

Tulare County

FAST DISASTER
CASE STUDY



ENVIRONMENTAL
INJUSTICE

Summer 2021

GROUP NO. 2

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ABOUT

This case study report was developed by students at the University of California Irvine for the undergraduate class, “Environmental Injustice,” taught by Kim Fortun and Kaitlyn Rabach for the Department of Anthropology, Summer 2021. The University of California Irvine is on the ancestral homelands of the Tongva and Acjachemen nations.

COVER PHOTO

This image displays the Nestle Dreyer’s Ice Cream Company in Tulare, California, a city within Tulare County. Taken by Paul Sandoval. May 2019. Accessed July 1, 2021. (https://www.google.com/maps/uv?pb=!1s0x80952b5dbfbaa521%3A0x77b818b6fc ef3f91!3m1!7e115!4shhttps%3A%2F%2Fih5.googleusercontent.com%2Fp%2FAF1QipMFJPe4iX61Jz3OXDuTeAdnYJ7tUORep72IMv_b%3Dw284-h160-k-no!5sNestle%20Dreyer%E2%80%99s%20Ice%20Cream%20Company%20Tulare%20-%20Google%20Search!15zQ2dJZ0FRPT0&imagekey=!1e10!2sAF1QipMFJPe4iX61Jz3OXDuTeAdnYJ7tUORep72lv_b&hl=en&sa=X&ved=2ahUKEwjYiPqLksPxAhWZIDQIHZtsBDkQoiowDHoECDwQAw#)

¹ Partial list of contributing researchers; one or more researchers asked not to be listed as authors in the published case study

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INTRODUCTION

This case study report focuses on “worst case” scenarios for release of toxic chemicals in Tulare. The report addresses a series of ten questions (Fig. 2) that draw out local details in a manner that encourages comparison with other places. The research has been done quickly (within the constraints of a quarter-long undergraduate class) so is limited to and points to the need for further research and community engagement. The goal is to help build both a body of research on environmental injustice and a network of researchers ready to help conceptualize and implement next-generation environmental protections.

ENVIRONMENTAL INJUSTICE CASE STUDY FRAMEWORK

1. What is the setting of this case? What are its assets?
2. What environmental health threats (from explosions, everyday pollution, climate change, etc) are there in this setting?
3. What intersecting factors -- social, cultural, political, technological, ecological -- contribute to environmental health vulnerability and injustice in this setting?
4. Who are stakeholders, what are their characteristics, and what are their perceptions of the problems?
5. What have different stakeholder groups done (or not done) in response to the problems in this case?
6. How have environmental problems in this setting been reported by media, environmental groups, companies and government agencies?
7. What local actions would reduce environmental vulnerability and injustice in this setting?
8. What extra-local actions (at state, national or international levels) would reduce environmental vulnerability and injustice in this setting and similar settings?
9. What kinds of data and research would be useful in efforts to characterize and address environmental threats in this setting and similar settings?
10. What, in your view, is ethically wrong or unjust in this case?

Figure 1. This is the analytic framework that guided research for this case study.

In environmental policy, a “worst case scenario” refers to the potential for catastrophic, fast, often explosive disaster at industrial facilities that handle more than a certain (“threshold”) amount of extremely hazardous substances. Provisions of the US Clean Air Act require companies to submit worst case scenarios for their facilities to the Environmental Protection Agency (EPA). The information provided isn’t fully online because of concerns that it could be useful to terrorists. This makes it particularly important that researchers, residents, workers, media, local officials and emergency managers work together to ensure that risks are understood, managed and continually reduced.

In this research, “worse case scenarios” are considered “fast disasters” to contrast them with the “slow disaster” of everyday pollution. It needs to be emphasized however, that even though fast disasters erupt in a dramatic way – often with an explosion or gas cloud that requires an emergency response -- this doesn’t mean that fast disasters occur suddenly. Investigations have shown that all fast disasters have a deep backstory: they were years in the making. These backstories need to be documented to understand where things went wrong and where changes could prevent future disasters.

A 2014 report by the Center for Effective Government mapped the proximity of high-risk chemical facilities in California to schools and found that 49 percent of P-12 students attend a school within the vulnerability zone of a high risk chemical facility (Center for Effective Government 2014).

This report focuses on Tulare County, the native homelands of the Yokuts.

