The Untapped Truth: Bottled Water Contributes to Our Climate and Water Crises

Every minute, more than 1 million plastic bottles of water are sold around the world.[1] The United States ends up recycling only 6 percent of the total plastic it uses,[2] and the vast majority (85 percent) of single-use water bottles across the world enter landfills, where they take up to a millennium to degrade, or become unregulated waste that pollutes our land and oceans.[3] Bottled water production also fuels climate change, since fossil fuels are a key feedstock in plastic production.[4] All of this pollution is generated in order to sell a product that many people can access by just turning on the tap.

Even though nearly two-thirds of water bottled in the United States comes from municipal water systems, the bottled water industry actively encourages distrust of municipal water systems that are vital to public health and water resilience.[5] The industry also targets low-income communities in its advertisements — the same communities that disproportionately suffer from federal and state disinvestment in public water infrastructure.[6] The bottled water industry is at its heart a profit-seeking venture to privatize what should be protected as a human right: access to clean water for basic needs. Legislation must stop the industry's unsustainable extraction of groundwater,[7] while all levels of government must invest in publicly owned water systems so that everyone can access safe and affordable water.

Bottling a Human Right

The global bottled water market grew 73 percent over the past decade, making it one of the fastest growing drink markets in the world.[8] In 2021, it reaped $270 billion in annual sales, and sales are expected to surpass $500 billion in the next ten years.[9] To put these numbers in perspective, the United Nations (UN) estimates that it would take an estimated $182 billion to $600 billion each year to fund safe drinking water supplies across the world.[10]

In 2022, U.S. bottled water sales jumped 12 percent to nearly $26 billion.[11] This is just shy of the $31 billion a year the U.S. Environmental Protection Agency (EPA) estimates is needed to maintain and improve the nation's drinking water infrastructure over the next two decades.[12] At the same time, the rapidly growing and highly profitable market for bottled water is masking the inability of the public water supply system to provide clean drinking water for all.[13]

Corporations have pointed to the underfunding of public water utilities as a way to sow seeds of public mistrust and push for privatization.[14] Privatization of municipal water systems puts residents at the mercy of private actors, bringing a host of issues in terms of water accessibility, and environmental damage.[15] Unlike publicly owned water systems, private water companies are first and foremost accountable to delivering profits to their shareholders or owners.[16]

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NOVEMBER 2023

Meanwhile, residents with poor tap water service are driven to rely on bottled water,[17] forcing residents in historically underserved communities to pay even more for basic water needs. This is because bottled water — which is often just municipally supplied water with a large mark-up in price — costs between 240 and 10,000 times more than tap water.[18] The UN claims that the bottled water industry "is not aligned strategically with the goal of providing universal access to drinking water or at least slows global progress in this regard."[19]

The Health Myths of Bottled Water

Bottled water in the U.S. is subject to less stringent regulation than tap water.[20] The Food and Drug Administration (FDA) regulates most food and beverages sold in the country, including bottled water, whereas the EPA regulates tap water. As such, bottled water is not subject to the same degree of sampling as tap water.[21] For example, the FDA requires weekly tests of bottlers' source water for microbiological contaminants, unless the water is from municipal supplies, in which case it has to meet the EPA's stricter testing requirements for tap water. And bottlers are only required to test their source water once a year for chemical contaminants and once every four years for radiological contaminants.[22] Additionally, states are responsible for overseeing the safety of bottled water produced and sold within their boundaries, leaving 60 to 70 percent of bottled water outside of FDA regulation.[23] The soft regulations surrounding bottled water have real impacts on bottled water quality, bringing to light the myth that bottled water is safer than tap water.[24]

Most notably, the plastic bottles and bottling process themselves pose a threat to public health.[25] They contain microplastics — small plastic particles linked to adverse effects on the human immune system, developmental and reproductive harm, and cancer. Microplastic levels in bottled water are seven times higher than in tap water.[26] Additionally, the water treatment and storage processes can further contaminate water with harmful substances such as heavy metals, benzene, and pesticides, as well as pathogens like bacteria, viruses, fungi, and parasitic protozoa.[27] In fact, bottled water labeled as "mineral" or "spring" water is not guaranteed to be treated for the parasite Cryptosporidium, whereas tap water cannot contain any trace of the deadly parasite.[28]

Bottled Water's Environmental Toll

Unsurprisingly, bottled water is an incredibly thirsty industry, consuming several times the volume of water that is ultimately sold in the bottle. For instance, Unilever and Nestlé require an estimated 3.3 and 4.1 liters of water to produce 1 liter of bottled water, respectively.[29] On top of the water used during the production process, a significant amount of additional water is used during the oil drilling to obtain raw materials for plastic and the plastic bottle production process — both of which have additional environmental impacts.[30]

Driven by profit motive, bottling companies have overused local aquifers, which can lead to the depletion of groundwater faster than it can be naturally recharged.[31] Nestlé has been accused of exceeding its permits for groundwater extraction in the U.S. and abroad.[32] For example, Nestlé Waters North America (now BlueTriton[a]) was found to be extracting 25 times more water than it had

a In 2021, private equity firm One Rock acquired Nestlé Waters North America, which now operates as BlueTriton. See BlueTriton. [Press release]. "Nestlé Waters North America Becomes BlueTriton Brands." April 6, 2021.

