



From Cradle to Grave: The environmental footprint of bottled water



Producing bottled water

- Bottled water manufacturers are the end point of a supply chain that contains some of the biggest polluters on the planet. The two primary raw materials in polyethylene terephthalate (PET plastic, used in most single serve bottles) are terephthalic acid (PTA) and monoethylene glycol (MEG), toxic chemicals that are derived from crude oil. The extraction of these primary raw materials involves oil and petrochemical corporations such as British Petroleum, ExxonMobil and Shell.
- It takes large amounts of energy to produce plastic bottles, approximately 3.4 megajoules to manufacture the packaging, bottle and cap of a one-litre plastic bottle (Source: Pacific Institute). The 31.2 billion litres of bottled water consumed annually in the United States, uses more than 17 million barrels of oil to produce (Source: Pacific Institute).
- The notion that the bottled water industry uses comparatively little water is misleading; the focus should be on a watershed-by-watershed analysis, not the overall amount of water being used by the industry.
- Some communities have raised concerns about the environmental impacts (and impacts to other water users) of removing hundreds of thousands of litres of water a day and how little is being paid for it.
- The issue of water takings is complex. Ground and surface water taking laws and regulations differ Province-to-Province and State-to-State.
- Twice as much water is used in production than what is sold in the bottle (Pacific Institute estimate).

Transportation

- The bottled water industry relies on container ships, trucks and cars to transport raw materials to the plants and finished products to where they are sold. Oil based transportation contributes to global warming in the production of greenhouse gases.
- Consider the greenhouse gas emissions of luxury bottled water brands that travel from one continent to another (eg. Fiji water from Fiji, San Pellegrino from Italy)!
- The use of tap water remains within a watershed, the delivery system is significantly more energy efficient.

Plastic waste

- When considering the lifecycle of a bottle of water, its energy costs are the equivalent, on average, to filling up a quarter of each bottle with oil (Source: Pacific Institute).
- Bottled water and plastic resource companies have spent millions of dollars to weaken and/or defeat bottle bills (deposit return programs) which require the industry to assume some of the costs of recycling and help reduce the use of virgin plastic in new bottles.
- According to one report, 235,086 tons of plastic bottles were generated and approximately 84,744 tons were recovered and recycled in 2002. Canadian provinces with deposit return





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programmes have much higher recycling rates. The average recovery rate (2002) for beverage bottles in non-deposit programs was 33%, compared with an average of 75% where these programmes are in use. Overall, there was an average recovery rate of only 48% in 2002 for all plastic beverage containers in Canada (CM Consulting for Environment and Plastics Industry Council [EPIC]: *An Overview of Plastic Bottle Recycling in Canada*, August 2004).

- According to the Container Recycling Institute, in the US an estimated 144 billion containers were wasted in 2005, approximately 18 million barrels of crude oil equivalent were used to replace these bottles (CRI: *Water, Water Everywhere*, February 2007).

