

ENVIRONMENTALLY SPEAKING Peter Schwartzman

Never doubt the power of seemingly small things

When one examines the world we live in, one finds tons of examples where seemingly small things have a tremendous impact on the Earth and humans as well. Recognizing some of these might bring us to a better understanding of how the planet's systems operate and how human cultures have and do function. If small contributions are shown to be so significant, we might be more apt to avoid making additional changes to the system, especially when they are unnecessary. Similarly, if certain small changes will have a positive impact, perhaps we will make more of an effort to adopt them. Look at this list and consider what new and meaningful thoughts they provoke. As they have become more deeply imbedded in my mind, I have become more motivated to be a "small" contributor to change as well. (Some of these things have been mentioned in my previous essays, which started in July of 2001. So hopefully, they won't all surprise you.)

Less than 1 percent of the Earth's atmosphere keeps the Earth habitable. If we selectively removed just 1 out of every 100 molecules of gas in the atmosphere, the Earth would freeze solid as global temperatures would drop over 50 degrees Fahrenheit. This is because the dominant gases in the atmosphere (namely, nitrogen and oxygen) contribute very little to the maintenance of heat on the planet. It is the greenhouse gases that absorb the Earth's radiant energy and reradiate much of it back towards the surface.

The primary agent driving climate change this century will be an addition of one part in over three thousand gas molecules. Yes, that is right. The greenhouse gases that we are anticipated to add to the atmosphere this century will change the atmosphere by much less than 1 percent. Another way to visualize what is expected to happen is as follows: Consider a piece of paper containing 3,500 small black dots. Each dot represents a molecule of gas currently in the atmosphere. One red dot in this sea of black dots represents all the carbon dioxide, nitrous oxide, methane, ozone, and other trace greenhouse gases. By 2100, we will have added one more red dot to this "sea." It is this "minute" (almost imperceptible) change is expected to increase global temperatures several degrees making the Earth warmer than it has been in the past few million years! If this warmth alone wasn't worry enough, the concomitant expansion of tropical diseases, rising sea-levels, increasing strength of hurricanes, and melting of glaciers and permafrost should be sufficient to raise consciousness worldwide. In this way, the atmosphere seems much more fragile than we might have previously thought.

A class of gasses that we produced in the 20th Century had the potential to wipe out large numbers of living things. Even though it never reached concentrations larger than 0.000003 percent of the atmosphere, chlorofluorocarbons (CFCs) were thought to be harmless until the 1980's. Forty years after their initial use, we discovered that they aid in the destruction of the ozone layer (a very thin layer of gas that absorbs harmful ultraviolet light preventing it from penetrating to the surface). With significant reductions in upper atmospheric ozone, it is believed that many forms of life would suffer catastrophic losses. Fortunately, after having observed the ozone levels declining, we made a strong, multinational effort to discontinue the use of CFCs. Unfortunately,

we are still producing gases that do damage to the ozone layer (the replacements for CFCs still have the ability to do this; and CFCs are still available illegally), but at least we stopped manufacturing the greatest threats.

Growth of the world's human population at current rates will see the global population swell to nearly 20 billion people by 2100. The best estimates we have suggest that our species is increasing by 80 million people every year—this is because we are growing by 1.2 percent annually (a figure known as the population growth rate or PGR), down from over 2 percent annual growth in the early 1960's. Actually, our PGR is expected to continue to decline over the next several decades largely because of increased access to contraceptives and improved economic opportunities for women. Therefore, the above figure of 20 billion is probably much too high. According to the most informed models, world population in 2100 will be between 6-14 billion with the likely estimate being a bit more than 9 billion. This final estimate still amounts to a ~40 percent increase over the current population. So, in summary, an annual growth rate of less than 1 percent (which looks very small) will be sufficient to put incredible pressure on resources, many of which are showing signs of severe limitation already. (As I have argued at length in other writings, the more significant pressure on resources comes from continued expansion of affluence and greed, not population.)

The preference for boy babies rather than girl babies resulted in 100 million girls going "missing." In many parts of the world, particularly in parts of the Middle East, China and India, social and economic pressure dictates that sons are preferred. This has meant that millions of daughters have been selectively aborted before birth or after birth, or so neglected during their lives that they end up dead at a very young age. Whatever way they are eliminated, these females end up "missing" from the population. Though the number of "missing" females is astounding (millions more than the total human deaths due to World War I and II combined), little is said about it and even less is done about it. For example, rather than stand up for human rights, and put pressure on China to deal with this problem, our nation's leaders (in the 1990's) decided to give this most-populated country "most favored trade status."

There is a very easy way to raise enough money to solve most of the problems created by poverty and inequality. The simple truth is we have so much wealth in the world right now. In the United States alone, the annual production of goods and services (as measured by the Gross National Product) is approximately \$11 trillion (which works out to \$37,000 for each woman, man, child living here). This is an incredible amount of money. If we were to "give" just 1 percent of it to provide clean water, healthy food, vaccines, etc, this would amount to over \$100 billion in aid.

