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The Impact of Bottled Water on the Environment and the Water Supply

Water is an essential part of our lives, for convenience, for some perceived differences in taste, smell, appearance, or even prestige! We perceive something that costs money to be better than something that is free. Each day, humans consume 780 million liters bottle water in the world, and spend about \$100 per person each year purchasing bottled water. It is estimated at \$11.8 billion was spent on nearly 9.7 billion gallons of water, putting the average cost at \$1.22/gallon. While the water is used in our body to keep us hydrated and health, where do the plastics go? It Takes 17 million barrels of oil to produce a year's supply of bottles. That's enough oil to fuel 1.3 million cars for the year or power 190,000 homes. The production cost excess of 1,000 times that of tap water. Besides oil, the manufacturing process also requires millions of additional gallons of water. For every gallon of water that is bottled, over two gallons of water are used for the purification process. This leads to local water shortages that effect nearby residents, especially farmers who need to provide food for the surrounding neighborhoods. In Iran, the heavy over-consumption of water devastated the agricultural output.

Our consumption of bottled water correlates to the use of natural resource, like fossil fuels, which pollutes the environment at an alarming rate, and ultimately damages food-producing industries like agriculture and fisheries. The burning of natural resources to produce the bottles released 2.5 million tons of carbon dioxide into the atmosphere. This excess of carbon dioxide creates greenhouse gases traps the heat from escaping the Earth. It warms thee planet by decreasing the evaporative cooling that result in global warning. The resulting rise of temperature eventually causes flooding, and makes the oceans about 30 percent more acidic, killing a wide variety of sea organisms. The most damaging effect of carbon dioxide is on crops. The rise of carbon dioxide correlated with the concentration of nitrogen in plants, which decrease their growth ability.

These plastic bottles not only harm our environment and diminish our clean water supply through their production, but also through the decompression of the plastics post-consumer. The decomposition process of plastic bottles also damages the environment. 38 million water bottles end up in landfills or as litter in America's street, parks and waterways. U.S. landfills are overflowing with more than2 million tons of discarded water bottles. The bottles are made of Polyethylene Terephthalate polymers, which might take 1000 years to decompose. As it decomposes, each bottle amounts toxic pollutants, pollutants like Bisphenol A, styrene, butadiene, and methane into our environment. These chemicals continue to leach out into the air, impacting the environment in many ways. First, it impacts the quality of the air around the landfill and pollute the soil. The high concentration of chemical in the soil result in loss of minerals, which alters plant metabolism. Secondly, the accumulation can cause ground water contamination. The heavy metals produced in landfills leach into ground water and pollutes the local water resources. Thirdly, landfill gases can easily ignite fire that destroys the habitat of both human and animals. This furthers the spread of leachate pollution of soil and water. Furthermore, the bottles also pollute our water supply. Around 0% of the bottles produced end

up in the surface of rivers and oceans, which limits the access of fresh, drinkable water to the world. Currently, 35% of the world population does not have fully sanitized water to drink. Animals ingest the plastic by mistake and this can be deadly for the animal and move on in the food chain. If we do not take actions to limit the use of bottled waters, one day, our whole planet will become a landfill where no species including human is able to survive.