2019 Family Carbon Impact Report

https://tinyurl.com
/carbonimpact

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Developed by Holden Bonwit
with help from Atiya Livingston
& data from Offsetters.ca
October, 2019

Contents

Here are two simple steps to quickly address your carbon impact!
No more research, calculations, or putting it off!

1 The average North American is responsible for about 20 tons of Fossil CO_2 emissions per year.[1,2,3,4,5]

So take: $\underline{\#} \text{ of people} \times \underline{\#} \text{ of years} \times 20 \text{ tons} = \underline{\quad} \text{ tons of } CO_2 \text{ released}$

in your family   to address   per person, per year

Consider addressing the past 5 years!

2

GoldStandard.org offers projects to address climate change; they sell regulated, audited offsets.

<u>Click here</u> to offset your emissions and make the purchase for about $20/ton.

Reading or clicking 'Like' on Facebook probably won't improve our planet's climate; offsetting your past emissions + improving your f...

Stop here if you're satisfied and have taken action.   *Read on if you want to go deeper!*
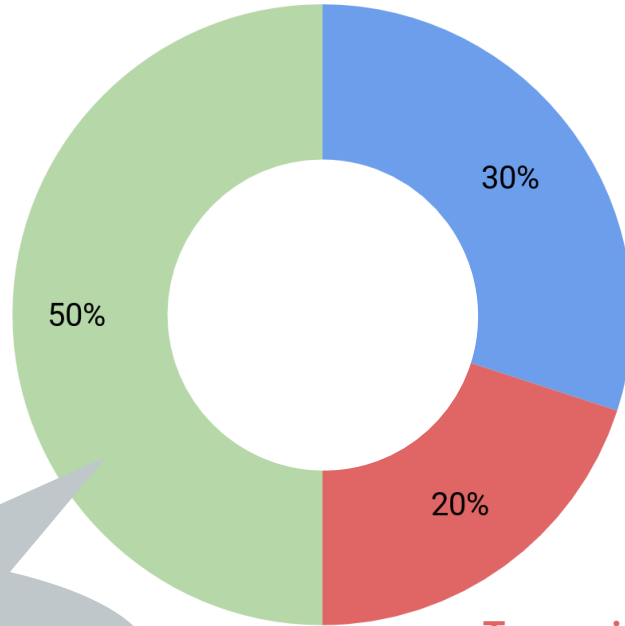
behavior will help. Thanks!

3

Why do an environmental impact assessment?

To address our emissions:

It's a drop in the bucket, but it's our drop. Now that we understand a bit about our lifestyle and the impact it has on others and the earth, we're taking a bit of ownership.

30%

50%

20%

To support organizations doing the work:

It's extremely important that some humans spend their careers helping to educate, plant trees, preserve forest, save reefs, etc.

Dad taught me to leave the campsite cleaner than I found it. Today, the Earth is a pretty dirty campsite.

To provide a template for <u>you</u>:

Read this report, & let me know how I can help!

Assessment: Key factors for our family of 3

Factors reducing our family's footprint:

- We walk, bike, and bus most places, or drive our Nissan Leaf Electric Vehicle.
- We happen to live in a place with an extremely clean electric grid (~90% renewable)[1].
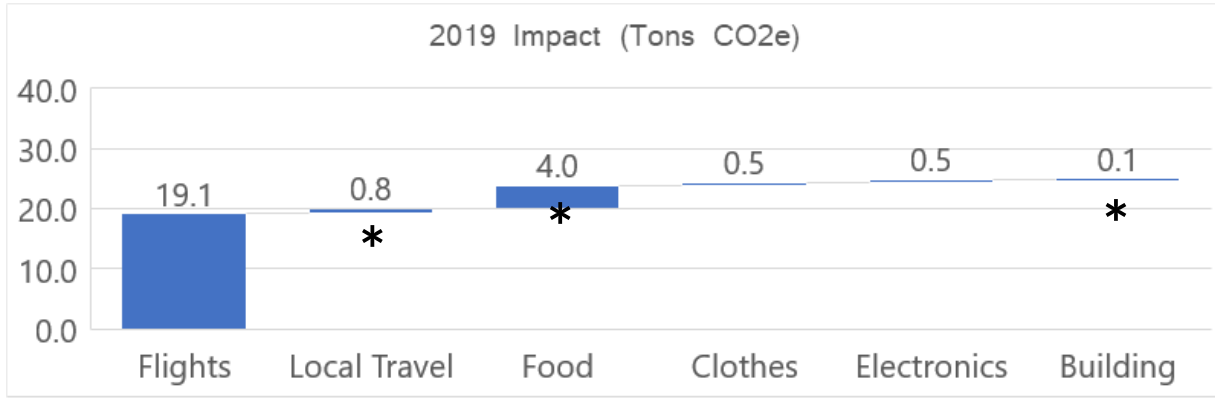- We eat mostly plants (but also consume dairy + eggs daily, and some meat/fish).

