



Caravela Coffee

**2017 Greenhouse Gas (GHG)
Emissions Report**

*Report carried out in accordance with the “Greenhouse Gas (GHG) Protocol
Corporate Accounting and Reporting Standard (Revised Edition)”*

16th April 2018

2017 Greenhouse Gas (GHG) Emissions Report

Climate change is one of the most immediate threats to coffee production – and indeed humanity. To contribute towards preserving our environment and the future of coffee production, in early 2017 we set ourselves the goal of becoming a carbon neutral company by 2020.

The first step to achieve this goal was to calculate our Greenhouse Gas (GHG) emissions. It was not an easy task as by the end of 2017 we had direct operations in 9 different countries across the world involving more than 50 different business sites and 156 full time employees (FTE) based in 11 countries across the globe. To properly calculate our carbon footprint, it was necessary to gather data from all these operations and to keep track of the movement of our people and coffee.

This report aims to share with the coffee community and our stakeholders the methodology used to calculate our carbon footprint and the results of these calculations.

Protocol Used

One of the key protocols for producing a corporate-level Greenhouse Gas (GHG) emissions inventory is the "Greenhouse Gas Protocol (GHG) Corporate Accounting and Reporting Standard (Revised Edition)", also known as the GHG Protocol. The standard is the result of a unique multilateral partnership of companies, NGOs and governments convened by the World Business Council for Sustainable Development (WBCSD) and the World Resources Institutes (WRI). The GHG Protocol is a globally accepted tool used by governments and businesses for reporting, reporting and managing emissions, facilitating the implementation of voluntary reporting in some of the world's largest economies, including among others Brazil, China, India, Mexico and the United States. It is compatible with many GHG reporting registries, such as EPA's Climate Leaders program, and The Climate Registry, the California Climate Action Registry (CCAR), and the California Air Resources Board, among others.

This protocol is a tool with a variety of objectives, including internal management of environmental performance, the development of public statements, creation of carbon tax framework regulations, the development of voluntary and legal agreements, and codification of rules governing the trade of emission allowances. Since the GHG Protocol is widely used by different entities around the world, we decided to use it as our standard for quantification and reporting of our GHG emissions

Organizational Perimeter and Scope

Since we purchase parchment coffee from coffee growers at origin, process it, pack it and then sell green coffee both on an FOB and EXW (landed) basis, we have included all emissions at origin-based operations (export companies) from the moment we take possession of the coffee until it is shipped from the origin port. On the Import side, we have accounted for GHG emissions generated by the coffee handled by our import companies from the shipment port at origin to the final point of sale, including our sales offices in Australia, UK and the USA.

This report comprises our operations from 1st January 2017 until 31st December 2017. As of December 31, 2017, we had wholly-owned operations in the following countries:

¹ <http://www.ghgprotocol.org/corporate-standard>

Origin (Export)	Import
Colombia*	Australia
Ecuador*	United Kingdom
El Salvador*	United States
Guatemala	
Nicaragua*	
Peru	

* Origin operations where we have company owned dry-mills.

Hence the scope included our operations in those 9 countries as well as the coffee we imported from Honduras and Mexico, where we purchased coffee on an FOB basis from third party exporters.

The emission sources that are part of the scope of our 2017 GHG Emissions Report are:

Scope 1

- Vehicle emissions from cars and motorcycles of all export offices (company owned and controlled by the company), including kilometers travelled during origin trips with customers and by PECA educators visiting growers using company-owned or personally-owned motorcycles
- Transport of coffee sold on an FOB and EXW basis, including:
 - Land freight from sourcing warehouses to dry mills, from dry mills to shipment ports and from destination port to warehouses where EXW sales occur
 - Ocean freight of all EXW containers, from shipment port to destination port

Scope 2

- Purchased electricity used at company-owned or leased offices, warehouses and dry mills operated directly by the Company, except for the London office which purchases 100% of its energy from renewable sources
- Propane or natural gas consumption used in sample roasters operated by gas

Scope 3

- Air transportation of company employees
- Employee commuting to and from all company sites, except for those employees who drive electric vehicles to work every day
- Air and land freight of samples from origin offices to import operations and final customers, plus shipments sent to customers by import operations
- Secondary emissions such as paper consumption, clothing and purchase of electronics

Due to lack of adequate information, we did not include the following sources of emissions as part of the scope for 2017:

- Emissions related to the production of bags of coffee purchased on an FOB basis from third party exporters
- Employee commuting related to customer visits by our staff in import countries
- Emissions related to employees that work from home
- Energy consumption of third party dry milling of coffee exported by company owned export operations

- Production of purchased materials used for the storage of coffee such as jute and plastic bags, cardboard boxes used for vacuum packaging²
- Waste disposal

For each source of emissions identified, we used the most accurate calculation methods freely available and compatible with the data at hand, including the following:

- International Civil Aviation Organization (ICAO) for air travel emissions, using its online Carbon Emissions Calculator³
- Department of Environment and Rural Affairs/Department for Energy and Climate Change (Defra/DECC) 2015 for vehicle emission
- Guidelines and statistics as published by the International Energy Agency (IEA) (2011) for electricity conversion factors
- For sea freight we used Kuehne+Nagels online global sea freight calculator⁴

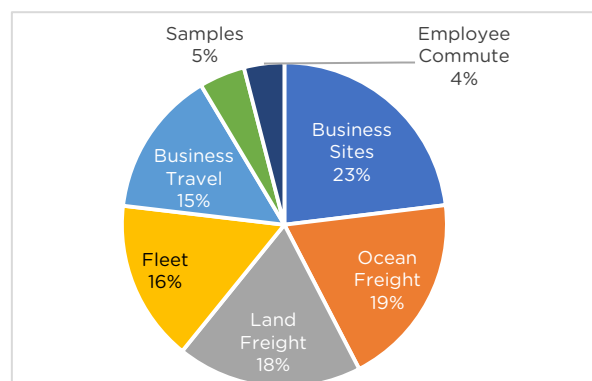
All calculations follow IPCC 2006 guidelines for national GHG inventories.

