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### **Still Waters Run Deep**

One of the most important and essential of natural resources is water. The current rate of usage is not sustainable and measures must be taken to curb use, while protecting the reserves of drinking water that still exist. Oddly enough it is the renewable resources that are most affected by human consumption and consumerism (Wilk, 2009). Sustainable development refers to the ability for a person or group of people to progress in a way that benefits both the members of their generation as well those who follow them. Thinking about sustainability exclusively could conjure the image of the wind and solar farms that currently exist, while development serves as the progress that we anticipate the future to bring. Putting these two terms together inspires the value system that our progress must better generations to come, not hinder them. At the present time, sustainable development is a goal to which we strive to achieve at some point during our own existence. It seems that people, at the turn of the century, have woken to find a world that is in need of serious consideration. As discussed in class, this notion that humans are the stewards of the earth is not by any means new. Unfortunately, we are already at a point where resources, especially water, are already strained.

Beginning with the Mesopotamians in roughly 2,750 BCE, water became a major resource. Early human settlers gathered around sources of drinking water. Consequently the land in the Fertile Crescent was also prone to flooding, which made the fields rich for farming. As seen in the film *Mesopotamia: I Have Conquered the River* (2004), wild wheat still grows in the

ancient fields near the ziggurat of Ur. The importance of water to this area was demonstrated as the soil became unfit for agriculture due to the accumulation of salt as the water was evaporated by the hot days of the Middle East. Today, water plays a role in every part of life from basic consumption to hygiene and the production of goods (Kofoworola, 2010). This fact is true today as it was in ancient times. As agriculture could no longer be supported by the soil, as affected by the nature of water, the ancient society was seriously disrupted. We still depend on agriculture around the world to support our economies. If this resource (water) were to be depleted, imagine the implications for the complex society that exists today.

As Kofoworola writes, there is almost no place on earth where water is not important (Kofoworola, 2010). As seen in the text *Anthropology & Climate Change*, through the many vignettes it is clear that global climate change has a major affect around the world. The theme that is reinforced the most is that the water table is receding, and glaciers are disappearing which have long provided both cultural and nutritional value (Bolin, 2009). In places like New Orleans the water level is rising; making long standing communities flee their homes (Button & Peterson, 2009). This effect is felt in other places as well such as India, China, Taiwan, and Nigeria. But for places like Britain, who is a major importer of water, the effect is perhaps not yet fully understood by most. In 2008, it is reported that Britain imported 62% of the water they consumed (Cohen, 2008). Ironically, the countries that are supplying Britain are themselves facing shortages (Cohen, 2008). It seems as though those that have little to supply their own people are giving what they have to hubs of industry and trade.

While countries like Africa have citizens in the Kalahari San who are suffering from massive droughts, a lowering of the water table, and a lack of unity among the disparate families living there, other countries face very different problems surrounding its water supply

(Hitchcock, 2009). China's rivers, for instance, are unsuitable for fishing and drinking which put a great strain on the government's ability to provide for its people (Diener & Frank, 2010). Not only that, but this indicates that China's affect on its water supply is unsustainable as it is in other countries.

Another example of a country who has taken poor care of its water supply is India; this is important as India is a rapidly developing country who will need a clean water supply to sustain its growth and economic development. How then is it conceivable for a country like India to sustain growth when one in four Indians do not have access to a supply of clean water (Diener & Frank, 2010)? These countries' ground water is fast diminishing and what water remains is polluted beyond use (Diener & Frank, 2010). The countries that are emerging as this generation's leader in both industry and innovation are limiting themselves through the lack of consideration of such a resource as water. If these countries continue on this path, then there will be two more global superpowers like Britain; two more countries that import more than what they can themselves sustain. Clearly, changes must be made to the way in which water is consumed and preserved.

