IMPACT
REPORT
2023

CIRCULAR COFFEE WAY

DAMN
GOOD
COFFEE
COMPANY

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ON A MISSION TO CHANGE THE COFFEE INDUSTRY

Welcome to the Impact Report 2023, proudly showcasing the significant effects of joining the "Circular Coffee Way."

Up to a 67% reduction in CO2 emissions is the impressive figure we can now proudly display on our products.

We've been collaborating with the climate consultancy SuFu for three years now, working tirelessly to decarbonize the coffee industry. This report isn't only for our collaborators and clients; it's for the entire coffee community because we believe in opening up the dialogue and making a real impact together.

Our focus in this report? Carbon emission reductions. From farming to upcycling, it's about the decarbonization the coffee value chain.

We deeply care about other aspects as well. The direct-trade model with coffee producers. The social impact on the coffee farming community. The wonders of organic agroforestry's effect on biodiversity. The potential of carbon sequestration to make coffee production climate-positive. We'll touch upon all those briefly, but "carbon reduction" is our sole focus in this report.

We are proud to make a real impact in the world, with carbon reduction levels that far exceed our commitment to halve the emissions from coffee within a year.

This report also serves as our platform to preview what comes next in our battle to decarbonize. Have a damn good read.

Co-founder
Lasse Grosen

Co-founder
Casper Willer

THE CIRCULAR COFFEE WAY

The Circular Coffee Way - It’s an entirely new way to look at the world of coffee. Installing circular principles in every part of our business. Using circular farming methods from organic fertilizer agroforestry principles. Applying zero waste methods to packaging. Turning coffee ground waste into value. Installing circular principles in every part of our business.

REGENERATE

Organic fertilizer made from waste like residues from the coffee berries, cow dung or the like from animals and fallen leaves etc. All extra fertilizer produced is given the local farming community.

REDUCE

Proper wastewater management to avoid the climate impact of methane emissions. Cultivating more resilient and robust plants, with higher yields and sustainable future harvests.

RECYCLE

Our recycling program take coffee ground from useless waste to green energy. The end product is fertilizer and biodiesel. The latter as a green substitute for fossil fuels. Collaborating with customers upcycling their spent coffee grounds into multiple products like beer, hand soap and building materials.

REUSE

We deliver our coffee in our bespoke reusable boxes and buckets. No single-use plastic or aluminium. Our very own return system, like the world famous Danish equivalent for bottles.

REGENERATE

REDUCE

DAMN GOOD COFFEE COMPANY
REUSE
DAMN GOOD COFFEE COMPANY
DAMN GOOD COFFEE COMPANY

RECYCLE

CARBON EMISSION FRAMEWORK

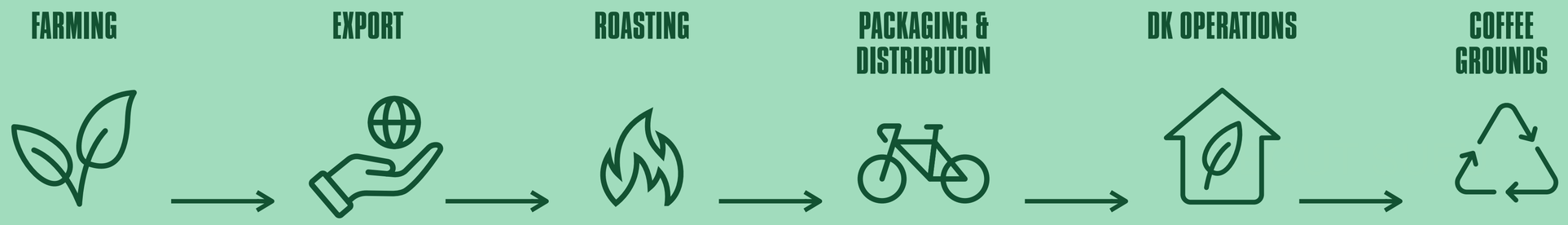
OUR APPROACH

Having worked closely with the climate consultancy SuFu for three years, the findings in this report are based upon the accumulated knowledge of this work. It is a complex matter to quantify carbon emissions. By bringing actual numbers into the coffee industry, we want to push both ourselves and the industry in a direction where we are transparent and accountable for the emissions we have and the reductions accomplished.

OUR SCOPE

Our analysis delves into every facet of the coffee life cycle, encompassing agriculture-related emissions, processing of leftover coffee grounds, as well as transport, packaging, and delivery. This meticulous approach aligns with what experts commonly refer to as a "cradle-to-grave analysis", wherein the impact of a product or process is meticulously assessed throughout its entire life cycle. From the initial extraction of raw materials (the cradle) to the final disposal or end-of-life stage (the grave). By adopting this method, we can capture the complete scope of greenhouse gas emissions associated with the coffee production and distribution process.

