2018

ENVIRONMENTAL
BASELINE
REPORT

STARBUCKS®

CONDUCTED BY QUANTIS
IN PARTNERSHIP WITH WORLD WILDLIFE FUND

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01

EXECUTIVE SUMMARY

For the first time ever, Starbucks has expanded its annual environmental reporting by conducting a comprehensive footprint inclusive of waste, water, and carbon across our global enterprise.

Data from all over the globe was consolidated to calculate Starbucks Waste, Water, and Carbon footprints. This environmental footprint was calculated based on FY18 data and will serve as the baseline for goal setting and performance measurement moving forward.

Starbucks partnered with two of the best in the industry to support both the calculation methodology and the scenario analysis. Quantis conducted the calculation of the footprint quantities. World Wildlife Fund provided project and scope guidance, global end of life reporting for waste, and recommendations for ways to reduce impact in all three areas. The carbon footprint calculation methodology is in line with the current Greenhouse Gas Protocol published by the World Resources Institute.
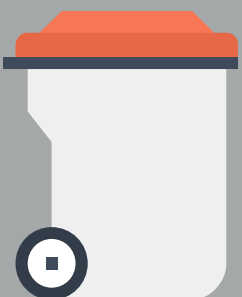
This environmental baseline report will...

Provide **transparency** to key environmental indicators to stakeholders, both internal and external.

Drive **prioritization** of biggest impact opportunities, and assist in the establishment of quantifiable reduction goals and targets.

Enable **accountability** and integrate sustainability into decision-making across business functions.

Defining Starbucks Global Environmental Impact

1. Gather comprehensive data set across global business
2. Extrapolate for areas lacking data – i.e. global markets and Licensed/Joint Ventures
3. Quantify impact leveraging industry-approved methodologies (i.e. GHG Protocol)

GATHER BUSINESS ACTIVITY METRICS		Purchased Goods and Services	Transportation and Distribution	Starbucks Product Manufacturing	Store Operations	Product End of Life	Business Administration
DEFINE IMPACTS	**Carbon** (volume of carbon equivalent greenhouse gases in metric tons – CO_2e)	• Energy for production • Agricultural Inputs • Production emissions • Land Use Change	Fuel consumption for all modes of transit	• Energy for Coffee Roasting, manufacturing and distribution • Supply Chain waste end of life emissions	• Energy • Store Materials Production	• Waste emissions • Energy to recover product waste (recycling)	• Fuel consumption from Business Travel and Employee Commuting • Energy to operate office buildings • Footprint of Business services • Corporate Travel
	Water (water withdrawal volumes in cubic meters and estimated high water risk areas)	• Agriculture • Coffee Processing		• Ethos Water Production • Manufacturing Process water	• Water usage (facility) • Water treatment • Water for beverage production	Water use to recover product waste (recycling)	Water consumption at office buildings
	Waste & Pollution (waste volumes in metric tons and estimated landfill/pollution contribution)	X – Not quantifying/ in scope		• Packaging Waste from Production • Organic waste from coffee roasting, juice production, and coffee extraction.	• Organic and Inorganic waste in store (BOH and FOH) • Construction waste	• Landfill contribution • Pollution (mismanaged waste)	Office building waste

02

KEY FINDINGS

FY2018 RESULTS

GLOBAL ENVIRONMENTAL FOOTPRINT SUMMARY

Overview of Enterprise 2018 Baseline Footprint

Carbon

16 MILLION TONS

of greenhouse gases were emitted in 2018 across Starbucks full value chain, including Land Use Change.

Water

1 BILLION CUBIC METERS

of Water was withdrawn across Starbucks full value chain.

Waste

868 KILO TON

of Waste was emitted across Starbucks full value chain. Waste adds 1.3M ton of carbon emissions to the Starbucks baseline carbon footprint.

CARBON

Starbucks Global Carbon footprint – 15.6 MMT CO2-eq

Scope 1: Direct Emissions

Scope 2: Emissions from Electricity Purchased

Scope 3: Emissions from all Value Chain activities

CO₂

Key Takeaways

- Most of the emissions reductions to reach a 1.5C target will need to be made in the supply chain, particularly in the sourcing of Dairy, Coffee, Packaging, and Food

- Land Use Change* for the first time in this year's footprint, accounts for 10% of total emissions

- Scope 1 & 2 emissions are only 4% of total footprint

*Land Use Change was calculated for priority commodities, in cases where data is available

Global Scope 1 Emissions Breakdown: 319.6 KMT CO2-eq

Key Takeaways

- Scope 1 & 2 emissions are only 4% of total footprint

- These emissions are in Starbucks direct control

- Nitrous Oxide used in whip cream is 50% of Scope 1 emissions and 1% of total Starbucks carbon footprint

- Natural gas used to roast coffee is only .5% of total Starbucks carbon footprint

Global Scope 2 Emissions (Electricity Purchased) Breakdown: 285.6 KMT CO2-eq

522 KMT CO2-eq emissions reductions

- 72% — China
- 11% — Japan
- 10% — Asia Pacific
- 7% — US and Canada
- US, Canada, & EMEA Emissions Offset with Renewable Energy

Key Takeaways

- Scope 1 & 2 emissions are only 4% of total footprint
- Starbucks purchases enough renewable energy to reduce Scope 2 emissions by 65%
- Starbucks current renewable purchase reduces Starbucks total global footprint by 3%

Global Scope 3 Emissions Breakdown: 14.99 MMT CO2-eq (including Land Use Change)

Coffee emissions would be 3.4 MMT CO2-eq emissions without C.A.F.E. Practices

Emissions from Land Use Change

21%
11%
9%
8%
7%
7%
6%
6%
5%
5%
5%
3%
2%
1%
1%
0%
0%

Dairy
Coffee
Waste
Licensed Stores Utilities
Food
Other Beverages
Services and Misc. Supplies
Packaging
Employee Commuting
Equipment, Fixtures, and Furniture
Logistics
Co-manufactured services
Real estate
CPG
Non Qualifying Spend
Business Travel
Merchandise

Key Takeaways

- Scope 3 emissions are 96% Starbucks total carbon footprint

- C.A.F.E. Practices increases in yield per hectare and zero deforestation policy reduces Starbucks carbon footprint for coffee by 50% compared to what the coffee footprint would have been without C.A.F.E. Practices; Equal to a 10% reduction in Starbucks total carbon footprint

- Land Use Change* accounts for 10% of Starbucks total carbon footprint

*Land Use Change was calculated for priority commodities, in cases where data is available

WATER

Starbucks Global Water Footprint: 1011 Mm^3

Bottled Water   Direct   Indirect
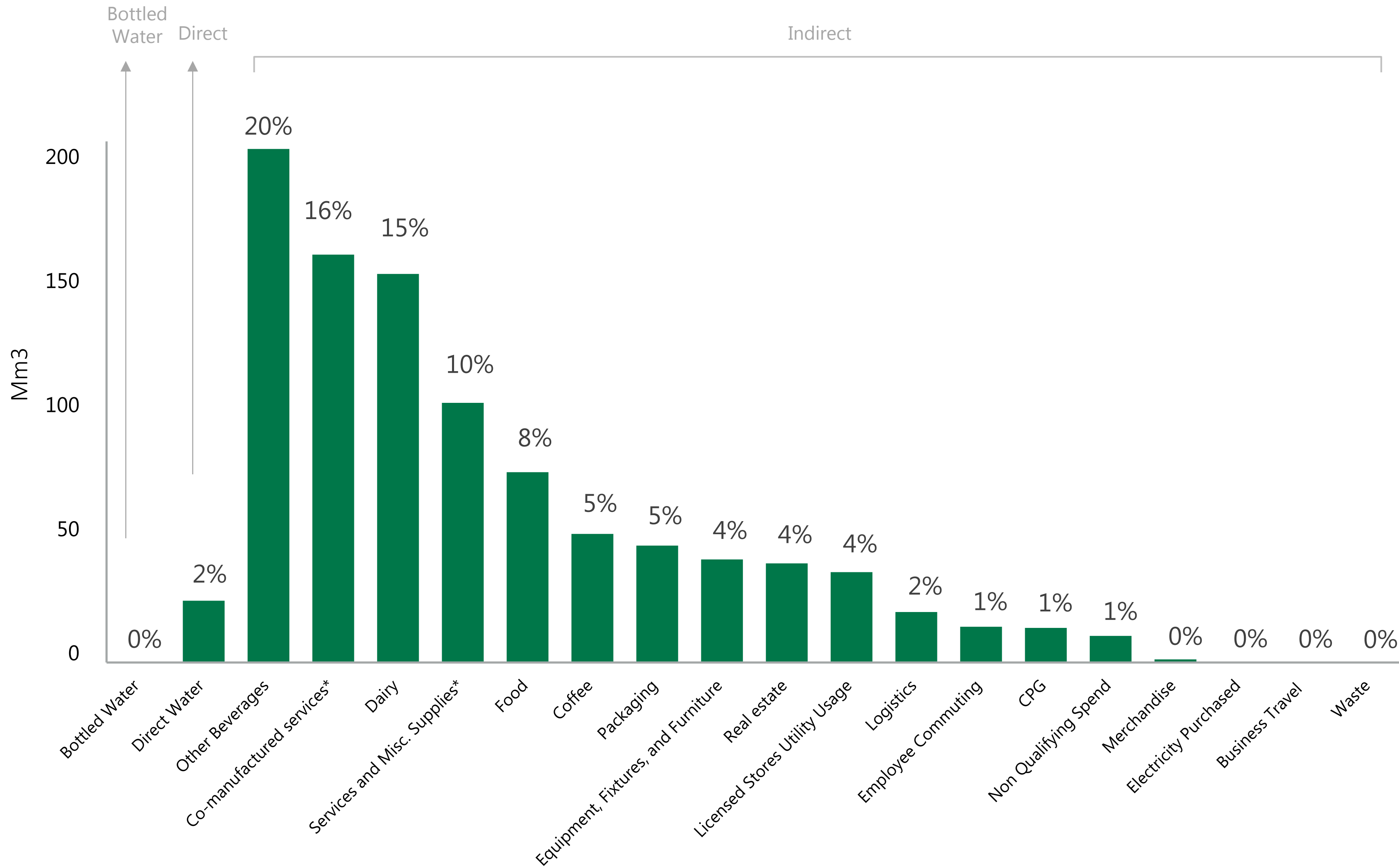
Mm3

- 200
- 150
- 100
- 50
- 0

| Bottled Water | Direct Water | Other Beverages | Co-manufactured services* | Dairy | Services and Misc. Supplies* | Food | Coffee | Packaging | Equipment, Fixtures, and Furniture | Real estate | Licensed Stores Utility Usage | Logistics | Employee Commuting | CPG | Non Qualifying Spend | Merchandise | Electricity Purchased | Business Travel | Waste |

0% 2% 20% 16% 15% 10% 8% 5% 5% 4% 4% 4% 2% 1% 1% 1% 0% 0% 0% 0%

Key Takeaways

- Dairy, Coffee and Other Beverages were the most water intensive commodities driven by agriculture activities

- 98% of the Water withdrawal is embedded water in scope 3 (such as water withdrawals for coffee production etc.)

- Water is a local issue, and thus must be managed at the basin or landscape scale, as opposed to the global scale.

* Co-manufacturing and Services data is based on spend data, future work is planned to obtain quantity data to improve accuracy of footprint

Water - Priority Hotspots by Workstream

YONGDING HE
China
Dairy, Paper
Water quality, ecosystem health

INDUS, PENNER, CAUVERY, KRISHNA, GANGES

Dairy, Sugar, Paper, Coffee
Scarcity, flooding, water quality, ecosystem health

MISSISSIPPI
U.S.
Dairy (likely feed), Pork, Sugar, Paper
Flooding, water quality, ecosystem health

YANGTZE
China
Tea, Dairy, Pork, Sugar, Paper
Flooding, water quality, ecosystem health

SAN JOAQUIN
U.S.
Dairy, Nuts, Pork, Paper
Water scarcity, flooding, water quality, ecosystem health

MAGDALENA
Columbia
Coffee
Flooding, water quality, ecosystem health, drought

MEKONG
Vietnam, Thailand, Cambodia, Laos & China
Coffee, Dairy, Sugar, Paper
Ecosystem health, water quality, flooding, seasonal drought

PANUCO, CHIRA & OTHER BASINS
Peru, Mexico
Coffee
Scarcity, flooding, water quality, ecosystem health.

BENGAWAN SOLO & BRANTAS
Indonesia
Cocoa, Dairy, Paper
Flooding, water quality, ecosystem health

SAO FRANCISCO & RIO PRADO
Brazil
Coffee, Cocoa
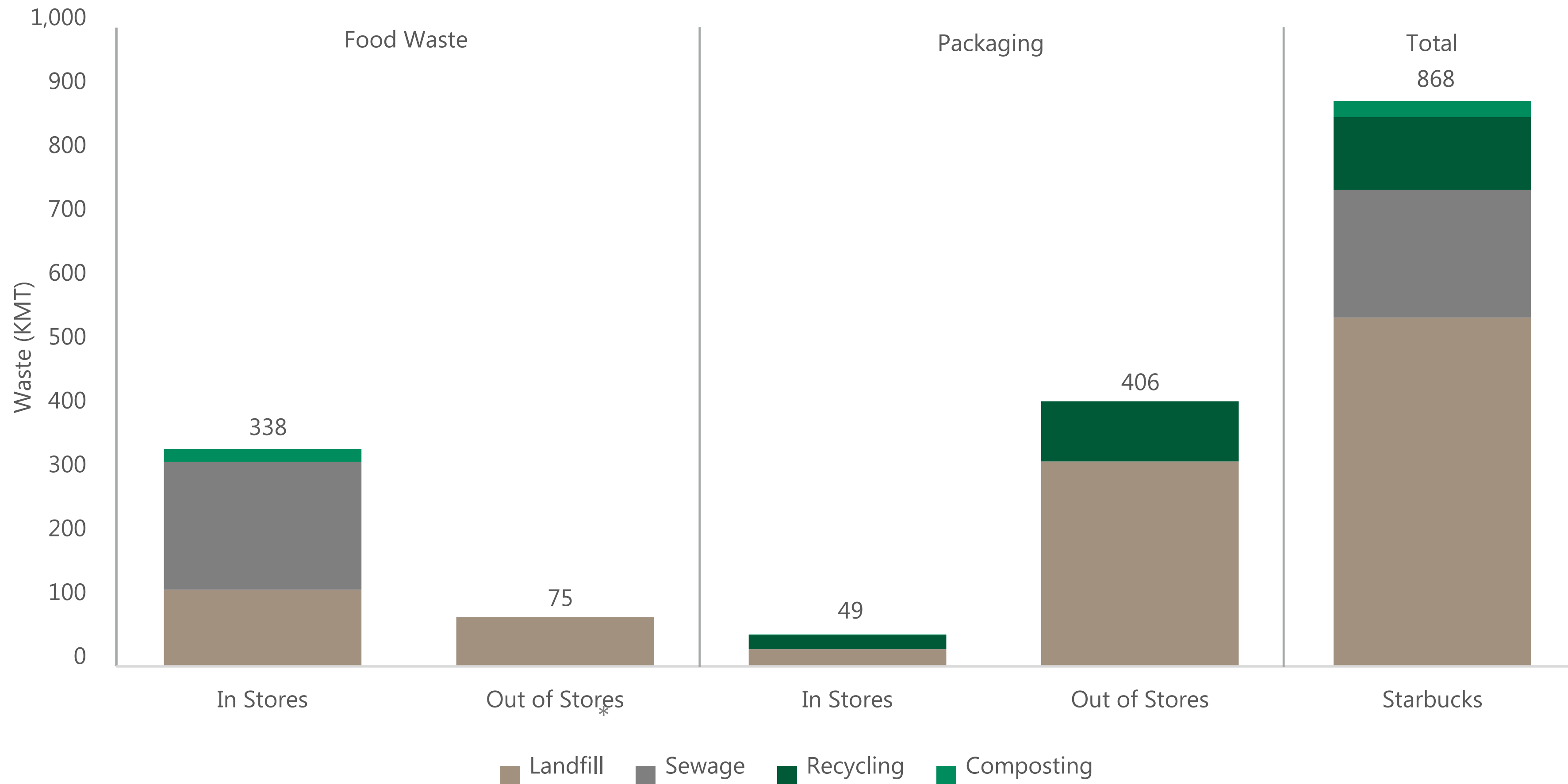*Flooding, water quality, drought*

- Priority **hotspots** per workstream are determined by level of risk & sourcing volume and overlap in key commodities for a given basin

- Water usage in **Dairy and Nuts** farming and Dairy manure management are significant drivers for water risk.

- **Coffee regions** are affected by various water issues including flooding, water quality, and periodic drought. In addition to what is mapped here there are other coffee sourcing regions susceptible to drought, such as Nicaragua, Costa Rica, Honduras and Tanzania.

WASTE

Starbucks Waste from Stores and Operations: 868 KMT

Key Takeaway

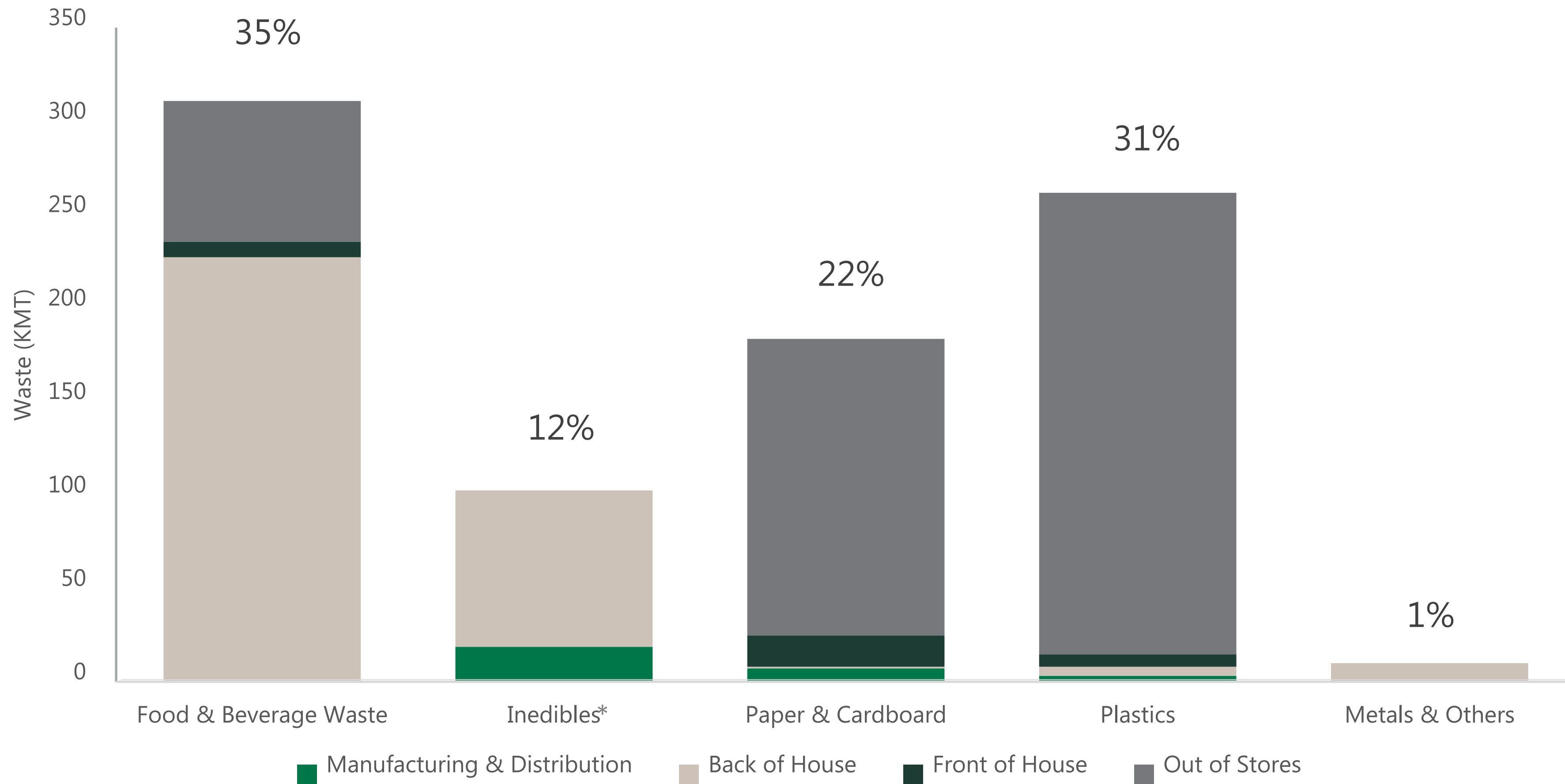- 55% of all waste is leaving our stores, 85% of which is packaging

*Inedibles include coffee grounds, coffee chaff, and used tea bags.
Out of Store is the waste occurring after customer purchase a given product and consume and dispose it out of the store
Waste data includes Licensed Stores

