

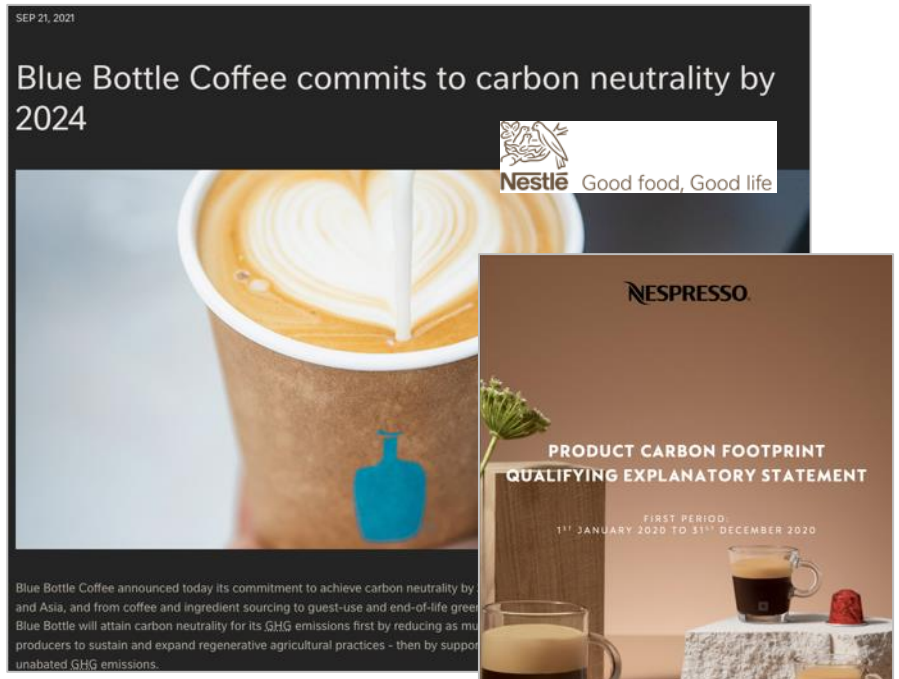
Addressing the Carbon Footprint of Coffee Production

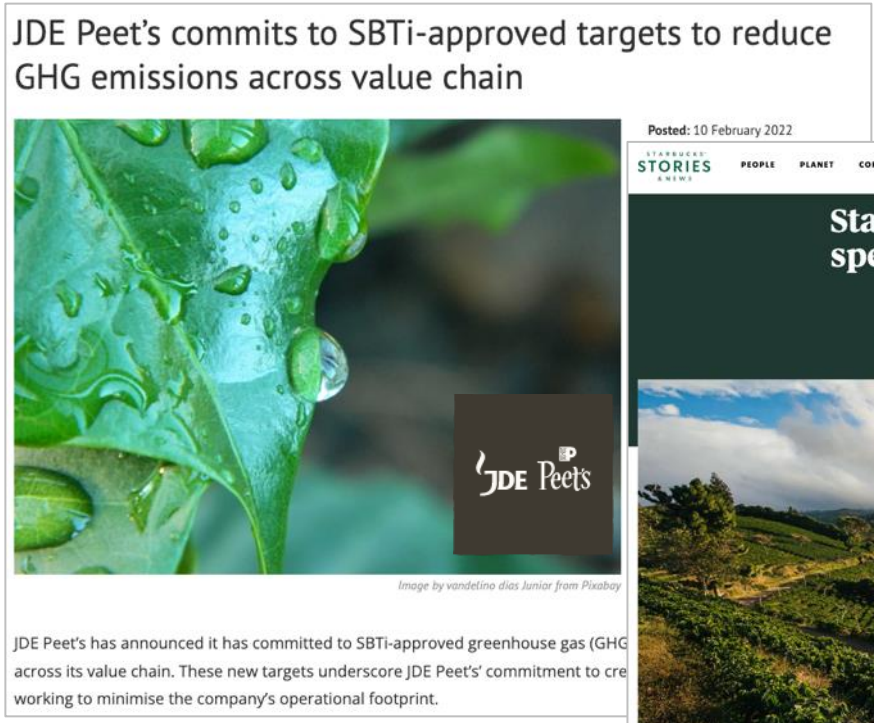
Session: The Way Forward with Innovative Solutions