There are several ways in which these changes can take place. Two examples include education about consumption patterns and developing new technology that involves the desalination of salt water. Global events, such as World Water Week, exist for participants from countries around the world to gather and discuss progress made, necessary improvements, and problems facing the world's water supplies. This is a step towards global consciousness, and adds to our awareness of the environment. The result of the World Water Week in 2007 was the general message that progress was being made on a large scale (Kofoworola, 2010). Perhaps this sentiment would not be shared by the men and women the Kalahari San who are experiencing

serious declines in the water table (Hitchcock, 2009). Nonetheless, men and women around the world need to be made aware of the truths about water consumption. Informing people about their consumption habits as well as their impact on remaining supplies may help curb overuse.

Most people probably do not realize that meat and dairy diets consume two and a half times the water as vegetarian diets per day (Cohen, 2008). The idea of “virtual water” is also something that global citizens need to recognize. This term refers to the water they consume indirectly through the purchasing of clothing, sneakers, meat, and produce, nearly everything we buy uses water in its production process (Howarth, 2010). As will be discussed later on, the idea of calculating consumer water footprints based not only on what they directly consume, but also on what they purchase causes the average amount of water consumed per individual to make a massive jump for the worse. Studies show that the production of beef uses ten times more water than is required to grow the same amount of wheat (Howarth, 2010). Clothing, more specifically a single T-shirt, takes about 715 gallons of water throughout production, distribution, and into your hands (Howarth, 2010). This is something to think about the next time you go to the grocery store or to the mall to pick up some new clothing. These startling figures about water consumption flushes out the question of whether or not developed economies can even make the transition to a lifestyle that uses less water. In the era of malls, mini-malls, shopping plazas, outlet centers, and shopping districts can people around the world tighten the metaphorical belt? Although the type of rapid consumption and waste that is seen today has only been around for a blip in the grand scheme of time, can people choose to change their lifestyle? The future of the world rests on questions like these. Unfortunately, unless better education about water consumption reaches people of all countries and classes the world will be full of people asked to answer these questions without full knowledge of the severity of the situation or the extent to

which they are affecting the world. While this education process is time consuming and will admittedly not happen overnight, there is technology out there which can help the world in its current plight. For instance, much is being done in the field of water desalination that show promising figures in the sense of countries having an option in the way they supply their citizens with a water supply. As water education may be slow and arduous, it seems that we now look to water desalination as the technological fix that we so often use to counter man's affect on the world.

There is much research being done into the field of both waste and saltwater desalination. The major problem with this system is that it takes a large amount of energy to undertake proper desalination (Anonymous, 2009). However, these processes have already begun to be employed throughout the world although small in scale. As stated above, the great societies of Mesopotamia were brought down by salt deposits which destroyed their crop yields and stunted the growth of their civilization. It is fitting then that the hottest area right now for the implementation of these desalination plants is in the Persian Gulf (Conway & Cohen, 2010). As Conway and Cohen write, the world will soon be forced to change its current pattern and method of water consumption because fresh ground water will shortly be gone (Conway & Cohen, 2010). The Persian Gulf, more specifically Kuwait, experiences about 100mm of rainwater annually and is at the leading edge for water desalination systems (Alhumoud & Madzikanda, 2010). Countries in the Gulf Cooperation Council, or GCC, have installed systems that currently account for over half of the worlds current freshwater output by means of seawater and ground water desalination (Alhumoud & Madzikanda, 2010). This translates into roughly 1,320,860,260 gallons of water produced each day, which can then be used in manufacturing, service sectors, or distributed to local cities for the population (Alhumoud & Madzikanda, 2010). The typical

person in the U.S. consumes about 40 gallons of water each day whether it is through drinking, cleaning, personal hygiene, et cetera (Howarth, 2010). Do the math; water desalination, if implemented by the United States and to the same scale as currently exists in the GCC, could supply water for over 33 million people! It is amazing that this has practically flown under the radar especially during a time when renewable energy and renewable resources is being explored so thoroughly. Transporting this water once it is purified is probably an issue for a country like the United States who has so many citizens away from the shoreline. However, promising results have already been shown in Saudi Arabia where water is transported over 200 miles to the capital city from the nearest desalination plant (Conway & Cohen, 2010). If countries can build miles upon miles of pipeline for the transport of oil, then why stop there when water is so much more essential to everyday life? Besides traditional methods of desalination, efforts are already being put forth to make the desalination process powerable through organic means. Through the use of bacteria, scientists have seen success in cleaning both waste and salt water while producing measurable amounts of electricity (Anonymous, 2009). As technology advances and this process develops into something sustainable then we will soon be able to start sustaining our current draw on the earth's water supply.

