



Water Use Benchmarking Study: Executive Summary

Prepared for
International Bottled Water Association

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Antea Group



“Promoting an environmentally responsible and sustainable industry” is one of two key tenets of the IBWA mission statement. As part of that mission, in 2012, IBWA commissioned its **first water use benchmarking study** to evaluate water use efficiencies and trends among North American (United States and Canadian) bottlers. Water use efficiency is a critical focus area in the bottled water industry – efficient water use in operations positively impacts the viability of water resources and business sustainability. Conducting a benchmarking study is a first step toward understanding the impacts of water use in the bottled water industry, and opens the door for future evaluations of the industry’s broader water footprint.

To establish a robust, consistent data set, each IBWA member was asked to provide three years (2009, 2010 and 2011) of facility-specific information, including facility type, total water use, total production, and supplementary process information (e.g., type of water treatment, use of refillable bottles). The key performance metric for this study is the **water use ratio**, which presents the average amount of water used within the facility to produce one liter of bottled water. The study was managed by Antea®Group, a third-party consultant, who conducted the data collection process, verification, analysis, and reporting.

Key Study Definitions

Total Water Use: all water used by the facility, including product water, and water used for facility processes (e.g., treatment, cleaning, maintenance, etc.)

Total Production: the volume of finished product developed at the facility

Water Use Ratio: a measure of efficiency defined as total water use / total production

In total, **nine IBWA member companies and one industry peer** contributed to the study. The study represents **14.5 million liters¹** of bottled water production – an **impressive 43 percent of total 2011 United States bottled water consumption²**. This exemplary measure of first-year participation demonstrates the dedication of North American bottlers to better understand the industry’s water use performance.

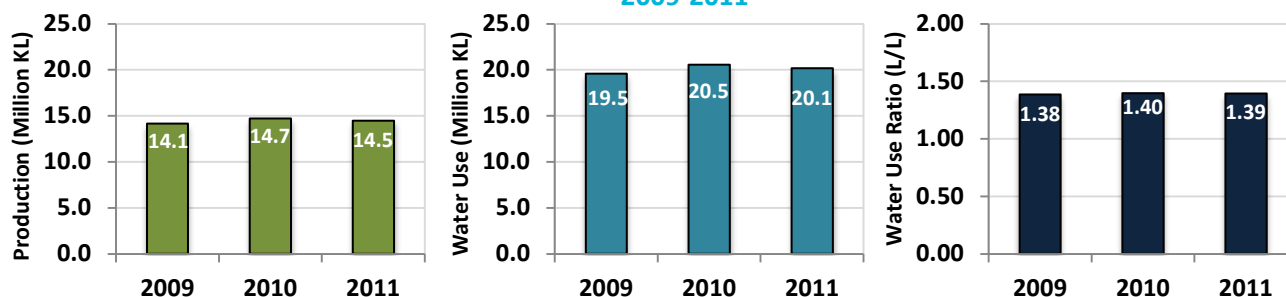
¹ This study presents results in liters to align with other beverage industry studies (1 liter = 0.2641 US gallon)

² “U.S. Consumption of Bottled Water Shows Continued Growth, Increasing 6.2 Percent in 2012; Sales up 6.7 Percent”; IBWA, April 2013

Industry Performance

In total, **62 North American bottled water facilities** contributed to the study. These facilities comprise the **fixed data set** used as the basis for evaluations throughout this summary report. As seen in Figure 1, total water use and total water production increased by about 3 percent, while water use ratio remained relatively flat over the study period. This trend demonstrates that process efficiencies are being recognized while the industry experiences sustainable growth.

**Figure 1: Industry Water Use, Production, and Efficiency
2009-2011**



The 2011 water use ratio for North American bottled water facilities was **1.39 L/L**, demonstrating a higher level of performance when compared to the global 2011 average for bottled water facilities³ (1.47 L/L). In general, bottled water facilities have the **lowest water use ratio intensity** when compared to other beverage sectors. According to the 2011 ratio, on average, it takes 1 liter of ingredient water and 4/10 of a liter of water used for facility processes (e.g., treatment, bottling, etc.) to produce 1 liter of finished bottled water product. In comparison, other beverage sectors⁴ such as carbonated soft drink bottling and beer production average have larger water use ratios driven by higher intensity processes unique to these other beverages, such as flavor mixing, blending, carbonation, fermentation, etc.

Sector Comparison of Process-Driven Water Use Ratios

BOTTLED WATER (1.39 L/L):
1 liter of water for product
+ 0.39 liter of process water
(treatment, bottling, sanitization,
etc.)

= 1 liter finished bottled water

CARBONATED SOFT DRINKS (2.02 L/L):
1 liter of water for product +
1.02 liters of process water
(treatment, bottling, blending, product
changeover, sanitization, etc.)

= 1 liter finished carbonated soft drink

³ Beverage Industry Environmental Roundtable, 2012.

⁴ Ibid.

Facility-based Results

The study also evaluated water use ratio trends among the three bottled water facility types:

- **Small Pack:** facilities that package bottled water in containers from 8 ounces to 2.5 gallons
- **Home and Office Delivery:** facilities that package bottled water in reusable/refillable containers from 2.5 to 5 gallons
- **Mixed Packaging:** facilities with both small pack and home and office delivery packaging

Table 1: Water Use Ratio Performance by Facility Type (L/L), 2009-2011

	2009	2010	2011
ALL FACILITIES	1.38	1.40	1.39
Small Pack	1.36	1.36	1.36
Home & Office Delivery	1.59	1.61	1.63
Mixed Packaging	1.37	1.41	1.41

As seen in Table 1 above, water use ratios for each facility type demonstrated modest increases in water use ratio of 3 percent or less. The differences in ratio magnitude among the three facility types are largely process-driven: for example, home and office delivery facilities bottle finished product in refillable containers, resulting in additional water use for sanitization processes that do not exist at facilities that use single fill packaging (e.g. most North American small pack facilities).

The North American bottled water industry has made significant efforts to reduce water use through process improvements, including but not limited to:

- o improved flow management to reduce product waste during changeovers;
- o optimization of cleaning/sanitizing units through automated timers, selection of cleaning chemicals, flow control, air rinsing, etc.;
- o recognition of production schedule efficiencies; and
- o reuse/reclamation of water for non-product contact or gray-water applications, such as on-site landscaping.

Conclusion

Members clearly recognize and typify IBWA's mission to promote an environmentally responsible and sustainable industry, as evidenced by the impressive participation in this first study. The results of this initial study can serve as a baseline to measure future progress in water use reduction and conservation efforts across the industry.

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