Name Carbon Solution (Thailand) Limited Partnership

Project office location No. 199, Village No. 13, Samrong Mai Subdistrict, Lahan Sai District, Buriram Province

Number of members participating in the project : 131

Total area 1936.15 rai

Total number of rubber trees: 151,019 trees

Total rubber production per year is 1,161.69 tons (cup lump rubber)

Reporting year 2024

Activity Data Summary Table for CFO

number	Scope	activity	unit	Total volume (per year)	Sources / Notes
1	Scope 1	Diesel (Tractor - Prepare the plot)	liter	15,489.16	From the file "T-Activities.csv"
2	Scope 1	*NPK* chemical fertilizer (use per plant)	kg	151,019.31	From the file "T-Activities.csv" (calculated from 1 kg./tree/year)
3	Scope 1	Car fuel (travel)	liter	19,361.45	From the file "T-Activities.csv"
4	Scope 1	Refrigerant leakage from air conditioners in offices	do not have	0	do not have
5	Scope 1	Fuel use in office backup generators	do not have	0	do not have

6	Scope 2	Electricity use in the office	baht	11,400.00	Average 950 baht/month or 11,400 baht/year
7	Scope 3	Business travel (personal car with reimbursement)	baht	30,000.00	The cost is approximately 30,000 baht/year.
8	Scope 3	Production of NPK chemical fertilizers	kg	151,019.31	The amount of fertilizer purchased for use in the project
9	Scope 3	Formic acid production	CC	92,934.96	formic acid used in processing
10	Scope 3	Transportation of production factors to rubber plantations	do not have	0	There is no clear information.
11	Scope 3	Transportation of finished rubber products (cup lumps) from rubber purchasing points to customers or distribution points	do not have	0	There is no clear information.
12	Scope 3	Operational waste management (wastewater/garbage)	do not have	0	Not related
13	Scope 3	Employee travel to and from work	do not have	0	No substance
14	Scope 3	Customer Journey	do not have	0	Not related to the project
15	GHG Removals	Retained (from Above Ground Biomass - ABG)	Tons of CO2	31,372.00	Carbon sequestration data of rubber trees in the project area

Appendix 2

Greenhouse gas emission factor table used in calculations

This table shows the Emission Factors (EFs) and Global Warming Potential (GWP) values used to calculate the Carbon Footprint for Organization (CFO) of Carbon Solution (Thailand) Limited Partnership for the Carbon Capture and Mitigation Project in the rubber plantation, Buriram Province, in the reporting year 2024.

The importance of calculation

(1) Emission Factors presented in this table are: General assumptions and reference values For the purpose of illustrating calculations and understanding

(2) For the preparation of authentic and certified CFO reports It is essential to use official and certified Emission Factors values from reliable sources. For example, the Thailand Greenhouse Gas Management Organization (TGO) for Thailand , IPCC Guidelines, or the international Life Cycle Inventory (LCI) database (e.g. Ecoinvent) that is appropriate to the context of the activity and region.

(3) GWP values are based on the latest relevant version of the IPCC Assessment Report (AR).

Greenhouse gas emission factors (Emission Factors) and global warming potential (GWP) values

Main activities	Greenhouse gases (GHG)	Emission Factor (EF)	EF unit	Source	GWP (IPCC AR5)
Fuel consumption					
Diesel (Combustion)	CO2	2.68	kg CO2 / liter	TGO/IPCC	1
	CH4	0.0000039	kg CH4 / liter	IPCC	28
	N2O	0.0000002	kg N2 O / liter	IPCC	265
Gasoline (combustion)	CO2	2.31	kg CO2 / liter	TGO/IPCC	1
	CH4	0.0000030	kg CH4 / liter	IPCC	28
	N2O	0.0000002	kg N2 O / liter	IPCC	265
Use of NPK chemical fertilizers					

Chemical fertilizer production	CO2e	1.0	kg CO2 e /kg fertilizer	Ecoinvent /Agri-footprint	1 (included in CO2e)
N2 O emissions from soil (direct/indirect)	N2O	0.01	kg N2 O /kg N	IPCC Guidelines (Tier 1)	265
Use of chemicals					
Formic acid (production)	CO2e	0.8	kg CO2 e /kg acid	Ecoinvent /Generic	1 (included in CO2e)
Electricity use					
Electricity (from the power grid)	CO2e	0.5	kg CO2 e /kWh	TGO (Average Grid EF)	1 (included in CO2e)
Waste management					
Organic waste (decomposition)	CH4	0.05 - 0.15	kg CH4 / kg waste	IPCC/TGO	28

Further explanation

(4) Emission Factor (EF) It is a value used to convert activity data into the amount of greenhouse gas emissions.