We do not account for emissions related to the use phase, specifically the operations of the coffee machines at our customers' establishments or their potential use of milk and disposable coffee cups. These aspects fall outside the scope of our analysis since they pertain to the emission calculations of our customers.



CARBON EMISSION FRAMEWORK

Literature Review

The work on our Coffee Supplier Emission Framework started in 2021. Initially used for assessing potential coffee suppliers sustainability practices, the framework has evolved over time.

To ensure accurate estimations even in the absence of specific data on fertilizer, fuel, electricity use, and other farming-level factors, the calculator was developed through an extensive review of current coffee literature. A total of 50 scientific papers were analyzed, and relevant data on farming and milling emissions were extracted from 30 articles published in scientific journals.

The newly developed Toolkit includes a Survey and a Calculator which are able to calculate or estimate GHG emissions from coffee farming.

The main objectives of the literature review were to:

- Understand the main phases involved in the production of green coffee beans
- Gather data on GHG emissions for the different stages and substages of the green coffee production
- Collect data on compounds, energy, water, and fuel use at different stages
- Select the main influencing factors and emission categories that enable a quantification of GHG emissions from green coffee

At the end of the literature review, all data was converted to the common functional unit, namely 1 kg of green coffee. Emissions are accurately calculated with available data on fertilizer, fuel, and electricity use. For missing information, regional values are used for estimation.

Milling emissions depend on the process and are based on literature.

The model provides reference scenarios for Damn Good Coffee Company to compare emissions with other coffee production systems.

ABOUT SUFU

SuFu is a climate consulting company providing accurate and transparent carbon accounting services and suitable reduction strategies for companies, products and events. SuFu seek to provide their clients with up to date, accountable and honest information about their emissions and help them reduce their climate impact.

To learn more about the method applied, see the full methodology report: https://www.damngoodcoffeecompany.com/s/sufu