Starbucks Waste from Stores and Operations: 868 KMT

Key Takeaways

- Packaging leaving our stores is a significant volume contributor
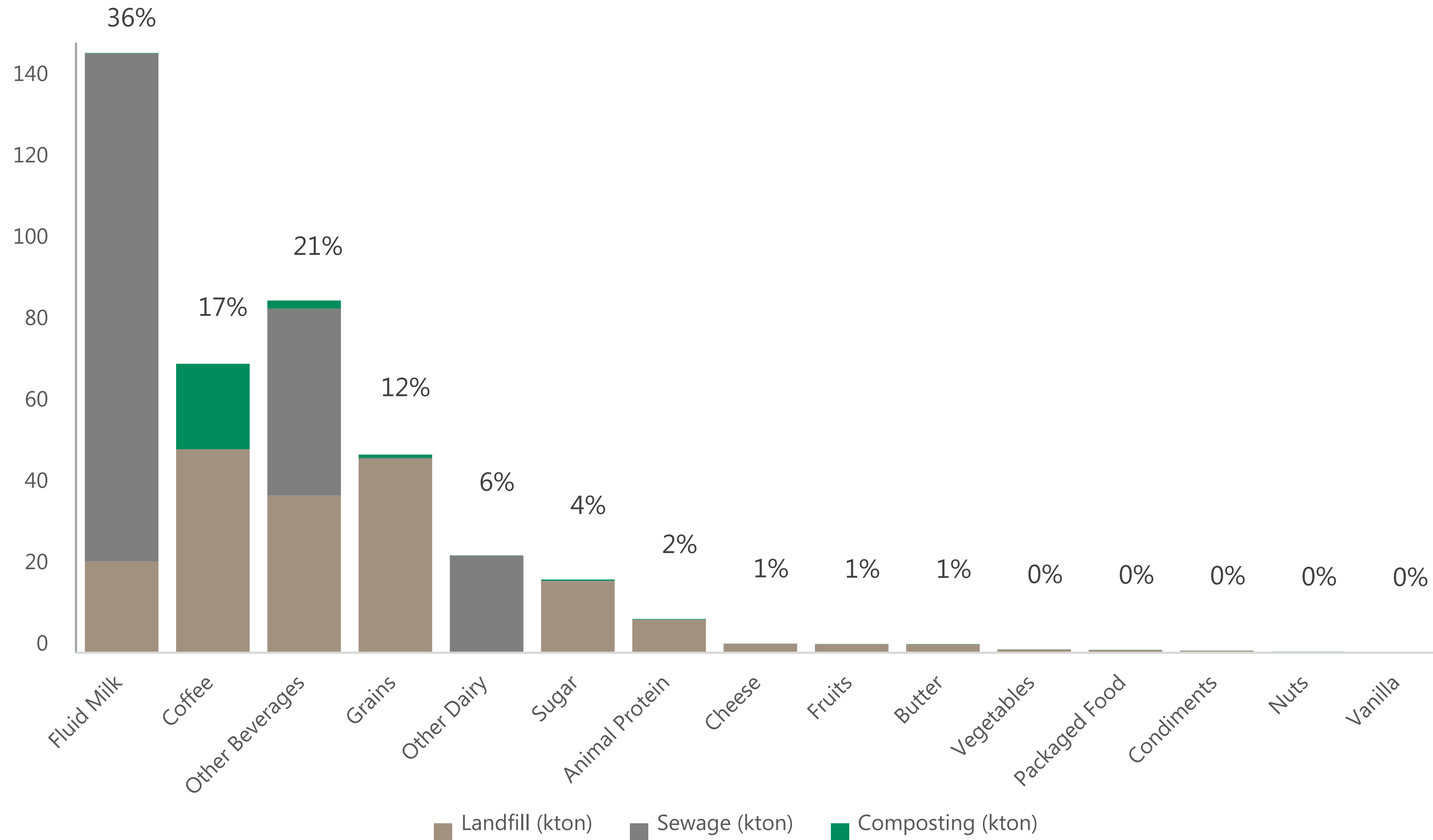
*Inedibles include coffee grounds, coffee chaff, and used tea bags.
Out of Store is the waste occurring after customer purchase a given product and consume and dispose it out of the store
Waste data includes Licensed Stores
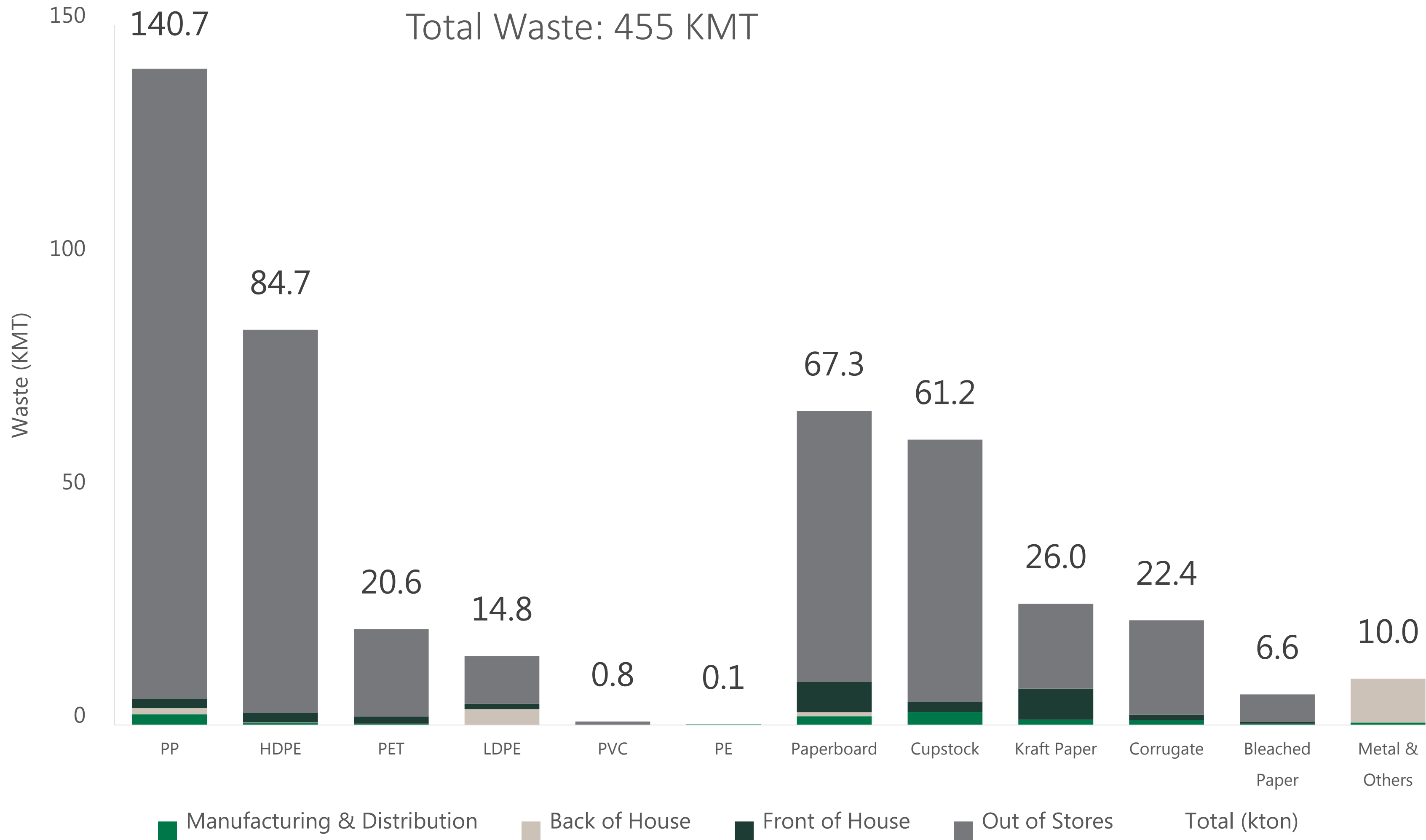
Total Starbucks Food & Beverage Waste: 413 KMT

Key Takeaways

Starbucks is able to compost a significant portion of coffee grounds. A lack of local composting infrastructure is the major barrier

Legend: Landfill (kton) · Sewage (kton) · Composting (kton)

Packaging & Others Waste - Quantity

Total Waste: 455 KMT

Key Takeaways

This includes others item that are not directly packaging, like trash bags and tertiary packaging, that are needed for store operations.

Polypropylene (PP) is the largest source of waste, used for cold cups and lids, straws, splash sticks, and hot cup lids

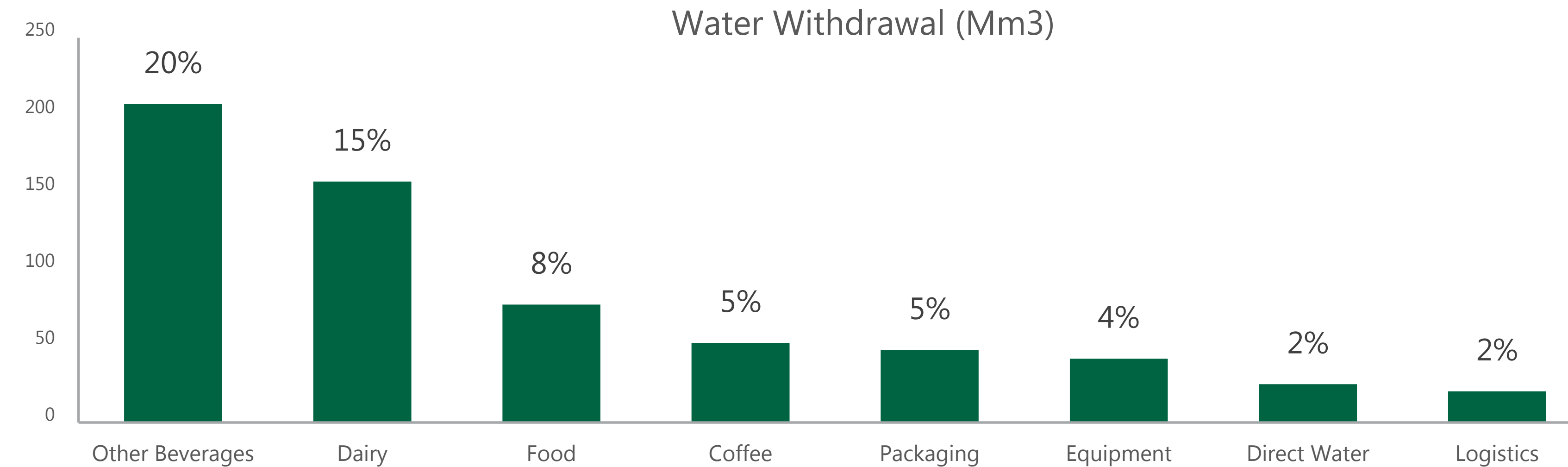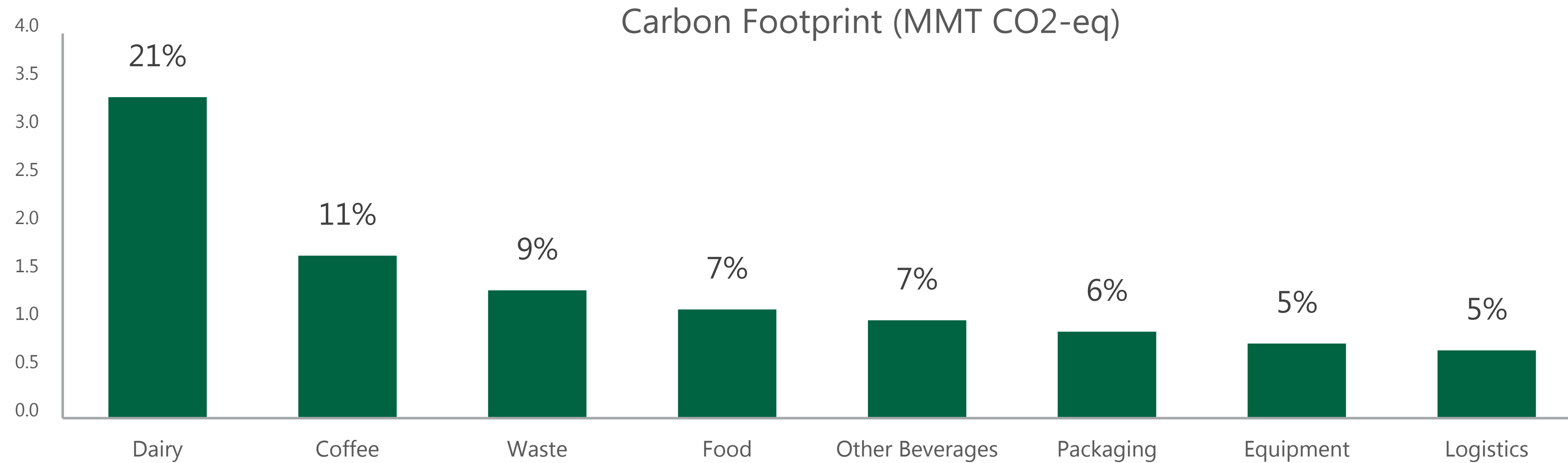Cupstock and Paperboard are the second largest.

03

PRIORITY CATEGORIES
BY ENVIRONMENTAL FOOTPRINT

Priority Environmental Footprint Categories Summary

Carbon Footprint (MMT CO2-eq)

Category	Value
Dairy	21%
Coffee	11%
Waste	9%
Food	7%
Other Beverages	7%
Packaging	6%
Equipment	5%
Logistics	5%

Water Withdrawal (Mm3)

Category	Value
Other Beverages	20%
Dairy	15%
Food	8%
Coffee	5%
Packaging	5%
Equipment	4%
Direct Water	2%
Logistics	2%

Key Takeaways

Priority Categories Contribute

Carbon: 11 MMT CO2-eq

~ 70 % of total Carbon Footprint

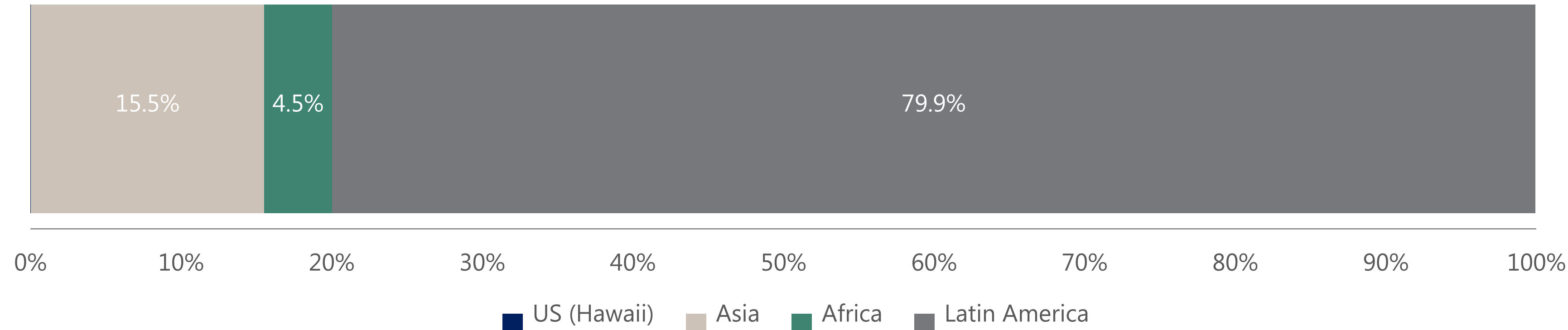Water: 626 Mm3

~ 62 % of total water footprint.

- Dairy and Coffee are the highest contributors to Carbon Footprint due to their production stage
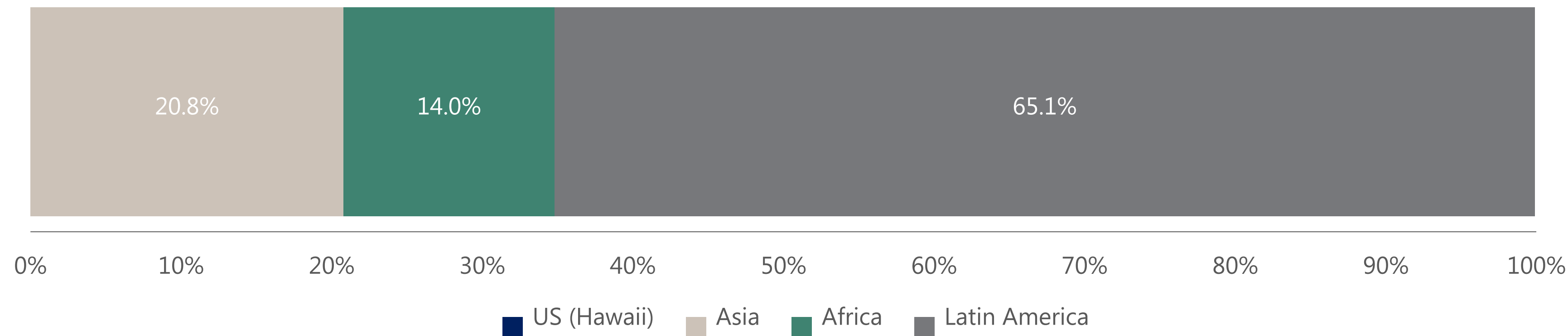- Other beverages contributes the most to water withdrawal results due to agriculture activities

COFFEE

Coffee, Carbon and Water Footprint (Regional)

Coffee, Carbon Footprint, By Region

| 15.5% | 4.5% | 79.9% |

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ US (Hawaii)   ■ Asia   ■ Africa   ■ Latin America

Coffee, Water Footprint, By Region

| 20.8% | 14.0% | 65.1% |

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

■ US (Hawaii)   ■ Asia   ■ Africa   ■ Latin America

Coffee Key Takeaways

Carbon: **1690 KMT CO2-eq (included LUC)**

~ 11% of total carbon footprint

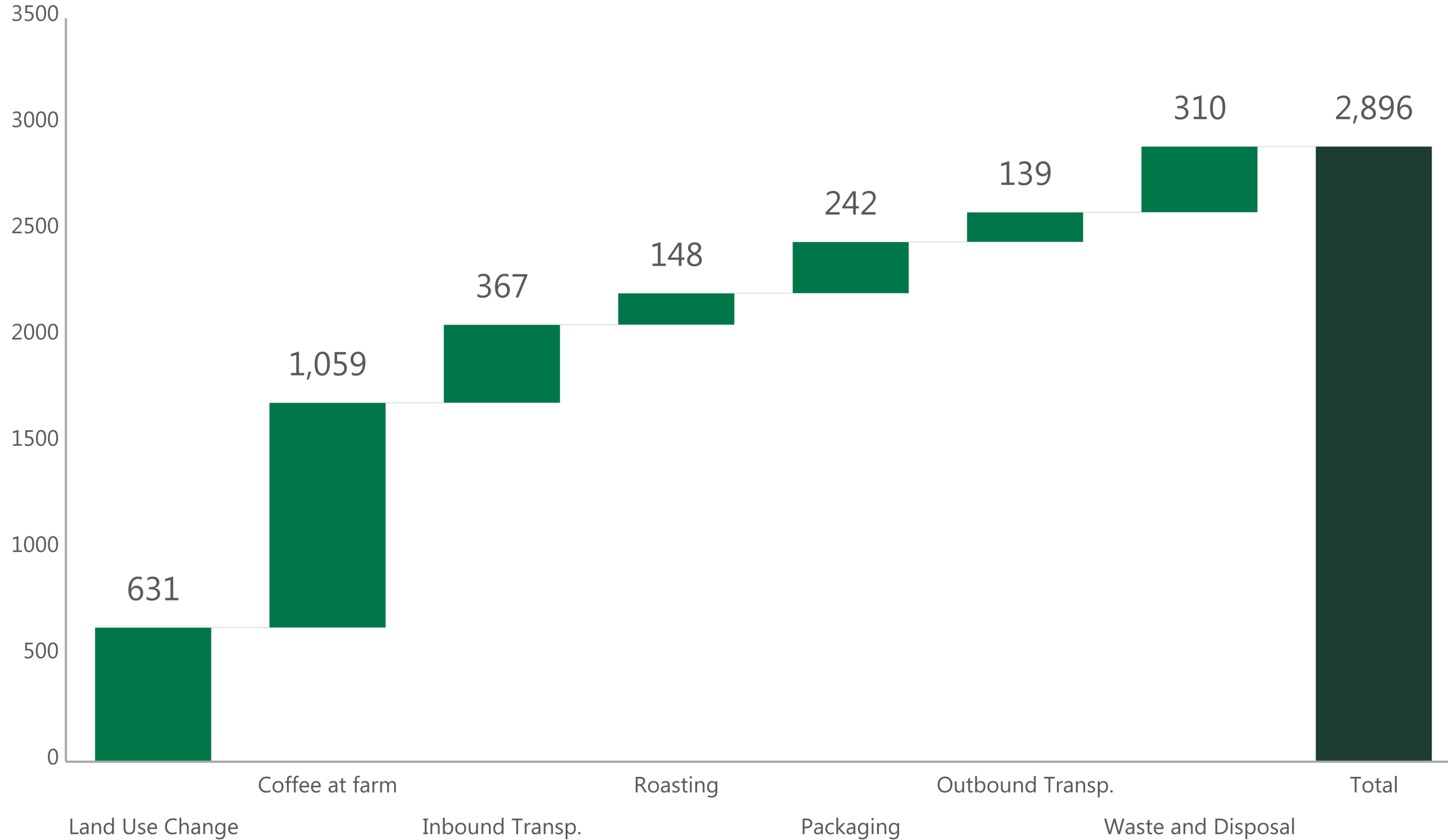Carbon: 1059 KMT CO2-eq w/o LUC

Water: 52 Mm3

~ 5% of total company water footprint

LATAM contributes to more than 60% of the Carbon and Water impacts from coffee sourcing.

Coffee Value Chain, Carbon

Coffee, value chain: Carbon Footprint (KMT CO2-eq)

Values on waterfall chart:
- Land Use Change: 631
- Coffee at farm: 1,059
- Inbound Transp.: 367
- Roasting: 148
- Packaging: 242
- Outbound Transp.: 139
- Waste and Disposal: 310
- Total: 2,896

Key Takeaways

Land Use Change and coffee production are the largest contributors to the total Carbon of coffee value chain;
LUC ~ 22%
Coffee, at farm ~ 37%

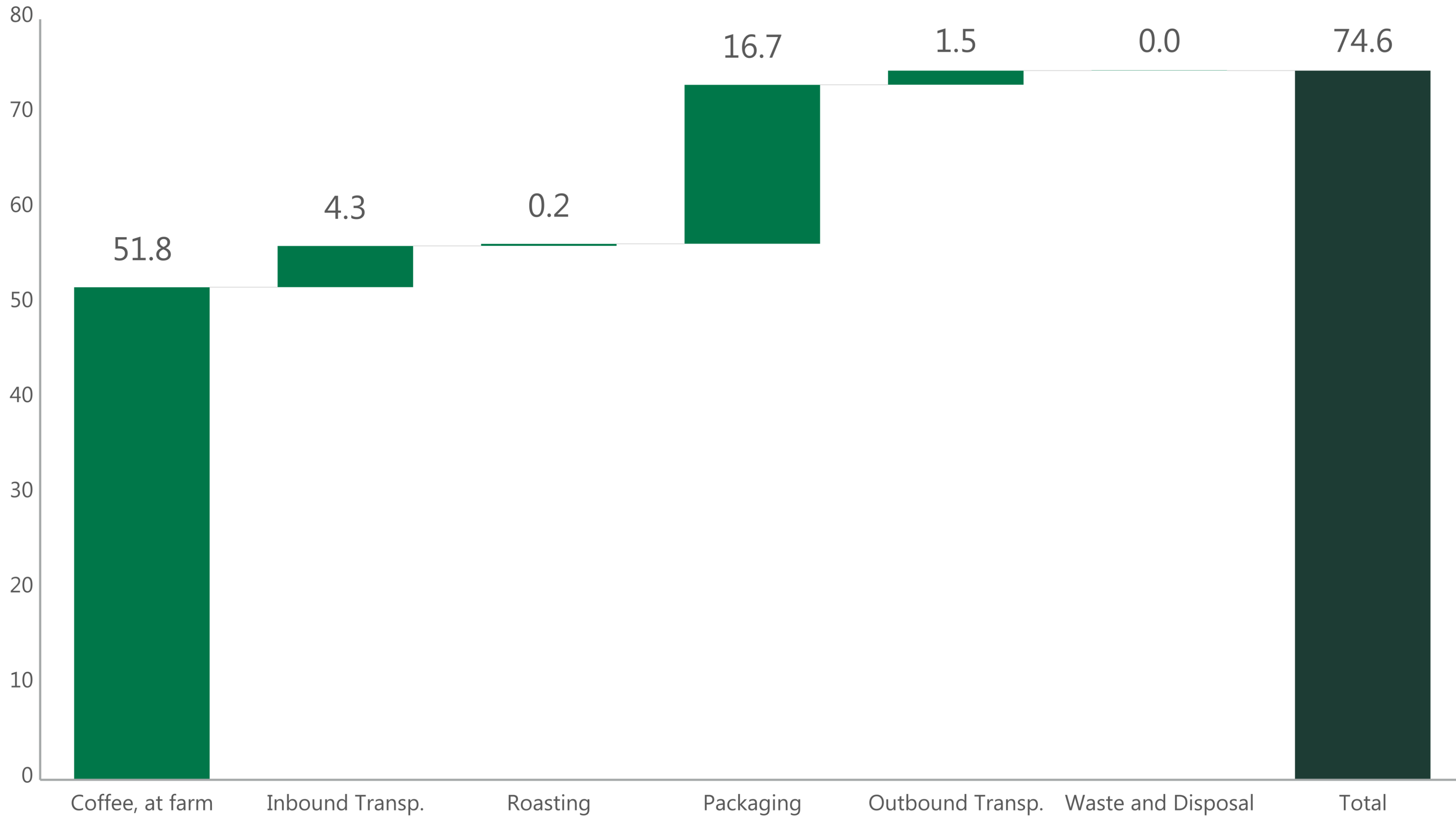The total value chain of coffee represents ~ 19% of total Carbon footprint

Coffee Value Chain as a Percent of Total Starbucks Footprint

CO$_2$	Water	Waste
19%	5%	8%

Coffee, value chain, Water Footprint

Coffee, value chain: Water Withdrawal (Mm³ Water)

51.8	4.3	0.2	16.7	1.5	0.0	74.6
Coffee, at farm	Inbound Transp.	Roasting	Packaging	Outbound Transp.	Waste and Disposal	Total

Key Takeaways

Coffee production at farm accounts for 69% of the total impact of the value chain.