(5) Global Warming Potential (GWP) It is a value used to convert various greenhouse gases (such as CH4, N2O) into carbon dioxide equivalent units (CO2e) so that the impact of all gases can be combined.

(6) Calculation from EF that is CO2e For some activities, such as fertilizer or electricity production, EF is often already reported in terms of CO2e , meaning that the impacts of multiple greenhouse gases have already been included and converted to CO2e , eliminating the need to multiply by GWP .

Appendix 3

Global Warming Potential (GWP) values table

the Global Warming Potential (GWP) values of the main greenhouse gases considered in the Carbon Footprint for Organization (CFO) assessment of Carbon Solution (Thailand) Limited Partnership for the Carbon Capture and Mitigation Project in a Rubber Plantation, Buriram Province, in the reporting year 2024.

Note The GWP values presented in this table are based on the IPCC (Intergovernmental Panel on Climate Change) Assessment Report 5 (AR5), which is a commonly used value for calculating carbon footprints.

Global Warming Potential (GWP) values table (referring to IPCC AR5 - 100 years)

Greenhouse gases (GHG)	chemical formula	Global Warming Potential (GWP) (100 years)
carbon dioxide	CO2	1
methane	CH4	28
nitrous oxide	N2O	265

Description

(1) Global Warming Potential (GWP) It measures how much a particular greenhouse gas contributes to global warming compared to carbon dioxide (CO2) over a given time period (usually 100 years).

(2) Carbon dioxide (CO2) It is used as a reference gas and therefore has a GWP value of 1.

(3) Methane (CH4) It has a global warming potential 28 times higher than CO2 over a 100 - year period.

(4) Nitrous oxide (N2O**)** It has a global warming potential 265 times greater than CO2 over a 100 - year period.

Using these GWP values allows the impacts of multiple greenhouse gases to be combined into a single unit, " carbon dioxide equivalent " (CO2e) , which is the standard for reporting carbon footprints .

Appendix 4

System Boundary Diagram

System Boundary Diagram provides an overview of the organizational and operational scope of Carbon Solution (Thailand) Limited Partnership for calculating Carbon Footprint for Organization (CFO) classified by Scope 1, Scope 2 and Scope 3 , including greenhouse gas absorption.

