

Now and Then: Carbon emissions awareness

After four years of constant doubting, I have finally realized that global warming is a reality that is going to greatly affect my generation. Even though there is still much debate as to what is the exact cause of this climate phenomenon, much of the evidence indicates that increased green house gases (GHG) in the atmosphere, especially carbon dioxide (CO₂), are causing this change (Caetano, et al., 2007). The average American emits 20 tons of CO₂ into the atmosphere annually. This may seem like a trivial amount in comparison to the total global emissions of 27 billion tons of carbon each year, but Americans have the highest per capita emissions in the world (Walsh, 2008). For this reason, the United States collectively is responsible for 21 percent of the world's GHG emissions (EPA, 2003). Since individual emissions are so minimal compared to the total amount of carbon emitted by the rest of the world, many people believe that changing individual habits and practices to reduce their personal emissions are not going to make a difference. What these people do not realize is that if every American reduced their emissions by 5 tons each year, this would result in 1.5 billion tons of CO₂ reduction, a more significant number

When I came to Boston College as a freshman, I did not think that reducing my personal consumption and thus reducing my carbon emissions would make a difference. I was reluctant to believe that turning off the lights, conserving energy, and preserving resources would help in decelerating global climate change. As the years progressed and I became more knowledgeable about the environment and global warming, I began to realize that the only way enough people will begin to adjust their lifestyles and follow practices that will emit less GHG into the atmosphere is if they begin to believe that those insignificant 5 tons they can personally curb can add up. I decided not to wait for other people to tell me to reduce my carbon emissions. Instead, I decided to take initiative in hopes that other people would also adopt the same attitude.

Approximately 40% of the annual CO₂ emissions Americans put into the atmosphere comes from generating electricity, making it the largest single source of emissions (O'Neill, 2006). Energy conservation on behalf of the consumer is an important step to reduce this elevated number. While residing in the dorms as a freshman, I was reluctant to turn off the lights

and other appliances. After all, the cost of living in the dorms was extremely high, and all utilities were included in the room and board fees. I did not realize this was the wrong attitude to have and did not understand that conserving energy is not only about reducing the cost of the electrical bill, but it is about reducing CO₂ and other GHG emissions as well.

A very simple adjustment that can help reduce energy consumption is turning off the lights. A 75 Watt light bulb left on for 2 hours each day, every day of the year, emits 73 pounds of CO₂ annually (Main, E. & McRandle, P. W., 2007). I utilized four of these light bulbs freshman year, as well as the central light of the room. I constantly forgot to turn off the lights when I was not in the room, so they were probably on four hours a day on average. I should have been more conscious, and remembered to turn them off when they were not being used. This would probably have reduced the use of each light bulb to an average of one hour per day, the equivalent of preventing approximately 150 pounds of annual carbon emissions. This might have seemed like a trivial amount, considering that my total CO₂ emissions were probably close to the national average of 20 tons, but I did not realize that it was small things like these that I could personally control could add up.

Another great way to conserve energy is utilizing compact fluorescent light bulbs (CFLs), but since these were not that well known freshman year, I did not have them. However, I should try to change to this type of bulbs for two reasons. Firstly, changing 5 bulbs from regular incandescent to fluorescent will reduce annual CO₂ emissions by about 500 pounds. Secondly, they will save me a trip to the hardware store to buy new light bulbs since CFLs last 5 to 13 times longer than standard bulbs (CRGC, 2003).

A different simple energy saving technique is to turn off other appliances and electronic devices when they are not being used, instead of simply leaving them on stand by mode. For example, many times computers are left on, even though there is nobody using them. A recent study showed that putting a computer in sleep mode for 12 hours every day could save about 576 pounds of CO₂ annually. Shutting down the computer completely will save even more energy, but sometimes it is more convenient to simply put the computer in sleep mode. Sleep mode definitely saves a lot more energy than leaving the computer with a screen saver on, which contrary to what some people think, does not save any energy at all (CRGC, 2003).

