

## WHAT IS A CARBON FOOTPRINT?

A carbon footprint is the measurement of total greenhouse gas emissions caused directly and indirectly by a person, organisation, event or product.

<b>The world average per capita carbon footprint is:</b>	<b>7 tons CO<sub>2</sub>/year</b> <i>(Drawdown, 2018)</i>
<b>The per capita averages for various countries:</b>	<b>Canada: 19 tons CO<sub>2</sub>/year</b>
	<b>China: 4.6 tons CO<sub>2</sub>/year</b>
	<b>India: 1.2 tons CO<sub>2</sub>/year</b> <i>(The Guardian, 2006)</i>

## HOW IS A CARBON FOOTPRINT CALCULATED?

Typically, a carbon footprint is calculated by estimating not just the **CO<sub>2</sub> (Carbon dioxide)** emissions that the activity in question causes, but also any emissions of **other greenhouse gases (such as methane and nitrous oxide)** and in some cases other types of climate impacts as well, such as vapour trails from aeroplanes.

For simplicity, all these impacts are added together and **expressed as a single number in terms of carbon dioxide equivalent (CO<sub>2</sub>e): the amount of CO<sub>2</sub> that would create the same amount of warming.**

In the following pages, the information on global footprints and emissions are taken from *Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming*, Paul Hawken, editor. Information on personal footprints is from *How Bad Are Bananas: The Carbon Footprint of Everything*, by Mike Berners-Lee.

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# WHAT IS A TONNE OF CO<sub>2</sub>e ?



manufacturing **46** bags of cement

a year's trash from **1** household

raising a cow for **6** months

extracting **15** barrels of oil

**1 TONNE** of Greenhouse Gases comes from:

driving **4500** km

heating a home **4** months

**7** months powering a home

**CITIZENS FOR PUBLIC JUSTICE** [WWW.CPJ.CA](http://WWW.CPJ.CA)

An infographic on a light green background. At the center is a red maple leaf above the text "in Canada, 1 TONNE of Greenhouse Gases comes from:". Surrounding this are six illustrations with text: 1. A stack of 46 bags of cement. 2. A collection of household trash bins and bags. 3. A cow with a bell. 4. A stack of 15 oil barrels. 5. A red car. 6. A house with snow on the roof and a chimney. 7. A yellow refrigerator, a vacuum cleaner, and a washing machine.

## GLOBAL FOOD



If 50 percent of the world's population restrict their diet to a healthy 2,500 calories per day and reduce meat consumption overall, it is estimated that: at least 26.7 gigatons of emissions could be avoided from dietary change alone.

(Drawdown, 2018)

*“The biggest intervention people could make towards reducing their carbon footprints would not be to abandon cars, but to eat significantly less red meat.”*

(Prof. Tim Benton, University of Leeds)

**Food's carbon footprint**, or foodprint, is the greenhouse gas **emissions** produced by growing, rearing, farming, processing, transporting, storing, cooking and disposing of the **food** you eat.

## INDIVIDUAL PLEDGE EXAMPLES

(How Bad are Bananas – \_Mike Berners-Lee)

**Choosing a veggie burger over beef burger saves 1,000 grams of CO<sub>2</sub>**

Further: **Grass-fed beef generates 19 per cent more emissions per kilogram** than grain-fed beef, largely because grass is less nutritionally dense.

**Taking tea or coffee without milk saves 32 grams of CO<sub>2</sub>**

**Milk accounts for 2/3 of the emissions:** tea or coffee with milk is 55 grams of CO<sub>2</sub> and without the milk, 23 grams of CO<sub>2</sub>. The difference is due to the emissions from the raising of the cattle and milk production.

**Choosing Popsicles over Ice Cream saves 450 grams of CO<sub>2</sub>**

A Popsicle is kept in more efficient, commercial refrigerating systems and is essentially frozen water. Emissions for a 60 gram popsicle = 50 grams of CO<sub>2</sub>, whereas ice cream (big dairy from a van) causes 500 grams of CO<sub>2</sub>. **The dairy production is what causes the large difference.**

*A vegan in a Hummer has a lighter carbon footprint than a beef eater in a Prius. (Michael Pollan)*

## GLOBAL WATER

Ninety-five percent adoption of low-flow taps and showerheads by 2050 could **reduce** carbon dioxide **emissions by 4.6 gigatons**, by reducing energy consumption for heating wasted water.