Factors increasing our family's footprint:

- We took 5 air travel trips in 2019. Flights are extremely resource intensive.
- Carbon impact data was not available in some areas of our lives (household cleaners, stuffed animals, music/movie/art, mail/shipping), so we multiplied our calculation by 2 as a "Factor of Safety."

We used Offsetters' tools where possible, and supplemented with some of our own research.

Assessment: Outputs & Observations

2019 Impact (Tons CO2e)

Flights	Local Travel	Food	Clothes	Electronics	Building
19.1	0.8 *	4.0 *	0.5	0.5	0.1 *

✱ These three categories happen to be extremely low due to our lifestyle choices and our power grid's renewable sources

See calcs at end of deck for details.

Summation		RESULT: 2019 tCO2e
Total year's impact, raw sum		25.0
Factor of Safety for errors (eg. tonnes vs Tons)		10%
Factor of Safety (for unknowns)		2X
Total year's impact, loaded		**55 tCO2e**

Incidentally, our detailed calculations yielded the same result as the estimate on the first slide: our average impact was about 20 Tons per person!

Family Averages: How do we compare?

Highest emissions come from **Travel, Housing, and Other:**

- Housing relates to heating & cooling (power grid cleanliness, sources), and house size.

- Travel emissions are the easiest way for a personal footprint to grow quickly - mainly driven by international travel and driving.

- Food emissions depends on diet choices, (animal products having higher impact), as well as the transportation of the food products.

- Other includes clothing, electronics, services, etc.

Note:
An average American has a 20t (20 ton) footprint,
Brit or German is 10t, and Indian is 1t.
The global average for 2010 is a 5t footprint.

Source: http://shrinkthatfootprint.com/what-is-your-carbon-footprint
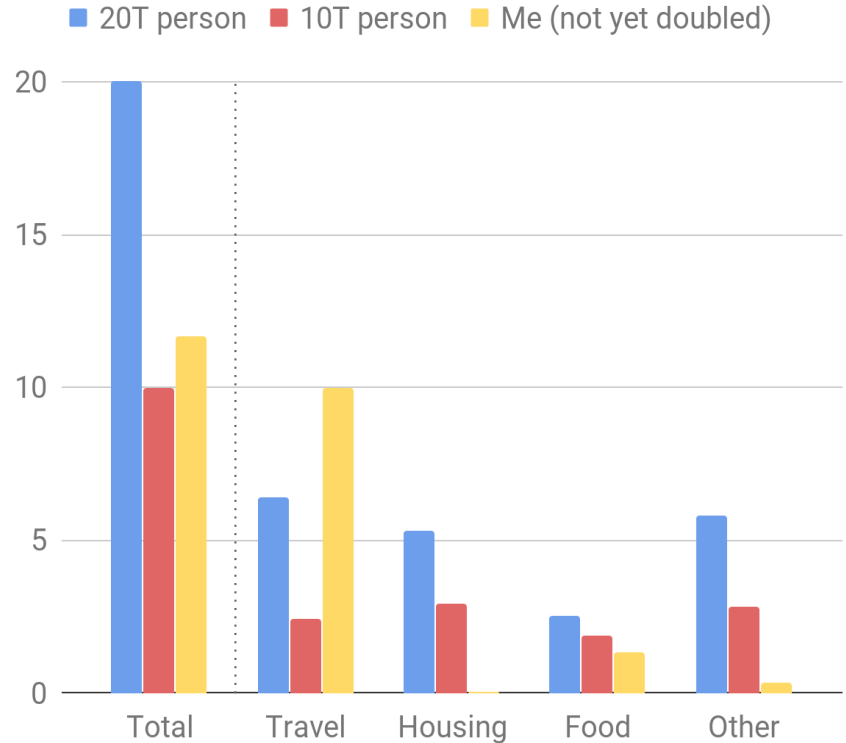
Action A: Offset our past behavior

> "Offsets can provide a useful way to help reduce your climate footprint, but it's important to make sure that you're getting credible and actual real emissions reductions."