Some key concepts we will be talking about are Risk Management Plan (RMP), Just Transition, Sacrifice Zone, and Vulnerability Zone. A RMP is a plan prepared by facilities that associate with a certain amount of extremely hazardous substances. It is submitted to the U.S. Environmental Protection Agency for documentation. A Just Transition is a transition to sustainable production that can secure the rights of people involved, namely stakeholders such as workers and residents of nearby areas. A sacrifice zone is where in the name of progress (economic development, education, religion, factories, technology) certain groups of people (called inferior) may need to be harmed or sacrificed in order for the other groups (the superior ones) to benefit. A vulnerability zone is an estimate made by a facility under EPA's Risk Management Planning program of the maximum possible area where people could be harmed by a worst-case release of certain toxic or flammable chemicals. The vulnerability zone is a radius from the RMP facility, which means it expands in all directions.

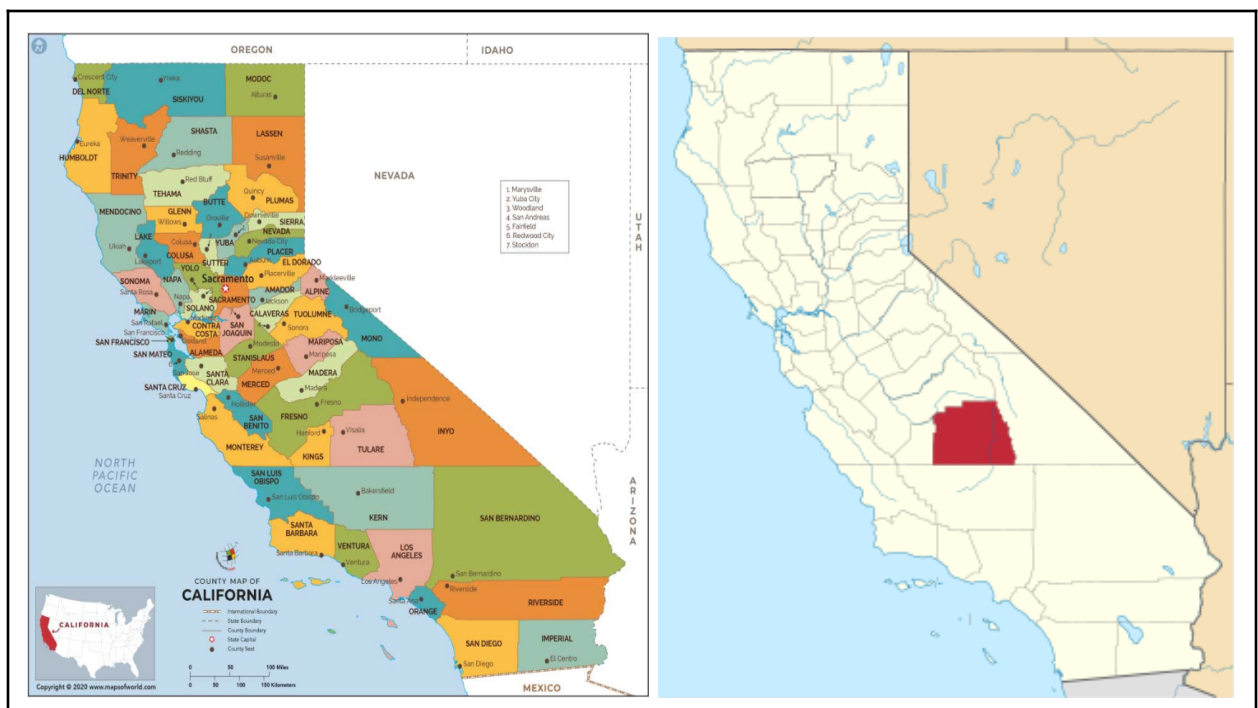


Figure 2. Tulare county is a county in the state of California named after Tulare Lake, which was once the largest freshwater lake west of the Great Lakes.
<https://www.mapsofworld.com/usa/states/california/california-county-map.html>
https://en.wikipedia.org/wiki/Tulare_County,_California(Screenshots by Moez Hussain, June 30.2020)