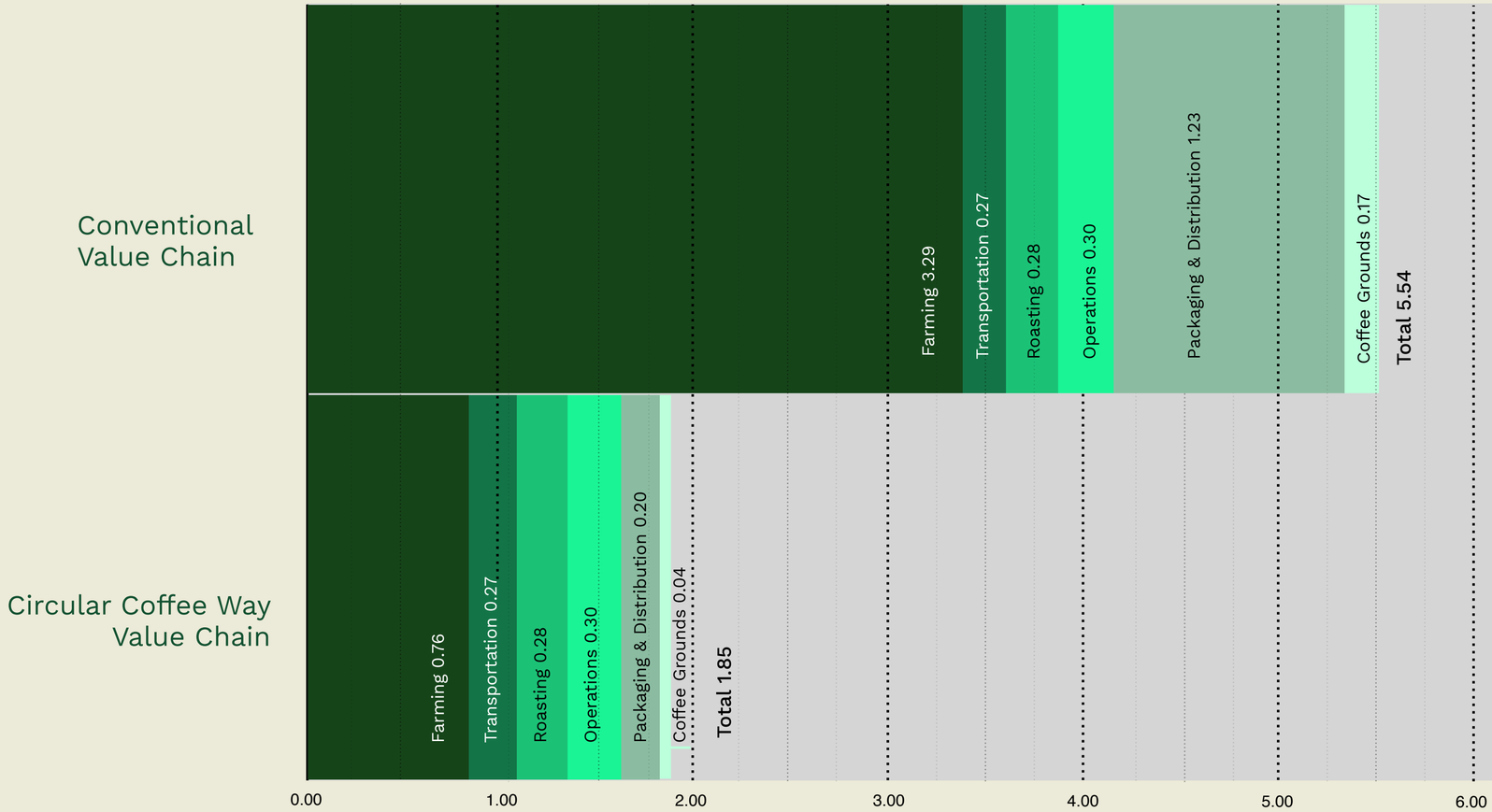
CARBON EMISSION REDUCTIONS

By applying our Emission Framework, we have calculated emissions all the way from farming until coffee grounds end up as biogas and fertilizer.

A comparison between a conventional coffee value chain, and our “Circular Coffee Way” value chain.

The comparison is based in our primary coffee bean based in organic agroforestry from Prodecoop in Nicaragua, against a conventional monoculture based coffee.

COMPARISON “DAMN GOOD COFFEE COMPANY” VALUE CHAIN VS. “CONVENTIONAL” VALUE CHAIN



For the conventional value chain the carbon emission is 5.54kg CO2e / kg green coffee

For the Circular Coffee Way, based in coffee from Prodecoop in Nicaragua the carbon emisssion is 1.85kg CO2e / kg green coffee

A TOTAL 67% CO2 EMISSION REDUCTION PER CUP OF COFFEE

67%

IN CO2 EMISSION

REDUCTIONS PER CUP OF COFFEE

The Circular Coffee Way, based in coffee from Prodecoop in Nicaragua show a total of 67% in CO2 emission reduction per cup of coffee.

As farming is a dominant part of the total emissions from the coffee value chain, the 77% reduction in this part is very a significant due to organic agroforestry. The reduction is primarily driven by not using synthetic fertilizer.

Within packaging and distribution the 84% reduction in emissions are primarily driven by not using plastic and aluminium bags, as well conventional diesel powered vans.

The reduced emissions from recycling comes from not leaving spent coffee grounds in the thrash bin. We hereby reduce 76% CO2 emissions from the leftover product, and avoid the even more harmful methane gas from being released.

Further reductions are to be found from transportation with ship, roasting and heating and electricity at DK operations, and the remaining farming emissions.

FARMING

A lot of today's coffee is the result of mass production, which bears considerable environmental consequences such as deforestation, greenhouse gas emissions, and the biodiversity loss - just to name a few. Today, climate change also directly impacts the working conditions of coffee farmers. A lot of the coffee farmers we work with have experienced a year with tough droughts, followed by heavy rain. These extreme and unpredictable weather conditions damage the production yields and make it difficult to produce coffee.

Through our annual visits to the farms and keeping in touch through social media, we make it a priority to communicate directly with the farmers so that we can understand the problems they are facing and come up with solutions together. We place great value in these relationships and see them as an essential element for our sustainable development in the value chain.

Usually, the value chain is way too long, creating a gap between farmers and sellers. This is a big issue within the industry, making it harder to earn a living by producing coffee, and pushing younger generations of farmers away from the coffee industry.

As a company, we want to do our part to change the coffee industry for the better. We've cut out the middlemen and we work directly with producers who grow organic, shade grown, and high quality coffee. We hope that this way of growing, trading, and selling coffee can increase biodiversity and social security for farmers for generations, while also benefiting our customers with a coffee that both tastes good and does good.

REDUCTION ON FARM LEVEL

Conventional Monoculture Farming:
3,29kg CO2e / kg green coffee

DGCC
Prodecoop Organic Agroforestry:
0,76kg CO2e / kg green coffee

As farming is a dominant part of the total emissions from the coffee value chain, a 77% reduction, from Prodecoop is a significant mark. The reduction is primarily driven by not using synthetic fertilizers.

THE 3 MAIN DIMENSIONS OF SUSTAINABLE FARMING

Reviewing our different coffees with our framework, has yielded some defining data. Most important learning is that there are three primary parameters that make up emissions related to farming. Here in short, simplified form:

1. POLYCULTURE/MONOCULTURE

If the coffee plants are shaded under trees, it is a much healthier environment for the soil and the trees. They grow more slowly than if they stand in a monoculture with sun all day. Biodiversity is another factor here that goes beyond CO2 emissions.

2. FERTILIZER

Is it organic or synthetic? Or a combination. The synthetic fertilizer is both CO2 intensive to produce and torments the soil over time. Organic fertilizers are often residues from the coffee berries, cow dung or other animal manure and in plantations with shade trees it is also the fallen leaves etc. from the forest.

3. PROCESSING

Dry or wet processing. Dry processing has very low emissions, while wet processing has larger emissions. However, it very much depends on how the water is treated after it is used to rinse the beans with.