Peter Miller, Natural Resources Defense Council

We look for offsets that are additive, permanent, transparent, and certified. We generally don't buy offsets from a broker, but instead try to buy from project originators.

Our 2019 (doubled) estimate is 55 tCO2e. Including our 4 past years' impact, we'll offset **275 tCO2e**:
- Action 1: 125 tCO2e offsets of **protecting old growth forests**, for example in BC, Canada*
- Action 2: 150 tCO2e offsets of **planting new biodiverse forests**, for example in Panama
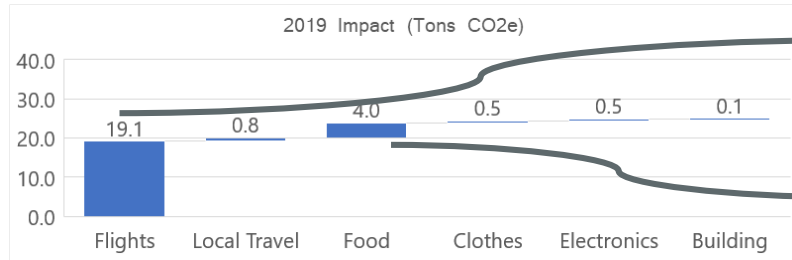- Action 3: **Support an education / awareness program** (SPEC, CALP, ERS, or similar)

Here's our list of some offset organizations; please email us other organizations you like!

* Someone had asked for "proof" of offsets: scan down this list until you see my name (15 Jan, 2020)

Action B: Improve our future behavior

2019 Impact (Tons CO2e)

Flights	Local Travel	Food	Clothes	Electronics	Building
19.1	0.8	4.0	0.5	0.5	0.1

1. Air travel impact is 80% of our total impact: we must minimize flights & continue to offset meaningfully.

2. Our second largest area is food: we can improve by minimizing animal products (meat, eggs, and dairy).

Further improvements come from our improved consumption / shopping:

- Refuse: Refuse extraneous packaging; shop at places that let you use your own container
- Reduce: "Buy Less & Buy Better" when it comes to clothes, durables, electronics, etc. (Shout-out to Fairphone & Patagonia for their leadership here!)

  Also reduce transport pollution by buying local where possible
- Reuse: Give old items a new home through Buy Nothing groups & thrifting
- Recycle: Understand that recycling is not always the best option or, even always available

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It's only a drop in the bucket, but it's <u>our</u> drop in the bucket.

If everyone drips their drop, the bucket will overflow.

Call to Action – Please do your part!

By reading this micro-publication, you now have awareness & the tools to improve your impact.

This is a formal invitation to measure, reduce, and offset your negative environmental impact, and also to share your awareness with others.

I'm happy to offer you my time, my tools, and my research so that you can build an understanding of your own role in this climate that is changing before our eyes, and with disastrous consequences locally and globally. In East Africa, we've seen increasing unpredictable flooding and droughts which wreak havoc on farmers own food supplies as well as global supply chains.

The most vulnerable people on Earth are already suffering the most, due to our (in)actions.

This is our problem to fix. Please do your part. Please let me know how I can help you.   hbonwit@gmail.com

Let's each make the world better for him!

Extra links for carbon calculators and more

Great carbon calculators:
- FootprintCalculator.org
- Nature Conservancy
- CarbonFootprint.com
- Power to the People

Go pick out an awesome impact project and fund it!
- Gold Standard
- Offsetters
- Conservation Fund
- World Land Trust Organization
- Arbor Day Foundation

List of most-impactful things you can do for the climate:
- Project Drawdown: Summary of Solutions

See our full list of carbon impact organizations by clicking here!

Did You Know? Travel & Diet matter!

Travel accounts for **20-50%** of the average family's carbon footprint; small changes here can have a huge effect!

Diet accounts for **10-20%** of the average family's carbon footprint; eating meat can MORE THAN DOUBLE your diet's negative impact!