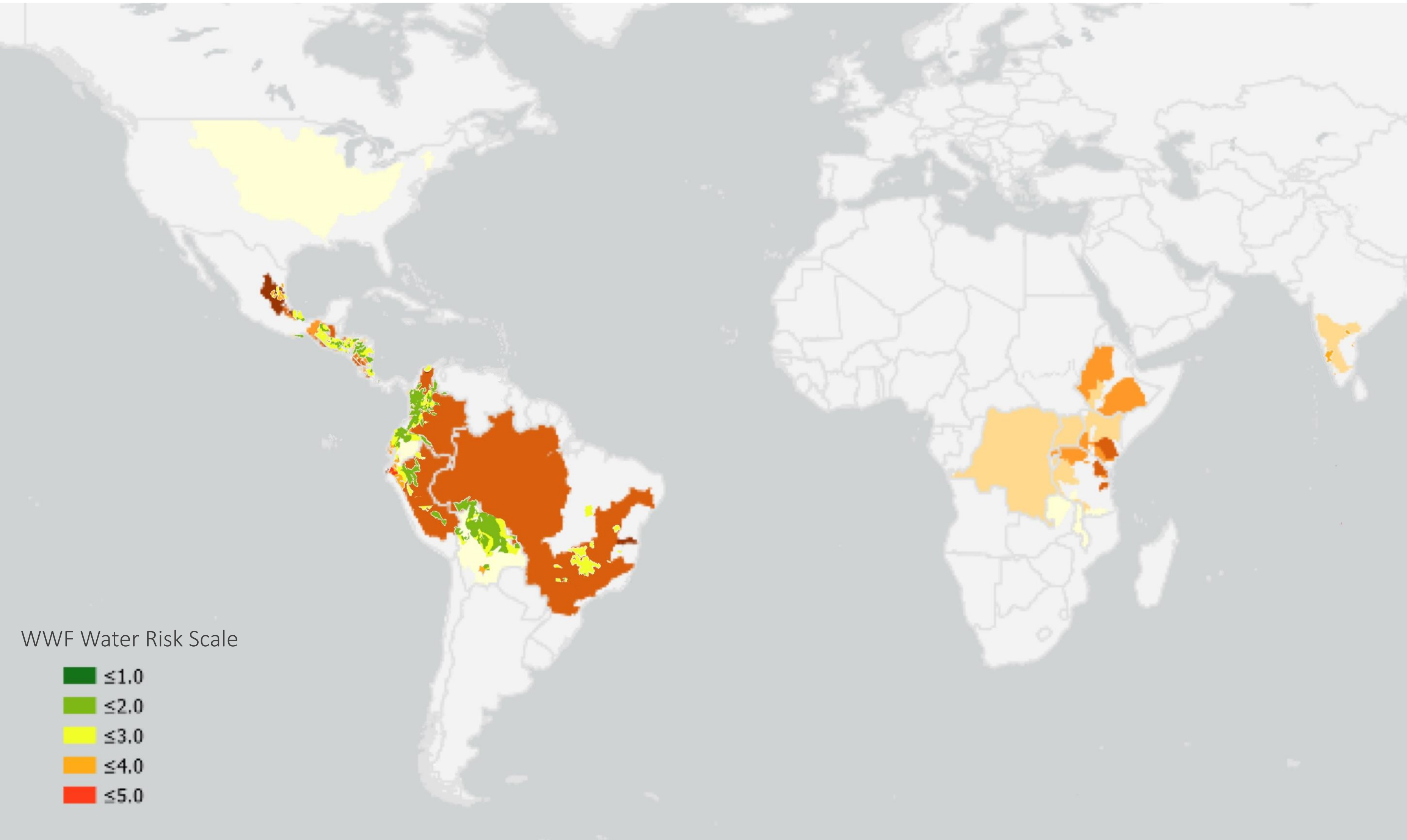The total value chain of coffee represents ~9% of total company water footprint.

Water withdrawal in coffee production and processing is the highest contributor to coffee water impacts.

Coffee Value Chain as a Percent of Total Starbucks Footprint

CO_2	Water	Waste
19%	5%	8%

Water risks - Coffee

Coffee regions are affected by various water issues including flooding, water quality, and periodic drought.

Flooding was the most frequent water risk across all coffee sourcing locations.

In addition to risk areas identified there are other coffee sourcing regions susceptible to drought, such as Nicaragua, Costa Rica, Honduras and Tanzania.
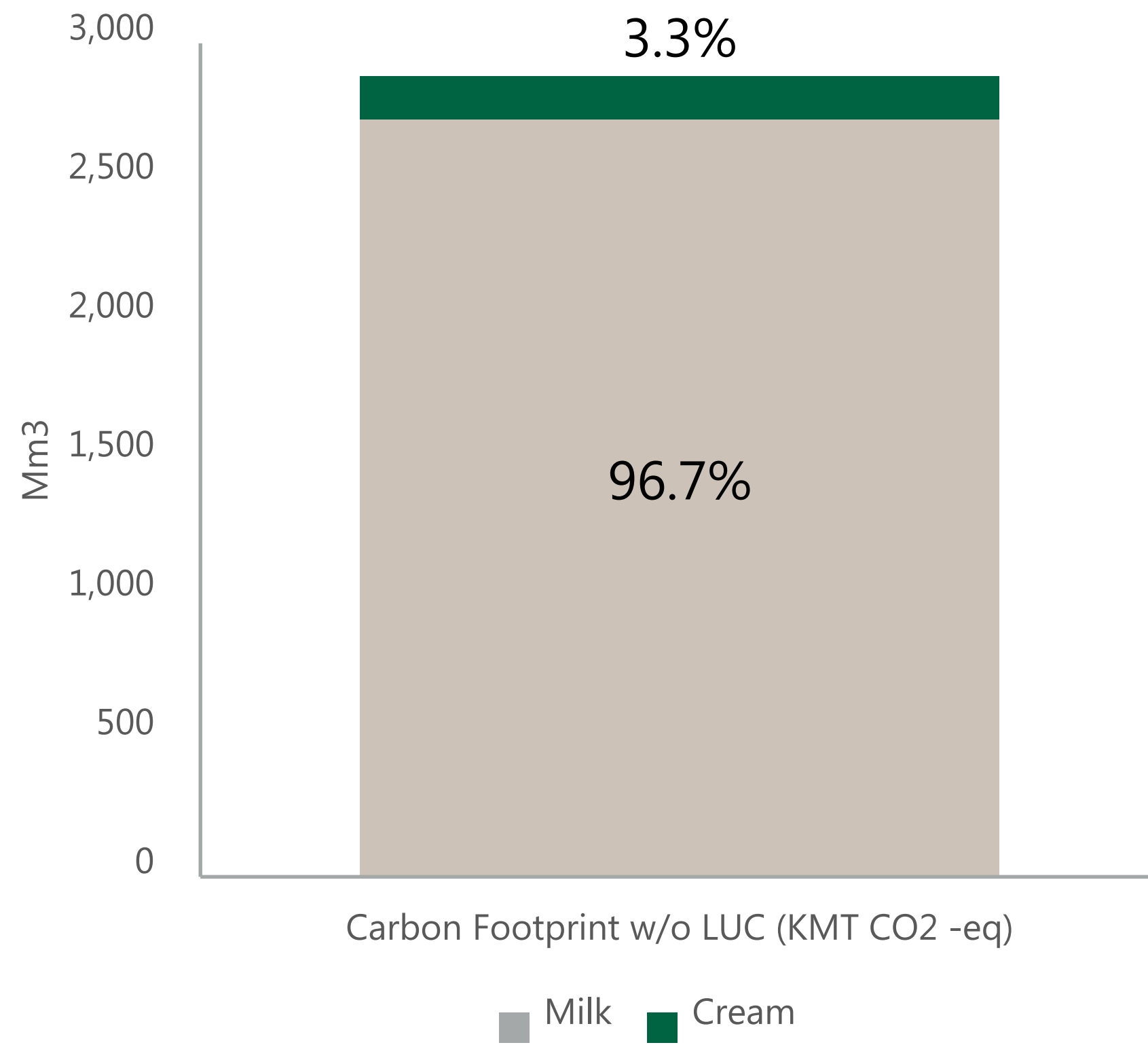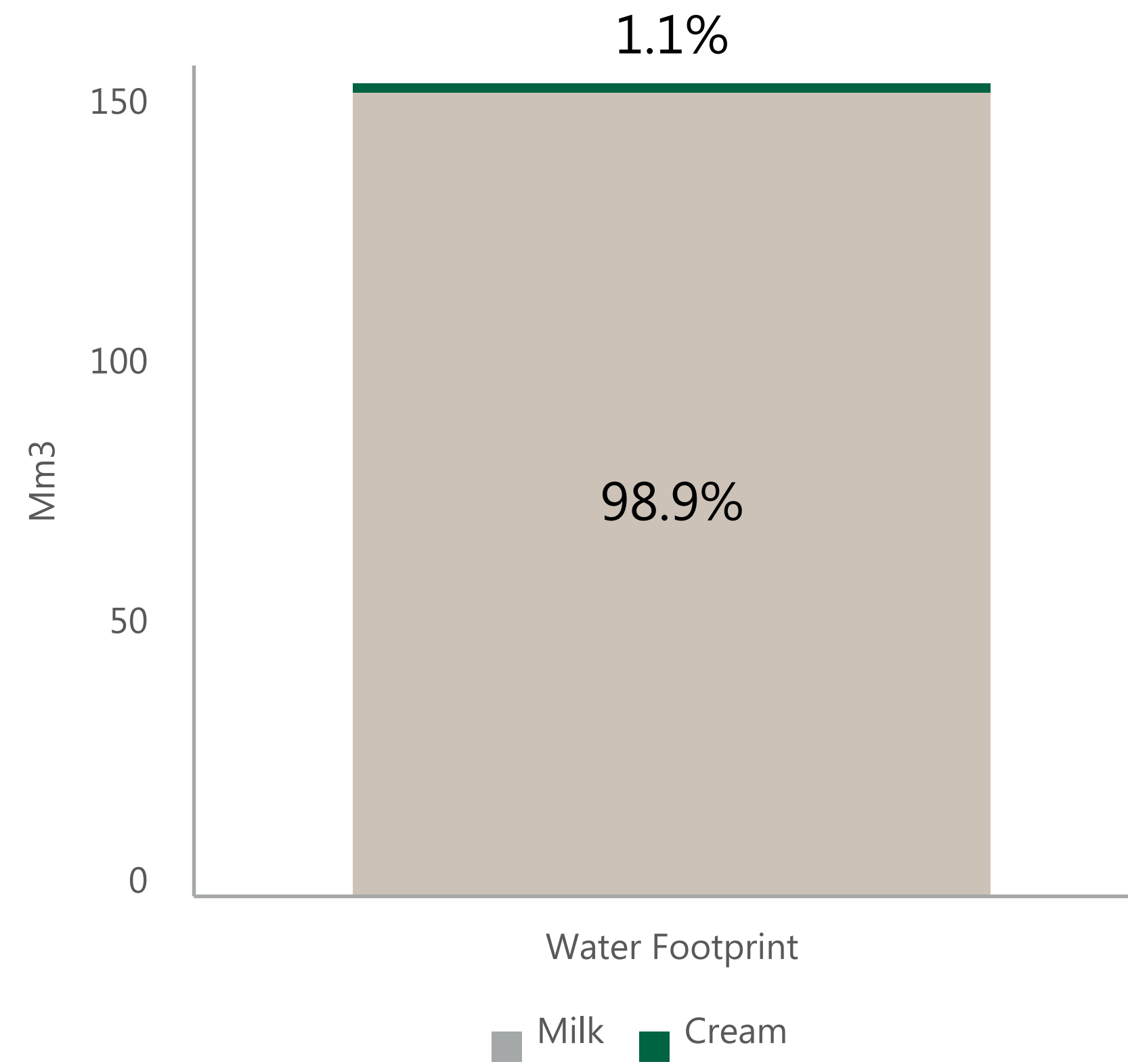
WWF Water Risk Scale

- ≤1.0
- ≤2.0
- ≤3.0
- ≤4.0
- ≤5.0

DAIRY

Dairy Global Breakdown

Carbon Footprint w/o LUC (KMT CO2-eq)

3.3%

96.7%

Mm3

3,000 · 2,500 · 2,000 · 1,500 · 1,000 · 500 · 0

Carbon Footprint w/o LUC (KMT CO2 -eq)

■ Milk ■ Cream

Water Footprint (Mm3)

1.1%

98.9%

Mm3

150 · 100 · 50 · 0

Water Footprint

■ Milk ■ Cream

This data represents production only

Dairy Key Takeaways

Carbon: 3.34 MMT CO2-eq (included LUC)

~ 21% of total carbon footprint
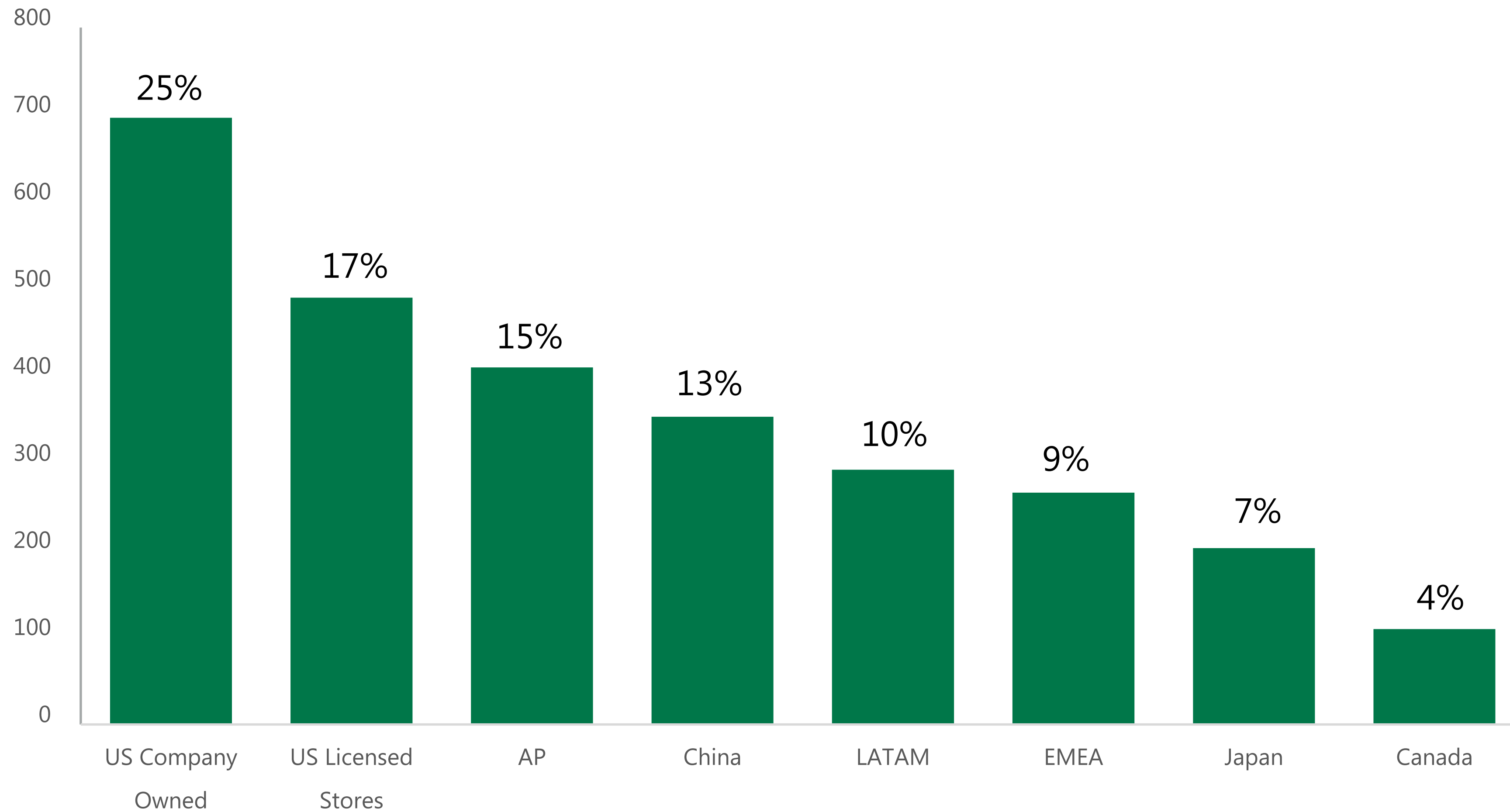
Carbon: 2.82 MMT CO2-eq w/o LUC

Water: 157 Mm3

~ 15% of total water footprint

2 | Top Categories by Environmental Footprint | Dairy

Regional Carbon Footprint Breakdown

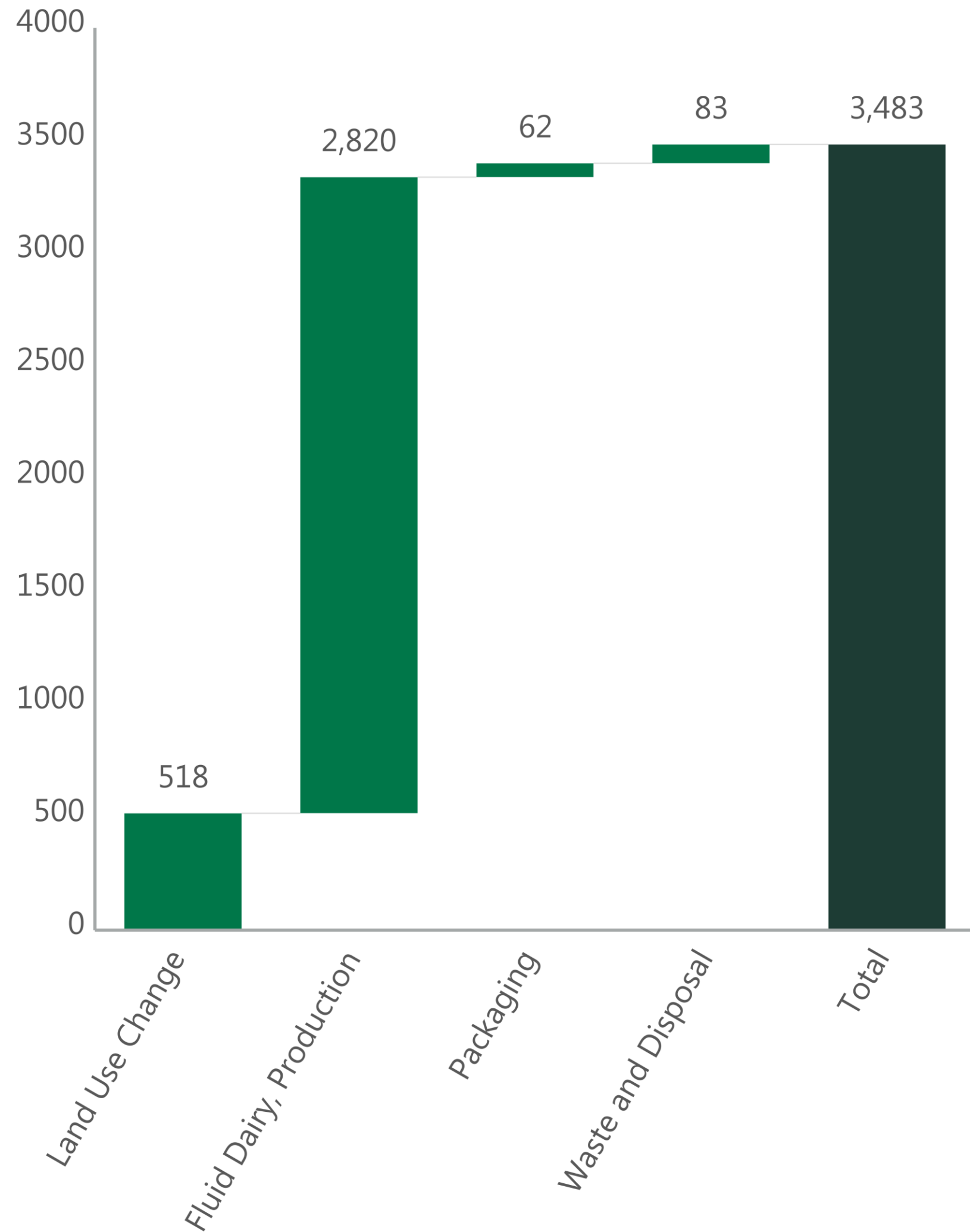Dairy Breakdown, Fluid Milk: Carbon Footprint (KMT CO2-eq)

Regional Dairy Environmental Factors from China, AP and LATAM are higher contributors in magnitude to Carbon Footprint, per kg, when compared to US and Canada (~ 2,5 times) due to local production practices and feed production.
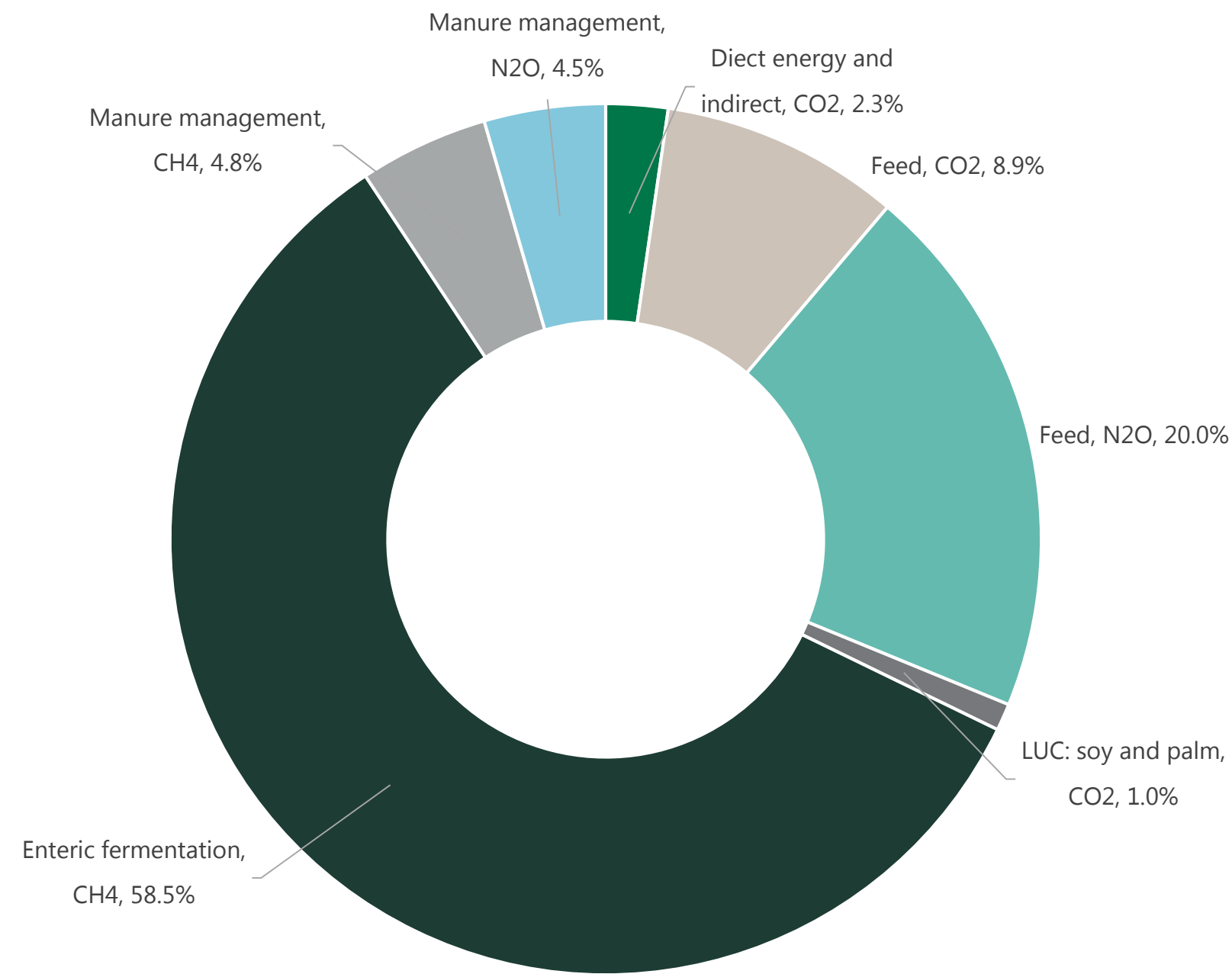
*Data excludes dairy Land Use Change

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Fluid Dairy value chain, Carbon Footprint

Dairy, value chain: Carbon Footprint (KMT CO2-eq)

Bar chart values:
- Land Use Change: 518
- Fluid Dairy, Production: 2,820
- Packaging: 62
- Waste and Disposal: 83
- Total: 3,483

Global Dairy: GHG Emissions Breakdown On-farm

Sources of GHG emissions from the global dairy cattle systems, 2015

Donut chart segments:
- Manure management, CH4, 4.8%
- Manure management, N2O, 4.5%
- Diect energy and indirect, CO2, 2.3%
- Feed, CO2, 8.9%
- Feed, N2O, 20.0%
- LUC: soy and palm, CO2, 1.0%
- Enteric fermentation, CH4, 58.5%

Source: Climate Change and the Global Dairy Sector, FAO, 2019

Global Dairy: GHG Emissions

The most important factors driving the carbon footprint in dairy systems globally include milk production level of the herd, animal diets, and manure-handling practices.