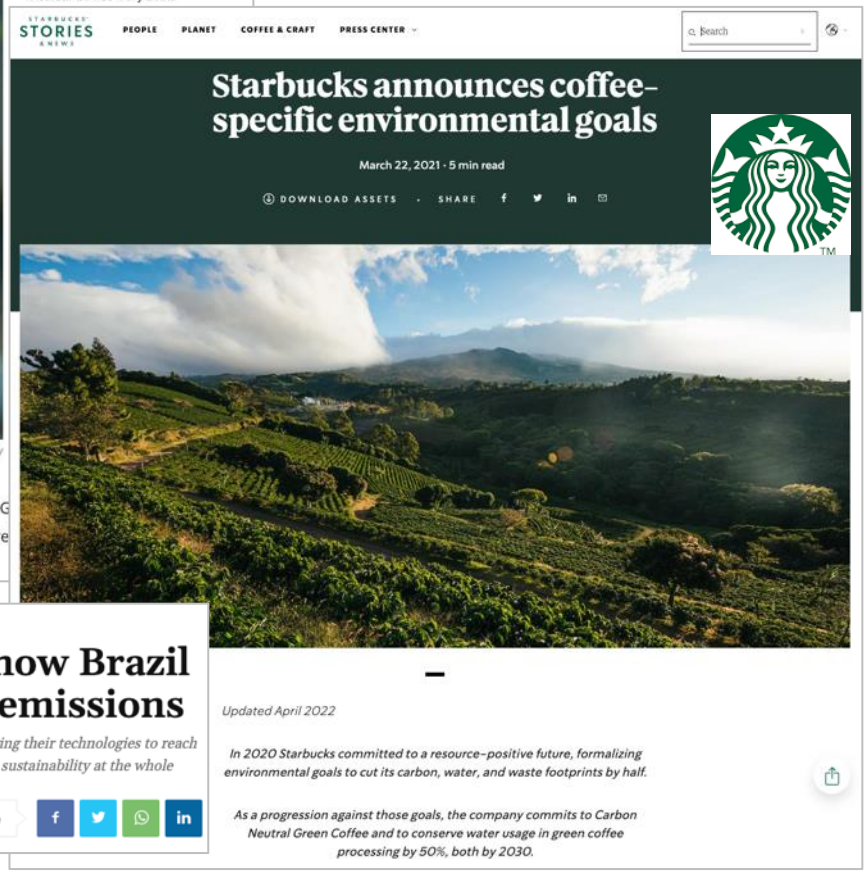
Dr Jan Henke, Meo Carbon Solutions

31st August 2023, 4C Regional Stakeholder Conference

Commitments of final buyers on carbon reductions in coffee production are one reason why calculating coffee carbon footprints become important







Source: https://nestle-nespresso.com/sites/site.prod.nestle-nespresso.com/files/Nespresso-Product-Carbon-Footprint-Qualifying-Explanatory-Statement-9Sep2021.pdf; https://www.nestle.com/media/news/blue-bottle-coffee-carbon-neutrality-commitment; https://www.teaandcoffee.net/news/28823/jde-peets-commits-to-sbti-approved-targets-to-reduce-ghg-emissions-across-value-chain/; https://www.comunicaffe.com/sustainable-coffee-the-reduction-of-greenhouse-gas-emissions/; https://stories.starbucks.com/stories/2021/starbucks-announces-coffee-specific-environmental-goals/; https://www.ldc.com/sustainability/protecting-environment/climate-change/;

MCS has developed **GHG calculators for a large number of agricultural products**, waste/residues and downstream supply chains

