

**Everts, Todd**

**From:** Chuck Magraw [c.magraw@bresnan.net]  
**Sent:** Monday, January 14, 2008 10:05 PM  
**To:** Nowakowski, Sonja; Everts, Todd  
**Subject:** Senator McGee's question (revised version)  
**Importance:** High

Todd and Sonja: this attempts to be responsive to Senator McGee's question re the human contribution to climate change. Will you please forward, or otherwise convey, this to him and any other members of the Council as appropriate.

**Q. Should we be concerned with human breathing as a source of CO<sub>2</sub>?**

**A.** No. While people do exhale carbon dioxide (the rate is approximately 1 kg per day, and it depends strongly on the person's activity level), this carbon dioxide includes carbon that was originally taken out of the carbon dioxide in the air by plants through photosynthesis - whether you eat the plants directly or animals that eat the plants. Thus, there is a closed loop, with no net addition to the atmosphere. Of course, the agriculture, food processing, and marketing industries use energy (in many cases based on the combustion of fossil fuels), but their emissions of carbon dioxide are captured in our estimates as emissions from solid, liquid, or gaseous fuels. [RMC].

This from a Oak Ridge National Lab web site, link below.

<http://cdiac.ornl.gov/pns/faq.html>

So one person emits 1 kg per day = 1 person emits 365 kg per year = 300 million persons (current population of the US) emit 109,500,000,000 kg per year or **109,500,000 metric tons**.

In 2004, total US emissions (not counting any contribution from human respiration) were 7,074.4 Tg CO<sub>2</sub> equivalent. (Tg (teragrams) = 10 to the 6th metric tons or 1 million metric tons). EPA US emissions inventory [http://yosemite.epa.gov/OAR/globalwarming.nsf/UniqueKeyLookup/RAMR6P5M5M/\\$File/06FastFacts.pdf](http://yosemite.epa.gov/OAR/globalwarming.nsf/UniqueKeyLookup/RAMR6P5M5M/$File/06FastFacts.pdf)

So, 7,074.4 Tg = **7,074,400,000 metric tons**.

So, comparing those numbers, per year, the CO<sub>2</sub> respired by the 300 million persons in United States is 1.5 percent of the contribution of greenhouse gases from other human sources.

(This has not been checked by someone who is better at math and these conversions than I am.)