The total value chain of Fluid Dairy represents ~ 22% of total Carbon footprint

Globally, enteric methane and feed production are the largest drivers, followed by manure management.

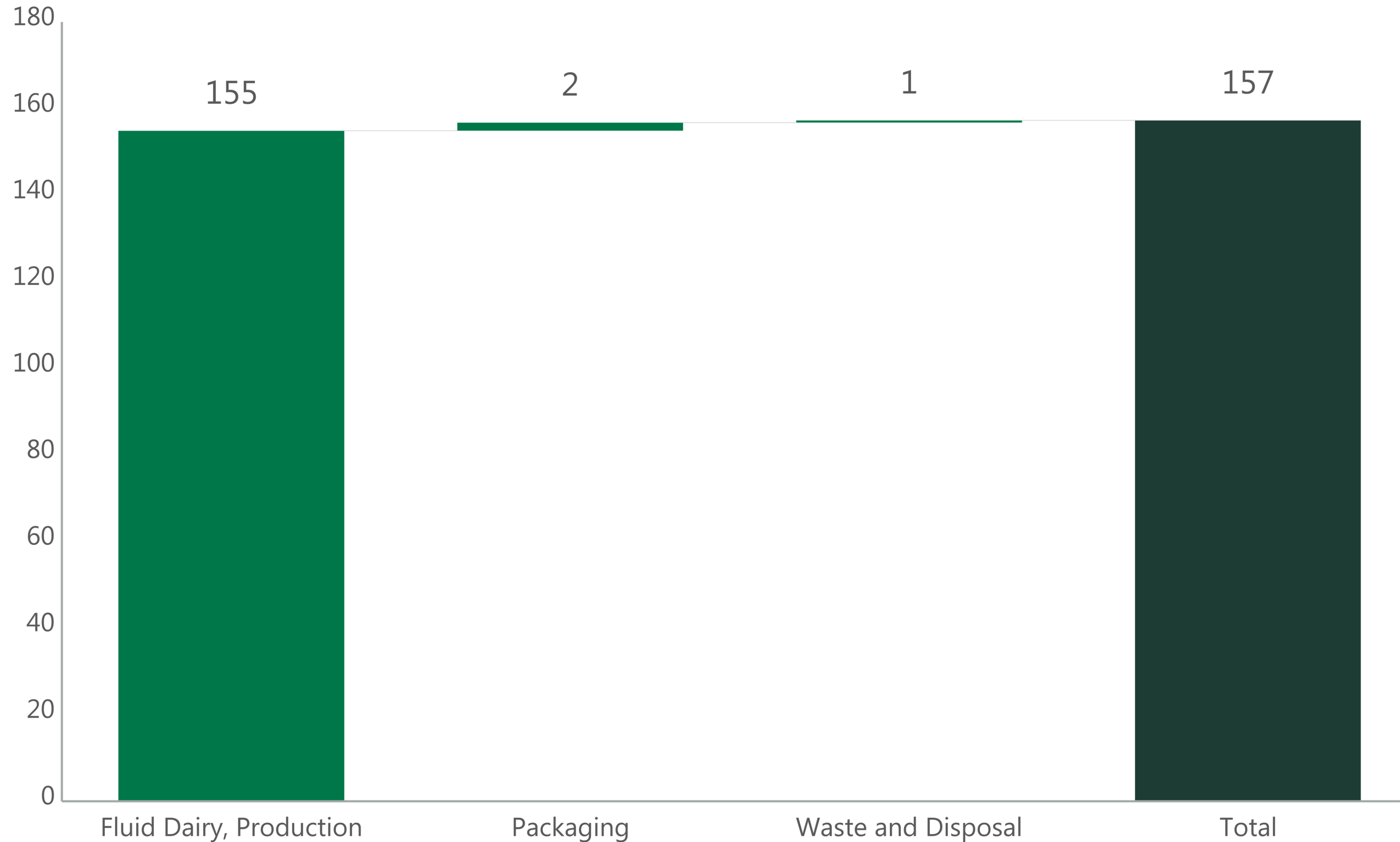In many parts of the world, increasing animal productivity is an effective GHG mitigation strategy.

Dairy Value Chain as a Percent of Total Starbucks Footprint

CO$_2$	Water	Waste
22%	16%	20%

Fluid Dairy Value Chain, Water

Fluid Milk value chain: Water Withdrawal (Mm³ Water)

Key Takeaways

The highest impact in terms of water footprint occurs in Fluid Dairy, production.

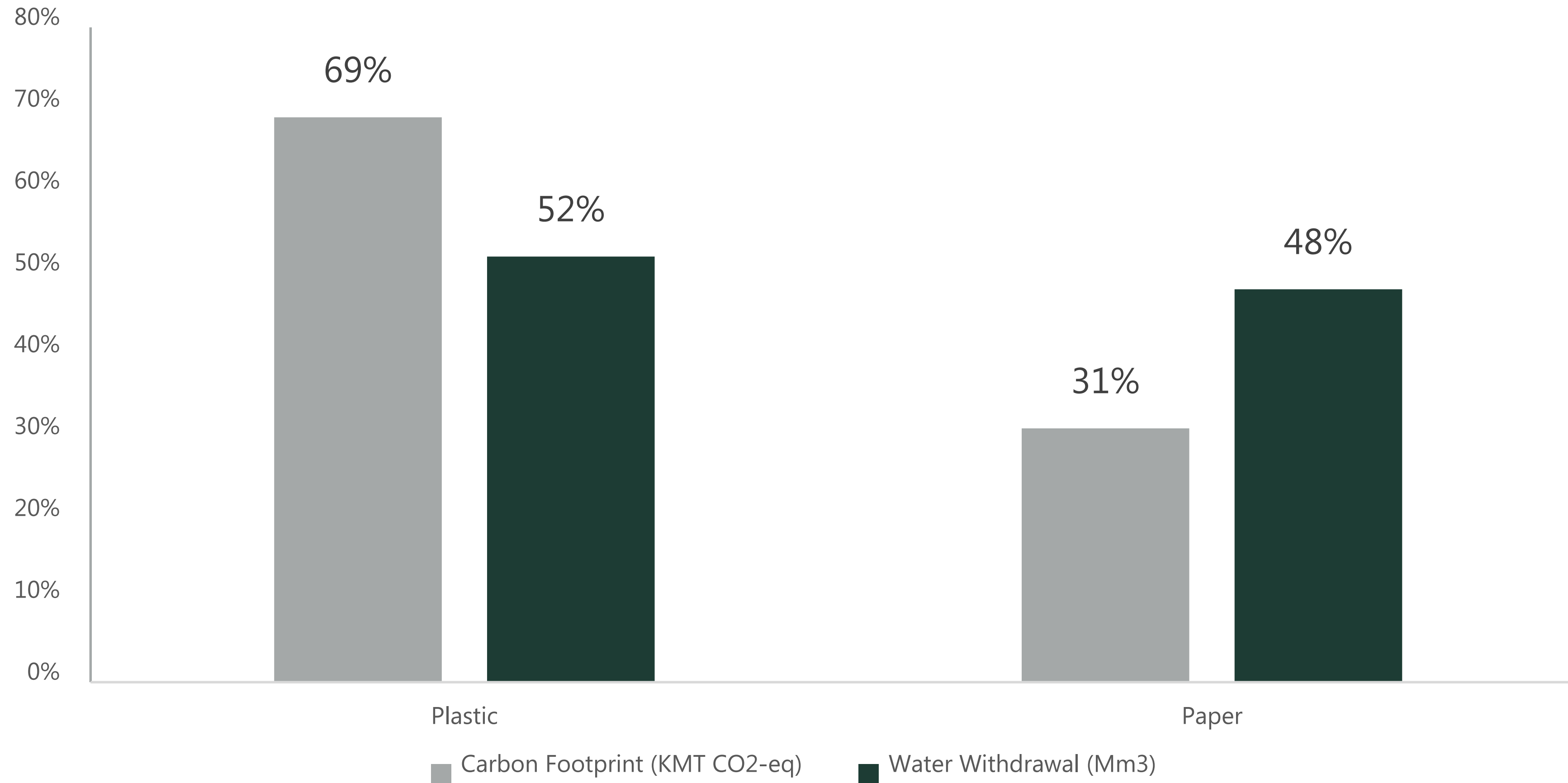The total value chain of Fluid Dairy represents ~ 16% of total Water Footprint.

Dairy Value Chain as a Percent of Total Starbucks Footprint

CO_2	Water	Waste
22%	16%	20%

PACKAGING

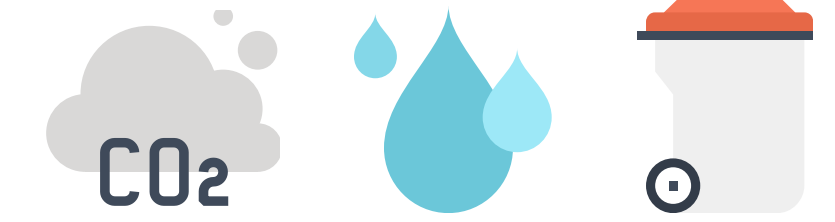# Global Packaging Breakdown – Paper vs Plastic

Packaging Key Takeaways

Carbon: 900 KMT CO2-eq
~ 6% of total carbon footprint

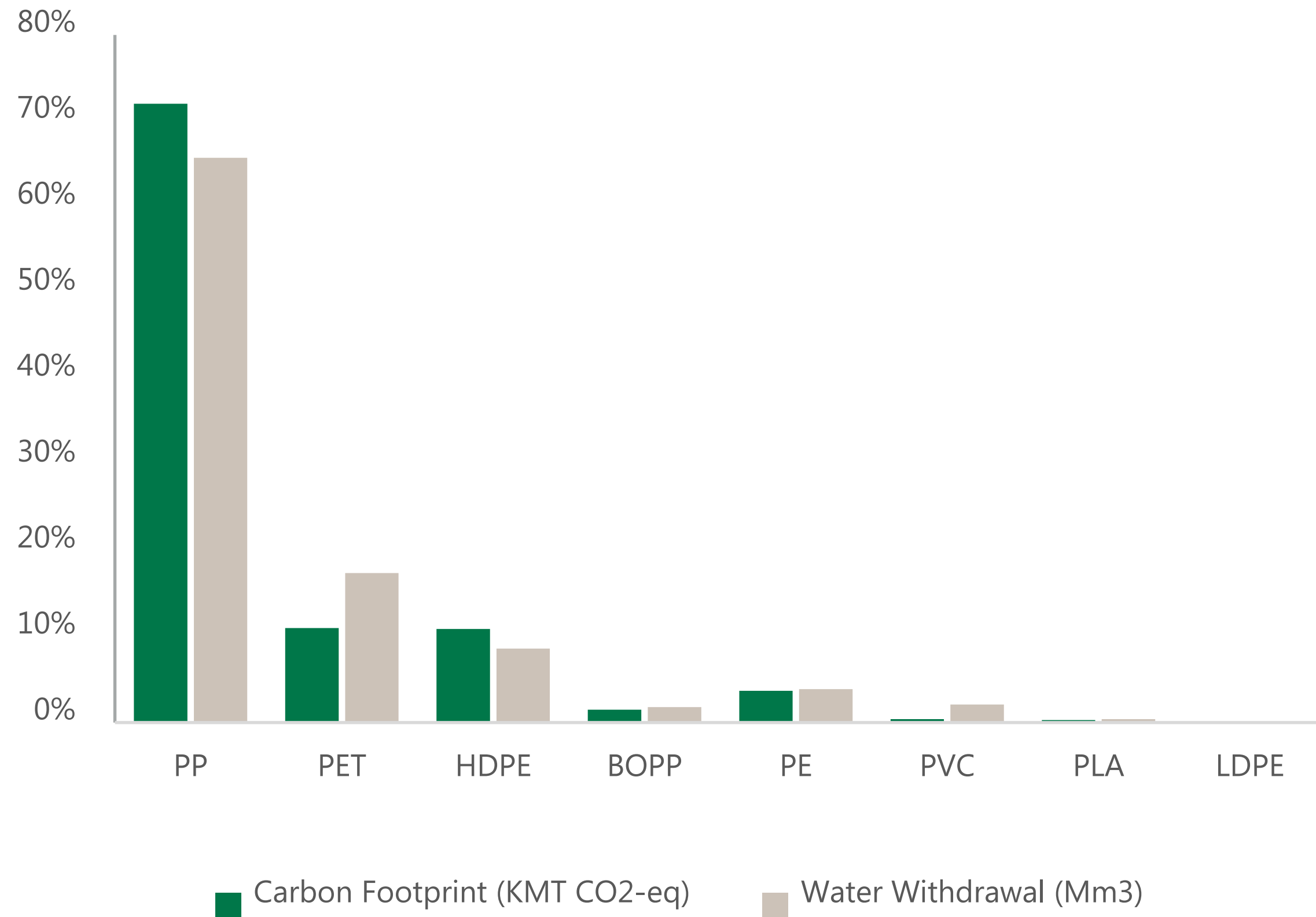**Water: 47 Mm3**
~ 5% of total water footprint

Plastic contributes to nearly 70% of the Carbon and water emissions for packaging.
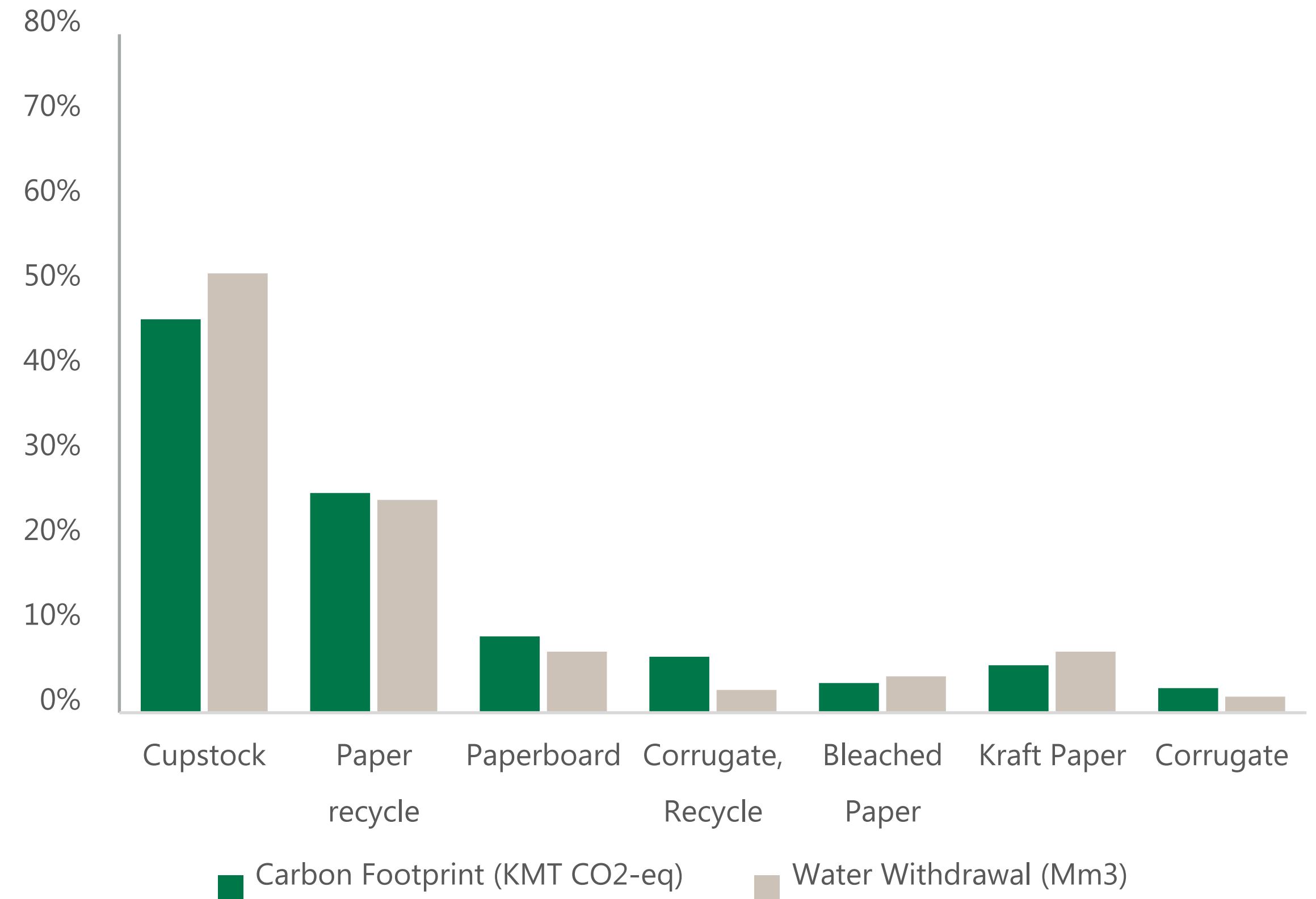
Plastic
- 69% — Carbon Footprint
- 52% — Water Withdrawal

Paper
- 31% — Carbon Footprint
- 48% — Water Withdrawal

■ Carbon Footprint (KMT CO2-eq) ■ Water Withdrawal (Mm3)

Plastic includes beverage components, cold & hot cup, jug, packaged coffee, packaged food, and others;

Paper includes cups, warming paper, bags, cup sleeves and others.

Packaging – Plastics and Paper

Plastic impact contribution by type

Paper impact contribution by type

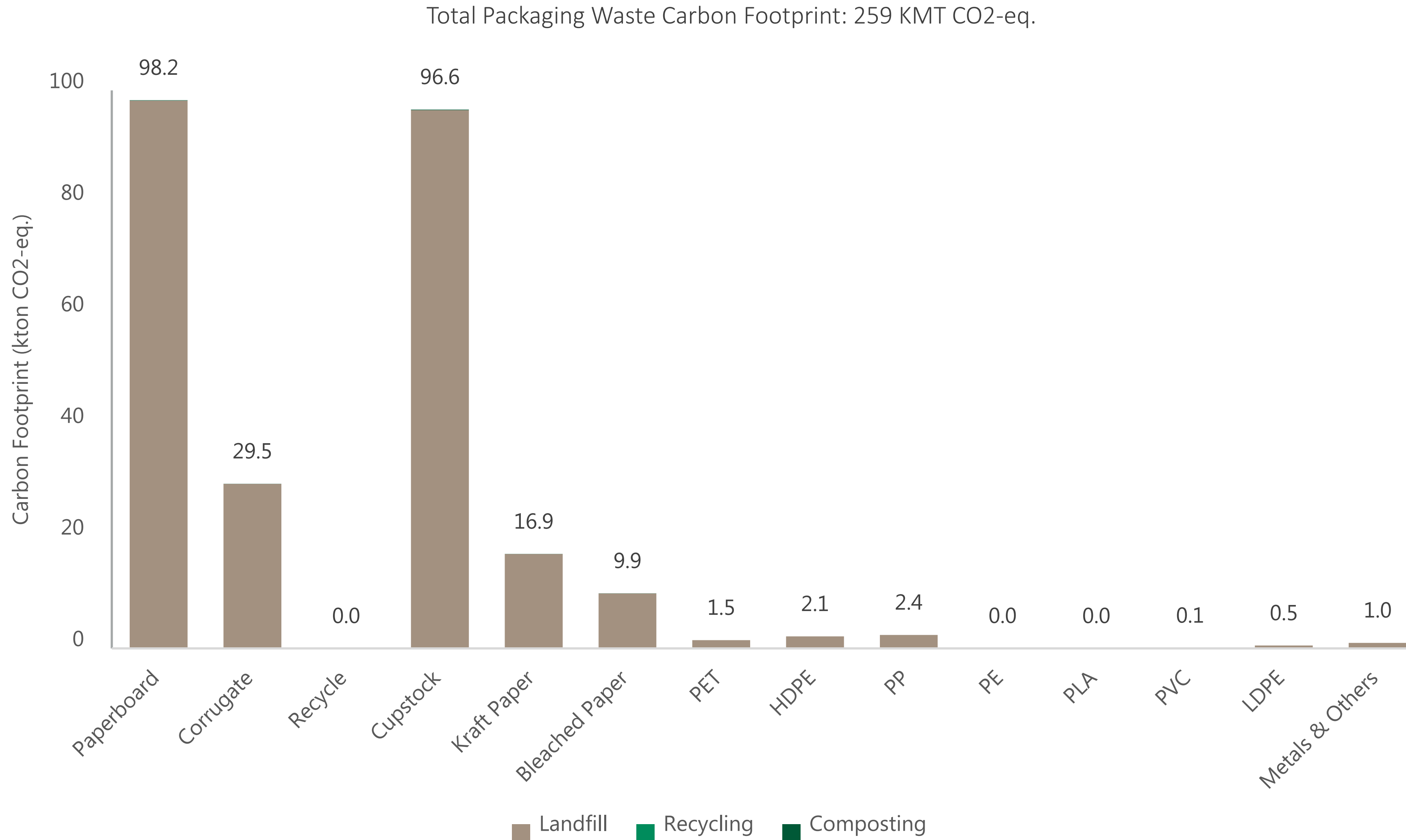Carbon Footprint (KMT CO2-eq)   Water Withdrawal (Mm3)

- Total Carbon: 622.3 KMT CO2-eq ~ 69% of packaging Carbon
- Total water footprint: 24.3 m3 ~ 52% of packaging Carbon
- PP and PET are the highest contributors to plastic Carbon and water footprint.

- Total Carbon: 275.35 KMT CO2-eq ~ 31% of packaging Carbon
- Total water footprint: 22.76 m3 ~ 48% of packaging Carbon
- Cupstock , paper recycle, and Paperboard contribute to more than 75% of Carbon and Water impacts for paper.