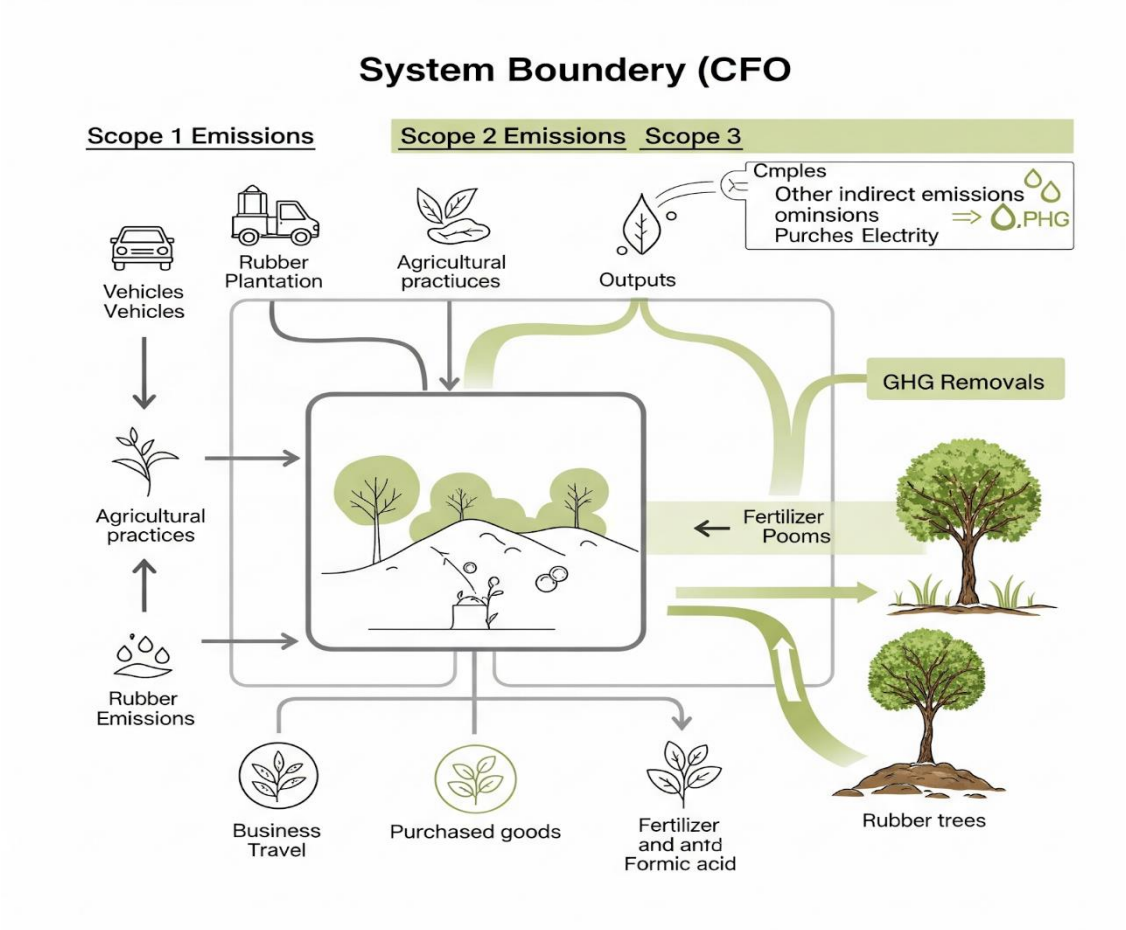

Figure 1 shows a System Boundary Diagram .

From Figure 1 shows

(1) Scope 1 Direct emissions from vehicles and agricultural activities
(2) Scope 2 Indirect emissions from purchased electricity use
(3) Scope 3 Other indirect emissions from business travel and production of inputs (fertilizers and formic acid)
(4) GHG Removals Carbon absorption by rubber trees

Description of the system boundary diagram (Conceptual Diagram)

The system overview shows "Carbon Solution (Thailand) Limited Partnership" as the center, which is the main operator of the project.

1. Organizational Boundary

Carbon Solution (Thailand) Limited Partnership (Operations Controller)

- Office (No. 199 Village No. 13, Samrong Mai Subdistrict, Lahansai District, Buriram Province)
- Field team (average 100 rai/ 1 case)
- Rubber plantations under management and control (total area 1936.15 rai)

2. Operational Boundary - Classification according to GHG Protocol/ISO 14064-1

Scope 1 Direct GHG Emissions

Release source

- **Mobile fuel combustion**
  - Tractor (diesel) used for preparing the plot and taking care of the garden.
  - Cars/motorcycles (gasoline) used for travel by field teams
- **Agricultural emissions**
  - Soil in rubber plantations, direct N2O emission from *NPK* chemical fertilizer application

Scope 2 Indirect GHG Emissions from Imported Energy

Release source

- **Electricity use**
  - Office of electricity usage purchased from the grid

Scope 3 Other Indirect GHG Emissions

Release source

- **Business travel**
  - Employees' personal vehicles, travel for project business (expense reimbursement)
- **Production of purchased production factors**
  - NPK chemical fertilizers, GHG emissions from the production process of fertilizers purchased for use in rubber plantations
  - Formic acid GHG emissions from the formic acid production process are purchased for use in primary processing.
- **Activities not included in the scope (due to lack of information/irrelevance)**
  - Refrigerant leak in the office
  - Using a backup generator for the office
  - Fuel use in rubber ovens (primary processing plants)
  - Use of steam/heat/cooling purchased from outside
  - Transportation of production factors to rubber plantations (no clear information)
  - Transportation of finished rubber products (cup lumps) from rubber purchasing points to customers or distribution points (no clear information)
  - Operational waste management (wastewater/garbage)

- Employee travel to and from work
- Customer Journey

3. Greenhouse gas absorption (GHG Removals)

Reabsorption source

- **Carbon sequestration in above ground biomass (ABG) of rubber trees** CO2 absorption from the atmosphere by rubber trees in the project area