An additional easy way to conserve energy is to unplug appliances when they are not being used. Appliances often consume electricity while they are plugged in, even though they are

turned off. This is often referred to as phantom power load. It has been estimated that 40 percent of household electricity is used up in the phantom power load. If all the phantom power load of every American household were added up, it would be equal to the annual output of 17 power plants (O'Neill, 2006). I often left my laptop charger plugged in, even though the computer was off. The same thing occurred with my phone charger. I understand unplugging every single appliance may become a nuisance, but I could have easily plugged all those electronic chargers into a power strip, and simply turned the strip off when the items were not being used. Also, rechargeable battery docks for handheld vacuum cleaners, like the one I have, can draw from the socket five to 20 times more energy than is stored in the battery (O'Neill, 2006). Considering I used the vacuum cleaner about once every two weeks, there was really no need for it to be constantly plugged in. It would have been more practical to plug it in for several hours after it had been used, and unplug it until the next use.

A different, less obvious method of conserving energy is water conservation. Water use contributes to the consumption of electricity since an electrically powered pump is required for the water to reach the faucet (Coombes, 2007). Also, a lot of energy is required to heat up water. Taking a daily, six-minute shower, instead of an eight-minute shower, can prevent up to 342 pounds of CO₂ from being introduced into the atmosphere (Main, McRandle, 2007).

Another water and energy consuming chore is laundry. The amount of energy consumed while doing laundry is affected by how it is done. When choosing which cycle to run, it is important to keep in mind that out of all the energy a washing machine uses, up to 90% of it is utilized to heat up the water. By washing laundry loads with cold water, close to 150 pounds of less CO₂ will be emitted annually (Main, McRandle, 2007). An even greater amount of energy can be saved by cutting back on the use of a clothes drier. By rack drying just half a laundry load each time, emissions can be cut by up to 720 pounds of CO₂ annually (Main, McRandle, 2007). I usually rack-dry my clothes simply because it is less damaging to the garments than machine drying is. Now that I realize how much energy is conserved by following this practice, I should consider air drying all of my clothes in the future.

Another indispensable aspect of people's lives that greatly contributes to carbon emissions is transportation. In the United States, when I began college in 2003, transportation accounted for 27 percent of the total GHG emissions. Personal cars were responsible for 35 percent of transportation emissions (EPA, 2006). Even though I did not have a car while on

campus, and utilized the T as my main mode of transportation while in Boston, I did drive over the summer while in Florida. There are small driving habits that can help reduce GHG emissions which I was not aware of.

First of all, making sure the car is running at optimum conditions is important. Making sure the tires are properly inflated can save up to 250 pounds of CO₂ emissions each year (Main, E., McRandle, P.W., 2007). Also, watching the speed at which is driven can also help reduce gas consumption and increase the number of miles traveled per gallon of gas. Driving 65 miles per hour instead of 75 miles per hour can save up to 1,500 pounds of CO₂ each year. Just a 10 mile per hour decrease can improve the car's mileage by about 15 percent (Coombes, 2007). Even if I am not driving, making the person who happens to be driving aware of this statistic might compel him or her to drive slower in the future. This would reduce their carbon emissions as well.

Transportation by airplane accounted for 9 percent of all transportation emissions in the United States in 2003 (EPA, 2006). The problem with flying is that airplanes emit a lot of GHG high in the atmosphere. This could cause quicker warming than GHG emitted at ground level would. A five hour flight has the equivalent damaging effects of taking a 60 hour road trip by car (TITI, 2008). Considering that the only way to get back to Florida during vacation periods is by flying, I should have contemplated whether it was worth flying home or not. Some estimates show that for every 500 miles of flight, 310 pounds of CO₂ are released into the atmosphere (Main, McRandle, 2007). Since Fort Lauderdale is approximately 1200 miles away from Boston, each one-way trip can put over 700 pounds of CO₂ in the air. Since I had decided to fly home for every holiday and break, including Thanksgiving, Christmas, Spring Break, Easter, and Summer, over 7,500 pounds, or almost 4 tons, of CO₂ were emitted into the atmosphere. Since air traveling is such a great contributor to my personal carbon footprint, reducing how much I travel would have been a great way to cut back on my personal emissions. I could have found a friend that lived around the Boston area, and I could have spent the shorter breaks, like Thanksgiving and Easter, with her. This would have eliminated the need to fly home, and thus prevent 3,000 pounds of CO₂ from being emitted that year.