Corn

Coffee

Selection

Municipal solid waste

Palm

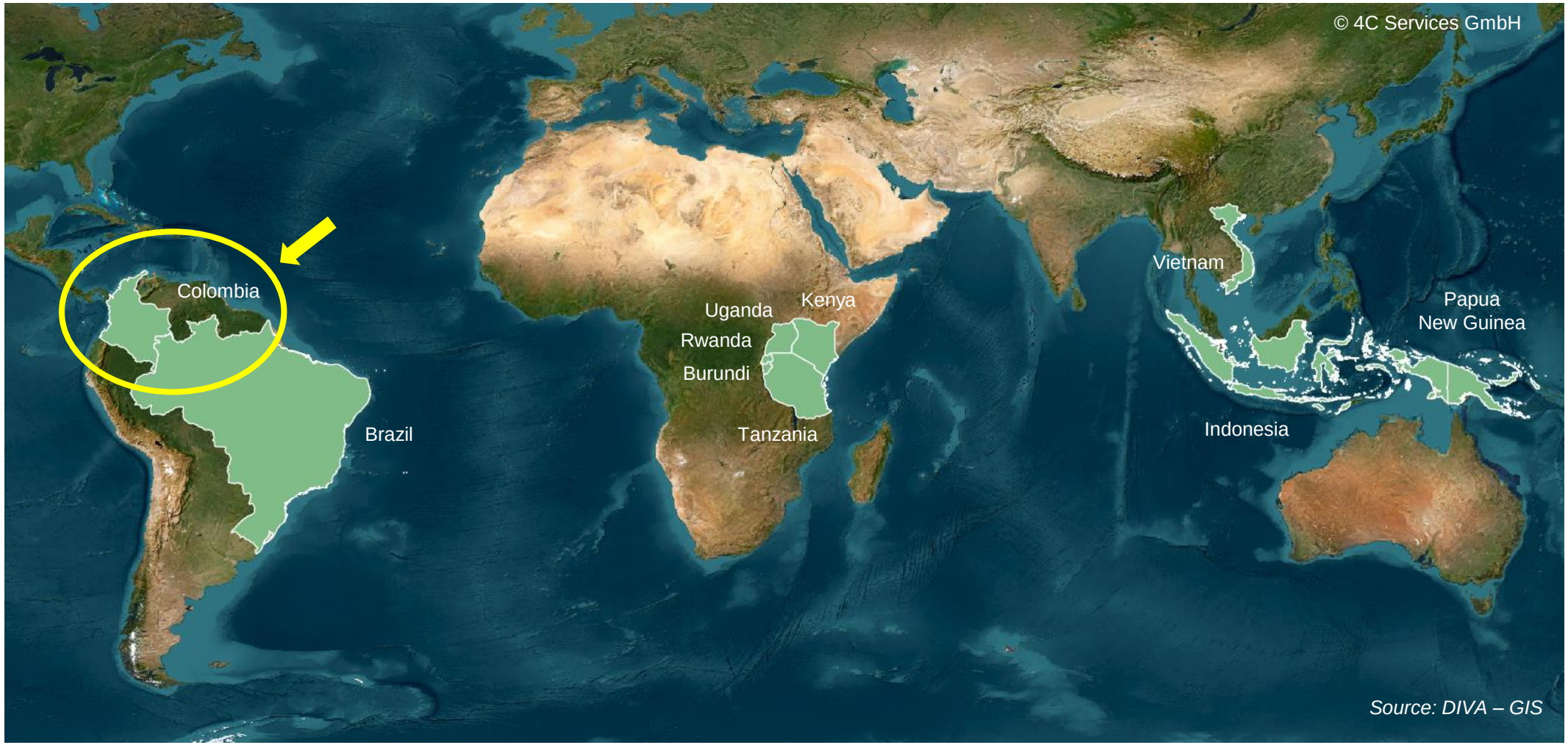
Coconut fibers

Used Cooking Oil

Rubber

Forest Residues

Increasing global demand for GHG emission calculations – Development of **GHG calculations** for producers **in ten coffee producing countries** completed



MCS is **collaborating with market players, initiatives and consortiums** to measure and reduce the coffee carbon footprint

