Laissez-Faire Capitalism: Bottled or Tap Water for Public Consumption, an Essay

Angela R Payne, PhD
Keller Graduate School of Management of DeVry University, Chicago, IL -USA

Abstract

Intellectuals denote capitalism, as binary categorizations of social and economic constructs. The economic constructs call attention to processes of production, distribution of items for consumption, proprietary operations, and growth that is proportionate to earnings acquired by commercialism, whereas social constructs are deep-seated in individual (the pursuit of life, liberty, happiness, and goals) rights. Politically, it is the paradigm shift from capitalism to laissez-faire (freedom) of capitalism that intellectuals protest together with bottled and tap water. Notwithstanding, legally it is non-objective laws as opposed to laws of humanity that come into question. Should bottled water distributors have more autonomy then both state and local government who provide tap water for public consumption? Is there a difference between bottled and tap water? Are there consistent regulations for monetarization of the production and distribution of bottled and tap water? Despite the fact economically, the authority of production for both processes results are commercialism. In this document, commercialism means an act of manufacturing to sell water for a profit that outmaneuvers all consequences. This document looks at laissez-faire capitalism in lieu of objective laws. In the context of public consumption, it denotes the acceptances of watered-down processes that call attention to the quality of bottled and tap water. The supposition of laissez-faire capitalism prescribes both government influence and intrusion in corporate matters should be negligible. As a final point, this document discusses the objectionable approaches to standardize bottled and tap water processes for public consumption has instigated the perception of regulatory oversight.

Keywords

Bottled water testing, tap water, drinking water, EPA and FDA water contaminants, water protections

<table>
<thead>
<tr>
<th>Categorization</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approved Laboratory</td>
<td>Authorized commercial laboratory (e.g., Environmental Protection Agency, EPA), state-certified, or laboratories acceptable to the government agencies having jurisdiction.</td>
</tr>
<tr>
<td>Approved Source</td>
<td>Authorized bottled water facilities and/or water supply source (spring, artesian well, drilled well, public or community water system that has been examined and considered innocuous whether treated or not; in accordance with federal state and local government agencies statute having jurisdiction).</td>
</tr>
<tr>
<td>Artesian water or artesian well water</td>
<td>Authorized hydro-fracking (Hydrofracturing) water from a confined artesian (basin) well by which the water level stands above the top of the artesian well. Hydro-fracking is a process used to increase the stream of water from a low yielding water source for public consumption.</td>
</tr>
<tr>
<td>Groundwater</td>
<td>Water from a subsurface saturated zone that is under a pressure equivalent to the atmospheric pressure but subjected to water that is open to the atmosphere.</td>
</tr>
<tr>
<td>Bottled Water</td>
<td>Authorized water intended for human consumption, sealed in bottles or other containers with no added ingredients except appropriate antimicrobial agents such as fluoride. Fluoride may be optionally added within the limitations established in 21 CFR Section 165.110(b) (4) (ii). Bottled water may be used as an ingredient in beverages (e.g., diluted juices, flavored bottled waters). It does not include those food ingredients that are declared in ingredient labeling as &quot;water&quot;, &quot;carbonated water,&quot; &quot;disinfected water,&quot; &quot;filtered water,&quot; &quot;seltzer water,&quot; &quot;soda water,&quot; &quot;sparkling water,&quot; and &quot;tonic water.&quot; The processing and bottling of bottled water shall comply with applicable regulations in 21 CFR Part 129.</td>
</tr>
<tr>
<td>Bottled Water Plants</td>
<td>Authorized facilities by which bottled water is produced and/or bottled water is sold.</td>
</tr>
</tbody>
</table>
Mineral water
A process that must not consist of fewer than 250 parts per million of total dissolved solids, coming from a fracking source at one or more shafts or springs, originating from a geologically secured subterranean water source. Mineral water has an invariable proportion of minerals and trace elements when it emerges from the source. Law prohibits extra minerals, preservatives, or additives.

Deionized Water
Authorized processes used to produce deionized water aligned with provisions established for “purified water” in the 23rd revision of the United States Pharmacopoeia, January 1, 1995, attached as Appendix B and specified by FDA in 21 CFR Section 165.110(a)(2)(iv).

Purified or demineralized water
A process produced by a distillation, deionization, and/or reverse osmosis process, or other appropriate processes that aligns with provisions established for “purified water” in U.S. Pharmacopeia, 23rd revision. Purified water is essentially free of all chemicals and microbes when treated by distillation or reverse osmosis procedures.