Packaging Carbon Footprint – End of Life

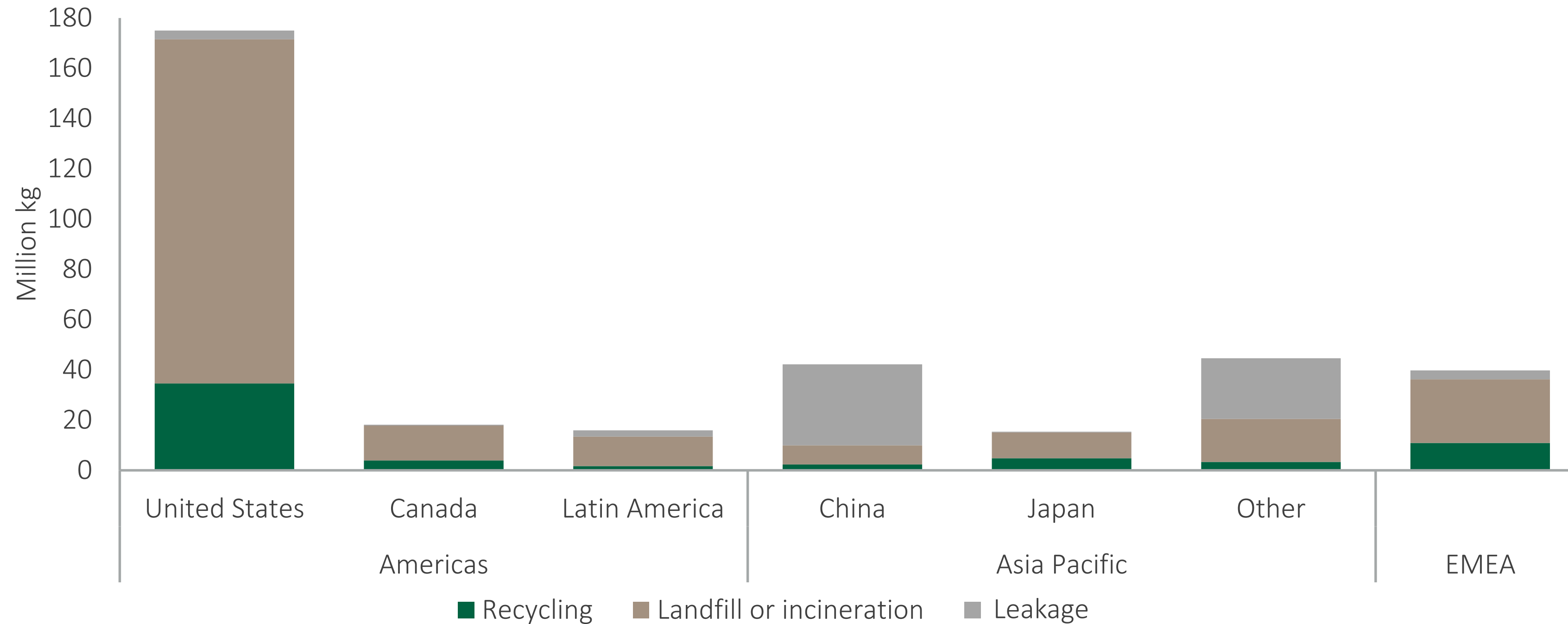Total Packaging Waste Carbon Footprint: 259 KMT CO2-eq.

Paper & Cardboard generates 95% of Carbon emissions, despite being less than half of packaging waste.

Plastic has low end of life emissions as it's inert.

Packaging: End-of-Life Fate by Market

Estimated end-of-life fate by market

Legend: ■ Recycling ■ Landfill or incineration ■ Leakage

Asia Pacific accounts for the majority of mismanaged waste due to limited infrastructure

Global estimates extrapolated based on data from US company-operated stores

	Global Average	kg
Recycling	17.6%	61,720,349
Landfill or incineration	63.5%	222,937,020
Leakage	18.9%	66,505,085

Packaging: End-of-Life Fate

Estimated end-of-life fate by material

Million kg

Plastic: PP, HDPE, PET, PE, BOPP, LDPE, PLA

Paper: Cupstock, Corrugate, Kraft paper, Paper, Paperboard, Bleached paper

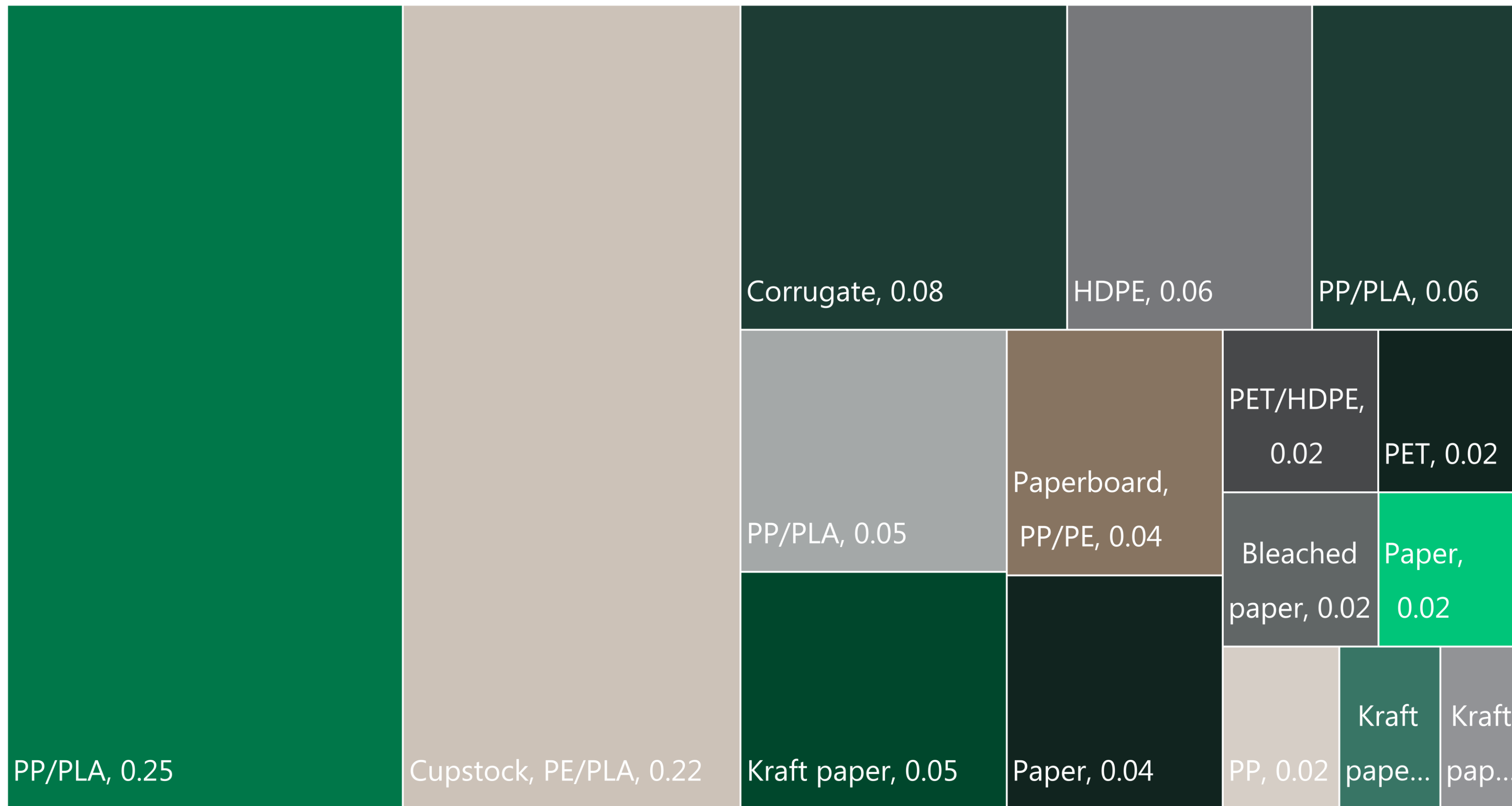■ Recycling   ■ Landfill or incineration   ■ Mismanaged

Widely recyclable plastic packaging (rigid PET, HDPE, and PP containers) accounts for 94% of plastic footprint

Global packaging footprint
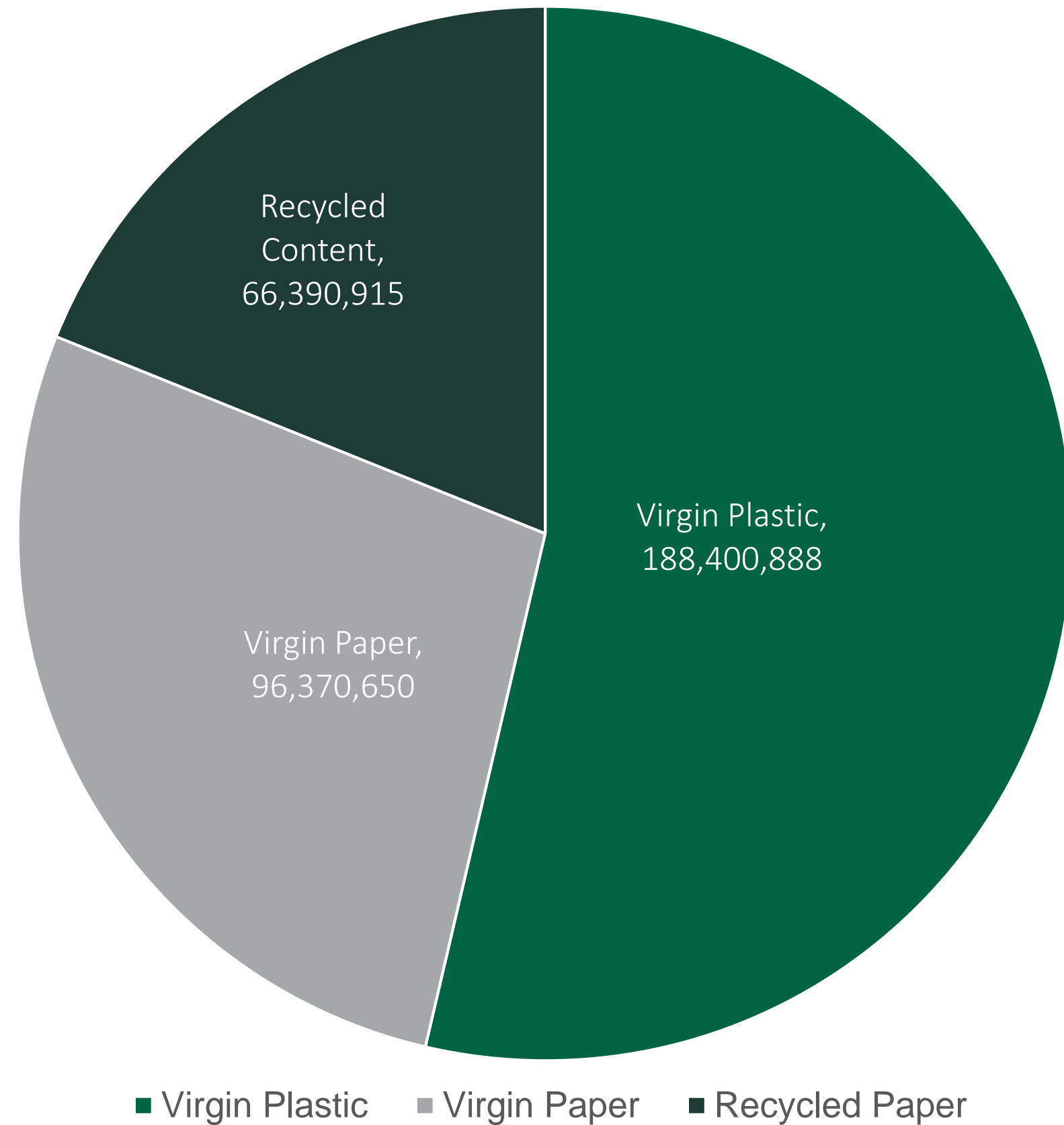
Global packaging use by material

	%	kg
Plastic	53.7%	188,400,888
Paper	46.3%	162,761,565
Total	**100.0%**	**351,162,453**

Beverage system (cups, lids, sleeves, & straws) accounts for 50% of packaging waste footprint.

Packaging: Sustainable Material Inputs
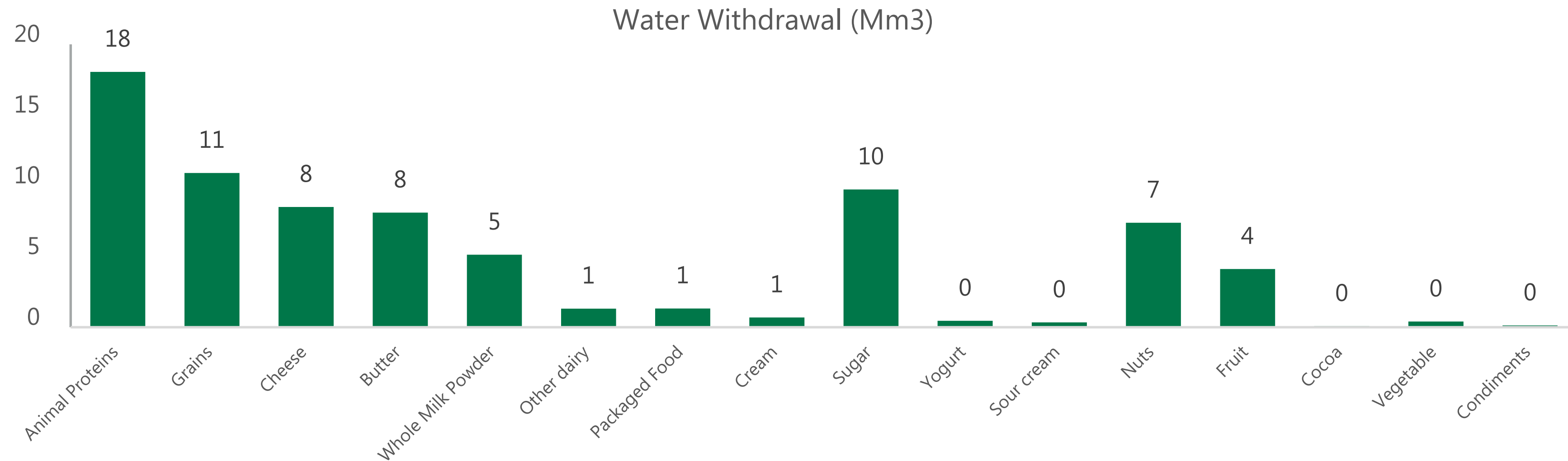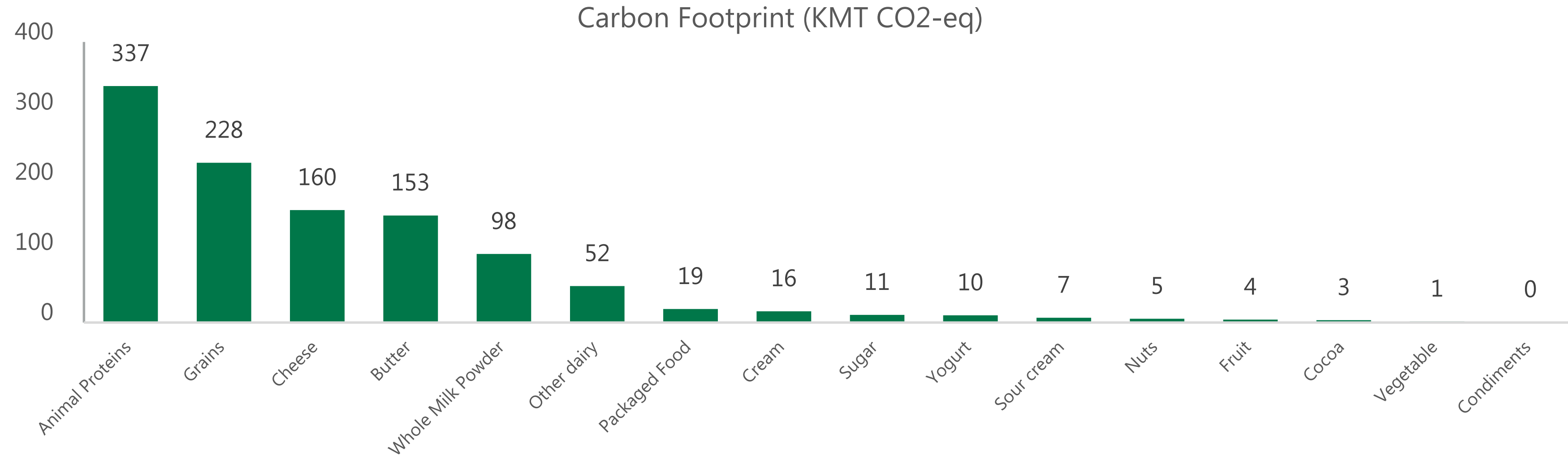
Global packaging inputs, kg

- ■ Virgin Plastic ■ Virgin Paper ■ Recycled Paper

Material	Recycled Content	Virgin content
Cupstock	11.0%	89.0%
Corrugate	70.0%	30.0%
Kraft paper	67.6%	32.4%
Paper	100.0%	0.0%
Paperboard	0.0%	100.0%
Bleached paper	0.0%	100.0%
Paper Total	40.8%	59.2%
Plastic Total	0.0%	100.0%
Grand Total	18.9%	81.1%

Majority of packaging is currently virgin material

FOOD

Food Breakdown

Carbon Footprint (KMT CO2-eq)

Category	Value
Animal Proteins	337
Grains	228
Cheese	160
Butter	153
Whole Milk Powder	98
Other dairy	52
Packaged Food	19
Cream	16
Sugar	11
Yogurt	10
Sour cream	7
Nuts	5
Fruit	4
Cocoa	3
Vegetable	1
Condiments	0

Water Withdrawal (Mm3)

Category	Value
Animal Proteins	18
Grains	11
Cheese	8
Butter	8
Whole Milk Powder	5
Other dairy	1
Packaged Food	1
Cream	1
Sugar	10
Yogurt	0
Sour cream	0
Nuts	7
Fruit	4
Cocoa	0
Vegetable	0
Condiments	0

Food Key Takeaways

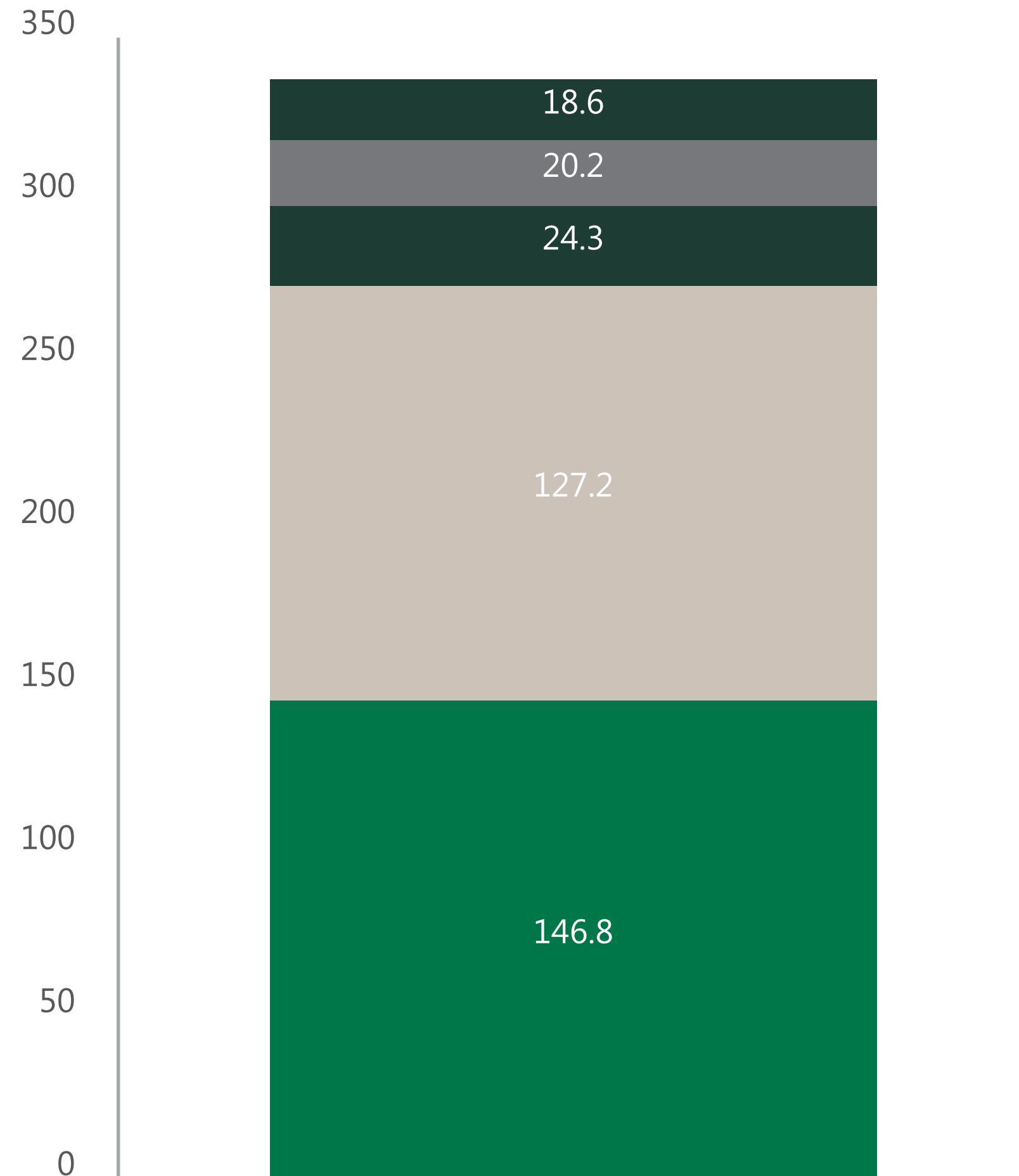Carbon: 1,131 KMT CO2-eq
~ 7% of total carbon footprint

Water: 77 Mm3
~ 8% of total water footprint

Animal protein is the highest contributor to carbon and water footprint in food category

Sugar, nuts, vanilla and fruits in general are important in terms of water footprint
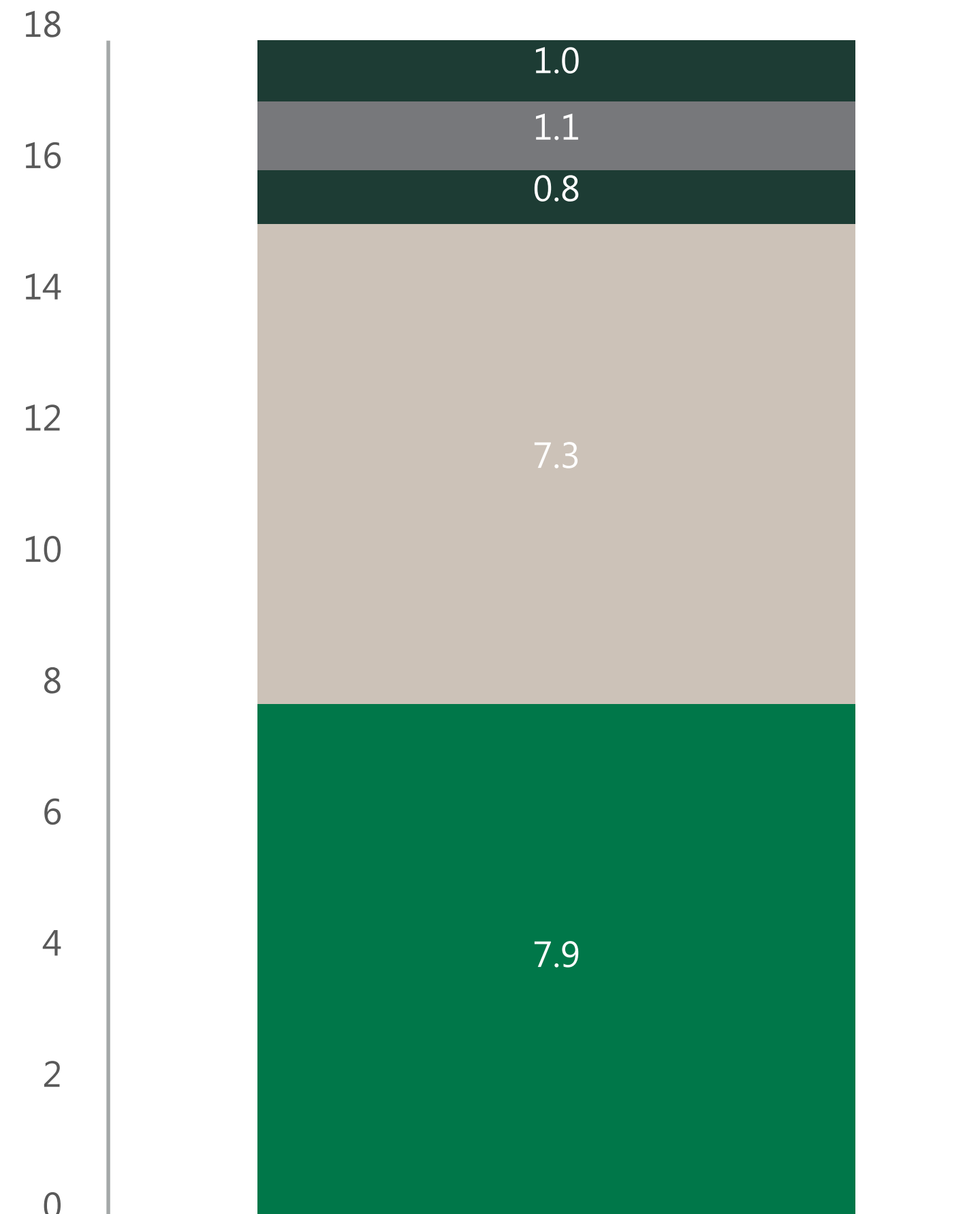
Animal Protein breakdown