A third great way to reduce one's personal carbon footprint is by simply consuming less, and recycling when possible. Two things that I frequently consumed freshman year that I could have easily reduced were plastic bottles and paper. Some studies have shown that it takes three

times more energy to extract virgin material to manufacture a product, than it does to recycle material to manufacture that same product (Hawken, et al., 18). In 2003, when I was a freshman, one study showed that only 12 percent of plastic bottles were recycled (Llanos, 2005). Many times I did not recycle water bottles I purchased because there were not that many recycling receptacles on campus, and I did not think it was needed for me to go out of my way to find one. What I did not realize is that significant quantities of petroleum are utilized when making the bottles, and GHG are generated during the process. Recycling plastic bottles reduces the need for such elevated levels of burning this finite resource. An even better conservation strategy I should have adopted freshman year was to use of a reusable plastic bottle. Not only would this have prevented me from running out of money in the meal plan every semester, since I would not have had to pay \$1.50 for water each time, but it also would have considerably reduced my carbon emissions as well. I am more aware of the issue now. I utilize a reusable bottle, and actively seek a recycling bin when I use a disposable plastic bottle, but I wish I had followed this practice throughout my entire college career.

Another resource that is often impractically utilized is paper. Paper products comprise 34.2 percent of municipal solid waste, the largest component of solid waste in the United States (Withgott, Brennan, 632). Freshman year I printed so many pages, including lecture notes, papers to hand in, and online articles. I never bothered to figure out how to print double-sided, but probably should have because this would have cut my paper waste generation by half. Paper waste contributes to GHG emissions in several ways. Trees that are cut down to produce the paper stop absorbing CO₂ from the atmosphere since they are no longer alive. Also, energy is required to manufacture the paper and every time a page is printed. This year I was angry when I learned students would have a 500 page printing limit, but now I understand the reasoning behind this new policy. This year I studied lecture notes and read assignments off my computer screen instead of printing them out, reducing the amount of paper I used. This new rule probably reduced significantly the amount of paper waste generated by the university as a whole. Reducing the amount of printing by reading directly off the screen or printing double-sided is a good way to reduce waste and conserve energy simultaneously.

Reducing my heavy reliance on energy and other carbon-emitting activities is something I have direct control over, and it can add up to make a difference in the effort to reduce global GHG emissions. The common attitude many people adopt where they do not follow simple,

energy-saving practices because they do not believe they can make a difference is misconstrued. The practices mentioned above are only a few simple habits I can adjust to reduce my personal footprint, but if I follow every one, I could reduce my carbon emissions by over 7,000 pounds annually. This is not quite a 5 ton reduction, but now that I am going to be graduating, where I choose to live, how I manage to get to work, and how I decide to follow other practices will have a greater impact on my total carbon emissions. This will add up with the small practices, and reducing my emissions by 5 tons will become a rather feasible task. Freshman year I was reluctant to believe climate change was actually occurring, and refused to believe that my carbon emissions were going to have an effect on global warming. Now I am fully aware that this phenomenon is a reality, and I do believe that whatever I can do to reduce my impact will make a difference. This is why I have adopted new energy-saving practices and will try to convince those that are close to me, such as my parents, to adopt them as well. I do believe it is possible to significantly curb GHG emissions by reducing personal consumption practices that contribute to the problem.

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