There are less obvious benefits to using water desalination on large scale, thus replacing our draw on our water supply, than might meet the eye immediately. To understand the potential benefits, it is important to understand the types of ways that societies around the world are affected by the rising water levels at the coast lines. As seen in the chapter about Tuvalu there are societies, especially island nations based around fishing and what local crops they can grow, that are greatly affected by the rising level of sea water that has resulted from global warming (Lazrus, 2009). The people of Tuvalu are dealing with coastal erosion along with salt water that

is reaching their inland sources of freshwater which they use in everyday life for farming, drinking, and so on (Lazrus, 2009). Problems like this would be problematic even for developed world powers, but imagine the strain it puts on a country in the South Pacific. In other parts of the world, more specifically Northern Australia, people are already suffering from the rising sea level as shown in the photographs of the graves surrounded by sandbags as well as the family walking down their road in waist deep water (Green, 2009). So, what reprieve could water desalination possibly provide the families that live within these areas? Well, it is known that water desalination primarily takes water from the ocean as a raw material and subjects it to a series of purification stages. It is also recognized through studies and experiences that sea levels are rising. If water desalination were to be implemented on a world-wide scale, it could counteract the manner in which water levels are currently rising by taking water from the ocean for use on land (Conway & Cohen, 2010). The ocean is vast in size, and water desalination is by no means a cure for the rising water levels, but it is perhaps a possible unintended byproduct of the process which many families around the world would be happy about.

The desalination solution ought to be regarded as more of a quick-fix than anything else, but that is not an indicator of how things truly are in the world today. Although the true root of the matter is the nature of human consumption and its alarming rate of increase, this does not indicate that any measure of knowledge would necessarily change consumption patterns. As stated in the text, the most immediate dangers of global warming come from many factors one of which being waste (Wilk, 2009). The long-term and necessary change that must be made is not with the technology developed by today's greatest minds, but is instead with humans around the world and the governments that govern them. Unfortunately, humans have shown their unwillingness to change especially in the consumer economies of today. Before water

consumption can be lowered, people must first learn to consume less which is a tough bill to fill. The important thing to remember is that when you consider the “virtual water” necessary to manufacture the products we each use on a daily basis, it changes our average consumption from 40 gallons a day to about 1,300 gallons a day (Howarth, 2010). This adjusted value, an astronomical increase, shows that education about water consumption not only must alter consumption surrounding water but must change the way people consume.

It is important to note that consumption of water is much lower in poorer countries. In these places water consumption, including “virtual water” only amounts to roughly 265 gallons total (Cohen, 2008). You can see that developed countries consume nearly five times more than humans in less developed areas of the world. The evidence shows that the world’s problem with water consumption is much more deeply rooted than simply turning off a faucet while washing dishes. This therefore leads one to believe that the quick-fix option is also the most realistic.

The text for this class, *Anthropology & Climate Change*, was all about incorporating anthropology with traditional environmental knowledge to reach realistic sustainable solutions to climate change. Contemporary anthropology of consumer economies that exist today might suggest that altering the consumption patterns of millions is next to impossible, especially when economies are based around consumption. Therefore, the global community must face the coming water shortages realistically. The technology exists to utilize a resource that covers three quarters of the earth’s surface and it is currently not being used as the primary channel for fresh water. This perhaps suggests that most people do not have a full understanding of the true shortages which approach steadily and may reach the world in the next decade (Howarth, 2010). The production output statistics from the GCC show that water desalination could provide for half the US citizens in the Northeastern states at its current level. It begs the question of where

that same technology will be in five years especially if its implementation were to begin today. Moving forward armed with the knowledge that we can be proactive about water shortages should cause the everyday citizen to hope that their governments and/or global companies are working to alleviate the pending strain on the world water supplies. Until that time, the importance of monitoring the way we consume and communicating about desalination technology remains to be the most important things we can do.

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