Carbon Footprint (KMT CO2-eq)

- Eggs
- Pork
- Beef
- Chicken
- Turkey

Water Footprint (Mm3)

- Eggs
- Pork
- Beef
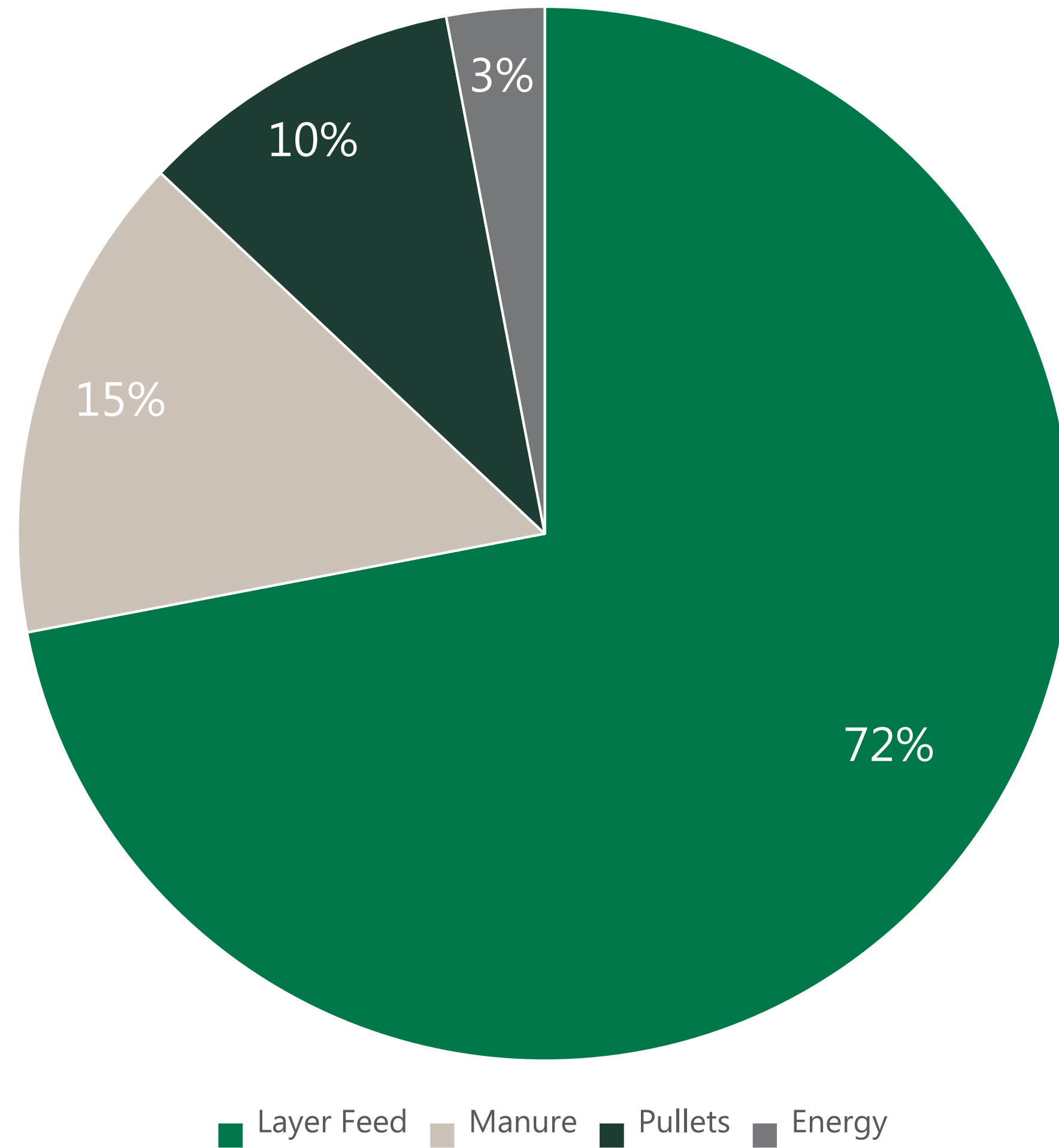- Chicken
- Turkey

CO₂

Animal Protein

Carbon:
337 KMT CO2-eq
~ 2% of total company Carbon

Water:
18 Mm3

~ 2% of total water footprint

US Egg: GHG emissions

U.S. National Average Breakdown Farm Gate CO2e

Legend: ■ Layer Feed ■ Manure ■ Pullets ■ Energy
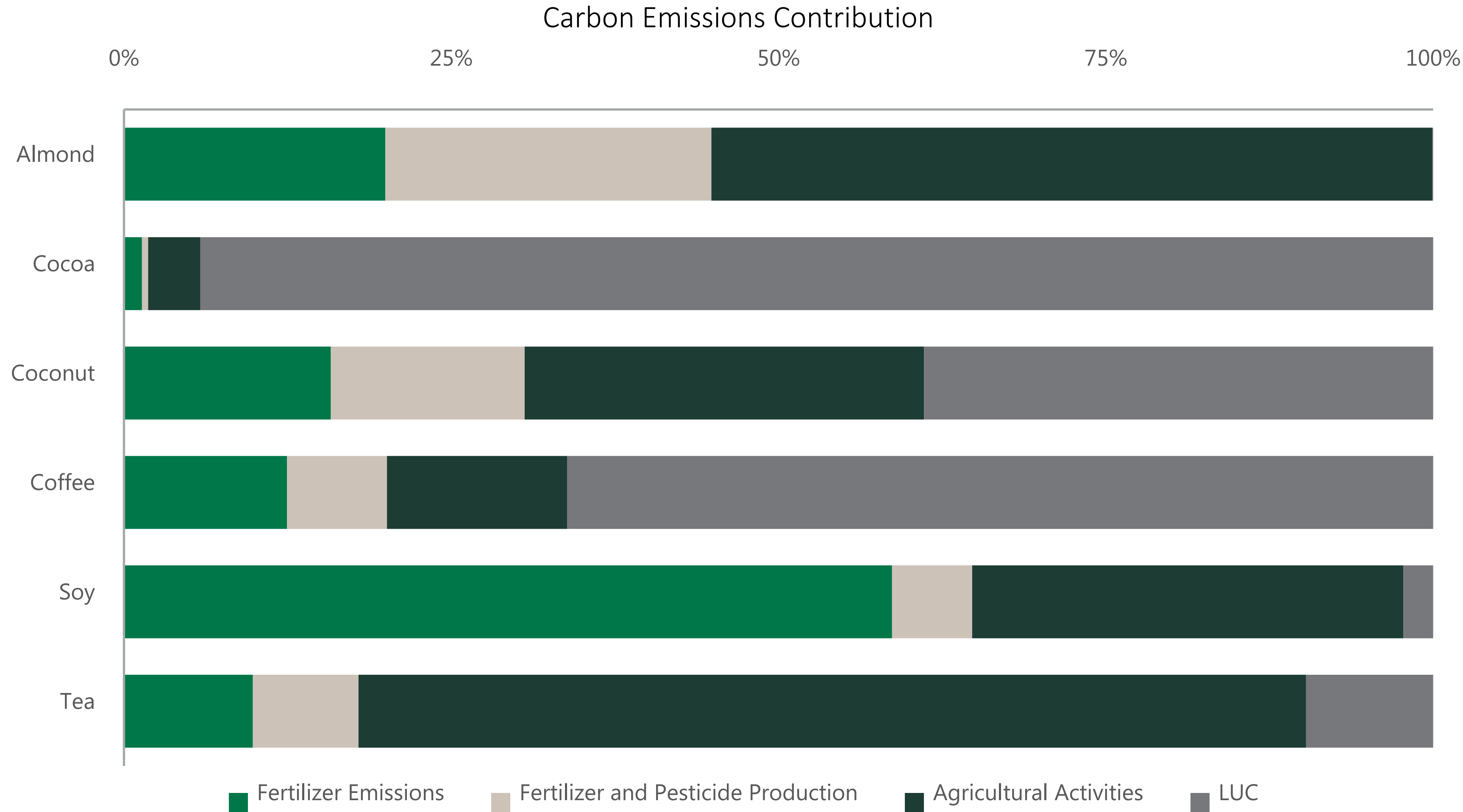
Values shown: 72%, 15%, 10%, 3%

Animal Proteins - Eggs

Eggs are responsible for 1% of Starbuck's total carbon footprint.

Pullets are young chickens, footprint is derived from resources to raise them to egg laying age
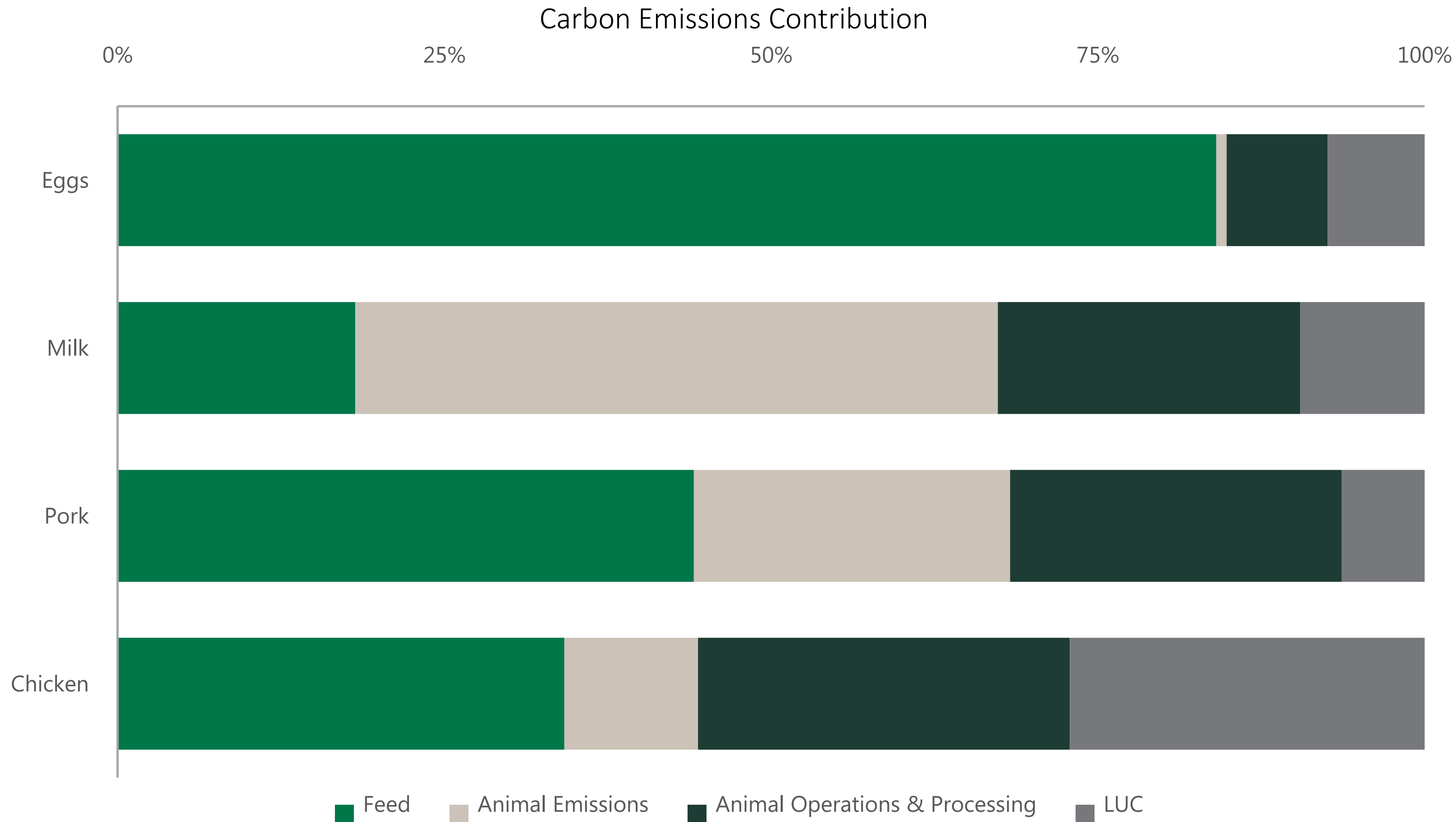
Emissions Drivers for Key Categories - Crops

Carbon Emissions Contribution

Legend:
- Fertilizer Emissions
- Fertilizer and Pesticide Production
- Agricultural Activities
- LUC

Results can vary per production location.
Largest sourcing location selected for each crop

Land Use Change (LUC) varies greatly along crops and can have a significant contribution depending on location.

Direct emissions, from the use of fertilizers and pesticides, is substantial for all crops

Agricultural activities, mainly use of fuel and electricity, can also substantially contribute to crop production emissions.

Emissions Drivers for Key Categories – Agricultural Animal Products

Carbon Emissions Contribution

Legend: Feed · Animal Emissions · Animal Operations & Processing · LUC

Results can vary per production location.
Largest sourcing location selected for each crop

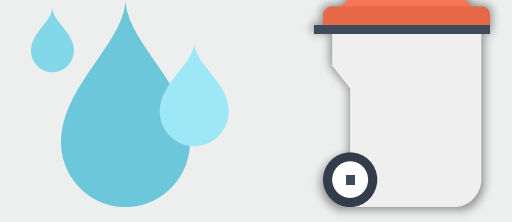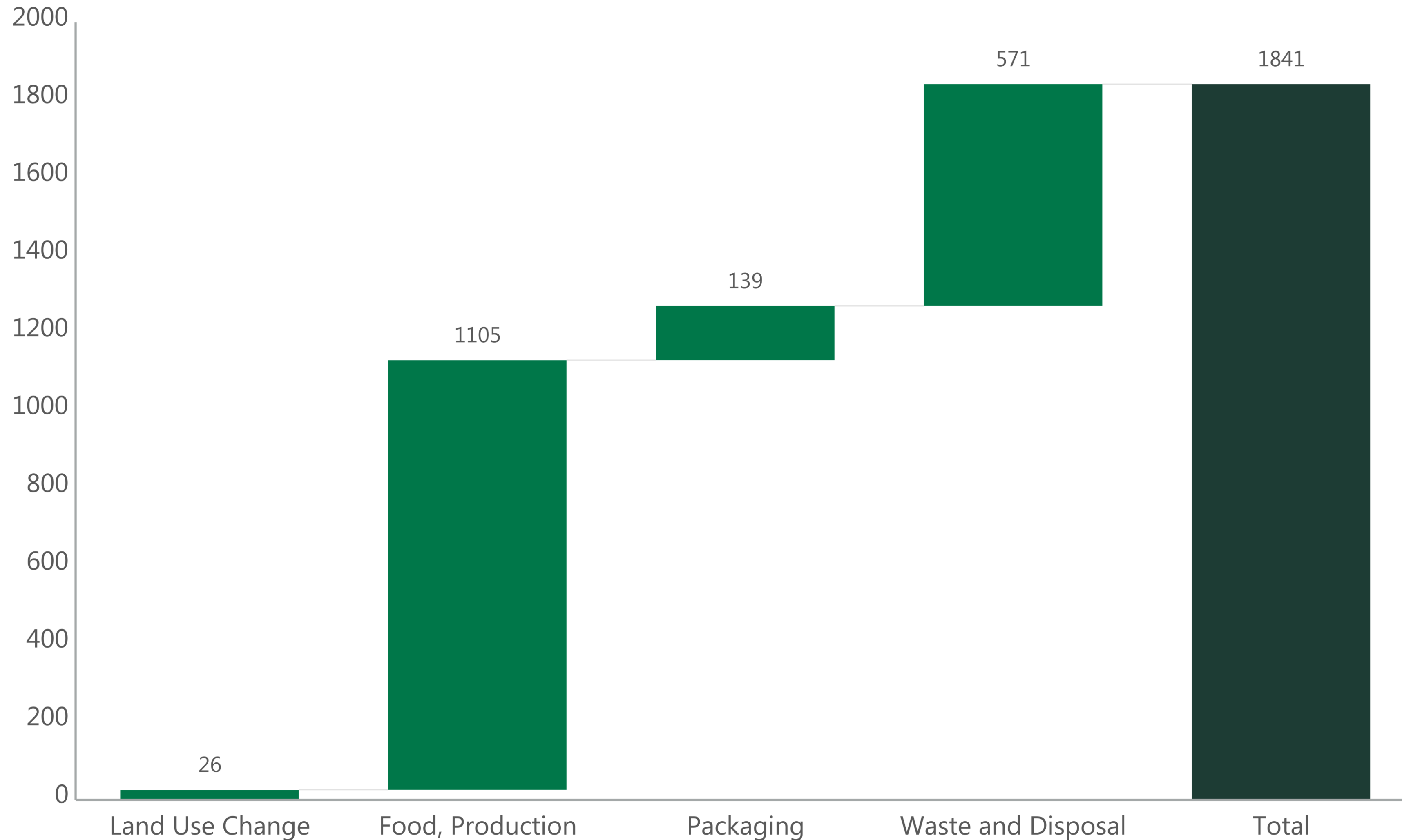**Land Use Change** contributes 6%-10% of total contribution to emissions.

Animal emissions, like enteric and manure management, can represent up to 50% of the total protein footprint.

Feed production is significant driver to all animal protein emissions.

Food Value Chain, Carbon

Food, value chain: Carbon Footprint (kMT CO2-eq)

Key Takeaways

Food production leads to 60% of Carbon impact of the food value chain

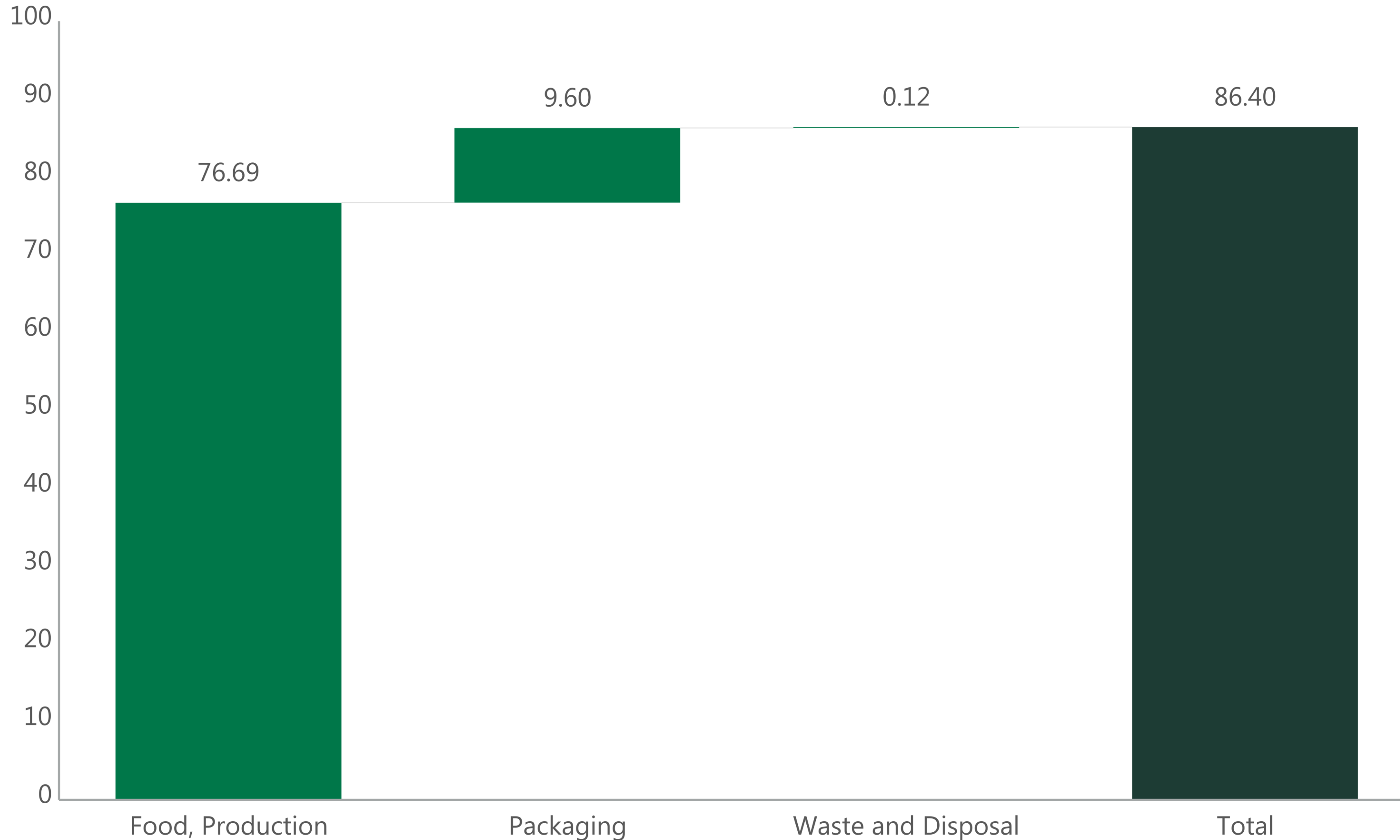The total value chain of Food represents ~ 12% of total Carbon footprint (total + LUC)

*Waste & Disposal Impact is allocated for the value chain based on the contribution of waste packaging and food waste to items categorized as Food Workstream

Food Value Chain as Percent of Total Starbucks Footprint

CO_2	Water	Waste
12%	9%	10%

Food Value Chain, Water

Food, value chain: Water Withdrawal (Mm3)

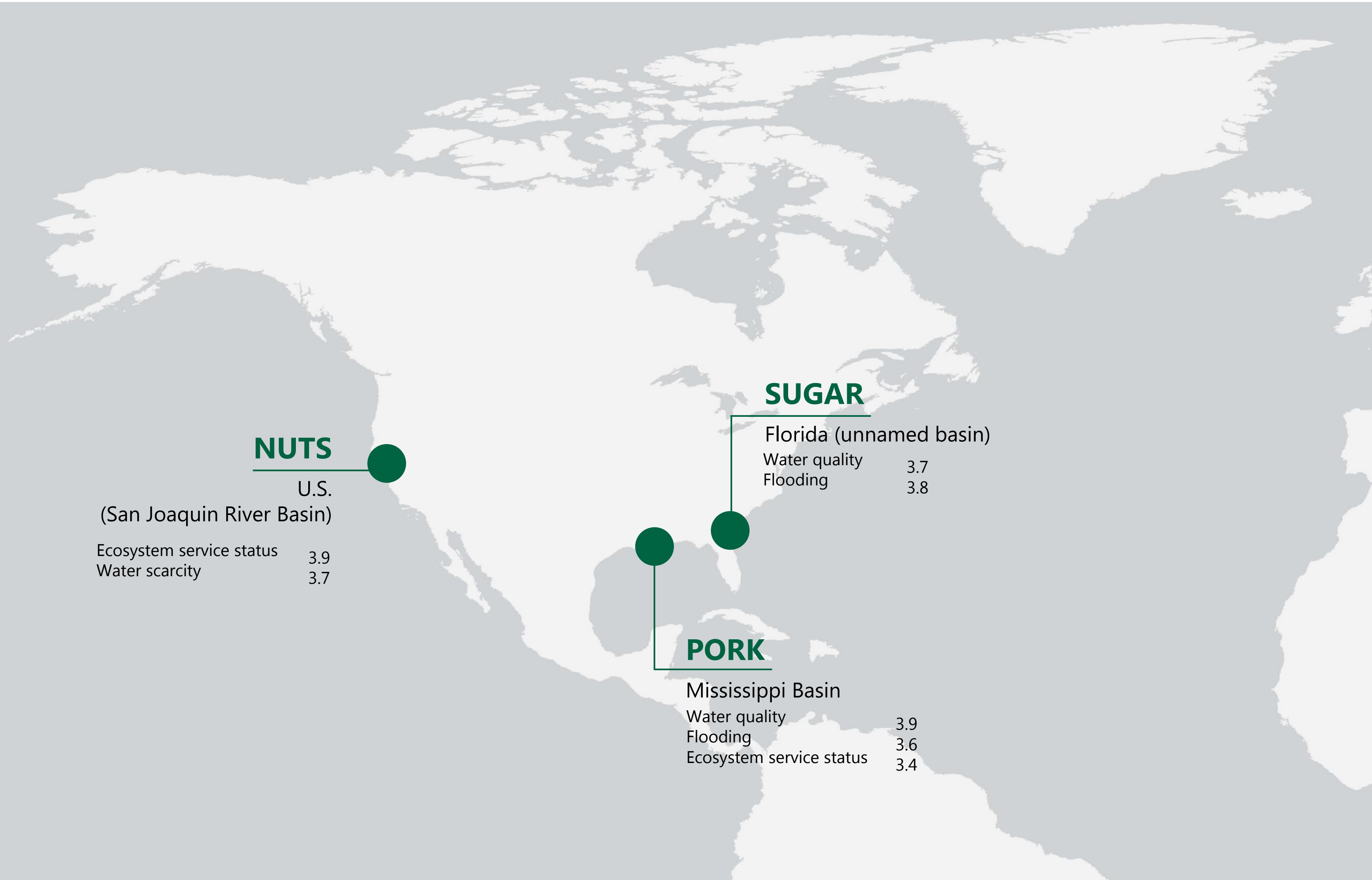## Key Takeaways

Highest water impacts in food value chain:

- 24% Animal Proteins
- 14% Grains
- 13% Sugar
- 9% Nuts

The total value chain of Food represents 9% of total Water Footprint.