Another huge source of potential money could come by including a minimal tax on the trade of stocks in the New York Stock Exchange (NYSE). Currently, the total value of traded stock on the NYSE (each year) is approximately \$21 trillion. If there was a very small tax levied each time a stock was traded (say one penny per dollar of equity), this would raise \$210 billion. This money would go a long way to solve the world's problems. People would no longer go hungry or

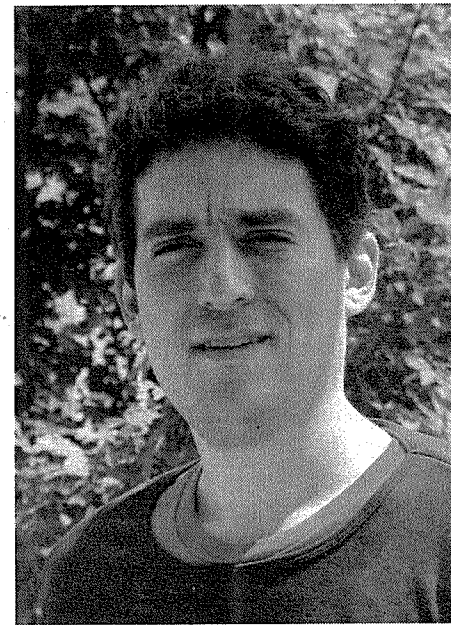
thirsty, and the world's children wouldn't get preventable diseases. My idea isn't so crazy. James Tobin, Nobel Prize Economist, offered something similar to it in the early 1970's. Tobin believed that this tax would serve as a stabilizing force in our economic system as well by discouraging rampant speculation which leads to dangerous bursts and bubbles in the economy.

Our inability to raise these funds and alleviate suffering and disease worldwide indicates our collective greed. How long can the excuse "we don't have enough" remain the accepted myth that it is?

The inefficiency of our cars/trucks is shockingly low despite a hundred years of technological development. Consider that only about 1 percent of the fuel that is burned by your personal car/truck actually is used to move you (Lovins). The other 99 percent (or \$2.97 of that \$3 gallon of gas) is wasted in the friction between the road and tire, the movement of the massive steel box, and in the heating of the engine and brakes. Much more efficient cars exist (with some getting well over 50 miles per gallon), but these vehicles receive very little marketing in the U.S. because they simply use too little gasoline (and their provide too little profit to the oil companies). Public transportation is also a much more efficient way to move humans from place to place, yet most public transportation systems are neglected and severely underfunded. We hear that efficiency is a key element in the decisions that govern our infrastructure. This is also huge myth. If we are so efficient, why do we use twice the energy per capita as residents of Japan or France both of whom have a standard of living similar to ours?

Elections can be extremely close and their outcomes very significant as well. In November 2000, we lived through the closest presidential election in U.S. history. Everything depended on the result of Florida. (I am here overlooking any chicanery that may have occurred, and mounting evidence suggests how huge this assumption may be.) In the end, if 269 voting Floridians had vote for the Democrat instead of the Republican candidate, G.W. Bush wouldn't have become president. Whether you are happy or sad about the outcome of the election, you surely would admit that the U.S. would now be in a very different situation today if those voters had changed their votes. The differences between the two candidates couldn't be starker in terms of their philosophy regarding the protection of the environment; just witness Gore's dedication to environmental matters post-election. The amazing thing about the aforementioned voters is that they amount to a mere 0.005 percent (or one in every 22,300 votes) of all votes casts. Never again should anyone think that a vote doesn't count.

The extremely small amounts of lead that were added to gasoline fuel were sufficient to cause massive health problems. Typically, the lead that was added to gasoline from the 1920's to the 1980's constituted only 0.08 percent (or one part lead for every 1200+ parts gas) of the fuel. However, so much gas was burned every day for over sixty years that dangerous levels of lead was measured in our blood, bones and breasts. It is estimated that close to 70 million children in the United States had toxic exposures due to this lead; additional poisonings occurred as a result of lead added to paint (Kitman). Sadly, this poisoning continues worldwide where leaded gasoline is still common. Lead



is still added to propeller plane fuel in the United States as well. Does anyone consider it a problem when small planes fly above our skies in Galesburg? Why not? Remember, it takes very little lead to cause serious mental impairment. Just because a few planes don't look like they might do damage, should we have a sense of comfort? How many children would have to be impaired before we would decide that this plane flying is superfluous? I suspect most of us would say, "even if one child is impaired, we should stop." Who is going to find out how many are being impaired? Does anyone care?

Small improvements in our collective behavior can have incredibly large positive impacts. Consider the following examples. If every household in the United States changed one of its incandescent bulbs to a compact fluorescent bulb, the effects would be astonishing. Enough energy would be saved to power more a city with over a million people. It would also reduce greenhouse emissions in such a quantity that it would be equivalent to removing over one million cars off the road! And even more amazing, the energy saved is enough to shut down two coal power plants in the United States (Fishman). If every person in the U.S. recycled one more aluminum can this year than last, this would save an equivalent of 150 millions of gasoline! Consider that next time you think about throwing an aluminum can away! (Why don't they teach this stuff in schools?)

So as you see, there is a lot of power in seemingly small things. Never again should you say, "1 percent is a trifle," or, "that little change won't matter." The reason being: "1 percent might be all we need to survive," and, "little changes might just 'break the bank' or 'provide the cure.'"

Works Cited:

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