ORGANIC AGROFORESTY

“Organic Agroforestry” is based in coffee grown in shade-trees, in a forest environment with polyculture, where multiple crops or plants are together in the same space. This results in a much healthier environment for the soil and the trees.

The coffee is grown more slowly than if they stand in a monoculture with sun all day. This way reducing CO2 emissions, and sustaining biodiversity, goes hand in hand.

Only organic fertilizers are used, mostly from residues from the coffee berries, cow dung and fallen leaves from the forest.

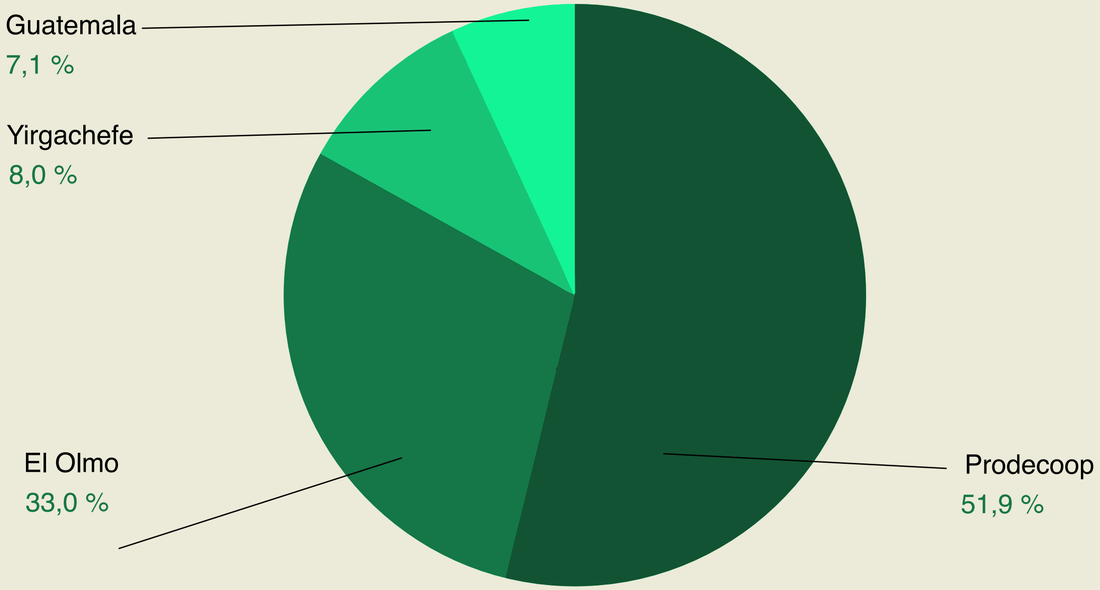
“Organic Agroforestry” follows the principles of regenerative farming that nurtures an entire ecosystem, with a sole focus on organic methods, enhancing soil health, biodiversity, water retention and minimizing chemicals.

Based in the main dimensions for sustainable farming, we have simplified our definition in the overcharging concept “Organic Agroforestry”

ORGANIC AGROFORESTY SOURCING OVERVIEW

All of our coffee comes from organic agroforestry.

Prodecoop in Nicaragua, and El Olmo in Mexico is the vast majority of our coffee as per volume in medio 2023.



Prodecoop / Nicaragua & El Olmo / Mexico
Both based in Organic Agroforestry (see SuFu CO2 reduction auditing on next page)

Yirgachefe / Ethiopia
Based in Organic Agroforestry, but still missing SuFu auditing

Antigua / Guatemala
Based in Organic Agroforestry, but still missing SuFu auditing

PRODECOOP - THE ORGANIC AGROFORESTRY PIONEERS

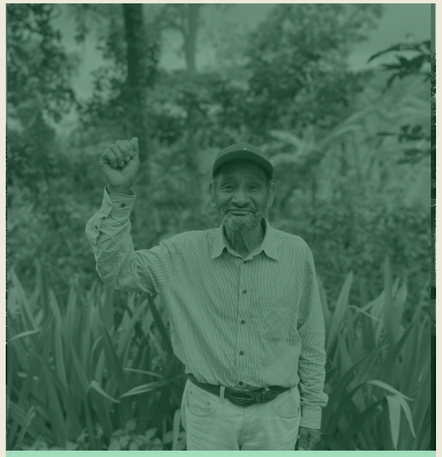
LAS SEGOVIAS / ZACARIAS PADILLA - in San Juan De Rio Coco, in between the Madriz and Nueva Segovia regions, is the cooperative, which we get the majority of our coffee from. Like the rest of the cooperatives, it's 100% farmer owned. It is part of the The mother coop of PRODECOOP consists of 38 base cooperatives, 3.279 families, and over 16.000 people based in the regions of Esteli, Madriz, and Nueva Segovia. A part from being organic forestry pioneers PROCECOOP is leading the way in social impact initiatives, with a focus on empowering women and investing in programs like healthcare, education, and clean water access.