Distilled Water
Water that has been produced by a process of distillation and aligns with provisions established for “purified water” in the 23rd revision of the United States Pharmacopoeia, January 1, 1995, attached as Appendix B and specified by FDA in 21 CFR Section 165.110(a)(2)(iv).

Sparkling bottled water
Water that has been treated with carbon dioxide additives, equipment to the amount of carbon dioxide from its original source.

Reverse Osmosis Water
Water that is produced by a process of reverse osmosis and aligns with provisions established for “purified water” in the 23rd revision of the United States Pharmacopoeia, January 1, 1995, attached as Appendix B and specified by FDA in 21 CFR § 165.110(a)(2)(iv).

Natural Water
Refers to bottled spring water, mineral water, artesian water, artesian well water, and/or well water which is procured from a subterranean constructs that requires minimal processing, which is not procured from a municipal/tap system and is unmodified with the exception of limited treatment (e.g., filtration, ozonation or equivalent disinfection process).

Spring water
Water procured from subterranean constructs from which water flows naturally to the surface of the earth through a natural orifice.

Standard of Quality
Refers to the FDA Standards of Quality for bottled water proffered in 21 CFR Section 165.110(b).

Sterile Water or sterilized water

Water Dealer
Vendors who import and/or exports bottled water for bottling and/or for human consumption or other consumer uses.

Well water (or Tap)
Water from a drilled well or otherwise constructed in the terra firma, which fracks the water of an aquifer.

EPA
Environment Protection Agency ensures standards for sustaining clean and contaminant levels for all municipal water plants in the United States.

FDA
Food and Drug Administration a government agency ensures standards for quality for all food and drugs produced and sold in the United States.

Introduction
Water is essential to human health and continued existence. The bodily composition of an organism’s mass comprises two thirds, and without water, humans would cease to exist. The composition of an organism (body) is approximately 57% water, and water is 11% hydrogen by mass and 67% by count of atoms. Thus, most of the mass of an organism is oxygen. In addition, an adult body averages up to 60% water (48±6 percent for females and 58±8 percent water for males). The brain and heart are consists of 73% water, and, lungs 83% water. The human skin comprises 64% water, muscles and kidneys are 79%, and even the bones are water: 31% (Perlman, 2015). Conceivably, a 2% decrease in a human’s body water source can precipitate symptoms of dehydration: temporary memory loss, nausea and vomiting, headaches, persistent elevated temperature and constipation, dark pigment of the urine, peptic complications, water retention problems, and academic issues with mathematics, arduous gazing at a
In addition, dehydration has the propensity to precipitate daytime fatigue. An estimated 75% of Americans have mild, chronic dehydration. These facts are unnerving statistic for a developed country where water is readily available through the tap or bottled water supply. The questions here: how have bottled water manufacturers turned dehydration into profits? Have governmental entities dismissed the exploitation of human lives in lieu of laissez-faire capitalism? Does bottled water originate from a different water source than tap water?

**Bottled Water Trends for 2020**

In 2013, researchers assessed the bottled water market at $157.27 billion USD an increase of 10.1 billion gallons, up 4.3 percent from 2012, which means that people are consuming an average of 31.8 gallons of bottled water annually. By 2020, researchers anticipate the market worth to reach $279.65 billion USD, growing at a CAGR (compound annual growth rate) of 8.7% from 2015 to 2020. By volume, estimates for the global bottled water market should expand to a CAGR of 8.5% during the forecast period from 2015 to 2020 to reach a market size of 465.12 billion liter by 2020. What phenomena are perpetuating these staggering results? What entity is regulating the marketplace?

**The Phenomena of Bottled Water**

The yield of bottled water mass volume stems from a proliferation in concerns from the public for health and wellness and an improvement of packaging designs, which has continued to resonate in the marketplace: turning concerns of dehydration into profits. Irrefutably, the bottled water industry continues to launch campaigns which are emotionally loaded with eye catchy-slogans, and platitudes that present bucolic terrains to entice the health conscious consumer into believing that the liquid has an uncontaminated (artesian water, spring water, ground water, and well water, sparkling water, and drinking water etc.) water supply sources and is governed by restrictive laws. These campaigns further subjugate consumers to a plethora of fabricated water systems, sources, and bloodcurdling advertisements to obviate demands for drinking tap water.

