

Aiding Colorado's Water Crisis

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Colorado is an arid state where maintaining a steady water supply is often problematic. There are several reasons why the state is experiencing a water shortage, and nearly everyone in the state is affected in one way or another (Lofholm). Luckily, political leaders throughout the state are addressing this issue; however, their methods do not offer a complete solution. To mitigate the Colorado clean water crisis, we must create a water usage awareness campaign that aims to reduce the consumption of Colorado's valuable water resources. To execute the campaign, additional monetary funding is needed. Nonetheless, it is important to discuss why the shortage of water is an issue worth repairing, before elaborating on a viable solution.

Colorado is a dry state, and because of this, the lives of Coloradans are affected when water is in short supply. For example, home owners in Colorado may be subject to water usage restrictions that limit which days of the week that they can use running water outdoors (Lofholm). This may be troublesome for certain people, but more importantly, when water restrictions are given to farmers and ranchers, the result is detrimental. In times of drought and water restrictions, the crops that farmers tirelessly care for day after day, such as corn, began to dry up and die. Ranchers who raise cattle must prematurely sell off their herds, because of the inability to provide water (Lofholm). This puts the livelihood of farming and ranching communities at risk, while negatively impacting Colorado's local food supply. There are many variables that are contributing to the state's water deficit.

Colorado is heading toward a foreseeable water catastrophe for several reasons. According to a study from the Journal of Hydrometeorology, the area surrounding the Colorado River has shown a pattern of precipitation decline in recent decades. This is partially due to warming temperatures and abnormal wind currents that are moving moisture to the east (Abatan 800, 811). Alongside reduced precipitation, snow from the Rocky Mountains has begun to melt earlier in the year. This causes much of the snowmelt to end up in undesired locations, instead of in reservoirs and streams that feed into the Colorado River (Abatan 800). This is problematic because the Colorado River provides clean water to 50 million people and travels through seven states (Finley). Therefore, the decrease in precipitation caused by climate change is contributing to the lack of water availability in Colorado. Although climate change is an extremely important topic, it is complex, and it is not the only variable that is affecting Colorado's shortage of water.

Imagine the severity of a water shortage with twice as many people. As of 2016 the population in Colorado was 5.5 million and is expected to double by the year 2050 (Hood). Thus, our state needs to be prepared to provide water for a substantially larger population. We should not have to live in a future where water scarcity is a terrifying reality, because there are too many people. Thankfully, state leaders, including Governor John Hickenlooper, are supporting the completion of a \$380 million water allocation plan known as the Moffat Project (Finley).

This Moffat project plans to increase the water capacity of Gross Reservoir, located southwest of Boulder, CO from 41,811 cubic acre-feet to 77,000 cubic acre-feet. Also, the project will divert roughly 10,000 acre-feet of water from the Colorado River during "wet years" (Finley). To understand how large of a project this is, it is important to understand that one acre-

foot is 325,851 gallons of water (Peacock). Thus, the project will allow Colorado to allocate an additional 11.4 billion gallons of water.

The Moffat project is an incredible feat, but every gallon that is diverted from the Colorado River, is a gallon taken from another state downstream. Accumulating large quantities of water lessen the effects of water shortage in Colorado, but it is probable that it causes a water shortage elsewhere (Hood). Creating large water projects are effective at providing water to Colorado, but they do not offer a complete long-term solution to the water crisis.

Citizens of the state ought to be appreciative of the luxury known as running water. The shortage of water in Colorado may be caused by climate change, and a significant growth in population, but it is also caused by the overuse and exploitation of the water supply. An uninformed and unconcerned population will continue to misuse the water supply, and within a few decades Colorado will be scrambling yet again to stockpile the remains of the state's water. To mitigate the water crisis, Coloradans need to be informed on how much water they use, and aware of methods for reducing their water consumption.

To inform the population of Colorado we must create a campaign that partners with several organizations to deliver valuable knowledge about water usage. The campaign will need to form an alliance with water companies across Colorado such as Denver Water. Once an alliance has been formed, informational packets will be delivered alongside consumers monthly water bills.

The info packets will include information about water consumption, and solutions to reduce a household's fresh water footprint. Alongside, useful information for consumers, the campaign will need to partner with appliance companies such as GE and Whirlpool to provide promotional discounts on water efficient machines such as dishwashers and laundry machines. Also, providing marketing material from local xeriscaping companies will assist the campaign. Xeriscaping, is a form of landscaping that requires very little irrigation. According to a study by Colorado State University, by xeriscaping a 5000 square-foot yard from bluegrass to a yard that needs minimal irrigation, the seasonal outdoor water consumption can be reduced from approximately 90,000 gallons to 45,000 (Waskom). All this information will be extremely useful in reducing water usage across Colorado, however, there are a few barriers preventing the execution of the awareness campaign.

To execute a campaign of this size, we will need a team with specific skills, and additional funds to provide the campaigns marketing and informational packets. To begin, the water usage awareness campaign will begin by targeting 10,000 citizens as an initial sample to determine if the campaign has any significant effect on reducing water usage across the state. Next, the campaign will provide each citizen in the study with one info brochure, and one promotional offer each month for twelve months. Lastly, each member of the campaign team will analyze their findings each month, and adjust the informative campaign as needed.

The requested funds for the campaign are stated below. Printing materials will be provided by the Printing Peach Company, and will cost roughly \$13,400 for the informational packets. Alongside materials, the campaign will need three specialized individuals. First, the campaign needs a marketing specialist to communicate with third party companies to obtain promotional discounts, and advertisements, \$53,000/year (Glassdoor). Next, a graphic designer is needed to create highly appealing informational brochures for monthly distribution, \$48,000/year (Glassdoor). Lastly, the campaign needs a statistician to analyze the water usage

for those involved in the sample, \$78,000/year (Glassdoor). Thus, the campaign is requesting approximately \$13,400 for materials, \$179,000 for labor, and \$7,600 for miscellaneous expenses, for a total of \$200,000 in funding. This is a significantly smaller figure than what the state is already spending on large scale water allocation projects, and the campaign itself could have a substantial impact on the state's water supply.

Overall, Colorado is facing a shortage in fresh water for its citizens. The climate is changing, the population is growing, and the citizens are exploiting the water supply. If we do not act now, the state's water availability and food supply could suffer. Instead of plundering mass amounts of water from other states, we need to become mindful of the water we already have. In comparison to the state's expenditure for water allocation, a miniscule amount of funding can be used to begin a compelling awareness campaign. Today we can make a difference that will benefit Colorado's tomorrow.

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