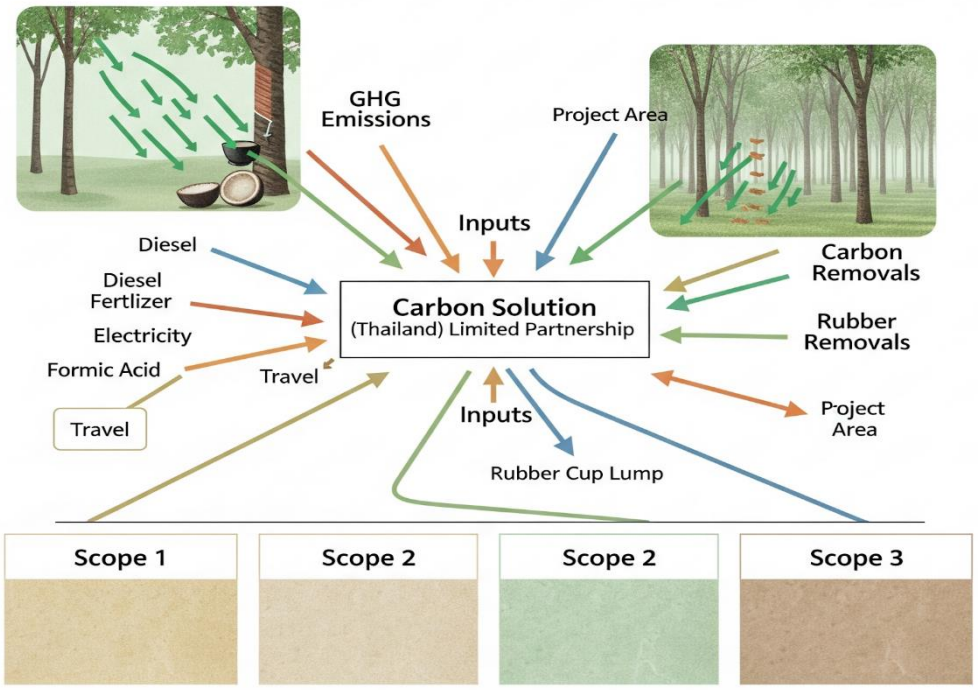

Figure 2 shows the main box diagram of "Carbon Solution (Thailand) Limited Partnership".

From the conceptual illustration of the diagram

The diagram shows a main box representing "Carbon Solution (Thailand) Limited Partnership" with arrows pointing in and out of this box.

(1) Input arrows Instead of production factors and energy used (such as diesel, fertilizer, electricity, formic acid, travel)

(2) Output arrows Instead of releasing greenhouse gases (GHG Emissions) that occur from various activities and the project's products (cup lump rubber).

(3) Separate box for each Scope Clearly demonstrate activities under Scope 1, Scope 2, and Scope 3.

(4) Carbon absorption It is shown as an arrow pointing out of the atmosphere towards the rubber trees in the project area.

Appendix 5

References and bibliography

References and data sources used in preparing the Carbon Footprint for Organization (CFO) report for the Carbon Capture and Greenhouse Gas Emission Reduction Project in Rubber Plantations, Buriram Province, using Cryptocurrency, Blockchain and Satellite technologies.

1. International standards and practices

- **International Organization for Standardization (ISO)** ISO 14064-1:2018, *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*
- **International Organization for Standardization (ISO)** ISO 14040:2006, *Environmental management – Life cycle assessment – Principles and framework*
- **International Organization for Standardization (ISO)** ISO 14044:2006, *Environmental management – Life cycle assessment – Requirements and guidelines*
- **Greenhouse Gas Protocol (GHG Protocol)** *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition).* World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD)
- **Intergovernmental Panel on Climate Change (IPCC)** *IPCC Guidelines for National Greenhouse Gas Inventories* (various editions, eg, 2006 IPCC Guidelines, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories)
- **Intergovernmental Panel on Climate Change (IPCC)** *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC AR5)* [Note: For reporting, the most recent relevant IPCC report, such as AR6, should be used if available.]

2. Data sources for emission factors and databases

- **Gas Management Organization** (TGO) Thailand Greenhouse Gas Emission Database (for Emission Factors specific to the Thai context, such as Grid Emission Factor for electricity)
- **Ecoinvent** (A global Life Cycle Inventory database for manufacturing processes and materials such as fertilizers and chemicals)
- **Agri-footprint** (Life Cycle Inventory database specifically for the agricultural sector)
- **Hypothetical data** Some of the Emission Factors used in the preliminary calculations are estimates from general sources and industry averages, as project-specific data are not available.

3. Concepts and technologies related to the project

- **Blockchain Technology** Principles and concepts of using distributed ledger technology for transparent, traceable and immutable (Immutable and Traceable) recording of environmental activity data.
- **Satellite Remote Sensing** Principles and concepts regarding the use of satellite imagery and vegetation indices (such as NDVI) to monitor plant health, land use change, biomass estimation, and carbon sequestration assessments.
- **Cryptocurrency and Carbon Credit Tokenization** Principles and concepts regarding the application of blockchain technology and cryptocurrencies to create and trade

Carbon Credit Tokens to create financial incentives for greenhouse gas reduction and sequestration.

4. Project specific information

- **Calculating the Carbon Footprint of Corporate CFO Products.docx** CFO report structure document received from users
- **Database for calculating CFP values.xlsx - T-Activities.csv** Activity data collected from the project, which is used as Activity Data in some CFO calculations .
- **Carbon sequestration and greenhouse gas emission reduction project data in rubber plantations in Buriram Province** Project specific information such as group name , sub-district , number of members , area , production , rubber tree data (number of trees , DBH, height , age) , Above Ground Biomass (ABG) value , and CO2 sequestration value.
- **More information** Office address details , electricity usage information , business travel expenses , and confirmation of the status of various emission sources.