Bottled Water Issues Summary

In 2007, several municipal, research, and consumer groups raised awareness of the negative impacts of commercially-bottled drinking water in contrast to municipal tap water.

Caption photograph--A Chinese man transports plastic bottles and containers for recycling in Haikou, China, on January 29, 2003. China is the world's third largest consumer of bottled water, according to a new report released by the nonprofit Earth Policy Institute. Bottled water is often no healthier than tap water, the organization says, but it can be 10,000 times more expensive. Photograph © China Photo/Reuters/Corbis posted on the National Geographic Society Web site: http://news.nationalgeographic.com/news/2006/02/0224_060224_bottled_water_2.html

What's the big deal with bottled water?
Water is essential for life on the planet. Choosing bottled water is a convenient alternative to buying many other packaged beverages, which may include unessential sugars, caffeine, and other chemical additives. It would seem that buying and drinking water is a logical action. But as most things in life, every action has consequences, especially when expanded to the large scale.

How much waste is involved in disposable water bottles?
According to the Pacific Institute, based on the quantity of U.S. bottled water sales reported by the Beverage Manufacturers Corporation for 2005, **38 billion plastic bottles were sold in the U.S.** which used 900,000 tons of plastic, requiring 1.7 million barrels of oil, to make the #2 PETE bottles typically used for commercially-bottled water. The production of the plastic water bottles created 2.5 million tons of carbon dioxide, a greenhouse gas contributing to climate change. According to NBC News, the number of water bottles consumed by the U.S., if laid end-to-end, could encircle the Earth 150 times each year. Less than $1/4^{th}$ of these bottles are recycled, according to the Container Recycling Institute. Most water bottles end up in the landfill, where the plastic may decompose after 1,000 years.

Not included in these calculations is the energy required to bottle and transport water from the sources, especially from such countries as France, Fuji, and Finland to the top consumer nations of the U.S., Saudi Arabia, Brazil, and elsewhere. The additional environmental impact of the long-distance shipping of bottled water adds many times to the environmental impact of the bottled water "carbon footprint."

How does the sticker price of water at the store compare to tap water?
Commercially-bottled water costs $.25 to $2/bottle. A typical "grab and go" bottled water from a convenience store is at least $1. At this rate, bottled water is more expensive than gasoline. Municipal tap water costs less than a penny to fill a gallon jug!

What are the safety considerations of municipal tap water vs commercially-bottled waters?

- "In industrial countries with highly regulated water supplies, tap water has been proven to be just as safe, or safer, than its commercial counterpart. In the United States, regulations concerning bottled water are generally the same as for tap water, but are weaker for some microbial contaminants. The U.S. Food and Drug Administration (FDA), which regulates bottled water at the federal level, permits the product

to contain certain levels of fecal matter, whereas the Environmental Protection Agency does not allow any human waste in city tap water. Bottled water violations are not always reported to the public, and in most cases the products may be recalled up to 15 months after the problematic water was produced, distributed, and sold." Quote from the World Watch Institute www.worldwatch.com

In 2007, several large municipal water producers, such as New York City, began a public awareness campaign "Get your fill" from the water tap in order to address the perception that bottled water was somehow safer than municipal tap water. An independent report from the National Defense Council released test results from 103 bottled water brands and found that 26 of the samples contained substances that would have violated California state drinking water regulations. In 2007, several large water bottlers including Coca-Cola's Dasani and PepsiCo's Aquafina issued press releases that identified their bottled water sources as largely from municipal operations, which are subject to higher water quality standards than FDA requirements for water bottlers.

Note: If you are traveling outside the U.S., especially in less-developed countries, you should check with your travel agent about the quality of local water and possibly choose bottled water. Within the U.S., municipally-treated tap water is a safe and economical choice.

What difference does it make to recycle my water bottles?

