

Section 2: The Perspective of the People

Digest #1

The year is 2040, and a lot has changed since 2018. Although some great things have happened in medical care and transportation, one of the most influential worldly changes is the fact that we are currently running on absolute final reserves for conventional fresh water. I look back with awe at the times when I used to brush my teeth and leave the sink on the entire time; to do so today would be a major faux pas. In 2018, people used water as if it was a limitless resource, they'd water their lawns, spray off their dogs in the summer, fill entire swimming pools, etc. In retrospect, it was absurd to think that an exponentially growing population on a planet that was already struggling to fulfill water demand could just ignore the issue until it went away. In 2040, new, fresh water is a precious commodity, one that not everyone can afford.

About 5 years ago was when the crisis first really took root in the minds of Californians. In response, the state government passed a few key pieces of legislation, almost unanimously due to the public outcry. They based it on the plan implemented in the 2010s in California in response to drought. Through a cap and trade system, businesses and corporations are required to remain under a predetermined maximum monthly water consumption limit. As per cap and trade, they are able to buy and sell water credits either back to the state government or to other businesses with high water consumption needs. For homes and personal use, the government employed command and control style legislation by creating a tiered system of allowed amounts based on the number of people dwelling in a residence. The limit resets monthly. These regulations have produced some remarkable changes in the way that things are done; and in how daily life is conducted.

As a farmer in California, I have been affected immensely by both the shortage and of course the resulting legislation. In order to keep the agriculture industry from going under, the state subsidized the conversion of traditional farms such as mine into hydroponics facilities. Hydroponic facilities use a closed water loop, recycling the same water continuously with minimal replacement. Growing lettuce in a hydroponics system uses 10% of the water that a traditional farm would use. But that's not the whole story. While they may be more efficient, hydroponics systems are more expensive upfront and also to maintain than a traditional farm. Even with the subsidization that I receive from the state, I'm still struggling to stay afloat. It's often hard to look at the bigger picture and understand why my life became so much harder. I'm reminded of it constantly even in daily life, even the smallest things are different from how they once were. For example, water is no longer free at restaurants. Public fountains have been shut down; the water in them has been reallocated. Hand sanitizers and controlled water spritzers have replaced sinks in public bathrooms, and toilets have multiple flush settings on them depending on need. Every time I shower now I take a navy shower just a little bit more. The most visible sign of the times can be seen from your car window. Lawns as they were in 2018 are a thing of the past. Today, people either allow them to grow in naturally or they lay down

turf-like surfaces that mimic grass. Landscaping that involves ultra low water maintenance plants such as cacti and other desert plants.

Another development that this crisis has produced is a relative ubiquity of “recycled water”, water that was disposed of as wastewater and then was chemically sterilized and filtered back to its original clean state. This practice had long been employed in water-poor but economically wealthy places such as Singapore. In fact, Singapore’s NEWater membrane filtering technology was the system first implemented through the water scarcity legislation. NEWater is available from the tap and in bottles sold everywhere (filled and sold upon request, so as to avoid a surplus of inventory and thus the possibility of wasted water) that used to sell Poland Springs. NEWater is much more affordable than fresh water, and is actually often cleaner than the original water; however, one of the biggest struggles in this crisis was actually not technological or policy related, it was the fact that many people simply turn their nose up at the idea of drinking recycled water. When the program kicked off and original water began to increase in price, a class divide began to emerge between those with the means to continue buying original water and those who were essentially forced to rely on recycled water. This divide caused deep problems, as the “dirty” recycled water became increasingly associated with people of lesser means. Personally, I’ve never had an issue with actually drinking the stuff, they run more than enough chemicals through that water to kill any and everything in it. But I’ll admit it doesn’t feel great knowing that while I’m struggling to handle the upkeep on my new and very expensive farm and drinking something that was once in a toilet, there are still people who have the money to remain largely unaffected by this.