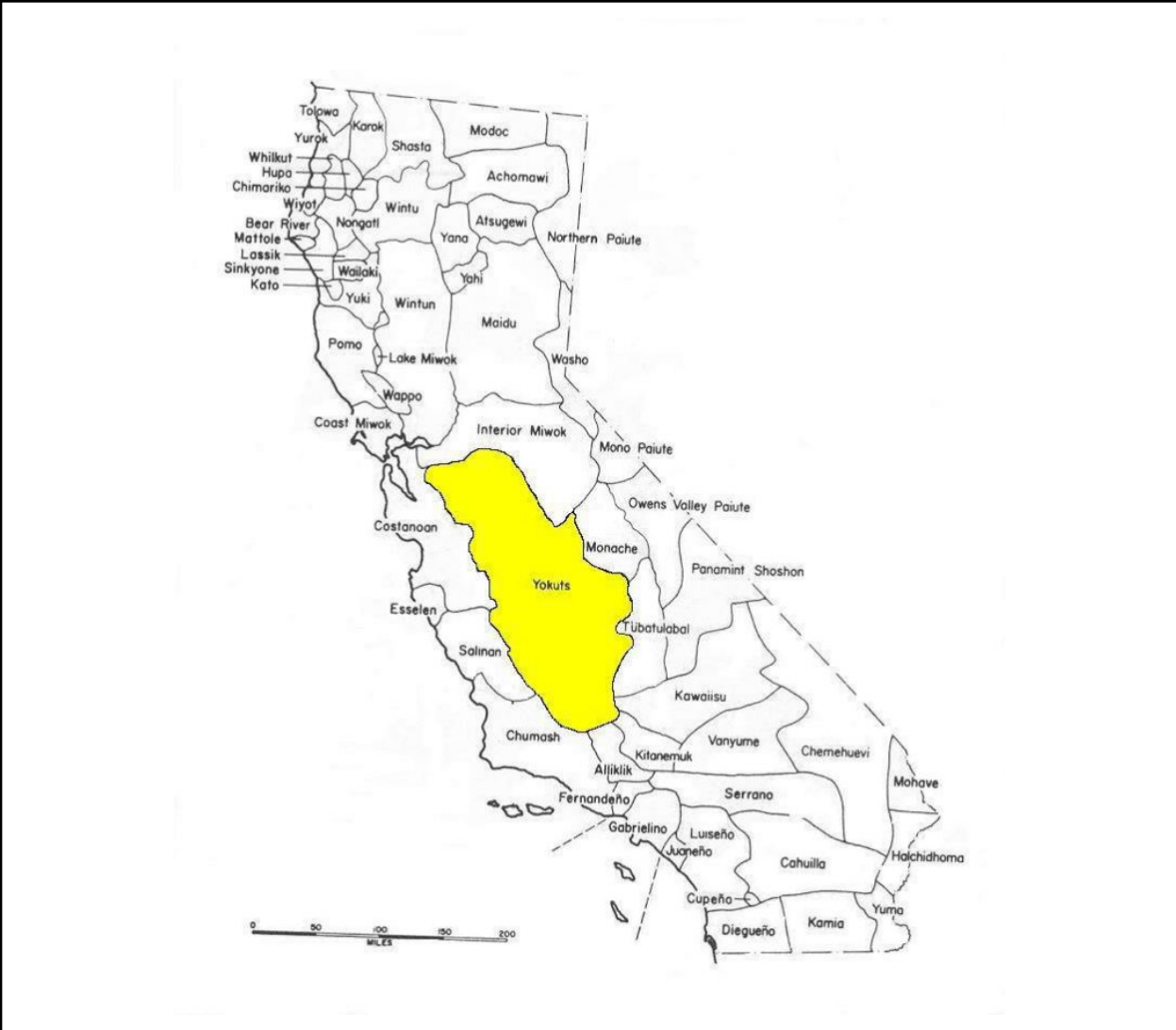


Figure 3. Native Lands' digital maps show Tulare County is located on the homeland of the Yokuts.

1. COMMUNITY ASSETS & SETTING

“There’s more cows than there are people here”

Thomas Wang, Tom Chiu, Christopher Martin, Perry Liu

Tulare county is located in southern California in the eastern side of the San Joaquin valley. The county has a population of 466,915 and covers an area of 4839 square miles. The main cities within the county are Tulare, Visalia, and Porterville that contain ~55% of the county’s population. Sequoia National Park is located on the eastern part of the county in the Sierra Nevada mountain range and covers one eighth of the county’s land area. Tulare county gets its name from the drained lake Tulare, known as the largest lake west of the Mississippi. The county government is located in Visalia.