CO2 Reduction 77%
Prodecoop has a 77% CO2 emission reduction per cup of coffee.

Other initatives in the Prodecoop farms will not set the standard for organic agroforestry, and sustainable standards, the but could take farming beyond carbon reductions and become climate postive.

Agroforestry Principles
Polyculture based in shade trees with fruit trees like banana, avocado, lemon, citrus, mango, orange, and maracuja. Focus on securing good soil health with regenerative methods.

Organic Practises
Rigorous organic practices, without any use of pesticides or lime. Compiling the organic fertilizer from the leftovers of the banana trees, cow manure, coffee pulps, and leaves.



Climate Resilience
Installing new coffee varieties more resistant to climate change. Experimenting with different altitudes and microclimates. Further enhancing the resilience from rain floods with the building of terraces around the trees.

Biodiversity
Polyculture's use of shade cover from fruit trees is one dimension of biodiversity, the other being the widespread use of beekeeping, with over 140 units, in 14 of the cooperatives, Zacarias Padilla being one of them.

EL OLMO - A FRONTRUNNER FARM IN MEXICO

The El Olmo farm In the state of Veracruz in Mexico. A true pioneer in a number of sustainable approaches, which include solar panels, organic compost, tree planting, shade-grown coffee, drying on raised beds, like the African tradition. A farm that want to give back to the local community, supporting tree-planting initiatives and provide surplus organic compost to local farmers, helping them to grow vegetables and seed fruit trees. Plus, with the excess energy generated from the solar panels.

CO2 Reduction 63%
El Olmo has a 63% CO2 emission reduction per cup of coffee. Slightly lower reduction than Prodecoop due to the use of ”wet milling”.

Other initiatives in the El Olmo farm will not only be in line with the highest sustainable standards, the equally important biodiversity crisis, but potentially turn the farming dimension beyond carbon reductions and become climate postive.

Surplus organic compost
Compost undergoes pasteurization, and with the help of the “Eisenia Andrei” earthworm, waste products is being converted into organic fertilizers in both powder and liquid form. Surplus compost is given to local farmers to help them grow vegetable and seed fruit trees.

Tree Planting
30,000 fruit trees planted on 75-hectare land in and around Tejeria, Veracruz, Mexico. Specifically, 12,000 lime persa trees, 4,000 allspice trees, 5,000 guanabana trees and 9,000 avocado trees – using regenerative farming principles including using the leftover pulp.

Solar Panels
Operating entirely on solar panels, 100% self-sufficient. 136 solar panels, each with a 365-watt peak capacity, as the only producer in Mexico using solar panels for all the machinery in the milling part. Surplus electricity is given back to the local community.

Biodiversity
Shade-grown coffee supporting natural ecology in regards to habitat, birds, native flora, fauna, pollination, air, water and the soil.

TRANSPORTATION, ROASTING & DK OPERATIONS

The “transportation, roasting & operations in Denmark” part of our value chain is yet to see any emissions reductions.

This domain encompasses the transportation of green coffee beans from the farm to Copenhagen, employing both road transport and shipping.

It’s the roasting of these green beans using gas.

Finally it’s the heating that goes into our operations in Denmark.

CARBON EMISSION FROM TRANSPORTATION, ROASTING & DK OPERATIONS

Conventional:
0,85kg CO2e / kg green coffee

DGCC:
0,85kg CO2e / kg green coffee

Our emissions from transportation with ship, roasting and heating and electricity at DK operations have not seen any reductions yet.

EXPORT

The emission from export are mainly from sea freight.

DK OPERATIONS

The emissions from DK operations are mainly from electricity and heating.

ROASTING

The emissions from roasting coffee beans are from the gas used in the roasting process.

PACKAGING & DISTRIBUTION

We deliver our coffee in our bespoke reusable boxes and buckets. No single-use plastic or aluminium.

Just one box can replace up to 400.000 coffee capsules or over 14.000 plastic bags in it's lifetime.

A box is 20 times more climate-friendly than a coffee bag, according to the LCA analysis we've done with SuFu.

It's measured over the 10-year period the boxes can be in use*. The measurement takes into account that the boxes have been produced and are washed regularly.

This way we are replacing single-use plastic and aluminum. This zero waste approach is our very own return system, like the world-famous Danish equivalent for bottles.

This approach goes on to the way we distribute the coffee to our customers with an all emissions-free transportation setup based in bicycle couriers and electric vans.

*10 year comparison between reusable boxes and LDPE/Foil/PET 1 kg. standard coffee bags

PACKAGING & DISTRIBUTION

Conventional Packaging & Distribution:
1,23kg CO_2e / kg green coffee

DGCC:
0,20 kg CO_2e / kg green coffee

The 84% reduction in emissions are primarily driven by not using plastic and aluminium bags, as well conventional diesel powered vans.