Nationally, more than 3/4ths of our discarded water bottles end up in the landfill. Recycling empty plastic bottle will recover over 60% of the energy and resources used to make the original plastic bottle according to the National Recycling Coalition. Locally, at the City of Ann Arbor's Materials Recovery Facility, water bottles (marked #1 PETE) from 30 area communities and haulers are sorted, baled, and shipped to Mohawk Industries in Summerville, GA to be remanufactured into fabric, fleece, and carpeting, similar to polyester products. Each bale of sorted, compressed PETE water bottles weighs about 940 pounds. With each bottle weighing roughly one ounce, each bale contains over 15,000 water bottles. In 2006, the city's MRF shipped 410 tons of PETE plastic and was paid an average of $320 per ton.

Refillable water bottle options

An even greater resource savings is gained if consumers refill and reuse a water container when a portable beverage is needed and use a mug/glass and pitcher or tap when at home or work. Many discussions on refillable water bottle options are posted on the web, including: **http://www.slate.com/id/2172541/**

Taste of the tap and filter options

Some consumers prefer water with less 'taste' in their specific tap water. They may want to install a water filter on their tap or use a pitcher filter. The National Sanitation Federation, based in Ann Arbor, is generally regarded as the primary resource for testing and ranking water filters. Consumer Reports magazine, available in the public library, periodically ranks water filters as well.

Other issues with commercially-bottled water

Additional discussions about local water rights and equity are available on the web, such as at www.thinkoutsidethebottle.org.

Summary of Ann Arbor's City Council Resolution on bottled water

On May 7, 2007 Ann Arbor's City Council passed a resolution titled "Drinking Tap Water is Thinking Green," which supported the confidence in municipal tap water, identifies the waste involved in commercial water processes of bottling, transporting, and disposal. The resolution also raises concerns about shifting the ownership of water from municipalities for local uses to businesses for export and profit, especially in the Great Lakes area. You can read the resolution at www.a2gov.org/A2H2O.

The actions called for in the resolution are to "educate and inform citizens about the ecological dangers of buying bottled water and to stress the convenience of carrying a bottle of tap water." The only ban on using commercially-bottled water applies only to City Council functions, although bottled City of Ann Arbor tap water, called A2H2O, would continue to be permitted at Council meetings and public sessions. The ban on commercially-bottle water does not extend to any other City Hall functions or to general commerce and events within the City of Ann Arbor limits.

Selected Resources:

- Container Recycling Institute http://container-recycling.org/assets/pdfs/reports/2007-waterwater.pdf
- International Bottled Water Association
- Earth Policy Institute –has compiled an international summary of consumption and reactions
- Natural Resources Defense Council
- www.thinkoutsidethebottle.org
- Center for a New American Dream refillable bottle pledge http://c3neewdream.org
- National Geographic http://news.nationalgeographic.com/news/2006/02/0224_060224_bottled_water_2.html
- National Recycling Coalition
- American Waterworks Association www.drinktap.org
- City of Ann Arbor www.a2gov.org/a2h2o
- US EPA http://www.epa.gov/safewater/faq/faq.html.

Table 1. Consumption of Bottled Water, Total and Top 10 Countries, 2000 and 2005

	2000			2005		
Country	Total Volume	Share of Global Consumption	Consumption Per Person	Total Volume	Share of Global Consumption	Consumption Per Person
	(million liters)	(percent)	(liters)	(million liters)	(percent)	(liters)
United States	17,955	16.5	61.6	28,651	17.4	99.2
Mexico	12,464	11.5	124.3	18,861	11.5	179.7
China	6,012	5.5	4.7*	12,901	7.8	9.9*
Brazil	6,838	6.3	39.0*	12,252	7.4	65.8*
Italy	9,251	8.5	160.4	11,145	6.8	191.9
Germany	8,427	7.8	101.8	10,581	6.4	128.4
France	7,456	6.9	126.2	8,424	5.1	139.1
Indonesia	4,314	4.0	20.2*	7,633	4.6	33.3*
Spain	4,221	3.9	105.6	5,923	3.6	147.1
India	2,157	2.0	2.1*	6,177	3.8	5.6*
All others	29,391	27.1		41,982	25.5	
Total	108,517			164,530		
Global average			17.9			25.5

Source: International Bottled Water Association.
** These numbers are not directly available; they were calculated with population data from the U.S. Bureau of the Census.*