

## BOTTLED WATER: PERCEIVED SCARCITY AND REAL NECESSITY

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The focus of this paper is the commercial packaging of the most essential ecological resource on earth, water. Water is an indispensable part of life on this planet and the most basic of necessities. The process of bottling water for sale to the consumer represents an industrial practice which has market success. Product success in the market demonstrates a public desire or need for said product, so we can reasonably assume that people not only do drink bottled water but they do so for reasons that can be explained in terms of the desire for an alternative to municipal water.

The role that bottled water has taken in our society and the folk beliefs which maintain that role are based on concerns of an ecology which has become toxic due to the negative effects of industrial processes. In many senses bottled water is an example of the perfect post-industrial product. The product uses existing industry to create a commodity that can be sold with an incredible profit margin because it utilizes cheap natural resources and processes, with the resulting product having a cultural association which involves a perceived value that goes beyond values found in many traditional economic models. The fear of municipal water being contaminated has created a perceived scarcity which in turn rationalizes the value of packaged water. The practice of ascribing bottled water the same market value as soft drinks has culturally institutionalized the high profit margins that bottled water enjoys. Other examples of culturally institutionalized products that have incredible profit margins and low cost resources include movie popcorn, pre-recorded compact discs and prescription drugs. Bottled water differs from these in one major way: it is an ecological resource which is “manufactured” with the most minimal of effort and sold at one of the highest of profits.

### **What is bottled water?**

The sale of bottled water (in all of its aliases) accounts for four billion dollars a year. Americans consumed a total of 3.43 billion gallons of bottled water in 1997 alone (NRDC 2005). In 1991 the International Bottled Water

Association published a model for the regulation of bottled water as well as other redistributed forms of water. These guidelines were published as part of the 102<sup>nd</sup> Congress Hearing Before the Subcommittee on Oversight and Investigations of the Committee on Energy and Commerce Before the House of Representatives (April 10, 1991). The model for regulation defined bottled water as “water that is placed in a sealed container or package and is offered for sale for human consumption or other consumer uses” (160). The document also gives a definition for drinking water as “bottled water obtained from an approved source that has at minimum undergone treatment consisting of filtration (activated carbon or particulate) and ozonation or an equivalent disinfection process” (161).

These two definitions are part of a larger set that was provided to congress as guidelines for labeling procedures. Folk model notions take bottled water as a preferable alternative to drinking water supplies. These definitions were proposed for the process of labeling products and as such the semantics involved are used for the legal definitions due to government pressures such as the Pure Food and Drug Act (34 U.S. Stat. 768), which requires that product labels honestly and faithfully reflect the contents and claims to the consumer. The consumer definition for drinking water has the provision that the water must receive a minimum of treatment before it be deemed fit to carry that label. The consumer definition for bottled water contains no such minimum treatment in the definition. In a certain sense these definitions are a reversal of the common American folk model, which defines bottled water as being processed more thoroughly than mere “drinking” water.

A further complication of these definitions is that mineral water is defined by the hearing as “containing not less than 500 parts per million (ppm) of dissolved solids” (161). The definition does not state what these dissolved solids can be. Theoretically it is supposed to be inert material but can also include trace metals or other materials of a toxic nature so long as they meet the Environmental Protection Agency’s (EPA) standards for toxicity in drinking water. A simple trip to the grocery store will inform anyone that mineral water tends to sell at a higher price than normal bottled water, yet by industry standards has the possibility (and probability) of having a lower purity than standard bottled water.

The Food and Drug Administration (FDA) is responsible for the monitoring of bottled water since it is defined as a consumable product. The FDA exempts 60-70 percent of bottled water from the agency’s standards since it is packaged and sold within the same state, thus not invoking the federal regulations of interstate commerce. Forty states have adopted the FDA (or higher) standards for bottled water quality within their own states, but most states lack the resources to police these standards consistently (NRDC 2005).

Municipal drinking water does have problems in industrialized nations. In particular, lead contaminants can be found in water which is carried through public water systems which use lead pipes or in private homes with lead pipes. While water systems are no longer built in the United States with lead pipes, a number of lead pipes are still in place. Congressional estimates (Hearing Before the Subcommittee on Health and The Environment, 102<sup>nd</sup> Congress May 10, 1991:80-81) contribute 20% of all human lead exposure to drinking water. Older pipes in municipal systems and private homes are slowly being replaced, but for the most part they are being replaced in cases where the lead concentration is above the EPA's guidelines of 50 parts per billion (ppb). Municipal water systems which violate this guideline can be given exemptions providing they try to meet these standards. In addition, the communities are given subsidy funding to try to reach the acceptable standards for lead contamination.

Lead is only one of 83 contaminants that are considered hazardous to human health which the EPA has set guidelines for in the Safe Drinking Water Act. However, there can be problems with the enforcement of these guidelines. During the 1987 fiscal year the EPA found 101, 588 violations of the Safe Drinking Water Act (88 U.S. Stat. 1660) but issued only 5,867 notices (Hearing Before the Subcommittee on Health and The Environment, 102<sup>nd</sup> Congress May 10, 1991:50). The enforcements tend to go to only the most serious and consistent violators.