DAMN
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DAMN
GOOD
COFFEE
COMPANY
Skip the waste.
I'm 20 times more
sustainable than a
regular coffee bag.

DAMN
GOOD
COFFEE
COMPANY
I'm the sustainable
superhero replacing
14.000 plastic bags
in my lifetime.

DAMN
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COFFEE
COMPANY

DAMN
GOOD
COFFEE
COMPANY
Sustainably Sourced.
Locally Roasted.
Bike Delivered.
Damn Good Tasting.

DAMN
GOOD
COFFEE
COMPANY
SAIC MOTOR

COFFEE GROUNDS

Recycling matters - instead of putting your spent coffee grounds into the thrash bin, we let you recycle and hereby reduce the majority of CO2 emissions from the leftover product.

Our recycling program takes coffee ground from useless waste to green energy, as bio-diesel. We collaborate with DAKA Refood for the majority of our recycling volume. Turning coffee grounds from useless waste to a green substitute for fossil fuels.

REDUCTION FROM COFFEE GROUNDS RECYCLING

Conventional - not recycling:
0,17kg CO2e / kg green coffee

DGCC:
0,04 kg CO2e / kg green coffee

The reduced emissions from recycling coffee grounds reduces 76% emissions from the leftover product, and avoid the even more harmful methane gas from being released.

THE METHANE PROBLEM

When coffee grounds decompose, they generate methane gas, a gas which is 28-36 more harmful to the environment than CO_2 when considering its impact over a 100-year timeframe (GWP100).

UPCYCLING

Coffee is the world's most popular beverage, with over 2 billion cups drunk daily, but what also becomes 18 million tons of coffee grounds waste every year.

The Circular Collection is upcycled products made from the spent coffee grounds we pick up weekly.

A liquid soap, a beer, hand soap, and the opportunity to create your own furniture.

It’s made possible by the system we have built based on circular and sustainable principles in every part of our business. Emission-free delivery, zero waste packaging, and pickup of coffee grounds. Turning coffee ground waste into value.

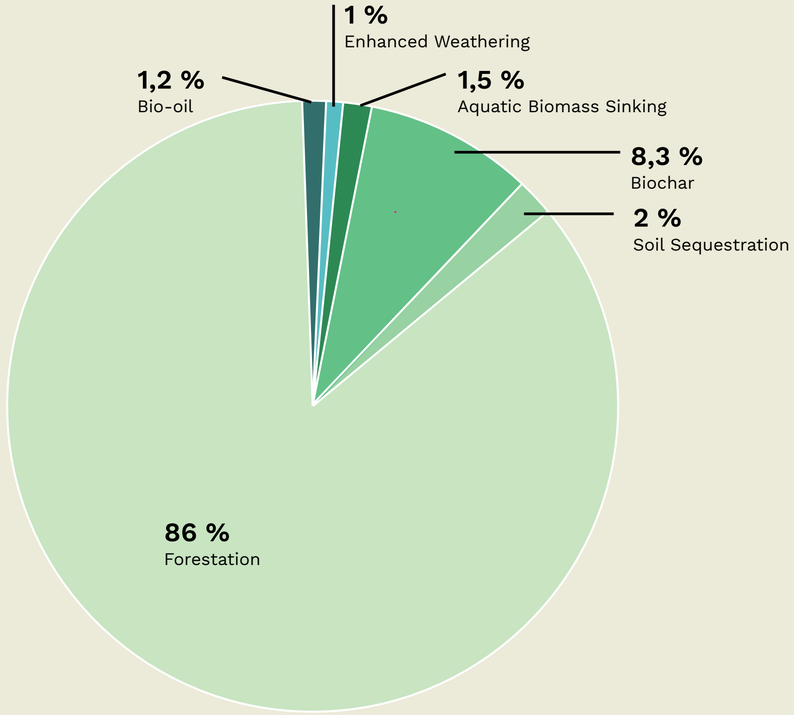
CIRCULAR
COLLECTION
Made from
coffee grounds
HAND
SOAP
COMPANY

OFFSETTING THE REMAINING CARBON EMISSION

We are partnering with Klimate offsetting the remaining 33% carbon emissions. Our offset portfolio focuses on forestation, enhanced weathering, direct air capture, bio oil, biochar and soil sequestration.

Klimate is a climate tech start-up founded in 2021 with headquarters in Copenhagen, Denmark. Through their proprietary knowledge and technology, Klimate provides businesses with access to high-quality and verifiable carbon removal solutions aligned with science. By sourcing carbon removal projects from around the world, Klimate works to scale and accelerate the development of carbon removal methods and technologies needed to achieve the targets set forth by the Paris Agreement.

