

Water bottle consumption at UMD  
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**ABSTRACT**

*Water is increasingly being seen as a saleable commodity, despite its vital importance to life, and is in turn fueling an unsustainable industry. Our research describes the energy, economic, and environmental costs involved with bottled water. It is our goal to greatly reduce bottled water consumption at UMD. This goal is realistic because of the university's vicinity to one of the largest freshwater sources in the world, Lake Superior. We conducted a blind water taste test to analyze current water bottle trends on campus, interviewed various representatives in areas relevant to the topic, and researched what other universities have done to decrease water bottle usage. Our conclusion is that water bottle usage is mostly a convenience issue, and we suggest methods to dispel this by encouraging sustainable water practices among incoming freshmen and increasing overall awareness throughout the university.*

## **Introduction**

Bottled water has existed for centuries but the idea of it being consumed more than free water found from a tap or a well was preposterous. However, clever marketing gurus have managed to incorporate a fear of tap water western societies, whether it be for health or vanity reason. The idea of water bottles as a necessity contributes to an ongoing paradigm concerning unnecessary materialism. It has become a cultural norm in the United States to buy and consume much more than needed. In alignment with many sustainability issues, there is no quick fix. One needs to concentrate on impacting a cultural paradigm to implement change.

It was concluded that the majority of students polled at UMD could not differentiate between tap and bottled water. There is no taste difference, no nutritional benefit, and tap water is more stringently monitored and tightly regulated than bottled water. So why do people drink it? Following this question, our decided to analyze local consumption trends at UMD, interview relevant representatives, analyze comparative methods at similar universities, poll students, and explore the Internet and other literature.

By implementing a more rigorous sustainability curriculum as a priority within First year experience, one is more likely to hold these values throughout their college

education and beyond. It is our belief that the individual difference will prove to be significant in the long run. It is the student that determines the sales, or need for a product. It is our goal that by expanding the knowledge campus wide and implementing a sustainable priority with incoming freshmen, water bottle usage will greatly decrease at UMD.

## **RESEARCH DESIGN**

The creation, distribution, consumption, and disposal habits in association to bottled water are not sustainable. Municipal water sources are much more highly regulated and safer than bottled water. Bottled water is sold at a much higher price than tap water. The energy usage to create and distribute bottle water is unnecessary and highly detrimental to the environment. Therefore, our team decided to focus on this topic for our sustainability related issue.

We began by gathering relevant data from the Internet and literary sources. We expanded upon our knowledge by interviewing representatives in related areas at UMD. We conducted a blind water taste test to determine water bottle consumptions at UMD. We combined all of this information to determine plausible alternatives to bottled water with a main goal of implementing change with a significant decrease of water bottles sold at this university.

In order to research water bottle consumption on a local basis, we decided to conduct a blind water taste test. This taste test served as the initiatory phase of the advertisement of our cause. We distributed flyers with factoids. We then obtained information from various knowledgeable faculty on the UMD campus. Personal interviews were set up with relevant faculty, as well as they were planned with students.

We also had an informative stand at the sustainability fair, distributed flyers throughout campus, created a website, and wrote an article for the school newspaper, *The Statesman*. Additionally, we will pass our research to sustainability coordinator Mindy Granley for further research.

Of course, simply advertising is not enough to change an entire cultural paradigm that has stood strong for a decade. Therefore, we came up with several ideas to hopefully start the process. One of them included adding spigots to water fountains, which would cooperate with convenience when filling up a water bottle. This idea was strongly approved within our survey.

Further thoughts involve educating incoming freshman of the quality and processes of our local water source, along with providing a reusable metal water bottle. We hope this will start a trend of more sustainable water consumption practices.

## **PREVIOUS RESEARCH**

Upon researching facts concerning bottled water, the obvious issues are apparent. Bottling municipal sources for clean drinking water and reselling it at a higher price is making water a commodity. It is thought that everyone in the world should have access to clean drinking water, as it is necessary for life. However, this is not always the case.

According to a recent study done by the Pacific Institute, bottled water requires almost 2,000 times the amount of energy to produce than comparable amounts of regular tap water. Close to 30 billion bottles of water are consumed in the United States yearly. These bottles produce up to 1.5 million tons of plastic waste per year. The manufacturing of that plastic requires up to 47 million gallons of oil per year to produce, and pumps three tons of carbon dioxide into our atmosphere. Two of the top three U.S. bottled water

companies ship from other countries. For example, the plastic bottles used for Fiji water come from China and the water from Fiji. The cost of the transportation process from China to Fiji to San Francisco is equivalent to 83g of fossil fuels, 740g of water, and 157g of green house gases per bottle. The plastic bottles are in high demand by recyclers but over 80 percent of these bottles are thrown in the trash. A plastic bottle will take 1500 years to decompose in a landfill. Furthermore, even though a booming bottled water entity is located in Fiji, half of the people living there do not have access to clean water for drinking (The Debate Continues, 2007).