*(Drawdown, 2018)*



**Investing in** low-flow taps, and showerheads, along with low-flush toilets, efficient washing machine & efficient dishwasher - all together – could reduce your household’s water usage by 45%!

## INDIVIDUAL PLEDGE EXAMPLES

*(How Bad are Bananas – Mike Berners-Lee)*

**Reduce # of minutes in the shower - every 3 minutes less saves: 90 Grams of CO<sub>2</sub>** for a **gas heated** shower with an aerated shower head.

**Pour only the water you will consume and choose tap water over bottled**

Did you know that the carbon footprint of pouring a glass of **water down the drain costs 4 times more CO<sub>2</sub>** than just getting the water from the source to the tap; that’s because it is more **carbon intensive to treat waste water**.

**Eat one pound of meat less!**

A single **pound of beef** takes, on average, **1800 gallons of water**.

Water is needed to grow the grass plus water for the cattle to drink, to clean, and to ultimately process.

*([impact.vice.com](http://impact.vice.com))*

## GLOBAL PAPER

Over thirty years, using recycled content in paper could deliver 0.9 gigatons of carbon dioxide emissions reductions if the use of recycled content increased from 55% to 75% globally.

(Drawdown, 2018)



**Recycled paper footprint:** *Although increasing recycled paper content uses more electricity, the emissions related to harvesting and processing — and the total emissions from pulping and manufacturing — are higher for paper using virgin wood feedstock.*

(Drawdown, 2018)

## INDIVIDUAL PLEDGE EXAMPLES

(How Bad Are Bananas – Mike Berners-Lee)

**Choosing a paper bag adds:**

**12 grams of CO<sub>2</sub>**

(for one recycled lightweight bag)

**80 grams of CO<sub>2</sub>**

(for one elaborate, often glossy bag used by retailers)

**Choosing a plastic bag adds:**

**3 grams of CO<sub>2</sub>**

(for one lightweight bag)

**50 grams of CO<sub>2</sub>**

(for one heavyweight reusable variety)

Further: **Cotton tote bags** exhibit the highest and **most severe global-warming** potential by far since they require more resources to produce and distribute. A better choice to reduce your carbon footprint is to **keep reusing plastic bags**.

**Choose toilet paper with recycled content**

**450 grams of CO<sub>2</sub>/roll**

(for recycled toilet paper)

**730 grams of CO<sub>2</sub>**

(for virgin toilet paper)

**Say NO to Junk Mail as it adds:**

**550 grams of CO<sub>2</sub>/kg**

Further: An Average American receives 41 pounds of junk mail per year and **44 percent of this ends up in landfill** (Shelly Shumacher). Junk Mail decomposes anaerobically and **produces methane** which is why its carbon footprint is so high.



## GLOBAL ENERGY

The Electricity Generation sector currently accounts for an overall average of around **40 percent of annual greenhouse gas emissions** to the atmosphere, making it the **highest-emitting sector in the world**.

Of total worldwide electricity generation, **fossil fuels represent 67 percent**, nuclear 11 percent, and renewable energy sources just over 24 percent and growing. *(Drawdown, 2018)*

**Electricity footprint:** Each unit of electricity you consume has a footprint of **at least 1 kg (2.2 lbs.) of CO<sub>2</sub> per unit** regardless of where you live. **Only Iceland** has a lower footprint for most of their energy comes from **geothermal and hydroelectric sources**. *(Mike Berners-Lee)*

**Note:** These global averages aren't really applicable to areas where electricity is produced from renewables; such as BC (over 95% hydroelectric) and Iceland (hydroelectric and geothermal).

## INDIVIDUAL PLEDGE EXAMPLES

*(How Bad are Bananas – Mike Berners-Lee)*

**Choose a gas-efficient car & reduce the amount you drive. Driving 1.6 km:**

In a **Fiat (6.6L/100 km)** doing a steady 96 km/hr adds: **350 grams of CO<sub>2</sub>**

In an avg. **US made car (13 L/100 km)** adds: **850 grams of CO<sub>2</sub>**

**Further:** About **50% of the carbon impact** of car travel comes **out of the exhaust pipe** itself, a few percent come from the processes of extracting, shipping, refining, and distributing the fuel. The rest – about **40% of the carbon footprint** is associated with the **manufacture and maintenance** of the car. Poorly maintained vehicles have a larger carbon footprint.