



Calfee bamboo bike ups the eco factor.

## Technology

### Wake-up call for cyclists

Earth Day

|By Joseph Wilson

#### **Your bike is not as green as you think**

Every year when the snow melts, I become very smug. As I swing my leg over my bike for the first time, I know I'm using a far greener method of transportation than my car-bound colleagues.

But nothing can truly be 100 per cent green. "Zero footprint" claims about some things ignore environmental impacts. Just sitting here typing this article, I'll give off around 75 grams of CO<sub>2</sub>.

So where should I draw the line on my bike's environmental impact? It turns out that my bike, especially its manufacture, affects the environment in a number of ways.

It's mostly made of metal. The frame is aluminum, the spokes and gears stainless steel, the chain pure rusty iron. Smelting the aluminum alone takes upwards of 180 kWh of electricity just for the 12 kilos in my bike. If the aluminum isn't recycled, you can multiply that number by 10 to account for all the energy needed to get the metal out of the ground.

For an alternative, check out the exquisite bamboo-frame bike designed by Calfee Design ( [www.calfeedesign.com](http://www.calfeedesign.com)). Bamboo is the shining beacon of the renewable materials world, growing up to a whopping 30 centimetres a day. It takes energy to harvest and process, but far less than goes into smelting metal.

Almost all of the metal on my bike is covered with industrial paint, even the spokes. Most bike companies use polyurethane enamel paint like Dupont's Imron, which contains hazardous volatile organic compounds like chlorine, toluene, phosgene, sulfuric acid and nitric acid. All polyurethanes are petroleum products and require a mixture of natural gas, methane, coal and oil to produce. For every kilo of this paint made, almost 4 kilos of carbon dioxide is released.

The rest of my bike parts are also made of petroleum products. The tires, handlebar grips, cable covers and seat cover are all made from oil in some form, producing many kilograms of CO<sub>2</sub>.

In the spring, I also use some WD40, another fossil fuel product, to loosen up my chain and derailleur. Better bike lube can be bought at pretty much any bike store. For an eco version, I've been told that jojoba, a wax sold at health food stores, does an amazing job.

The best thing about bikes is that they're entirely human-powered, so running out of gas isn't a danger. However, humans need fuel, too, and when I start biking to and from work every day (about 15 kilometres each way), I probably eat 30 per cent more than usual.

If I eat locally grown food and food that's in season, I'm reducing my carbon footprint slightly, but food still needs energy to grow. When I'm biking, I give off a lot of heat and carbon dioxide of my own: around 192 grams of CO<sub>2</sub> per trip, triple what I produce normally.

The last thing to consider is that my bike was probably built in China, even though I can't find an obvious sticker. Around 95 per cent of bicycles are built there, many of which are then shipped overseas, which results in around 55 tons of CO<sub>2</sub>.

This burden is shared between the other bikes on board, though. Plus, I took the TTC to the bike show where I bought it, so I'm off the hook there.

Tracking the carbon footprint of every little component of every object we use on a daily basis is pretty impractical and would drive us crazy. Overall, the World Watch Institute estimates that biking a mile takes 145 kilojoules of energy, whereas a car takes 7,000 kJs.

For now, I'm on safe ground with my bike, but it's sobering to realize that nothing in our world is entirely free of environmental impact.

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