Examples

Working towards climate friendly coffee production in Tanzania

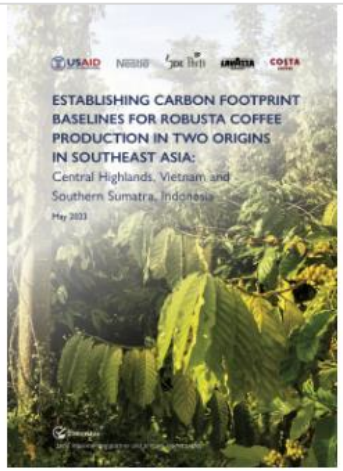
4C partners with JDE Peet's and DEG to reduce GHG emissions and strengthen climate resilience of smallholder producers

4C Services and JDE Peet's are proud to announce the start of a joint project on "Reducing GHG emissions and increasing yields from Robusta coffee production by 7,000 smallholder farmers and processors in Tanzania", co-financed by DEG – Deutsche Investitions- und Entwicklungsgesellschaft mbH – with funds of the develoPPP.de program of the German Federal Ministry for Economic Cooperation and Development (BMZ), together with funds of JDE Peet's and 4C Services GmbH.

In-depth cradle-to-gate GHG calculations for coffee in **Colombia** and **Brazil** from farmers to ports of export & identification of improvement measures for emission reduction

GHG calculation for green coffee supply chain in **Rwanda**

GHG calculation for robusta coffee supply chain in **Vietnam**



USAID Green Invest Asia
3.106 Follower:innen
6 Tage

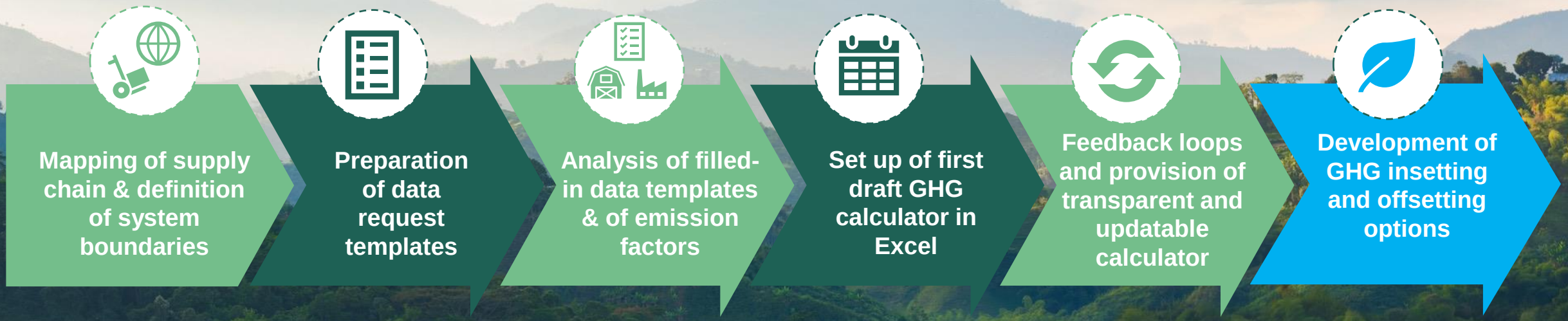
+ Folgen

15 companies in the #coffee sector, 5 technical partners, 2 origins, 1 convener, and 1 goal: establish baseline of #carbonemissions from Robusta coffee production to standardize #ghgemissions measurements going forward. Final study led by Enveritas, annexes, technical insights here: https://lnkd.in/gWskiJuT. JDE Peet's, Nestlé, Costa Coffee, Lavazza Group, ECOM Agroindustrial Corp. Ltd., Hanns R. Neumann Stiftung - HRNS, Intimex Group, Louis Dreyfus Company, ofi, Neumann Kaffee Gruppe (NKG), Sari Makmur, Simexco Daklak Ltd., Sucafina, Sucden Coffee, Volcafe, CIRAD, Geotree Strategies, 4C, Sphera, Yara International.