Climate Impact



86 % Forestation

1,5 % Aquatic Biomass Sinking

1,2 % Bio-oil

8,3 % Biochar

1 % Enhanced Weathering

2 % Soil Sequestration

EUR 62
Per ton CO^2

klimate.co

CARBON EMISSION REDUCTIONS

67%

WE ARE OFFSETTING EVERYTHING WE CANNOT REDUCE

FORESTATION

The CommuniTree Carbon Program enables farmers in Nicaragua to benefit from growing trees through the creation of forest carbon removals. The project does this by combining a community led approach with best practice forestry techniques and cutting-edge technology. Farmers are engaged over a 10-year period to help them grow trees in a way that is beneficial to them . In the short term, they benefit through the sale of carbon credits, and in the long term, through new sustainable sources of income from the products they create from their forests.

https://klimate.co/carbon-removal/forestation/

BIOCHAR

The project sources biochar from different types of plants and feedstocks, and processes biochar into high-quality products in their own production facilities. They source biochar from operators of pyrolysis plants and are committed to remain independent from biochar producers, sourcing only biochar that meets the highest quality standards.

The focus was originally on Agriculture and Urban Applications (city trees), but has recently been expanded to applications of biochar in building materials.

https://klimate.co/carbon-removal/biochar/

FUTURE CARBON REDUCTION

We are constantly on the lookout for further reductions of our emissions. Here, we outline which projects we are in the near future working to achieve.

We expect to be able to go from the current 67% reduction on our beans from Las Segovias to at least 80+% reduction within two years. In the following we go into our next focus to keep decarbonizing the journey of our coffee beans.

- CARBON SEQUESTRATION
- FARM LEVEL
- ROASTING
- DK OPERATIONS
- GREEN EXPORT
- MILK ALTERNATIVES

CARBON SEQUESTRATION

While this years report does not focus on documenting the effects of carbon sequestration in our coffee farms, we have started to analyze how carbon sequestration, accounting for newly planted coffee trees, have the ability to capture and store carbon dioxide from the atmosphere to soil, vegetation and biomass, and hereby document a “carbon positive” effect.

REMAINING FARM LEVEL EMISSIONS

With our approach around organic agroforestry, we have shown a reduction of 77% compared to conventional monoculture. This is significant, but there are still areas where we can focus and reduce further.

We have identified three areas where we can reduce emissions on farm level further.

LIME

Emissions from lime production are responsible for 0.259 kg CO_2e / kg green coffee on average, accounting for about 13% of agricultural emissions.

Reduction strategies:
- Adopt energy-efficient lime production methods and explore alternative low-carbon sources.

- Implement precise and efficient lime application techniques to minimize wastage.
- Combine lime application with organic amendments for improved soil health and reduced synthetic fertilizer usage.

FUEL USE

Fuel emissions are 0.071 kg CO_2e / kg green coffee on average, accounting for about 10% of agricultural emissions.

Reduction strategies:
- Upgrade to fuel-efficient machinery, maintain equipment regularly.
- Explore alternative fuels like biodiesel.
- Minimize transport emissions by optimizing routes, promoting collective transport, and encouraging low-emission or electric vehicles.

MILLING METHOD

Emissions related to water usage within the milling can be reduced by going from a semi-wet or wet processing to a fully dry processing method.

ROASTING

Roasting accounts for 15% of our emissions. Currently, the emissions from roasting coffee beans are from the gas used in the roasting process. Gas is used, as it requires a large amount of energy in a short time frame, to roast the beans. Electric roasters are being developed, but they are yet of fairly small roasting capacity. We follow the development closely. And we will also further investigate the option of using gas types with lower emission levels, eg. biogas.

DK OPERATIONS

Our current operations headquarter is based in Copenhagen NV. There has been a lack of good options for green electric certificates, but we see this market developing fast. Solutions to add green electricity to the grid, primarily known as PPA (Power Purchase Agreements), used to be available only for large corporations. These are now being made available for small and midsized companies with new actors entering this space. We are following this closely, and expect to be able to add green electricity to the grid in the near future.

We will also further look into options for heating, which are as low emitting as possible for the DK operations.

GREEN EXPORT

Green shipping is making strides towards sustainability. Key developments include clean propulsion technologies like LNG and alternative fuels. Energy efficiency measures, wind-assist, solar power, and shore power are also gaining traction.