The area in which the county is located was historically occupied by the Yokut tribe of Native Americans. The Yokut tribe describes themselves on their website as “The word "Yokuts" mean people. The Yokuts were unique among the California natives in that they were divided into true tribes. Each had a name, a language, and a territory. The Yokuts were a friendly and peaceful loving people. They were tall, strong and well built. The Yokuts lived a simple life, depending on the land for food, clothing, and shelter.” (Tachi Yokut Tribe, 2020). The Yokut tribe lived peacefully as hunter gatherers until the arrival of Americans in the 1850s after which, a war of extermination continued until 1900 after which only 600 Yokuts remained.



Figure 4. This is a photo of the agricultural area of Visalia, the county seat of Tulare County. The vast farmland in Visalia represents the substantiality of agriculture in Tulare County. With an agriculturally-centered economy, the use of pesticides lowered the air and water quality in Tulare County, leading to pollution and health concerns for residents.

https://commons.wikimedia.org/wiki/File:Visalia_Agriculture.jpg (Screenshot by Perry Liu, June 30, 2021).

The economy of Tulare county revolves around agriculture and more specifically dairy. People even refer to it as “the dairy capital of the world,” (Doe, 2019). The dairy industry in the area creates many jobs for the people of the area and is a major source of revenue for the county. Tulare county also is home to many farms for many different crops like pistachios and almonds. Tulare’s focus on agriculture has made it the home of the World Ag Expo since 1968, which is held in the city of Tulare.

With an economy centered on agriculture, Tulare county is home to many farms and related warehouses. One of the pollution sources also stems from this industry that the county depends on. In Tulare county, pesticides are used on farms to curb the

spread of pests and to keep the crops healthy. This, in turn, polluted the air and water of Tulare county as the chemicals in pesticides aerosolized. As a result of such pollution, people of Tulare county suffered various health conditions. A study showed that residents in Tulare county suffer from a variety of respiratory diseases: “[out] of the 459,863 people living in Tulare County: 10,292 have pediatric asthma, 24,222 have adult asthma, 200 have lung cancer and 12,265 have a chronic obstructive pulmonary disease” (Martin 2018). In addition to the air pollution, the water quality in Tulare county is also affected by pollutants. In the 5 year span of 2011 to 2015, “there were around 15,449 causes of cancer [among the residents of Tulare county] was due to poor drinking water quality” (Foster II 2020).

The political landscape in Tulare county is quite balanced in recent years. In the beginning of the 2000s, Tulare county was a Republican dominated county, with more than 60% of voters voting Republican (BestPlaces, n.d.). Over the years, Democrat support grew and Republican support lessened, resulting in 52.82 percent of voters voting Republican and 45% voting Democrat (BestPlaces, n.d.). Nonetheless, a majority of voters in Tulare county still support the conservative Republican party, which implies that Tulare county leans towards the more conservative side of policymaking.