Food Value Chain as Percent of Total Starbucks Footprint

CO_2	Water	Waste
12%	9%	10%

Water Risks – Food commodities

Basins in The US show consistently high-risk basins across Food commodities

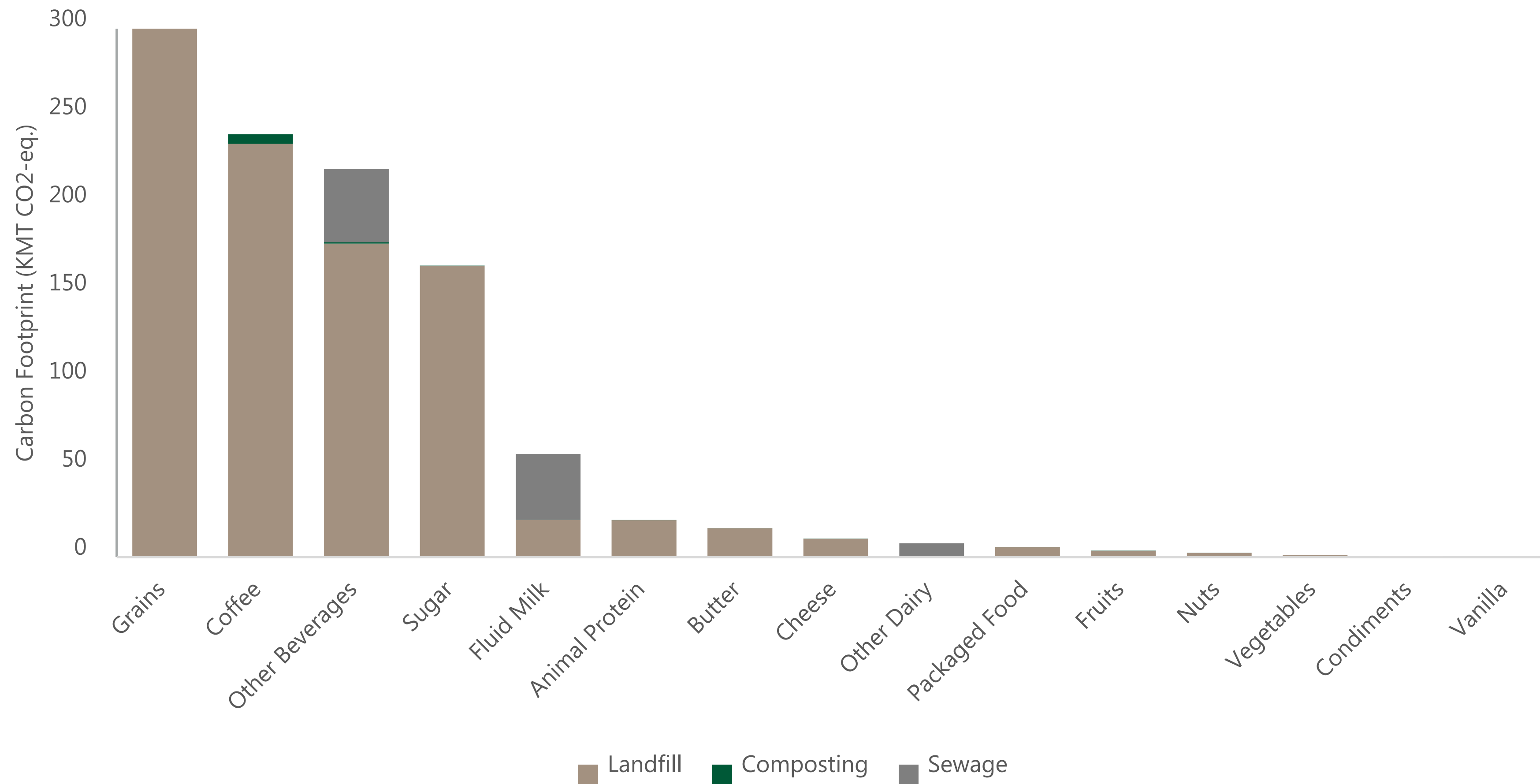Starbucks greatest water risks are linked to agricultural practices.

Water usage in Dairy and Nuts farming and Dairy manure management are significant drivers for water risk.

Water risk scores provided from World Wildlife Fund are out of 5

NUTS

U.S.
(San Joaquin River Basin)

Ecosystem service status	3.9
Water scarcity	3.7

SUGAR

Florida (unnamed basin)

Water quality	3.7
Flooding	3.8

PORK

Mississippi Basin

Water quality	3.9
Flooding	3.6
Ecosystem service status	3.4

Food & Beverage Waste- Carbon Impact

Total Food & Beverage Waste Carbon Footprint: 1056 KMT CO2-eq

Carbon Footprint (KMT CO2-eq.)

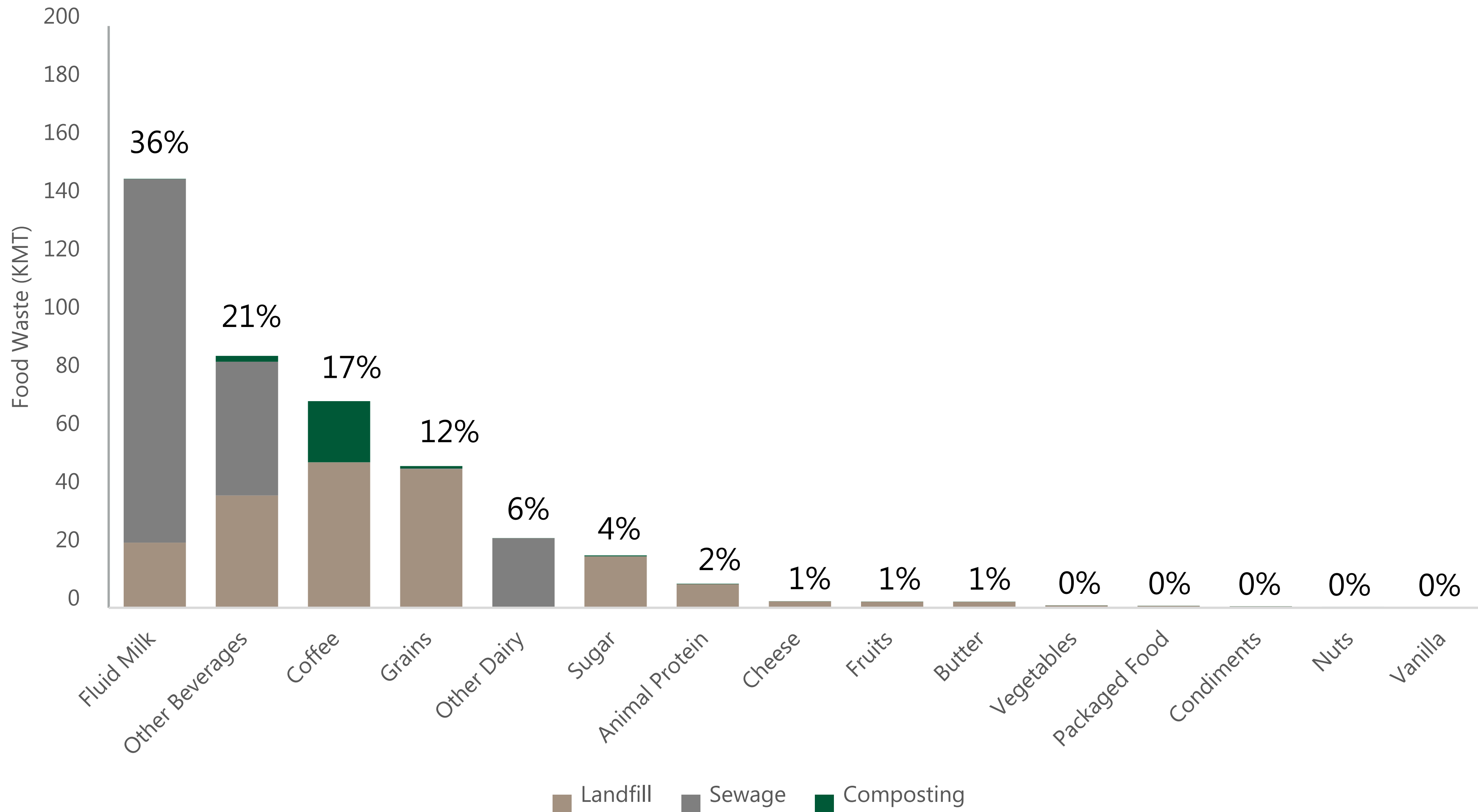Legend: Landfill | Composting | Sewage

Grains and Sugar are large source of GHG emissions, due to high emissions in landfill.

Coffee is only the second largest source due to its smaller emission at end of life despite the large food waste volume

Dairy, due to its high-water content, leads to low GHG emissions compared to its high food waste by volume

Total Starbucks Food & Beverage Waste – 413 KMT

Food Waste (KMT)

36% — Fluid Milk
21% — Other Beverages
17% — Coffee
12% — Grains
6% — Other Dairy
4% — Sugar
2% — Animal Protein
1% — Cheese
1% — Fruits
1% — Butter
0% — Vegetables
0% — Packaged Food
0% — Condiments
0% — Nuts
0% — Vanilla

Legend: Landfill · Sewage · Composting

Fluid Milk waste is the largest driver of food waste

Coffee and Other beverages are next largest contributors to Food Waste

Significant portion of coffee waste is coffee grounds that are composted
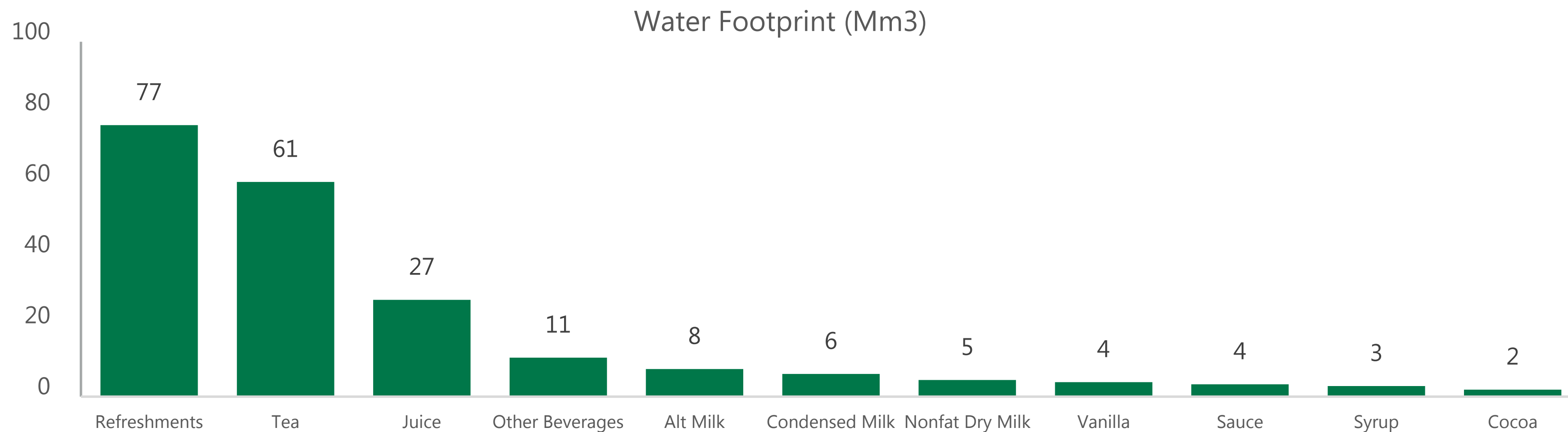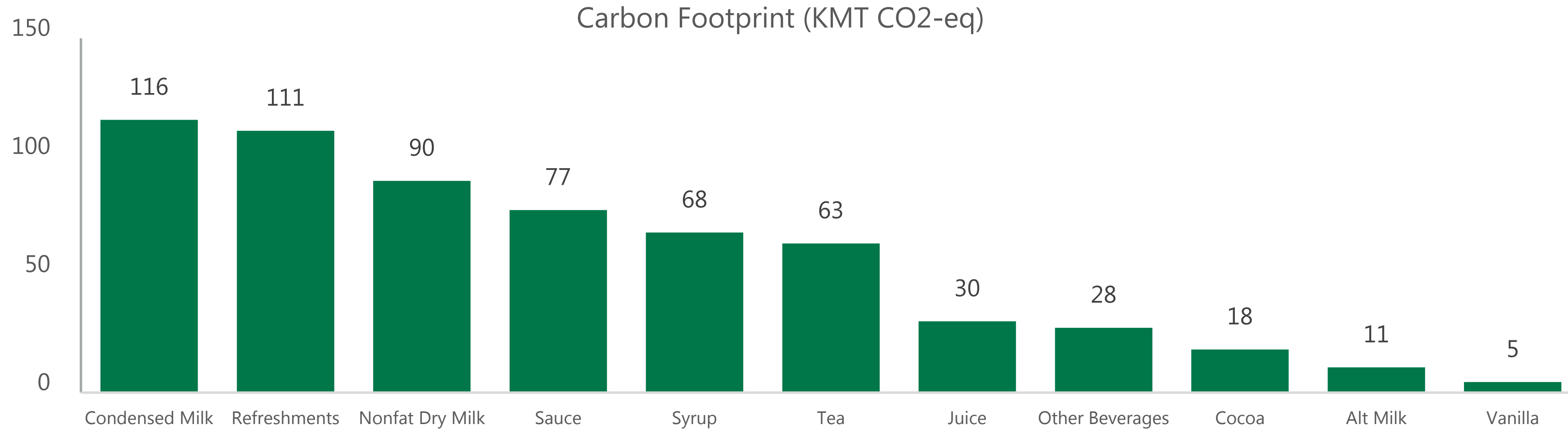
Graph includes both Edible and Inedible Food waste

OTHER BEVERAGES

Other Beverages

Carbon Footprint (KMT CO2-eq)

Category	Value
Condensed Milk	116
Refreshments	111
Nonfat Dry Milk	90
Sauce	77
Syrup	68
Tea	63
Juice	30
Other Beverages	28
Cocoa	18
Alt Milk	11
Vanilla	5

Water Footprint (Mm3)

Category	Value
Refreshments	77
Tea	61
Juice	27
Other Beverages	11
Alt Milk	8
Condensed Milk	6
Nonfat Dry Milk	5
Vanilla	4
Sauce	4
Syrup	3
Cocoa	2

Other Beverages Key Takeaways

Carbon: 1018 KMT CO2-eq

Carbon: 616 KMT-CO2-eq w/o LUC
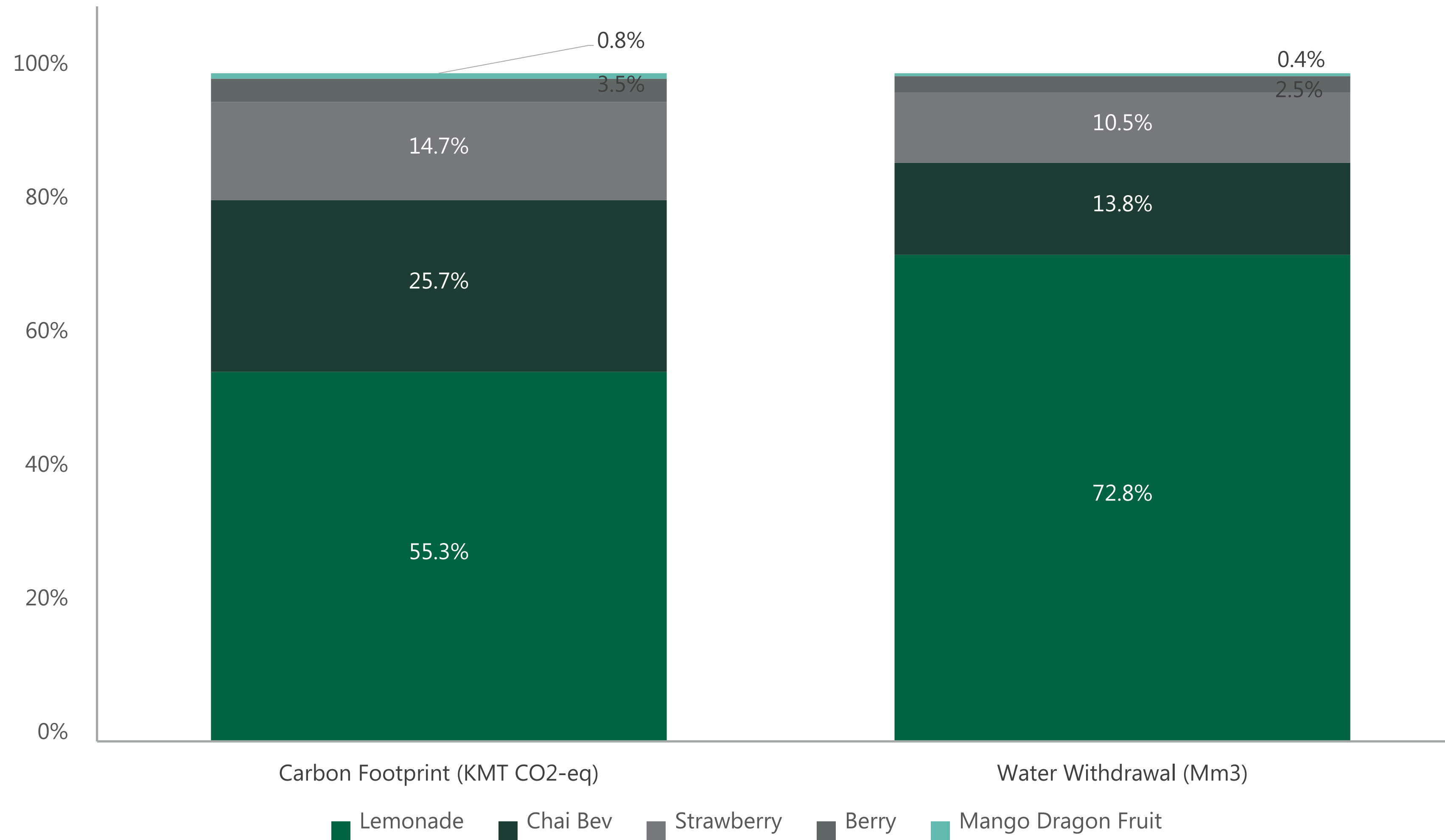~ 7% of total carbon footprint

Water: 207 Mm3
~ 20% of total water footprint

Refreshment is the top contributor to Carbon impact, due to sourcing and production

Refreshments is the top contributor to water withdrawal due to its water intense process.

Others include other beverages, topping and powers, bottle water, sugar, and sparkling water

Refreshments Breakdown

Refreshments

Carbon:
111 KMT CO2-eq
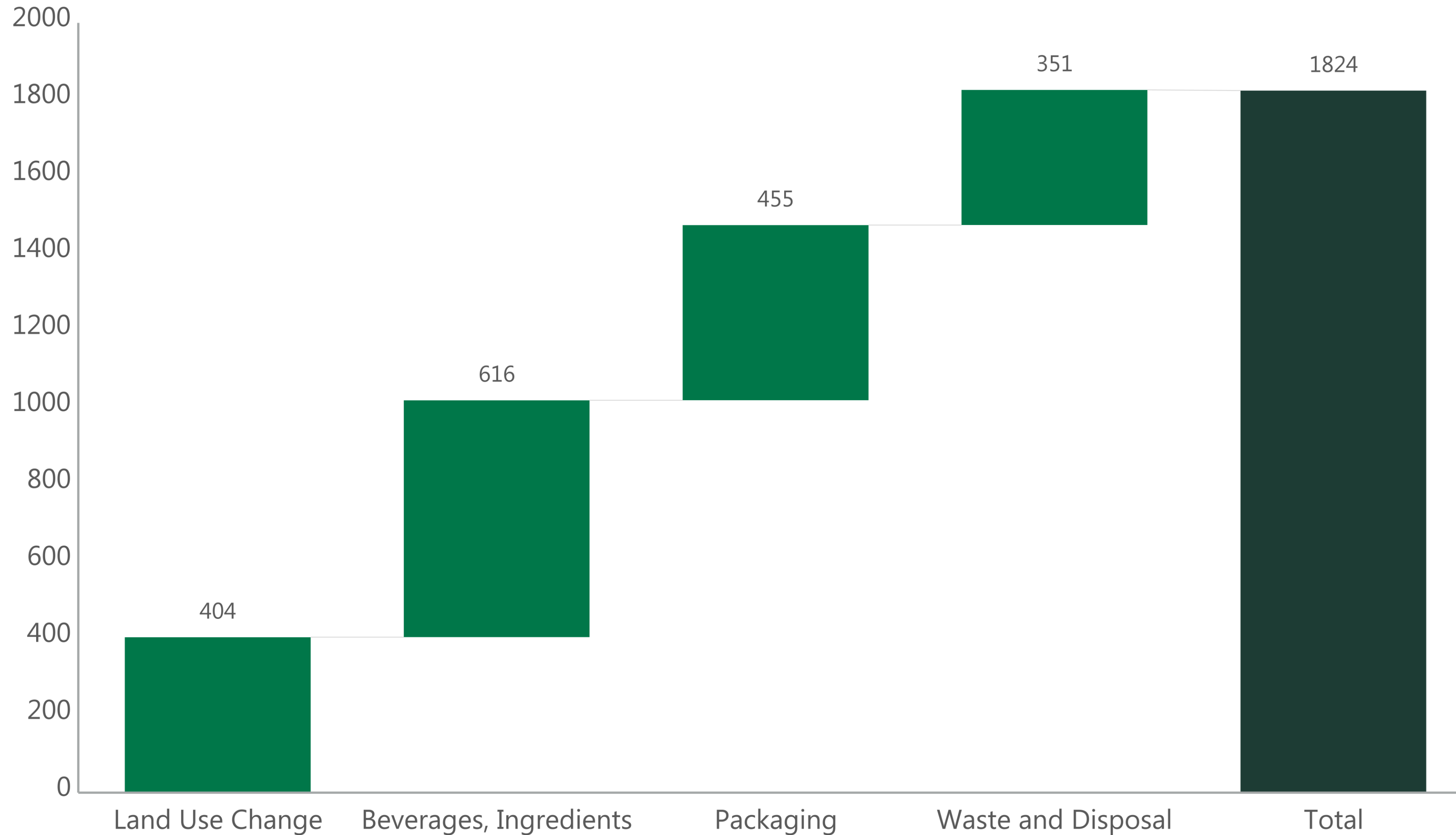< 1% of total company Carbon

Water: 77 Mm3
~ 8% of total water footprint

Lemonade refreshments are the leading contributor to carbon and water footprint impact in this breakdown.