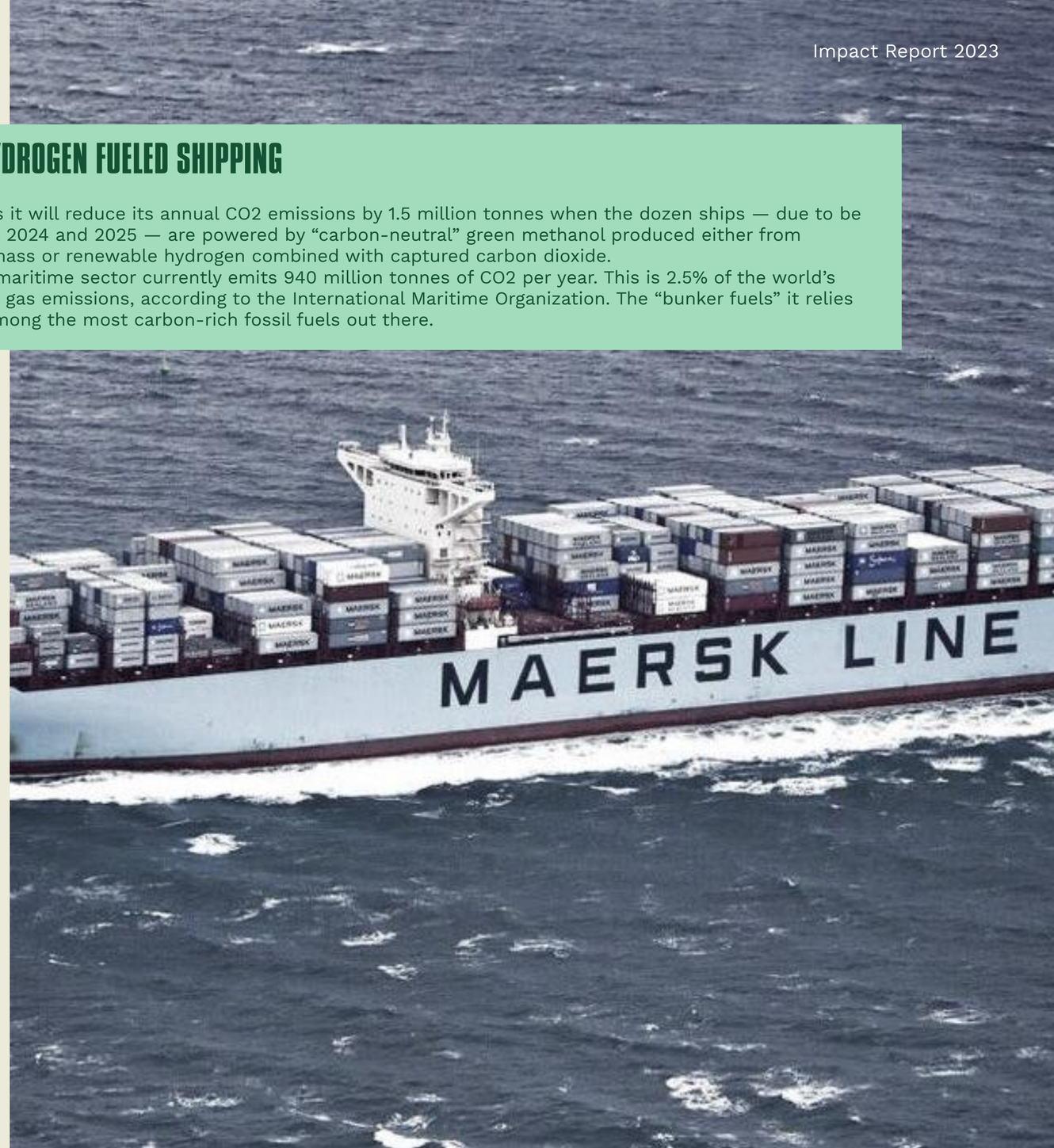
Supportive regulations and incentives are crucial for mass adoption.

Maersk is playing a pivotal role in the transformation actively exploring the potential of green hydrogen as a carbon-free fuel source for zero-emission shipping.

By investing in research, pilot projects, and collaborations, Maersk aims to drive the adoption of green hydrogen in the industry. With green hydrogen, the shipping sector can significantly reduce emissions and pave the way for a greener and more sustainable export dimension.

GREEN HYDROGEN FUELED SHIPPING

Maersk says it will reduce its annual CO2 emissions by 1.5 million tonnes when the dozen ships — due to be delivered in 2024 and 2025 — are powered by “carbon-neutral” green methanol produced either from biogas/biomass or renewable hydrogen combined with captured carbon dioxide.
The global maritime sector currently emits 940 million tonnes of CO2 per year. This is 2.5% of the world’s greenhouse gas emissions, according to the International Maritime Organization. The “bunker fuels” it relies upon are among the most carbon-rich fossil fuels out there.



https://www.rechargenews.com/energy-transition/shipping-giant-maersk-to-become-major-green-hydrogen-consumer-as-it-embraces-methanol-fuel/2-1-1143147

MILK ALTERNATIVES

Although consumption is outside of our scope, we actively promote and enable the shift to plant-based alternatives in particular the quality derived from an “oat milk first” approach.

The climate effects from the shift are so significant that plant-based advocacy should be part of any ambitious sustainable coffee agenda.

Switching to oat milk is one of the most sustainable choices you can make. Plant-based milk can save up to 70-80% of the emissions in your Flat White or Cafe Latte.

Our line-up of machines has been carefully selected to make sustainable choices easy.

We have even formed a collaboration with our favorite Oat pushers from DRYK, to evangelize about the shift to our customers.

LIST OF SOURCES

The list of sources used for Carbon Emission Framework:

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