Transportation Impact per passenger per 100km

■ CO2 (kg)

Mode	CO2 (kg)
Bicycle	2.04
Bus	3.2
Train	4.54
High Speed Train	6.58
Car	9.13
Boat	11.22
Airplane	32.88

Modes of Transportation
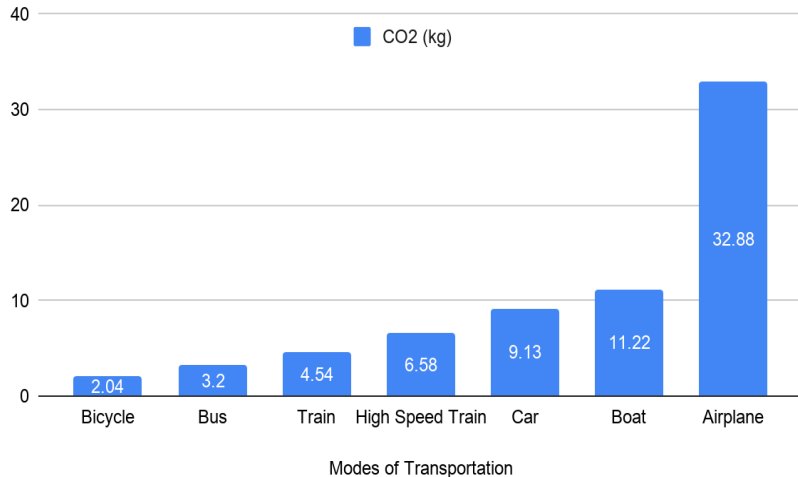
Note: based on passenger load factor

Foodprints by Diet Type: t CO$_2$e/person

Diet Type	t CO$_2$e/person
Meat Lover	3.3
Average	2.5
No Beef	1.9
Vegetarian	1.7
Vegan	1.5

■ Drinks
■ Snacks, sugar
■ Oils, spreads
■ Fruit
■ Vegetables
■ Cereals, breads
■ Dairy
■ Chicken, fish, pork
■ Beef, lamb
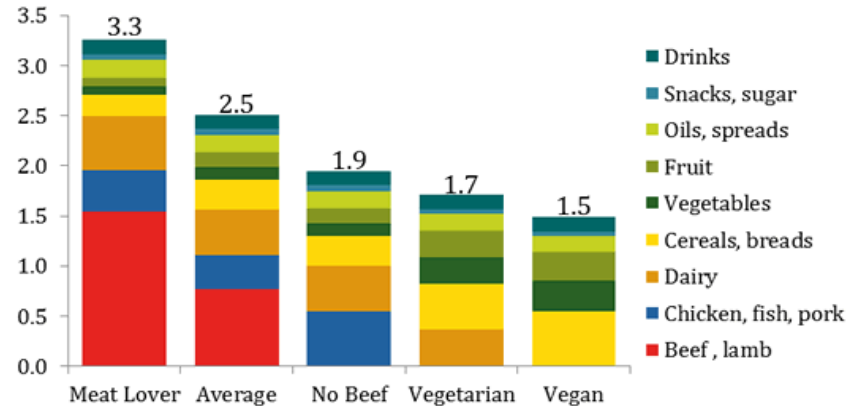
Note: estimates based on average food production emissions for US (includes: supply chain losses, consumer waste, and consumption)

Assessment: Calculations for our family ^{(1 of 3)}

Description	Impact	Units	Qty	Unit of Measure	RESULT: 2019 tCO2e	Carbon Impact Source
Flights						
Large international roundtrip flight	5.09	Tons CO2/trip	2	per year	10.18	https://www.Offsetters.ca
Large continental roundtrip flight	1.12	Tons CO2/trip	8	per year	8.96	https://www.Offsetters.ca
Local Travel - Vehicle Manufacture, spreading emissions over 10 years						
2016 Nissan Leaf	5.30	Tons CO2e total	10%	per year	0.53	https://www.thegwpf.com
Local Travel - Vehicle Operation						
2016 Nissan Leaf, Electric Car	2.13	kg CO2e/100km	10,000	km/yr	0.21	http://albertaev.ca/
Public Transit (Bus, Train, Ferry)	0.02	Tons CO2e	2	people	0.04	Offsetters' Excel doc
Food Consumption & Waste; these figures include food wasted by consumers & lost in the supply chain						
Vegetarian	1.70	Tons CO2e	1	person	1.70	http://shrinkthatfootprint.com/
Light-meat diet	1.90	Tons CO2e	1	person	1.90	http://shrinkthatfootprint.com/
Light-meat diet (baby = 20%)	0.38	Tons CO2e	1	person	0.38	http://shrinkthatfootprint.com/

We got help from Offsetters, which has an awesome, detailed, in-depth Excel calculator tool (CAD$175) with slick unit conversions, databases for things like grid CO2 by US State / CA provinces, flight estimators, and more. They also have a free flight + car calculator online here.