**Regulatory Processes**

Two different regulatory entities govern tap water and bottled water. The Food and Drug Administration, and Federal Food, Drug, and Cosmetic Act (FFDCA) regulate bottled water, while Environmental Protection Agency (EPA) and The Safe Drinking Water Act regulate municipal/tap water. Subject to the Safe Drinking Water Act, EPA or federal districts that implement regulations are required to protect consumers (public) from the risks of contaminated (phthalate, adipate, or styrene tolouene or xylene, carcinogen that leak from plastic twice the level of tap water, arsenic, parasites and pathogenic microorganisms, coliform bacteria, fecal streptococci, etc.) drinking water from public water systems and for ensuring that the consumer receives information on the quality of the water delivered by these systems. Conversely, bottled water manufacturers are not required to divulge as much information as municipal water utilities because of gaps in federal oversight authorities. In fact, the FDA neither requires bottled water companies to disclose to consumers where the water originates, its treatment process, or what contaminates it contains. Ironically, federal districts are required to regulate bottled water manufacturers. Controlled by FDA’s current good manufacturing practice regulations for bottled water, only approved sources of water can be used to supply bottled water facilities.

Table 1 illustrates the Key Difference between EPA Tap Water and FDA Bottled Water Rules. The question here are there difference between a FDA vs EPA bottled water facility. Which manufactures uses groundwater sources or municipal tap water sources Figure 1 Depicts the Source of Water.

<table>
<thead>
<tr>
<th>Source: EPA United States Environment Protection Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water covers seventy-one percent of the Biosphere’s surface.</td>
</tr>
<tr>
<td>More than twenty-five percent of bottled water comes from a municipal water source, the same place that tap water derives from.</td>
</tr>
<tr>
<td>There are approximately one million miles of water pipeline and aqueducts in the United States and Canada, enough to circle Earth forty times.</td>
</tr>
<tr>
<td>It takes more water to manufacture a new car (39,090 gallons) than to fill an above ground swimming pool.</td>
</tr>
<tr>
<td>Water makes up between five to seventy-eight percent of a human’s body weight.</td>
</tr>
</tbody>
</table>

*Fig 1: The Source of Water*
Processes consequently have been recognized as a regulatory phenomenon.

b. The National Resources Defense Council requires cities (supplying millions of citizens) to comply with all requirements provided for surface water-supplied systems, however, if localities will structures were unrestricted surface water sources, it would be subject to disinfect, filter, or test for Cryptosporidium, Giardia, or viruses. To date there are no new requirements urging conurbations to neither disinfect nor filter or to do additional microbial monitoring at this time.

c. The Safe Drinking Water Act Amendments of 1996 require states, subject to EPA guidelines, to train and certify operators of all public water systems. EPA’s rules to implement this provision were issued February 1999.

d. Small (conurbations) towns (supplying a few thousand citizens) using surface water must comply with all the same requirements for a larger cities using surface water, however, the monitoring frequency for coliform is only subject to 20/month, which would be difficult to detect Cryptosporidium, Giardia, or virus water sources in small localities.

Source: NRDC

### Groundwater vs Municipal Tap Water Supply Sources

Bottling manufactures (Aquafina, Dasani [Coca-Cola], Arrowhead [parent Nestle], Crystal Geyser, Perrier, Everest, Glacier Mountain, Australasian, and Poland Springs etc.) use public water sources. These water sources are governed by federal districts such as California, Arizona, Colorado, Texas, Arkansas, Tennesse, South Carolina, New York, Ohio, Maine, and New Hampshire. Bottled water sources have two classifications: (1) spring water or groundwater that flows naturally either to the earth’s (biospheres) surface or from a wellspring tapping into underground sources (EPA). Roughly fifty-five percent of bottled water in the United States is spring water. Forty-five percent originates from the municipal/tap water a source meaning that manufactures use the same water that comes from household spigots. Notwithstanding, virtually all of the United States tap water is better regulated and kept under systemic reviews than bottled, and in spite of extortionate environmental models of the bottled water industry. Perhaps the main reason that bottling manufactures use water from conurbations is because consumers (public) demand the product. The question here is what else is stimulating laissez-faire capitalism? One can assert that special interest groups (lobbyist, shareholders, and stakeholder) have a prime interest in the bottled water obsession. In addition, one can assert that these groups sponsor major social events (golf tournaments, conventions etc.) as a means to develop marketing strategies on how to handle governing entities (federal, state, and local agencies) so that laws are never implemented, and how to avert anti-bottled water activists efforts, while demonstrating state-of-the-art equipment for bottling water. Apparently, the war on tap water is much more than just a trend --it is laissez-faire capitalism.

### Recommendations/Summary

1. FDA must establish strict limits for contaminants (phthalate, adipate, or styrene toluene or xylene, carcinogen that leak from plastic twice the level of tap water, arsenic, parasites and pathogenic microorganisms, coliform bacteria, fecal streptococci, etc.) lurking in plastic bottles and its content.