a right to from California's San Bernardino Forest, robbing local communities and ecosystems of their already scarce water resources.[33] Despite this clear abuse of water resources, the operation continued over-pumping water well into 2023, when environmental and community groups finally claimed a legal victory that significantly decreased the amount of water that the company can take from the San Bernardino Forest.[34]

Depleting aquifers can also lead to contaminants polluting water sources. Some aquifers now contain dangerously high levels of arsenic due to land subsidence following heavy extraction.[35] Moreover, residents claimed that over-pumping from Nestlé/BlueTriton's operations caused creeks to run lower, trout to disappear from creeks, and mudflats to worsen in Osceola County, Michigan.[36]

Adding insult to injury, these companies often pay next to nothing to pump vital water resources from their natural ecosystems and sell them for a profit. In the case of the San Bernardino Forest, Nestlé was paying just $524 to extract around 30 million gallons annually, even during times of drought. And in Michigan, where Nestlé raked in over $340 million from bottled water revenue in 2016, it was paying a nominal annual fee of $200 for its water extraction while at the same time receiving local tax breaks worth $13 million.[37]

Bottled water's environmental harms extend well beyond water extraction. Bottled water requires up to an estimated 2,000 times as much energy to produce than tap water, and is estimated to contribute to 1,400 times as much loss of species diversity.[38] This is largely due to the plastic production needed to support the bottled water industry, most of which uses bottles made of polyethylene terephthalate (PET).[39] These water bottles contribute to the 400 million tons of plastic waste produced each year globally.[40] And although most Americans try to recycle their plastic, 85 percent of PET water bottles end up in landfills or as unregulated waste, and bottles used by the top six soft drink companies contain, on average, less than 7 percent recycled PET.[41]

Plastic waste in oceans is expected to triple in the next two decades if we do not act now.[42] And while bottled water companies talk the talk when it comes to sustainability, they continually fail to walk the walk. Companies like BlueTriton and Coca-Cola have pledged lofty recycling goals and repeatedly come up well short. In fact, BlueTriton has faced lawsuits alleging deceptive trade practices in regard to its sustainability claims, which even its attorneys acknowledge are "vague and hyperbolic."[43]

Bottled Water and Environmental Justice

While the environmental and public health implications of a growing bottled water industry will affect us all, environmental justice communities, particularly Black, Indigenous, and other communities of color, bear the brunt of these adverse effects. Nearly half of American Indian households on reservations lack access to safe water or adequate sanitation, causing some reservations to rely on donations of bottled water for basic needs.[44] In Canada, many members of the Six Nations of the Grand River in Ontario lack access to clean water in their homes, while BlueTriton pumps 3.6 million liters of water a day from Six Nations' treaty land.[45] And many areas in the U.S. with significant health violations in their water systems are predominately Black and Hispanic, including Flint, Michigan; Jackson, Mississippi; and Newark, New Jersey.[46]

These violations sow seeds of distrust in public water systems — messages that are amplified by the bottled water industry through targeted marketing tactics towards low-income communities, people of color, and immigrants.[47] This may contribute to the disparities in spending on bottled water as the share of household income spent on bottled water for Black and Brown families in the U.S. is more than double that of white families.[48]

Adding to these injustices, municipalities have shown preferential treatment to bottled water companies when it comes to unpaid water bills. In Detroit, prior to 2020, thousands of residents faced water shutoffs for unpaid bills of just $150, while water bottlers such as Coca-Cola (Dasani) and Pepsi (Aquafina) racked up overdue bills and late fees of tens of thousands of dollars without experiencing any shutoffs.[49]

These disparities occur abroad as well, especially given that the bottled water market is largest in the Global South, with Asia, Africa, Latin America, and the Caribbean making up the majority of all sales.[50] Many low- and middle-income countries' reliance on bottled water is linked to poor tap water quality and unreliable public water supply systems, and is seen as an indicator of governments failing to deliver on safe public water systems.[51] However, this reliance on bottled water stunts progress towards equitable access to affordable drinking water.[52] And as climate change intensifies, supplying urban water in the Global South will only become more difficult.[53]

Conclusion

Given the environmental and public health issues surrounding bottled water, it is clear that we must move away from bottled water by supporting safe publicly owned water systems in the U.S. and abroad. This must happen in the face of a bottled water industry that sows seeds of doubt over public water infrastructure's ability to provide safe drinking water.[54] As the bottled water industry is currently one of the fastest growing markets in the world, it is important to pass legislation that stops this growth while still offering clean water access to residents currently underserved by under-funded municipal systems.[55]

All levels of government should take action to halt overextraction of groundwater, stop new bottled water facilities, end our reliance on fossil fuels (the feedstock for plastic bottles), enforce plastic waste management, and provide robust public water for all –through legislation such as the WATER Act in the U.S. It only takes half of what the world spends on bottled water each year to fund clean and reliable tap water for the hundreds of millions who lack this human right — we must act now.[56]

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