

Discuss some of the initiatives WSSC Water can undertake to address climate change's challenges and to ensure a sustainable water supply. Your response must include discussions from the perspectives of the water utilities and the communities that must now adapt to the new realities of climate change.

While we live through the overwhelmingly adverse effects of climate change there has been growing and convincing scientific evidence to suggest that climate change impacts the water cycle by influencing when, where, and how much precipitation falls. Since water is such an essential part of our lives, limited or lack of access to potable water can spell doom for us as a human race. As an eager student of one of my favorite classes, Environmental Systems and Societies, I am however encouraged to observe the intersection between climate change, developments in sustainable water supply and use, and the dynamic interaction and a way in which integrated technologies and systems are being explored and developed by water companies here in the US and around the world.

It is now an established fact that climate change increases the frequency of droughts. Though traditionally viewed with much skepticism, an ingenious solution to this challenge that has been making a surge since the turn of the century is using gray water to fuel processes that do not require pristine water. As the color imagery of the name suggests gray water is water from showers, bathtubs, sinks, clothes washers, and the like. Though this water is unclean, with little or no treatment it is ideal for processes such as irrigation as, for the most part, the slight decrease in water quality would not have adverse effects on crops and hence not decrease crop yield.

States such as California, have legalized the responsible use of gray water, and many water companies dedicated to improvement of water culture in these places are using gray water for upwards of 50% of total urban water use and indoor water use. Some have even taken the bold step to treat this water to render it safe for drinking. From the perspective of companies such as WSSC Water this is a game changer as the use of gray water would allow for less time and resources to be allocated to collecting and distributing clean water from conventional sources like rainwater, ground water aquifers, lakes, and rivers.

From the perspective of a community, it must be noted that communities can be big or small and can be local or international. For internationally minded companies such as WSSC Water an understanding of the problems facing individuals around the world can better inform and fuel local and national innovation. Not only has the use of gray water been revolutionary in developed countries such as the United States but its use has been crucial in allowing for the development of other countries and is a responsible and progressive strategy that conscious global citizens can engage to address the challenges of sustainable water supply. Especially in nations afflicted by climate change induced drought, where predominantly women have to dedicate the majority of their day to collecting water for basic drinking, cooking, and energy needs, being able to reuse water to grow crops or even having water sanitizing stations that use UV radiation to rid dirty water of harmful bacteria is the difference between a life dominated by collecting water and a life where education and upward mobility is a possibility. Water companies like WSSC Water have the power to augment the standard of living because access to water can be a passport to a better life for an individual and a community, and even though the WSSC Water community does not experience these dire circumstances, education campaigns

drawing on the experience of communities that depend on treated gray water can help to temper local skepticism. In addition, highlighting the California experience can reduce the stigma and hesitancy to use gray water in our local community.

Further to this, while WSSC Water can invest in research and development to create new technologies to maximize availability and access to water in its community, it can also explore least consequential existing technologies to address the problems of water quality and accessibility resulting from climate change. One of the most progressive and innovative methods of increasing water supply to meet increasing or varying demand is that of the atmospheric water generator. Invented by a pioneer in water management, Moses West, the atmospheric water generator is a way to harness water from seemingly thin air. From the perspective of water utilities an investment in this novel technology can prove to be a catalyst for incredible change in an increasingly depressing water accessibility scape.

In the water generator design the ambient and humid air is filtered as it enters the collection unit, then the humidity of the air is taken advantage of by condensing onto a cool surface stimulating the evaporation of water drops. As water drops accumulate on this surface it flows into a storage tank. Then, to keep the water free from contaminants UV light is shone on the water inside of the tank to kill bacteria. When the water is drawn it is pumped through water filters. Additionally, some variations on Mr. West's theme includes ozone filtration systems as a final step before it fills your glass or pitcher. Instead of relying on the quality of river water, stream water, and precipitation which can be variable, the water generator can significantly augment the amount of water available to populations.

In conclusion, due to the rapidly growing negative effects of climate change my generation is placed in a critical position where failure to perform and meet the water demands of a complex nation and world can have detrimental immediate and long-term effects. If companies such as WSSC Water can invest in revolutionary ideas such as atmospheric water generators, gray water treatment and distribution facilities, and UV disinfectant systems we will be one step closer to mitigating the impacts of the pressing water crises of our time.