

**Bethel College Mennonite Church Creation Care Committee**  
**Creation Stewardship Notes # 28**  
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**The Environmental and Social Footprints of Bottled Water**  
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Over the last 30 years, what commercial beverage has increased the most in popularity? You may have guessed it – bottled water. Bottled water is now second only to carbonated soft drinks in consumption. More is consumed than fruit drinks, fruit juices, milk, alcoholic beverages, coffee or tea. In 1976, Americans drank less than two gallons of bottled water a year for every man, woman and child. Now we consume nearly 30 gallons a year, a growth rate of approximately 10% per year. Americans now spend \$15 billion a year on bottled water. About half the bottled water sold in the US is distributed by three companies, Nestle, Coca-Cola and Pepsi.

The growth in bottled water consumption is a world-wide phenomenon, with sales totaling over \$100 billion in 2005 and growing faster than any other type of beverage. Americans, with the highest total consumption, bought 8.3 billion gallons of bottled water in 2006, about 50% more than second place Mexico. However in per capita consumption, the United States is only tenth, as Italy, United Arab Emirates and Mexico have consumption rates of more than 50 gallons per person per year and a number of European countries have consumption rates higher than the nearly 30 gallons per person per year in the United States.

Initially it might appear that this is a positive trend as water is a more healthful beverage than some of the alternatives. However when examined more closely, it becomes clear that the growth in bottled water consumption is mostly a substitution of bottled water for tap water. This poses a number of problems:

1. Tap water is delivered to most homes in the US through an energy efficient infrastructure. However the delivery of bottled water uses large amounts of fossil fuel energy. It is usually packaged in single-serving plastic bottles (polyethylene terephthalate or PET) of one liter or less made from petroleum. Manufacturing the 29 billion plastic bottles used in the US for water each year requires the equivalent of more than 17 million barrels of crude oil and releases into the atmosphere more than 2.5 million tons of carbon dioxide. Adding in the amount for pumping and processing, transportation to market and refrigeration gives an estimate for total oil equivalent use in delivering bottled water of more than 50 million barrels, enough to fuel 3 million cars for one year. In the US, some bottled water comes from as far away as the Fiji Islands.

2. Only 14.5% of non-carbonated beverage bottles are recycled. Almost 40% of these bottles are exported for recycling – often to China – requiring additional energy for transport. The other 85+% end up in trash or as litter. Those that enter the trash stream are either buried in landfills where they may remain for thousands of years or are incinerated, resulting in the release of chlorine (and potentially dioxin) into the air and heavy metals in the ash.

3. Large quantities of excess water are used in producing bottled water. Millions of gallons of water are used in making the plastic for the bottles. For each gallon of water that goes into the bottles, up to two gallons of excess water may be used in processing it. The concentrated water withdrawals from aquifers near bottling plants can adversely affect water supplies for local communities and aquatic wildlife habitats. This is particularly an issue in the case of imported water, where less affluent and politically powerless local populations are deprived to provide bottled water to consumers elsewhere. A Right to Water National Conference will be held at Mehdigani, Uttar Pradesh, in India March 28-30, 2008.<sup>L</sup> An article about the conference has the following to say about Coca-Cola's water bottling plants: "A significant example of such egregious behavior comes from the Coca-Cola company which has continued to extract millions of litres of water everyday in India while communities who reside around its bottling plants are left thirsty for water."

4. Most people buy bottled water because they think it is higher quality than tap water – tastes better and is less subject to contamination. However about one-fourth (some estimates as much as 40%) is bottled tap water, sometimes with additional treatment, sometimes not. Pepsi's Aquafina and Coca Cola's Dasani come from a public water source, not a pristine natural spring. A four year study completed in 1999 found that one-third of 103 brands of bottled water contained some amounts of contamination, including traces of arsenic and *E. coli*. Bottled water and tap water are probably not much different in quality but tap water is more closely regulated.