As counties are fighting over oil and other precious commodities, the United States is using fifty million barrels of oil a year to produce bottles of water. Plastic, after all, is made out of oil. This statistic does not include the oil being used for shipment of these bottles of water. At an ever-growing rate which is escalating as the United States preferences towards bottled water are escalating, carbon dioxide emissions, oil, and the over zealous amount of water used to produce a bottled of water is increasing.

The United States has been sliding into a convenience lifestyle. Bottled water fits into this category. It can be a quick buy and refreshment, while the bottle may last forever (Bottlemania, 2009.) 80% of the bottles get thrown away, rather than recycled. These roughly two million bottles a year will be taking up our valuable space in landfills, while also making their way to the ocean (Bottled Water Blues, 2009). As it is now, a mass of whirling plastic twice the size of Texas is filling in the gap between the United State's west coast and Hawaii (San Francisco Bay Area News, 2009.)

This is especially relevant to UMD, as an institution suffering from the economic crisis. While the university is currently trying to make budget cuts, decreasing water

bottle consumption can help save money. Bottled water signifies convenience, a novelty popular within the busy college student community. It is essential it becomes evident that there are equally convenient alternatives. Duluth is located next one of the largest freshwater sources in the world. While it is not fully pristine, it is in great condition compared to other water sources. It requires very little treatment. Although eliminating or reducing bottled water in some areas of the country may not be feasible, UMD have access to a great water source, and can/should be utilizing it fully, rather than practicing such unsustainable acts where unnecessary.

## **FRAMEWORK DISCUSSION**

Our goals for this project were based off of several other implementations at other campuses across the country. Although their plans may not be able to be recreated to exact measurements, various items may be useful to the UMD campus.

Joe Millineaux was contacted at the University of Maryland's Dining Services. Although the U of Maryland did not eliminate bottled water campus wide, they did eliminate it from the two largest residential areas on their campus. Water is still sold in vending machines, stores, and at special events. The end result was eliminating 250,000 bottles of water a year. With this reduce in bottled water sales, they found that guests now purchase water with a better profit margin. Because the campus was worried about complaints, they installed triple filtered water dispensers and gave all student residents a free, reusable water bottle. To promote their plans they also partnered with outside sources, such as the well-known Cathy cartoon strip. The cartoon helped out by creating a feature cartoon strip on the lesser-known facts about bottled water. In areas that continue to sell bottled water, an active campaign process that asks, "Why Bottled? and offers

discounts to people who reuse bottles in effect.

Tom Ladner, representative at the University of Minnesota--Morris was also contacted. Morris, as one of our sister colleges, is a promising role model. In 2007 they installed reverse osmosis systems into 28 resident hall kitchens. They also distributed water bottles to residents on campus. These actions caused a reduction of one-time use bottles of water.

Another sustainable alternative was found at St. Cloud State University. They have recently installed hydration station (Star Tribune, 2009). This station consists of rows of water dispensers full of fruits and vegetables. There is a wide variety, ranging from: apples, oranges, mint, and cucumbers. This has proven to be effective, as students seem to be enjoying the healthy alternatives and turning away from sodas. Students are also more likely to refill their water bottles than buy a pricey bottle of water alternative when water looks and tastes so appealing. (See Appendix B.)

## **Goals**

As current Northern Minnesotan residents, we believe that our community and near by areas should understand the qualities of our local water sources. We also believe that we should be taking advantage of this water source. Because municipal water sources have much more regulation, we believe students, faculty, and other Duluth residents should be educated on the benefits of drinking tap water, as well as the negatives aspects of bottled water.

As a group we believe that education is key to understanding the benefits of tap water and understanding the non-sustainable aspects of bottled water. We realize that many people in our area, as well as nation wide, are unaware of the harmful effects

bottled water leads to. A campaign in conjunction with UMD faculty and students should be implemented to educate, while persuading students to reduce their bottled water consumption and increase the use of their reusable water bottles.

Along with these actions, another main goal is to simply reduce the purchase and consumption of bottled water on the UMD campus. This would therefore reduce the amount of recycling fees, while possibly reducing the amount of waste UMD must process—often bottles are thrown away for one reason or another, rather than recycled.

## **FINDINGS**

### **METHODOLOGY**

An interview was conducted with John Brostrom, representative of auxiliary services at UMD. A lot of valuable information about the current Coca-Cola contract our university holds was relayed. He communicated that the *Coca-Cola* contract holds all institutions within the U of M system, so we do not control it as an individual campus. He recalled back to the first water bottle machine was implemented at UMD, and had thought it would never turn into a commodity. He also gave insight into the cooling techniques within the vending machines, they are off at night to conserve energy. Based off this information, discontinuing the contract appears far-fetched. However, every individual sale fuels the contract and has the potential to make a difference. Water bottle sales do not need to be completely eliminated to induce a difference.