Sources: https://www.meo-carbon.com/references/, https://greeninvestasia.com/research/usaid-green-invest-asia-reports/ , https://www.4c-services.org/working-towards-climate-friendly-coffee-production-in-tanzania/

Measurement of carbon footprint based on recognized methodologies in line with science-based target initiative

- Greenhouse gas (GHG) emissions calculation for coffee cultivation and whole supply chain
- Introduction of mitigation measures and monitoring of GHG reduction



meo CARBON SOLUTIONS

The quantification of GHG emissions from the coffee supply chain steps shall contain the following elements:

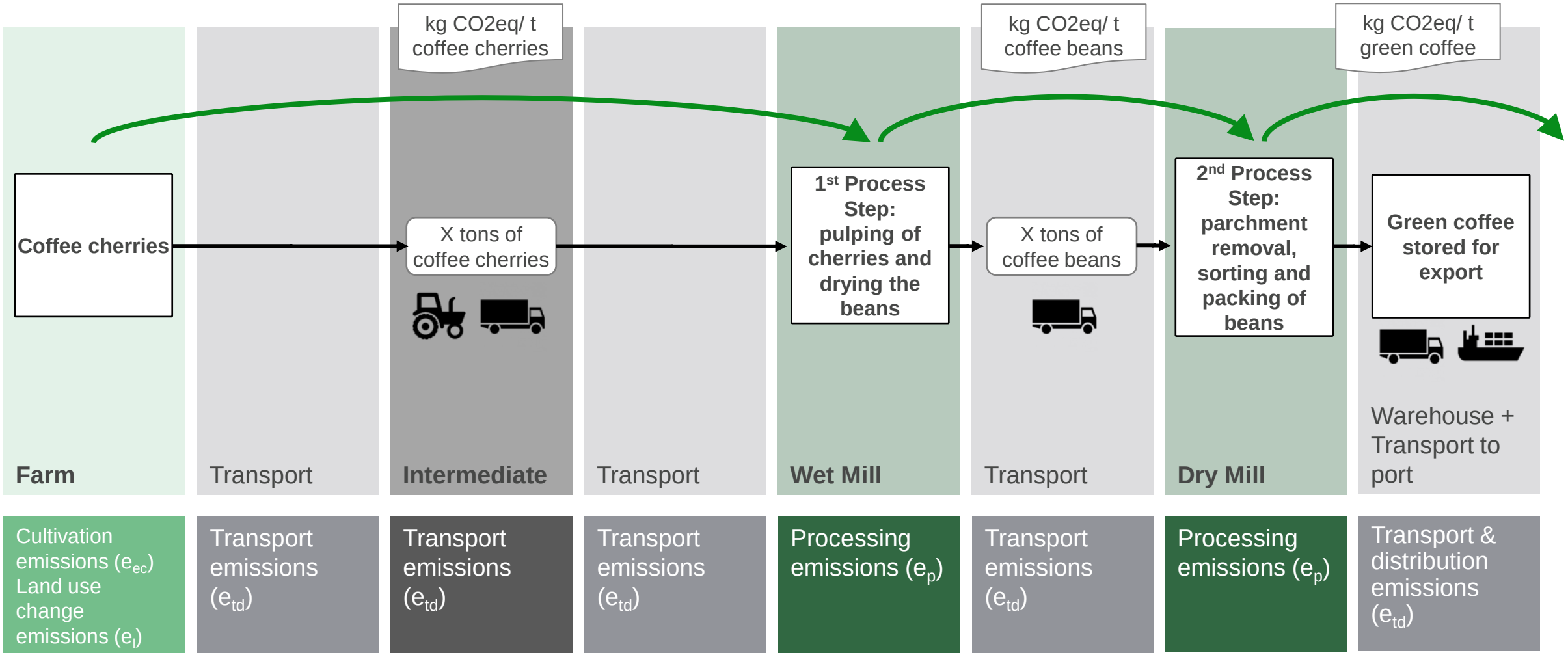
$$E = e_c + e_l + e_p + e_{td} - es_{soc}$$

Where:

- E total emissions from the coffee supply chain in the final unit **kg CO_2eq/t of green coffee beans**
- e_c emissions from the **cultivation** of coffee
- e_l annualized emissions from carbon stock changes caused **by land-use change**
- e_p emissions from **processing** (dry milling, wet milling, roasting, etc)
- e_{td} emissions from **transport and distribution**
- es_{soc} emission **savings** from **soil carbon accumulation** via improved agricultural management

meo CARBON SOLUTIONS

Simplified coffee supply chain, GHG emission categories and forwarding of GHG emissions



High quality dataset is crucial for a realistic GHG emission calculation

Take aways from past assessments:

- **Data collection** process critical
  - Feedback loops required between company and 4C/MCS to finalize dataset
  - Willingness of coffee farmers to participate
- **Simplified data collection template** with explanatory comments per entry available in local language
- Selected company experts needed as responsible for data collection and exchange with farmers
  - Training of local company responsible staff in advance of the process for good data quality

→ **Complete and verified data** is key for GHG calculation and realistic results

Potential improvement measures to reduce GHG emissions along the coffee supply chain from farm to roastery

Increasing the yield of coffee per farm

Improving treatment of wastewater

Improving treatment of waste, residues and pulp

Reduction of fertilizer application

Reducing use of plastic packaging material

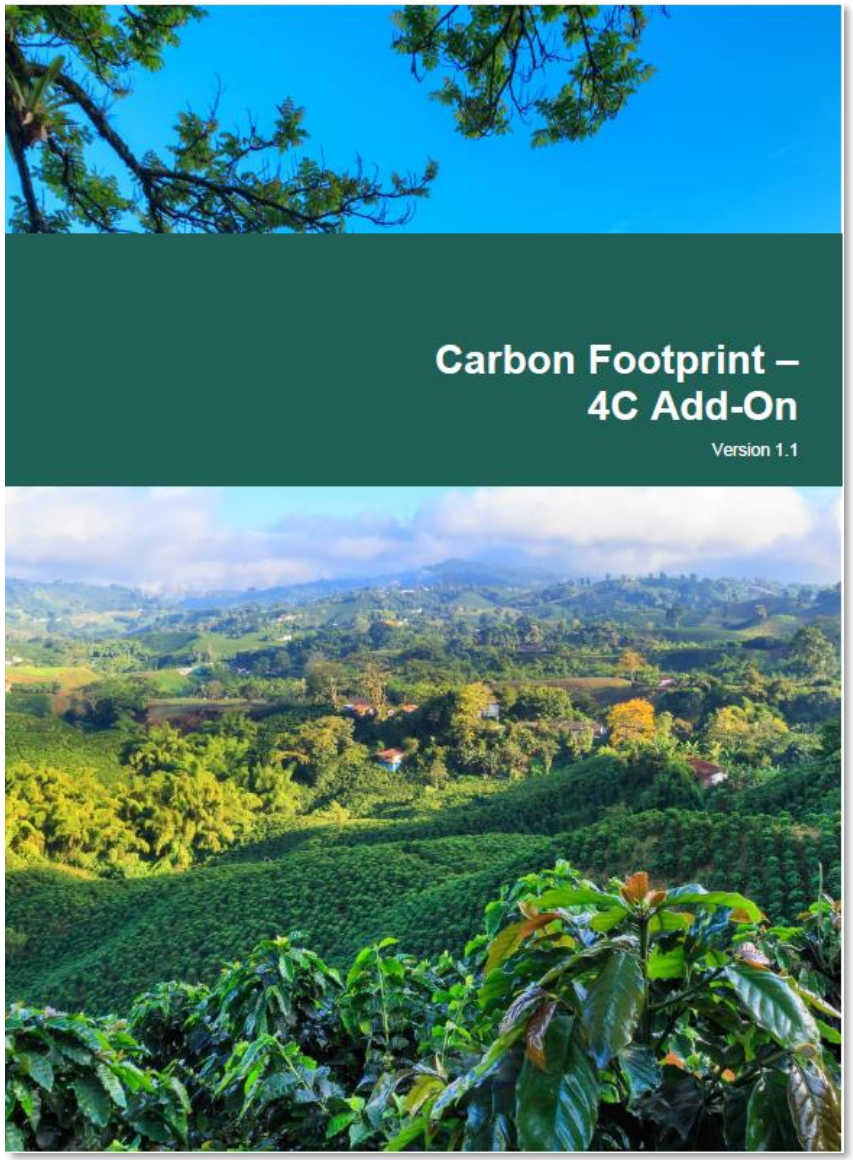
Switching to renewable energy sources

More efficient ways of transportation

Local capacity building, e.g., farmer education

MCS supports the **development of 4C climate-friendly solutions** for coffee supply chains globally