2. FDA bottled water programs and federal district programs must have appropriate funding to ensure that bottling facilities can implement consistent testing, conducting sanitary surveys of public water systems operating in all states.

<table>
<thead>
<tr>
<th>Water Type</th>
<th>Disinfection Required</th>
<th>Confirmed E. Coli &amp; Fecal Coliform Banned</th>
<th>Testing Frequency for Bacteria</th>
<th>Must Filter to Remove Pathogens, or Have Strictly Protected Source?</th>
<th>Must Test for Cryptosporidium, Giardia, Viruses</th>
<th>Testing Frequency for Most Synthetic Organic Chemicals</th>
<th>Operator Must be Trained &amp; Certified</th>
<th>Must Test for and Meet Standards for Asbestos Pphlate</th>
<th>Must Use Certified Labs to Do Testing</th>
<th>Must Report Violations to State, Feds.</th>
<th>Consumer Right to Know About Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottled Water</td>
<td>No</td>
<td>No</td>
<td>1/week</td>
<td>No *</td>
<td>No *</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No *</td>
</tr>
<tr>
<td>Carbonated or Sparkling Water</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td>No *</td>
<td>No *</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No *</td>
</tr>
<tr>
<td>Big City Tap Water (using surface water)</td>
<td>Yes</td>
<td>Yes</td>
<td>Hundreds/ month</td>
<td>Yes *</td>
<td>Yes *</td>
<td>Yes *</td>
<td>Yes</td>
<td>Yes *</td>
<td>Yes</td>
<td>Yes *</td>
<td>Yes *</td>
</tr>
<tr>
<td>Small Town Tap Water (using a well)</td>
<td>No</td>
<td>(though new rule in 2002 will require if needed)</td>
<td>Yes</td>
<td>No *</td>
<td>No *</td>
<td>Yes * (limited waivers available if clean source)</td>
<td>Yes</td>
<td>Yes * (limited waivers available if clean source)</td>
<td>Yes</td>
<td>Yes *</td>
<td>Yes *</td>
</tr>
</tbody>
</table>

Source: NRDC

**Table 2**: Key Difference Between EPA Tap Water and FDS Bottled Water Rules

**Vol. 3, No. 2, November 08, 2015**

<table>
<thead>
<tr>
<th>Water Type</th>
<th>Disinfection Required</th>
<th>Confirmed E. Coli &amp; Fecal Coliform Banned</th>
<th>Testing Frequency for Bacteria</th>
<th>Must Filter to Remove Pathogens, or Have Strictly Protected Source?</th>
<th>Must Test for Cryptosporidium, Giardia, Viruses</th>
<th>Testing Frequency for Most Synthetic Organic Chemicals</th>
<th>Operator Must be Trained &amp; Certified</th>
<th>Must Test for and Meet Standards for Asbestos Pphlate</th>
<th>Must Use Certified Labs to Do Testing</th>
<th>Must Report Violations to State, Feds.</th>
<th>Consumer Right to Know About Contamination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottled Water</td>
<td>No</td>
<td>No</td>
<td>1/week</td>
<td>No *</td>
<td>No *</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No *</td>
</tr>
<tr>
<td>Carbonated or Sparkling Water</td>
<td>No</td>
<td>No</td>
<td>None</td>
<td>No *</td>
<td>No *</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No</td>
<td>No *</td>
<td>No *</td>
</tr>
<tr>
<td>Big City Tap Water (using surface water)</td>
<td>Yes</td>
<td>Yes</td>
<td>Hundreds/ month</td>
<td>Yes *</td>
<td>Yes *</td>
<td>Yes *</td>
<td>Yes</td>
<td>Yes *</td>
<td>Yes</td>
<td>Yes *</td>
<td>Yes *</td>
</tr>
<tr>
<td>Small Town Tap Water (using a well)</td>
<td>No</td>
<td>(though new rule in 2002 will require if needed)</td>
<td>Yes</td>
<td>No *</td>
<td>No *</td>
<td>Yes * (limited waivers available if clean source)</td>
<td>Yes</td>
<td>Yes * (limited waivers available if clean source)</td>
<td>Yes</td>
<td>Yes *</td>
<td>Yes *</td>
</tr>
</tbody>
</table>
(3) Bottling manufacturers must be required to implement statutory authorities and require that certified laboratories to conduct analytical tests of drinking water contaminants.\(^2\)

(4) Bottling manufacturers must be required to implement EPA standards for contaminants in drinking water for its bottling water regulations (Goodman, 2009).

References