Chart axis labels:
- Carbon Footprint (KMT CO2-eq)
- Water Withdrawal (Mm3)

Carbon Footprint values: 0.8%, 3.5%, 14.7%, 25.7%, 55.3%
Water Withdrawal values: 0.4%, 2.5%, 10.5%, 13.8%, 72.8%

Legend: Lemonade, Chai Bev, Strawberry, Berry, Mango Dragon Fruit

Other Beverages Value Chain, Carbon

Other Beverages, value chain: Carbon Footprint (kMT CO2-eq)

Land Use Change	404
Beverages, Ingredients	616
Packaging	455
Waste and Disposal	351
Total	1824

Key Takeaways

The total other beverages value chain represents ~ 12% of Carbon footprint

Other Beverages as a Percent of Total Starbucks Footprint

CO_2	Water	Waste
12%	22%	18%

Other Beverages Value Chain, Water

Other Beverages, value chain: Water Withdrawal (Mm3 water)

	Beverages, Ingredients	Packaging	Waste and Disposal	Total
Value	207	19	0	226

Key Takeaways

The production and processing of ingredients are the main indicators for water withdrawal in other beverages value chain (~ 90.5%)

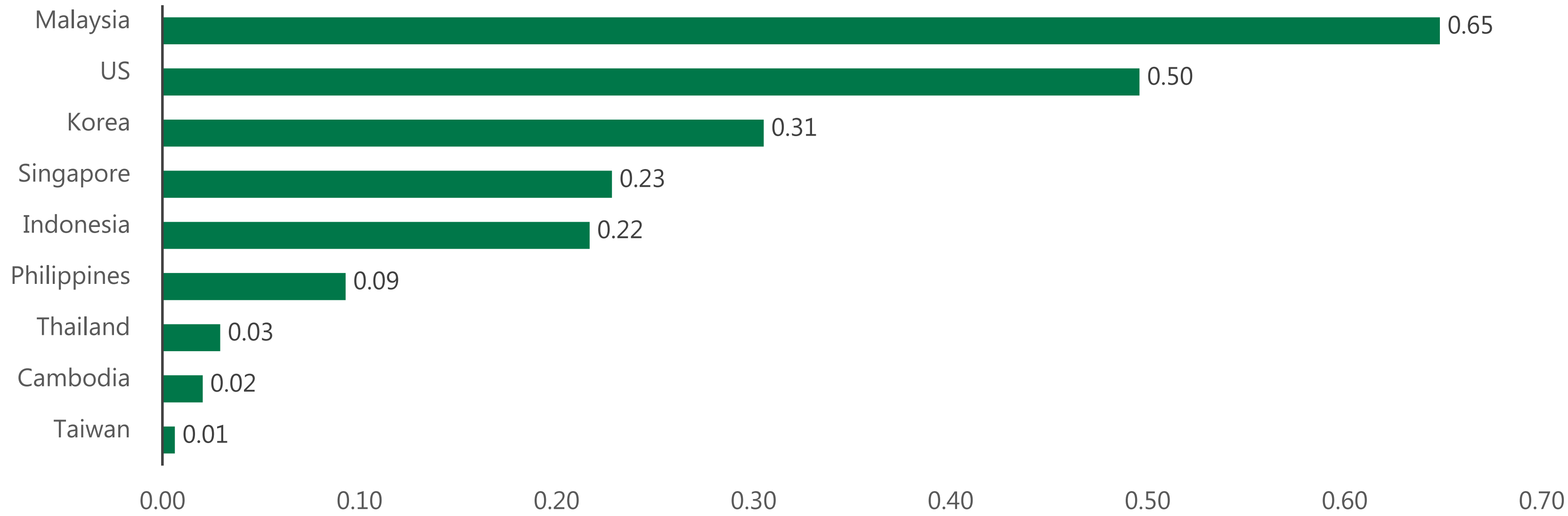The value chain represents ~ 22% of total company water footprint

Other Beverages as a Percent of Total Starbucks Footprint

CO_2	Water	Waste
12%	22%	18%

Sugar and Tea Sourcing Land Use Change

Sugar LUC, KMT CO2-eq

Country	Value
Malaysia	0.65
US	0.50
Korea	0.31
Singapore	0.23
Indonesia	0.22
Philippines	0.09
Thailand	0.03
Cambodia	0.02
Taiwan	0.01

Tea LUC, KMT CO2-eq

Country	Value
China	0.39
Japan	0.33
Korea	0.05

Sugar and Tea

The impact due to LUC for sugar and tea is much lower when compared to Coffee and Cocoa.

LUC analysis with better data would be beneficial to understand and address the carbon impacts appropriately.

Water Risk Assessment – Tea

≤1.0
≤2.0
≤3.0
≤4.0
≤5.0

WWF Water Risk Scale

TEA is shown to be sourced from high water risk areas in China

Primary water risk for tea is flooding and water quality greatest risk is in the Yangtze River Basin

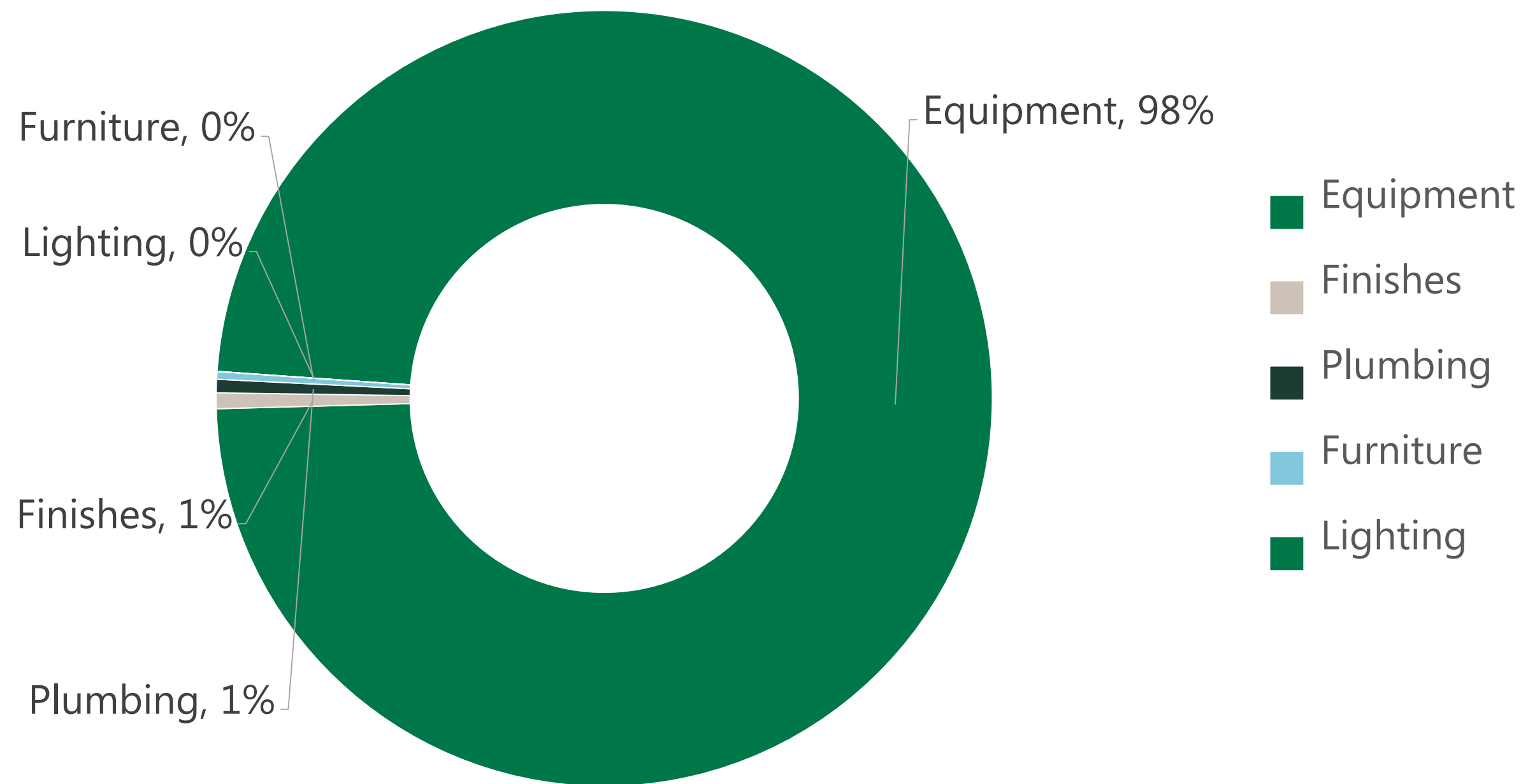Water risk scores provided from World Wildlife Fund are out of 5

STORE EQUIPMENT & TRANSPORTATION

Equipment, Fixture, and Furnitures Breakdown

Carbon footprint by item

Furniture, 0%

Lighting, 0%

Finishes, 1%

Plumbing, 1%

Equipment, 98%

- Equipment
- Finishes
- Plumbing
- Furniture
- Lighting

Equipment, Fixtures, and Furnitures

9%

90.96%
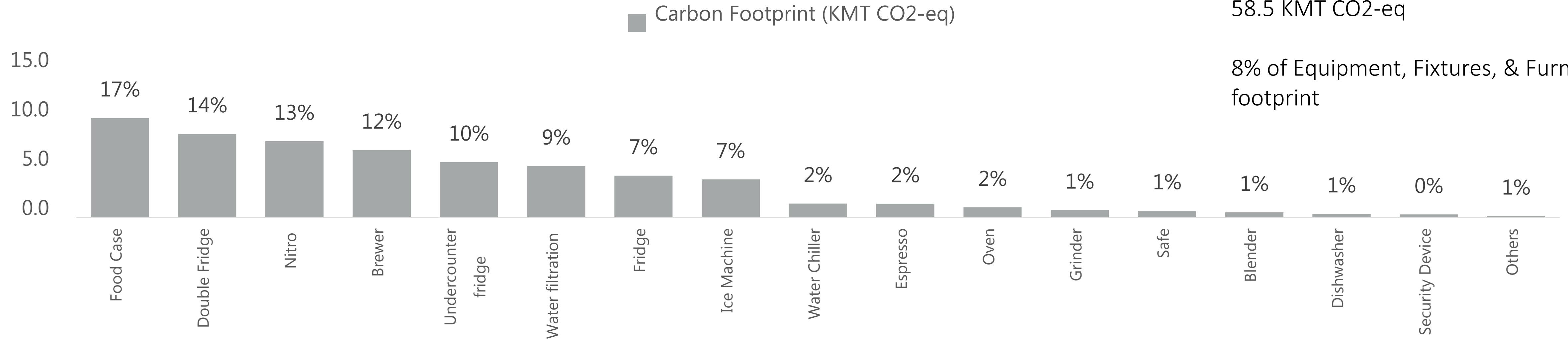
- Spend data
- Mass based data

- Equipment, Fixture, and Furnitures: 776 KMT CO_2-eq
- Most of the impact is accounted by spend data (~ 91%)
- Equipment represents ~ 98% of the impact

- Spend data for equipment includes: HVAC, Casework, Finishes, and merchandising equipment
- Mass data was derived from shipment history of fridges, freezers, food cases, etc.
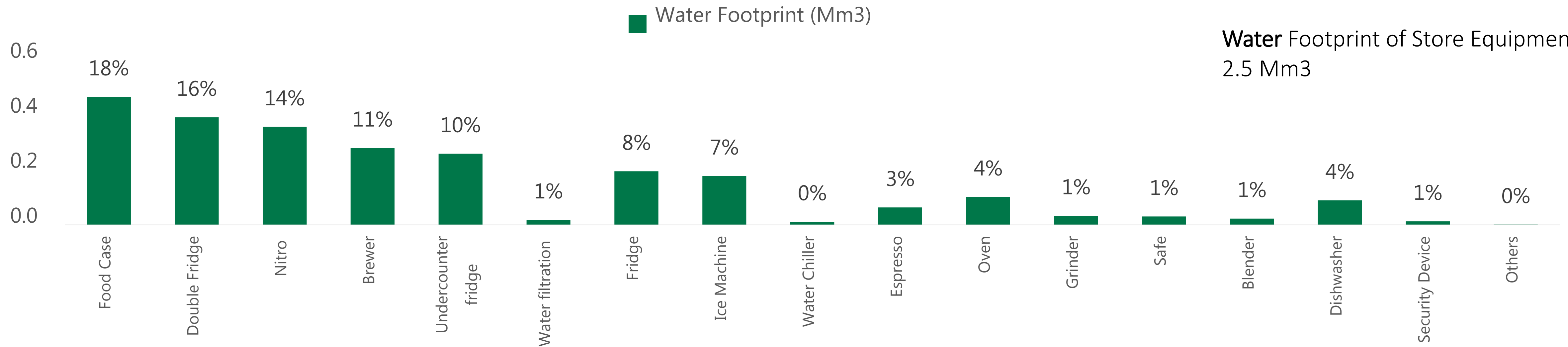
Impact by Equipment Type
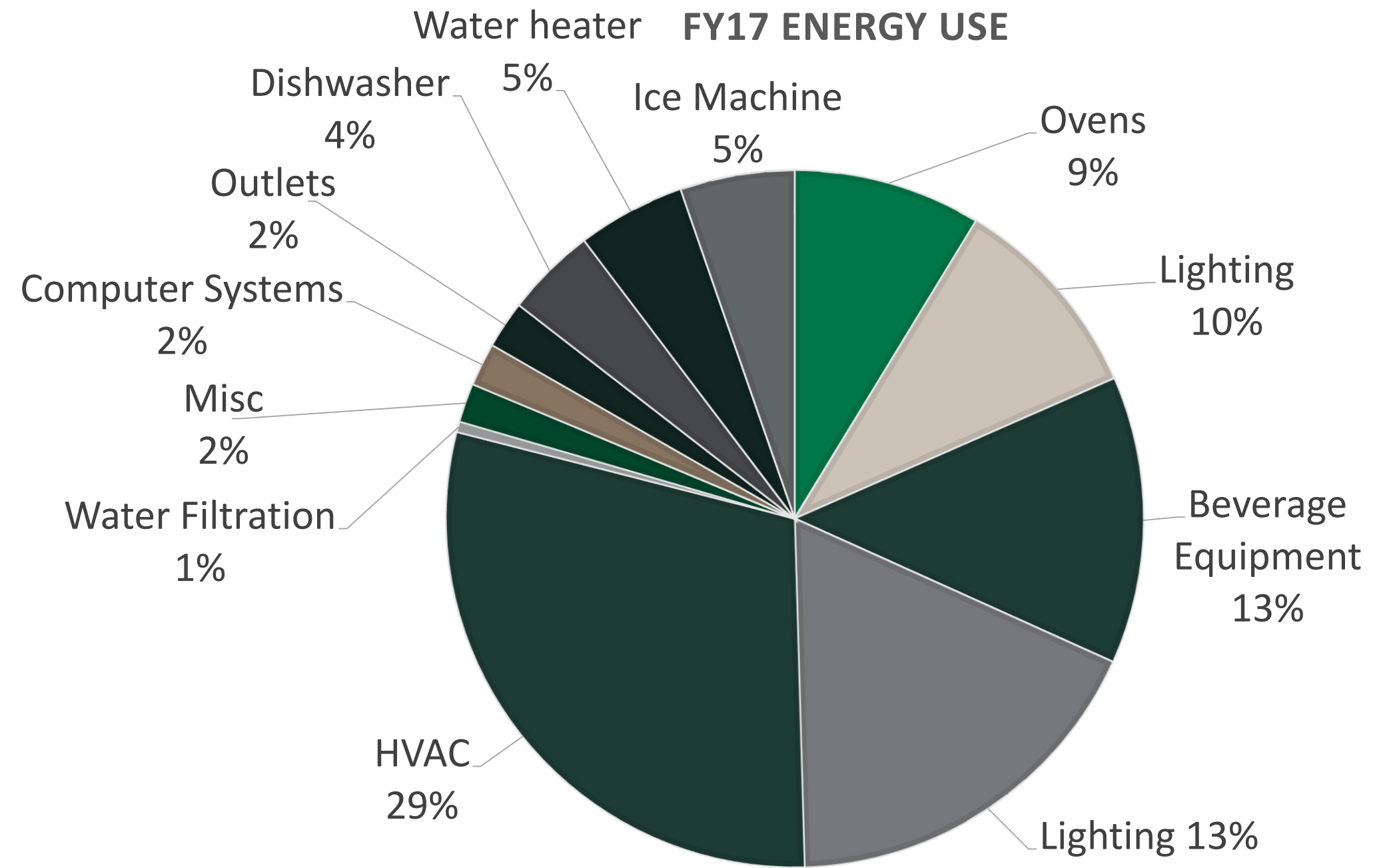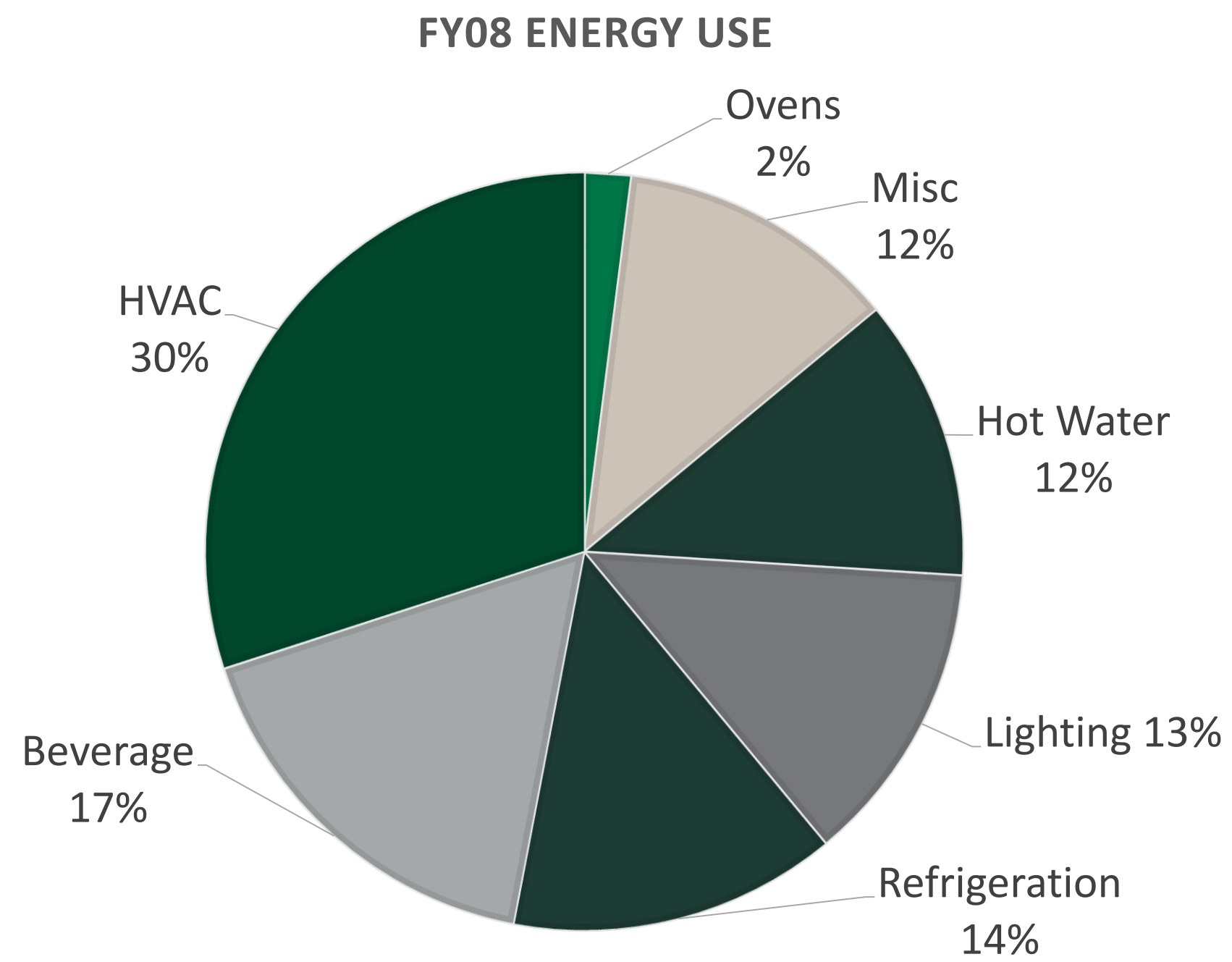
Carbon Footprint of Store Equipment: 58.5 KMT CO2-eq

8% of Equipment, Fixtures, & Furniture footprint

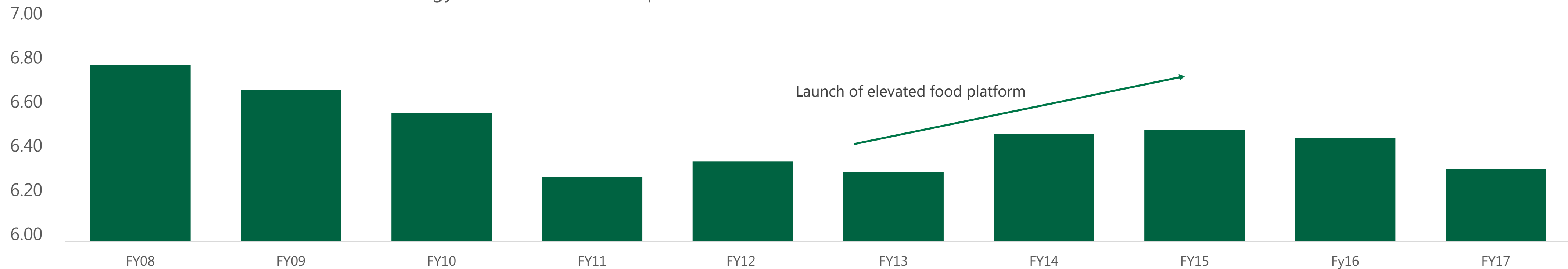■ Carbon Footprint (KMT CO2-eq)

■ Water Footprint (Mm3)

Water Footprint of Store Equipment: 2.5 Mm3

Store Energy Use Breakdown

FY08 ENERGY USE

- Ovens 2%
- Misc 12%
- Hot Water 12%
- Lighting 13%
- Refrigeration 14%
- Beverage 17%
- HVAC 30%

FY17 ENERGY USE

- Water heater 5%
- Dishwasher 4%
- Outlets 2%
- Computer Systems 2%
- Misc 2%
- Water Filtration 1%
- HVAC 29%
- Ice Machine 5%
- Ovens 9%
- Lighting 10%
- Beverage Equipment 13%
- Lighting 13%

Energy Performance kwh/sq ft/mo

FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	Fy16	FY17

Launch of elevated food platform

Global Transportation (507 KMT CO2-eq)

Represents ~ 3% of total Carbon Footprint

Carbon Footprint (KMT CO2-eq)