Description	Impact	Units	Qty	Unit of Measure	RESULT: 2019 tCO2e	Carbon Impact Source
Clothes; Full LCA						
1 pair jeans	0.03	Tonnes CO2e	2	people	0.07	http://www.levistrauss.com/
2 pairs chinos	0.03	Tonnes CO2e	2	people	0.07	Estimate of half of a pair of jeans
3 flannel shirts	0.05	Tonnes CO2e	2	people	0.10	Estimate of a third of a pair of jeans
socks, undies, other accessories	0.03	Tonnes CO2e	2	people	0.07	Estimate of 1 pair jeans
1 pair of shoes	0.10	Tonnes CO2e	2	people	0.20	https://www.eco2greetings.com/
Baby clothes	0.03	Tonnes CO2e	1	person	0.03	Estimate of 1 pair jeans
Electronics						
Laptop (1 per adult every 2 years)	0.35	Tons CO2e	1	/yr	0.35	https://i.dell.com/
Phone (1 per adult every 2 years)	0.12	Tons CO2e	1	/yr	0.12	Estimate a third of a laptop
Building: Heating, A/C, Cooking, Lighting, Laundry						
Electricity -Vancouver	11.70	g CO2e/kWh	7460	kWh/yr	0.09	Offsetters, BC Hydro

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Drop me a line if you want to see the detailed calculations.

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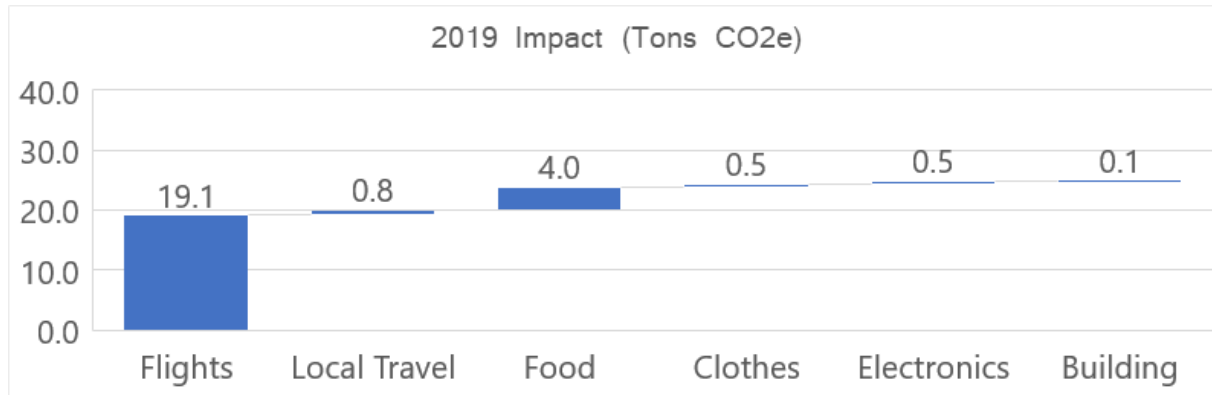
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Future goals: Continue, Build, Support

We'll <u>continue our annual carbon impact audit</u>, learn from existing efforts like the <u>Pacific Carbon Trust</u>, and share our results.

We also hope to <u>find & support new carbon-negative technologies</u> (besides trees).

And we're keen to <u>help others more easily identify & improve their impact</u>. One way could be by supporting the best tools out there, another could be by making our own quick, simple calculator to help find folks' emissions:

1. Click how many regional & international flights you take
2. Choose your province / state to learn of grid cleanliness
3. Pick type of car: gas, diesel, hybrid, electric & assume 12k miles/yr, etc.
4. Pick your diet: omnivore, fish, vegetarian, vegan

Sum it all, Multiply by 2 for a factor of safety, offset that amount.

For now, use an estimate of 20 Tons per person!