Situations such as these routine violations, as well as high profile court cases where toxic substances have passed from industries into the local water table (and thus caused health problems for residents), have added to the popular folk model that places water from a container as being a more reliable source than water which comes from a tap.

### **Is bottled water safer than tap water?**

Some studies have refuted the claims of bottled water's perceived purity. In a 2004 study presented to the American Society for Microbiology researchers found that in a sample of 68 commercial mineral waters 40% of them contained bacteria and/or fungi (Rauscher 2004). In the same article Dr. Rocus R. Klont from the University Medical Center Nijmegen in the Netherlands made reference to the practice of hospitals giving bottled water to immune-compromised patients because it was assumed to be more sterile than tap water. This widespread assumption reveals how deeply the folk model response in favor of bottled water purity over tap water purity has influenced professional health care workers.

Some bottled water companies, particularly large corporations who are involved in other beverage sales such as Coca-Cola and Pepsi, are very conscious

about quality control and do test their products if for no other reason than to maintain consistency for their consumer base. The success of any product results in “generic” products sold at lower prices, such as competing discount colas. The quality control of generic products can be less consistent at times.

A case in point is Safeway water. This brand is derived from municipal water in the state of California. This brand routinely contained TTHMs (total trihalomethanes, potential carcinogens) at 3-4 times the California 10 ppb state limit (NRDC website). While this water was in violation of the state standard, the FDA requirement is 100 ppb and most states follow the FDA requirements of bottled water. This means that the Safeway water tested was not legal to sell in the state where it was produced but could be legally sold to other states. In addition, Safeway produced “spring water” which claimed it was “especially selected for its natural purity”. While exhibiting the same high levels of TTHMs as other Safeway waters, this product contained 14.2 ppb of Toluene in the sample tested (NRDC website). Toluene is a constituent in gasoline and the primary ingredient in jet and rocket fuel. 14.2 ppb is below the acceptable limit, but it is rare to find this chemical in any drinking water in the United States which is routinely tested.

The National Resource Defense Council also found TTHMs, bacteria and arsenic at levels exceeding state guidelines in 34 of the 103 packaged waters they tested over a four year period. In addition to Toluene, several other industrial chemicals were detected (NRDC website).

### **Why do we buy bottled water?**

Many factors contribute to our use and preference for bottled water. In the late 1970s Evian was introduced as expensive mineral/bottled water imported from France. This product was highly profitable, but mostly sold among higher class consumers as a luxury item. The real breakthrough in mass consumption of bottled water came when Coca-cola and Pepsi began to sell bottled water brands (Dasani and Aquafina respectively) through their pre-existing distribution systems. The water that these corporations use for the manufacture of their soft drink products is the same water that they use for bottled water. In most cases this is municipal water and is labeled as such on the bottle. Yes, the most readily available bottled water brands on the market are tap water in a bottle.

While the availability of bottled water has contributed to its massive sales, it would not be chosen there were underlying reasons motivating consumer behavior. There are many ways in which one can analyze consumer behavior, but a common approach is that consumers buy what they buy because they are

making a rational (within their folk model and personality) choice. Marketing is not just a process of making a person choose one product over another. Marketing is also the process of creating a perceived need for a product by reacting to the society, culture, economic system and emotions of the customer base. High profile court cases and investigative reports about contaminated water supplies can create the social opinion that healthy drinking water is a scarce resource.

People change their consumer behavior due to perceived needs that are manifested in their folk models. The consumer goals are motivated by various expectations and desires, of which one of the most important is to be healthy and not ill (O'Shaughnessy 1987:9). Thus bottled water sold along side soft drinks will be chosen because a consumer is acting on a desire to have better health by drinking water instead of high calorie caffeinated colored sugar water. In this case the buyer is making a rational choice between two options and choosing the more healthful of the two. This is a rational choice by the consumer due to the relative merits of two products (O'Shaughnessy 1987:66).

The choice of bottled water over tap water is an intrinsic preference as opposed to a rational choice (O'Shaughnessy 1987:73). Here the culture's folk ideas about bottled water as preferable to tap water are the motivation behind consumer behavior. An intrinsic preference is justified by the cultural parameters which are made up of fears of tap water impurity and marketing claims of bottled water purity. The consumer creates justifications for the buying of bottled water instead of drinking readily available tap water.

Perhaps one of the most common justifications of choosing bottled water over tap water is the taste. Popular stage magicians Penn and Teller were able to test this in an episode of their investigative television series "Bullshit" (2003). They asked random New York City residents if they drank bottled water and why. Those who said they drank bottled water for taste were given two samples of water to drink, one bottled water and one New York tap water. 50% of those polled said that the tap water was bottled water and vice versa. Those being polled would do just as well telling the bottled water from tap water by guessing without tasting it.

In addition to the two main reasons of bottled water choice (taste and purity) there are other factors to consider. A survey conducted by the Australian Consumers' Association (2005) cited that 29% of bottled water consumers bought bottled water because it was "a handy drink to have when you're out" and another 22% "said they bought it mainly because it comes in a useful bottle that you can refill from the tap". Easily available and ubiquitous, bottled water is bought because it is a very visible product.