Another interview was conducted with Mindy Granley, sustainability coordinator at UMD. Insight was given about overall water conservation practices, such as where our wastewater goes and how healthy the content is. It was communicated that UMD's wastewater goes to Western Lake Superior Sanitary District (WLSSD) and the solid



waste gets used as fertilizer. All of our incoming water comes from Lake Superior, and it is much less treated in comparison to other water sources.

We conducted a taste test to determine local water bottle consumption trends at UMD. Our water station was set up in front of the schoolbook store, a high traffic area of students between classes. *Dasani* was chosen to represent bottled water because of its counterpart in the *Coca-Cola* contract. Our goal was simply to determine consumption trends. This was done by tallying samples students preferred, as well as offering an optional survey (See Appendix A for further detail). It was found that most people preferred tap water or couldn't tell the difference. Furthermore, students would be more apt to use a reusable water bottle if fountains included spigots. It was also determined that the majority of students polled would not mind if the school stopped selling bottled water all together. Many students polled indicated they would be willing to answer additional questions concerning water bottle consumption; this is an area that could be expanded on for future studies.

Much of our information came from the book *Bottlemania*, by Elizabeth Royte. She covers social issues with bottled water and examines why Americans are so apt to drink this product. Much of the information seems to be cultural. She brings up the fact that while we "live in our cars," we require more convenience style foods and drinks. The growing concern of placing our country in a water scarcity crisis has been presented as well. As western states are dry and arid, they continuously have a need for water shipment from one watershed to another. Is this right? Should we be changing our landscapes to accommodate millions of people who maybe just shouldn't be living in the desert? The practice is unsustainable and placing a heavy burden on the environment.

Citizens drinking out of fear of contamination are being misled by brands offering a more pure version of water that ends up being just the same or worse than what they can get for almost no cost. High prices are removing humans from a common goal of life and happiness, while placing those who have fewer funds alone and dependant on private sectors.

Many of the items highlighted by *Bottlemania* were also highlighted by useful websites trying to succeed at campaigning against bottled water. “Bottled Water Blues,” is currently highlighting major cities in the U.S. that have placed bans on bottled water. (Bottled Water Blues, 2009).

The Sierra Club has produced a printable brochure available online about the ill effects of bottled water. It includes topics such as what you can do to help, their policy on privatization of water resources, reducing our carbon footprints, the toxic qualities of plastic bottles, and the threat of global corporations getting their hands on water. (Sierra club, 2009).

Lighter Foot Step is giving us five big reasons not to drink bottled water. It is not a good value, it is not safer or cleaner, it increases garbage, it takes away the attention that should be given to public water sources, and it puts water in the hands of private companies. (Lighter Footstep, 2009).

The Museum of Natural History website also has a feature about bottled water. It tells us that generally what comes from our tap is safe, or safer, and that there are smarter solutions to this water issue. Pure imagination is what causes so much bottled water to sell, while companies are making big money off of the hype. It also talks about the qualities of ground water and what happens when you lose it (American Museum, 2009).

One of the best visuals against extra plastic waste is the “toxic stew” swirling in the ocean, twice the size of Texas. This mass is full of trash, and 80% of it is made up of plastic. It just goes to show that all of our trash does not make it to the landfills, and even if it does, neither of these places is where plastic should be. It has created a health hazard to people and animals alike, and it will only grow each day. This can be viewed in the San Francisco chronicle (San Francisco Bay Area, 2009).

## **ANALYSIS**

Based on the interview with John Brostrum, UMD cannot act as an individual entity within the *Coca Cola* contract. This means we simply need to focus on a decrease in the university, rather than a complete elimination.

According to Auxiliary Services, UMD contributes to a great cost of water bottle consumption. 50,880 bottles were sold at UMD in 2008; meaning 152,640 liters of water were used to make the bottles. This figure doesn't account for all of the water brought on to campus by students and stuff.

The blind water taste test indicated that the majority of students do not prefer the taste of bottled water and would not mind if it were eliminated from campus. This leads our team to believe UMD would benefit with an increasing awareness of the negative aspects of bottled water, and that a decline is a plausible goal.

## **CONCLUSION**

Water is fundamental to life; no one should pay for it. We have let bottled water companies intrude on our campus and create a market for a historically free product. Our team, the Duke Ellington Orchestra has been both dedicated and capable of raising awareness to this issue. We hope our research will promote more sustainable and less

costly forms of water consumption at UMD.

Based on our interviews, taste test, vicinity to Lake Superior, and relevant literature it has become apparent that our goal is realistic at UMD. It won't happen over night, but each individual difference will prove worthy in the long run, considering all of the cost implications in each singular bottle.

Changes to our water consumption habits will lead to a cleaner, more sustainable campus. In addition to decreasing our campus carbon footprint and producing less waste we will also save money. Money saved in this area will benefit everyone associated with the University of Minnesota Duluth. The current economic and environmental challenges we face add to the list of reasons we need to dispose of our bottled water habits. Plastic does not make perfect.

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