- Development of **4C Carbon Footprint Add-On**
- Certification approach for **climate friendly and climate neutral coffee**
- Carbon footprint **calculation, reduction** and optional **offsetting** of emissions and external **communication**
- 4C Carbon Footprint Add-On provides **tools** for data gathering, GHG calculation and audit preparation
- Meo **experts available** to consult 4C system users and conduct GHG emission calculations



CLIMATE FRIENDLY COFFEE

CLIMATE NEUTRAL COFFEE

meo CARBON SOLUTIONS

4C Carbon Footprint Add-On relies on the most relevant standards and initiatives

The 4C Add-On is aligned with:

- **ISO 14067:2018** → provides guidance for the quantification of GHG for the development of the carbon footprint of a product
- **GHG Protocol Product Standard** → Product Life Cycle Accounting and Reporting Standard is the guideline document stating the requirements for a LCA of a product
- **PAS 2050:2011** → Publicly Available Specification for the calculation of the GHG emissions produced during a product's life cycle (BSi)
- **IPCC (2006) Guidelines for National GHG Inventories** and **2019 Refinement**
- The guide from the **Science Based Target Initiative** (SBTi) and the **Paris Agreement** target to limit global warming to 1.5°C

Carbon Footprint Add-On – **First Certificate issued in 2022**

- First **4C Climate Friendly Coffee Certificate**
- Issued to KDCU in **Tanzania** by Africert on 23 **November 2022**
- 4C Team provided guidance during the pilot audit
- KDCU is now allowed to trade coffee as **4C Climate Friendly** certified with a verified GHG emission value

AfriCert

CLIMATE FRIENDLY COFFEE

4C CARBON FOOTPRINT ADD-ON

Climate Friendly Coffee

4C Core Certificate No.: AC-90047-68-1-0524
Add-On Certificate No.: AC-CF-90047-68-1-0524
Certificate Holder: Karagwe District Cooperative Union - KDCU Ltd.

Karagwe, P.O Box 14
Kayanga
Kagera
Tanzania

AfriCert Ltd. confirms the compliance of the 4C Unit Karagwe District Cooperative Union, managed by Karagwe District Cooperative Union - KDCU Ltd. with the requirements of the **4C Carbon Footprint Add-On.**

Unit Number: 90047-68-1
Certified product: Green coffee beans
Validity: 23.11.2022 to 05.05.2024

Through compliance with the 4C Carbon Footprint Add-On the certificate holder is allowed to sell coffee with the verified greenhouse gas emission values. By reducing emissions, coffee produced by the 4C Unit is certified as **4C Climate Friendly Coffee.**

Nairobi, Kenya
23.11.2022

Janet Maunda
Certifier

CLIMATE FRIENDLY COFFEE

meo CARBON SOLUTIONS

Let‘s get started –
Your company could be next

1. Contact 4C for core certificate as prerequisite or directly start with CF-Add On preparation

2. Prepare your GHG emission calculation & set plan for improvement measures following CF-Add On

3. Conduct on-site audit and receive approval by 4C auditor and 4C

4. 4C Climate Friendly Coffee certification and on-product logo use

   Optional: Insetting/ Offsetting to become “climate neutral”

Thank you for your attention!

Dr. Jan Henke, Meo Carbon Solutions GmbH
Hohenzollernring 72, 50672 Köln, Germany
henke@meo-carbon.com Phone: +49 221 508020 20

Follow us on

meo CARBON SOLUTIONS