Bottled water is also incorporated into media images. We see musicians drink bottled water on stage. We see celebrities drink bottled water. We see athletes drink bottled water. Part of the acceptance of bottled water as a consumer product is the visibility of the use of the product throughout the media. These images reinforce the normalcy and acceptability of the product. A bottle of Evian in the 1970s was an economic signifier of class. The same bottle of Evian in the 2000s is just one of many available choices of packaged water that has become a normal consumer item regardless of social class. Bottled water, in thirty years, has changed from a symbol of luxury with questionable utility to an ever-present consumer commodity which is heavily consumed on a global level.

There are inconsistencies which demonstrate themselves in the behaviors of people who adhere to the folk model of bottled water consumers. An observable case is restaurants, where one can see some the inconsistencies of the bottled water only mindset. Most people, even those who abhor drinking tap water at home will drink the tap water in a restaurant. Is it significant that the person does not see the water come from the tap? Most soda in restaurants comes from tap water passed through a “fountain”, which mixes tap water with syrup and adds carbonation. Coffee and tea are also made using tap water. Though both contain caffeine and are acidic, which grants some anti-bacterial properties, the chemical contaminants that are in municipal source water are not removed in the brewing process. In the case of soda, tea and coffee there is often *an increased danger* of bacteria exposure due to inconsistent cleaning and sterilization of fountains and brewing equipment. All of these products do not benefit from the pasteurization process that is used in beverages like milk and beer.

Almost everyone uses tap water for cooking. Heating water does not remove chemical contaminants and only extensive boiling for ten minutes or more will sanitize the water of (almost) all biological contaminants. The only food products that are cooked long enough to eliminate (almost) all biological contaminants found in the tap water used for cooking are foods traditionally prepared by extensive boiling such as mashed potatoes, cabbage or soups. It is not often that you find Americans that boil frozen peas or a can of corn (packaged in municipal source water) for ten minutes.

### **Should we buy bottled water?**

Some areas of the world have pathogens that can cause intense illness in those without the developed immunity that a native population has. Bottled water is indispensable when a person with familiarity to one water source visits places such as India, Eastern Europe, Central/South America and Africa. In some parts of the world, despite having highly modern water treatment facilities, there can

still be risk to travelers without a developed immunity to local bacteria due to imperfect seals on distribution pipes or water storage towers. The increase of global travel and tourism has resulted in bottled water being produced in many parts of the world to facilitate the needs of tourists. This idea seems admirable. Tourism fuels the local economy and if bottled water can be produced locally then jobs are created. Unfortunately, this is not the case.

India began producing bottled water as early as the 1970s. By 1998 Parle Bisleri was the leading bottled water producer in India with 60% of the market share. The introduction and mass consumption of bottled water has had negative cultural effects in India. In the past traditional earthen pots of water were available at public places such as temples so as to allow the thirsty to have a drink. As bottled water is introduced these containers are disappearing. There are class conflicts being created as wealthy Indians can afford the purified bottled water while the poorer people must make due (Shiva 2002:99-103). It would be interesting to see if the United States is installing fewer drinking fountains and more vending machines in its public places.

The problem of accumulated plastic bottles is another threat. These plastic bottles are recycled in some cases, but the recycling process is often toxic. In addition, chemicals used to manufacture the plastic for the bottles can be a problem since many of the chemicals (styrene, poly-vinyl chloride, bisphenol A) are endocrine disruptors. These chemicals can cause severe developmental growth problems to both human and wildlife exposed to them (Rauch 2005).

Bottled water can also be an economic drain in any society. People spend from 240 to approximately 10,000 times more per gallon for bottled water than tap water. While the packaging of water does create some jobs at water bottling plants (usually the same plants which bottle soft drinks) and distribution networks the money a person spends on bottled water might be better invested in an activated charcoal filtration system for their home water supply. In the case of undeveloped or partially developed nations water resources that become privatized for packaging can take important water away from citizens who need it for drinking, cooking and agriculture.

## **Conclusion**

Bottled water is sold based upon a consumer's desire to be healthier. Bottled water in most cases *is* tap water and can sometimes be worse for you than tap water. The intrinsic consumer motivations for buying and using bottled water operate on folk model beliefs that are inconsistent with a person's general usage of water. It is bought for the sake of convenience in many cases, but the consumer

justifies their purchase with the folk model belief that bottled water has a better taste and purity. The bottled water industry is filling a post-industrial desire for clean and uncontaminated water that industrialized citizens think of as a scarcity. In most cases they are buying the tap water they fear at a steep markup and using consumer justifications for that behavior. Their folk model beliefs about municipal water are directly effecting how they procure their most basic ecological need of drinking water.

While bottled water can become an option for people who live in areas where water is scarce or not potable, it should not have to be. The sale of bottled water to a population should not be considered over the investment in a good, local water treatment system. The “manufacture” of drinking water should not be an alternative path to dealing with the public health of developing (and developed) nations who deserve to have the base right of clean and affordable water. Privatized profit motives should not decide that clean water must be bought from the “manufacturer” while public water will be substandard and at times not even available.

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