All GHG emissions are expressed in tonnes of CO₂ equivalent (tCO₂e), applying global warming potentials corresponding to emissions other than CO₂.

Our Carbon Footprint

Our estimated GHG emissions by source are shown in the table and graph below.

Source	tCO ₂ e	%
Business Sites	126.8	23.1%
Ocean Freight	106.2	19.3%
Land Freight	101.4	18.4%
Fleet	88.3	16.1%
Business Travel	80.0	14.6%
Samples	25.1	4.6%
Employee Commute	22.1	4.0%
TOTAL	549.9	100.0%



As seen above, transportation of coffee (including samples) and of our employees represents almost 77% of our total carbon footprint, with almost forty percent being the transport of coffee and an additional thirty-seven percent being employee transportation.

Our GHG emissions in 2017 are the result of our employees travelling more than 650,000 km (~406,000 miles) using company fleet – the vast majority of these travels being done on motorcycles by PECA educators, and more than 250,000 nautical miles on airplanes. Our employees commuted almost 100,000 km (~62,500 miles) in their own vehicles to get to and from work, but the vast majority of commutes to work sites was done by public transport. The coffee we sold travelled a total distance of more than 1.4 million km (~875,000 miles) and we consumed over 330 MWh of electricity in our business sites – the majority for dry milling of coffee.

² All the paper and cardboard used is sourced from either sustainable sources or from 95% recycled cardboard and all our plastic samples bags are biodegradable. Only the GrainPro bags used for storing parchment and green are not made using from renewable, recycled or biodegradable materials. However, we re-use GrainPro bags for the storage of parchment at origin.

³ <https://www.icao.int/environmental-protection/CarbonOffset/Pages/default.aspx>

⁴ https://www.kn-portal.com/seafreight/seafreight_overview/environment/global_seafreight_carbon_calculator/

As seen above, transport is the main source of emissions, so as our company continues to grow and open more sites, even if we purchase more energy from renewable sources or implement renewable energy projects, our carbon footprint will inevitably increase.

2017 will be the baseline year to track our progress going forward. As our sales will continue to grow in the future, it is necessary to use of performance indicators to properly track our achievements in terms of realized emissions and emission reduction activities. We have decided to use metrics per average employee and tonnes of coffee sold to track our progress. Below are these two KPI's based on our 2017 figures:

CO2e Emissions per	Indicator 2017 (CO2e per ton)
Average Number of FTE	3.69
Tonnes of coffee sold	0.153

Offsetting our Carbon Footprint

To compensate our entire estimated 2017 GHG emissions, in April 2018 we purchased 550 [carbon credits](#)⁵ from Ecotierra from the REDD “Madre de Dios – Peru Brazil Nuts”⁶ project that covers 3,500 producers and 100,000 hectares of land. This project has been verified and validated by VCS & CCBA. The project seeks to reduce emissions from deforestation and degradation (REDD) of virgin rainforest in southeastern Peru and was developed by Bosques Amazonicos del Peru (BAM). The protected forest includes thousands of native walnut trees that produce Brazil nuts, which have been harvested for generations by the producers of the region. The project will allow the maintenance of forest protection units and the promotion of an economy involving the forest.

Next Steps

Now that we have a baseline calculation of our carbon footprint we plan to continue improving the information used to calculate our emissions, including whenever possible the emissions that we have not accounted for in 2017. We also intend to identify efficiencies at every level to reduce our GHG emissions, such as purchasing electricity and sourcing inputs from renewable sources.

As part of this ongoing effort, we have signed a commitment to build and operate a solar energy facility which will be installed on the roof of our La Primavera dry mill located in Armenia, Quindio (Colombia). This project should generate approximately 81,600 kWh of electricity annually – approximately 60% of the electricity needed to operate La Primavera – a potential 25% reduction of our company-wide emissions related to electricity consumption.

For 2018 and beyond we plan to continue offsetting our GHG emissions by purchasing carbon credits from Ecotierra’s Café Selva Norte project in Peru, a shade-grown organic coffee and reforestation project in which we are collaborating. The Selva Norte Project seeks to assist organic coffee growers by providing market access to their coffee and utilizing Carbon Credits as a financial tool to promote reforesting their farms. APROCASSI, one of the cooperatives that we have been working with in Peru for the last 3 years, is also part of this project.

⁵ <http://caravela.coffee/wp-content/uploads/2018/04/carbon-offset-certificate.pdf>

⁶ <https://theredddesk.org/countries/initiatives/madre-de-dios-amazon-redd-project>