My biggest fear is how this divide will scar our political and social spheres; as someone whose livelihood was directly affected and as a member of that “underclass” that was left to drink recycled water when nobody else would, I certainly identify with that kind of tension. What began as a push to solve an urgent problem that faced all of humanity, somehow still managed evolve into a way to divide and value/devalue people. But I think that although those feelings hold validity, the larger problem at hand trumps it, and leaves us with little choice other than to do what we must in order to leave any sort of world for our grandchildren.

Digest #2

For generations my family has been proud farmers in California. With such diverse and expansive land, California is one of the largest producers of crops and livestock all over the world. Given the magnitude and variety to agriculture here in California there are a number of different problems that farmers here face regularly. We have seen our fair share of challenges and triumphs with harvests, animals, and weather. Wildfires, runaway livestock, and mudslides are just a few of the many situations we have encountered. However, no challenge can compare to the water shortage crisis that we have been dealing with since the second decade of the twenty first century.

It all started back when I was a boy growing up on my father’s farm. Just after my

thirteenth birthday in 2011, the drought began. From 2011 to 2016, the drought raged on depleting the water level all over California. A lack of rain and an overuse of water led to dangerously reduced water tables and aquifers which in result affected the all crop and livestock production. This led to times of turmoil with farms running out of water and water limitations per farmer being put into place. Many people turned and blamed farmers for the conditions as we use the most water. But how else were we supposed to produce the very food that the people of California needed to survive? To blame us was just to find a scapegoat for a situation that we thought was out of our control. Even after heavy rains in the years following the drought, the tables and aquifers never recovered, leaving many people stuck between a rock and a hard place. Many thought that there was no option and no way out. Thankfully, they were wrong-- there was an option and it was just on the horizon.

My family's major crop is almonds which is one of the most water intensive crops to produce. I can distinctly remember year after year losing more and more acres of almond trees due to our inability to provide sufficient amounts of water to all of the trees. We essentially were faced with a choice of life or death, deciding which trees we wanted to gamble on to survive and which trees we had to let go. The situation worsened until the mid 20's when talk of a new method of irrigation came into existence. Previously just a method of speculation, the new technique referred to as micro irrigation was finally here and ready to initiate change. It provided a whole new perspective of looking at the way that we farm everyday. Many farmers, such as my father, were hesitant to transition to a new way of irrigation as they had been farming for decades and were quite set in their ways. However, like many things it only takes one success to change the way that people think about and act on a new idea. I begged and pleaded with my father to try micro irrigation because it might have been the only hope that our crops had left. After showing him case study after case study, I convinced him to give it a shot. To his surprise, and also in a way mine too, the experiment was a complete success. We enjoyed yields and quality that had not been seen in ages. More importantly, we were able to do this while still reducing the use of water on our farm, effectively helping to be less of a cause to the water crisis and more of an aid to the solution. All throughout the 30's we used our newfound technique of water management to shrink our impact on the water crisis while simultaneously building our farm back up the level that it once was. I can confidently say that without micro irrigation our farm would not have survived the past and in no way could survive the future.

Explanation:

At the heart of this crisis there is a natural component but also a human component. The most fundamental piece of the human component is the citizens of California. California is home to all different people from all different walks of life such as movie stars, business tycoons, industrial workers, and of course farmers. One thing that relates all of these people together is water and so the water crisis had an impact on all people, but mostly farmers. Unlike the average Californian who simply relies on water for washing and cleaning, farmers rely on water for large

scale production and irrigation. The water shortage for the average public citizen could be solved through a greywater reuse system, but not the farmer. As stated by the scientific community, the by far largest portion of water usage in the state of California is agriculture. From the early years of the Gold Rush until present day in the 2040s, people have and always will need food and thus will always need some form of agriculture. Farmers must adapt to what changing times bring to them. In this case, changing times have brought water shortages unparalleled in recent history. As the farmers above explained, humans were forced to adapt. Farmers took new advancements from the scientific community and instead of dominating the source of water and irrigating their crops with no caution, they began to work to implement new technologies such as micro irrigation and hydroponics to produce crops more sustainably and at a rate that is no longer destroying the very aspect of nature it relies so heavily upon.