Public tap water standards are set by the Environmental Protection Agency (EPA) and regular testing for more than 100 contaminants is mandated. More than 90% of US public water systems meet all EPA standards. Bottled water for interstate commerce is regulated by the Food and Drug Administration (FDA). FDA bases its standards on EPA standards but requires testing less often and for fewer contaminants. Bottled water that is packaged and sold within the same state is not regulated by FDA.

5. Bottled water is from hundreds of times to thousands of times more expensive than tap water for the consumer (in many cases costing more per gallon than the gasoline you put in your car). What benefits are you getting for that extra price? This also raises questions of social equity. If we think bottled water is safer than tap water, is safe drinking water a resource that should be supplied to all members of society or only to those who can afford bottled water? What if we applied the money and resources invested in the bottled water system to upgrade our public water system? On a world scale, what if we devoted the money and resources used for bottled water to supply safe drinking water to the estimated one billion persons (1 in 6) who lack access to safe water? The world currently spends \$15 billion a year on water supply and sanitation in developing countries and \$100 billion a year on bottled water.

The US Conference of Mayors at its meeting in June 2007 discussed the irony of purchasing bottled water for city functions and city employees and at the same time bragging about the quality of municipal water. They passed a resolution calling for a study on “the importance of municipal water and the impact of bottled water on municipal waste.” Two major areas that will be addressed by the study include cost, quality, and availability comparisons of tap and bottled water, as well as the environmental impacts of bottled water production. Los Angeles has restricted the purchase of bottled water with city funds since 1987. San Francisco has banned the purchase of bottled water by city departments and agencies beginning at the end of 2007, saving the city \$500,000 a year and reducing greenhouse gas emissions. You can find a list of local governments that have programs to limit the purchase of bottled water and encourage the use of tap water at [http://www.earthpolicy.org/Updates/2007/Update68\\_data.htm](http://www.earthpolicy.org/Updates/2007/Update68_data.htm).

The **Think Outside the Bottle Pledge Campaign** is a movement endorsed by a number of religious organizations, a number of US cities and more than 35 other organizations, including the Presbyterian Hunger Program, Methodist Federation for Social Action, Women’s International League for Peace and Freedom, Earth Policy Institute, Global Exchange, Sierra Club, Corporate Accountability International, and Union of Concerned Scientists. They consider water to be such a vital resource for life that it should remain under public control rather than being privatized as a commodity to be sold for profit. They encourage the use of tap water rather than bottled water and also oppose the privatization of water supply systems which is taking place, particularly in the developing world. The Center for a New American Dream has a Carbon Conscious Consumer Pledge to **Break the Bottled Water Habit**. They suggest using a refillable bottle and filling it from the tap. Using tap water is cheaper and better for the environment than manufacturing, shipping, and discarding the single use plastic bottles.

If you have any questions about the safety of your tap water, you can request a copy of the federally mandated testing report from your water utility. Then if you have concerns about the safety or the taste of your water, you can look into a home water filter. **Consumer Reports** discusses the pros and cons of various methods of home filtration – from simple pitchers to under-the-sink installations.

Since some studies have shown that many commonly used plastics leach chemicals into the water, you may want to use a refillable container of glass, ceramic, stainless steel or aluminum to carry water. If you would rather use a plastic bottle, look for one made of plastics #2, #4, or #5. These are relatively safe.

Information for this article was taken from the websites of:

**Center for a New American Dream** <<http://c3.newdream.org/blog/2007/10/03/youll-never--look-at=bottled-water-the-same-again>>  
and their Responsible Purchasing Guide: Bottled Water <[http://www.responsiblepurchasing.org/purchasing\\_guides/bottledwater](http://www.responsiblepurchasing.org/purchasing_guides/bottledwater)>  
**Earth Policy Institute** <<http://www.earth-policy.org/Updates/2006/Update51.htm>>  
**Worldwatch Institute** <<http://www.worldwatch.org/node/5475>>  
**Think Outside the Bottle Campaign** <http://www.thinkoutsidethebottle.org>  
**Natural Resource Defense Council** <http://www.nrdc.org/water/dtinking/bw/bwinx.asp>