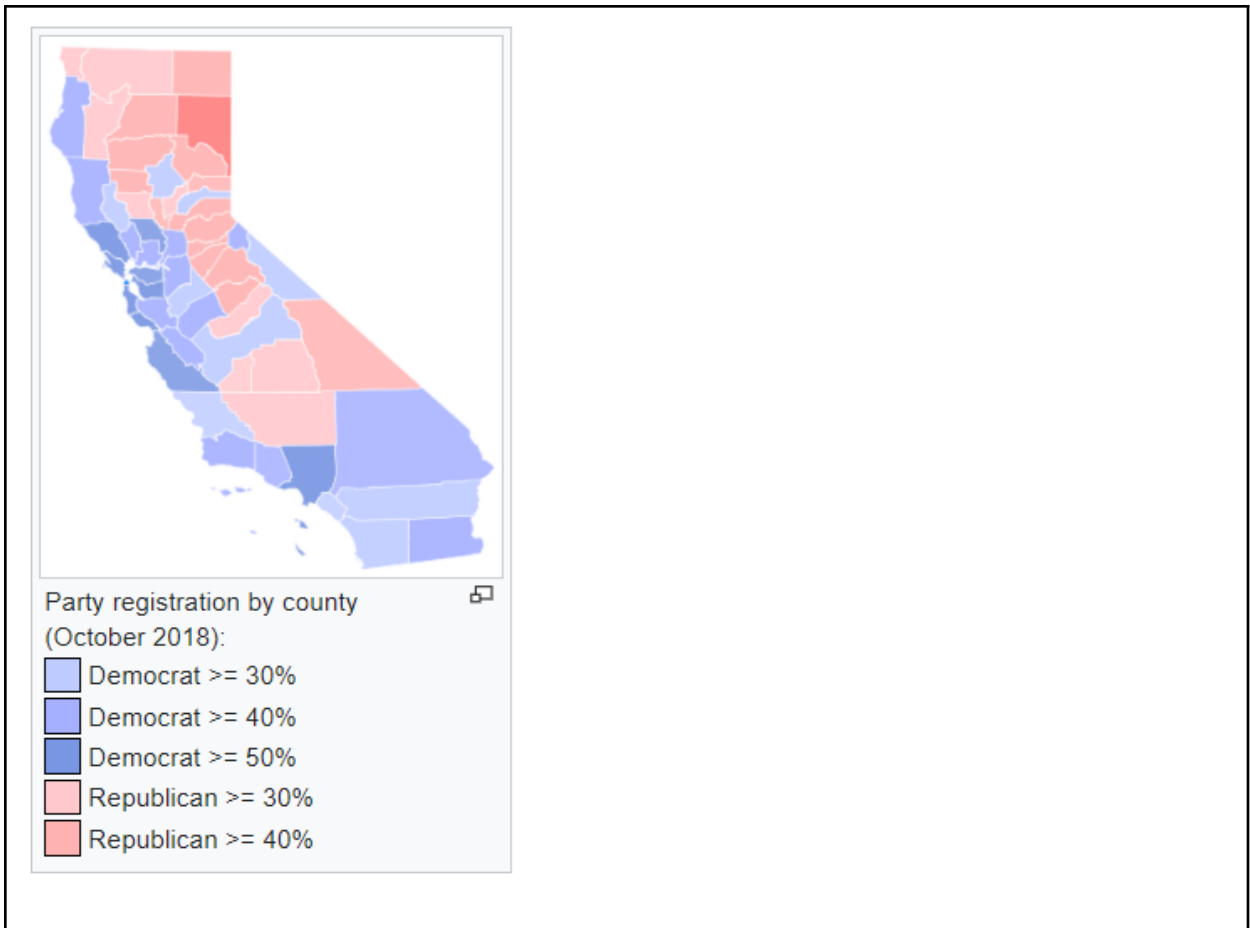


Figure 5. This is a representation of party registration by county in California. In this map, it can be seen that Tulare County is slightly more Republican, which implies a slightly conservative stance. This means that the measures to counter The environmental pollution in Tulare County will probably take a slower approach. However, the political landscape in Tulare County seems to be quite balanced, which means that there can still be immediate implementation of remedial measures. https://en.wikipedia.org/wiki/California_locations_by_voter_registration (Screenshot by Perry Liu, June 30. 2021).

2. FAST DISASTER & OTHER ENVIRONMENTAL THREATS

Reap What You Sow

Perry Liu, Tom Chiu, Thomas Wang

Tulare county has many places that can trigger a fast disaster, a catastrophic event that occurs over a short period of time typically a few hours to one week, which can devastate nearby communities for a long time. One example of a fast disaster would be the BP oil spill in the Gulf of Mexico or a wildfire. Tulare county has many facilities that could result in a fast disaster if improperly maintained, that are referred to as Risk Management Plan (RMP) facilities, and also suffers from yearly wildfires in the Sierra Nevada mountains to the East. To prevent these types of events from happening communities must focus on locating and regulating any facilities that could lead to fast disasters.

Simplot Grower Solutions-Tulare	Tulare	93274	0
Nestle Dreyer's Ice Cream Company	Tulare	93274	3
United States Cold Storage, Tulare	Tulare	93274	3
Thomas Wang: Saputo Cheese USA Inc.	Tulare	93274	1
Thomas Wang: Franzia Winery Tulare	Tulare	93274	2
Pregis Innovative Packaging, Inc.	Tulare	93291	4
Thomas Wang: Jovista Simplot Soilbuilders	Tulare	93215	0
Thomas Wang: Goshen Yard	Tulare	93291	1
Thomas Wang: Kraft Foods Group, Inc., Tulare, CA	Tulare	93274	0

Figure 6. This chart shows nine of 11 RMP facilities in Tulare County documented in the Right-to-Know Network's Risk Management Plan (RMP) Database. Most of these RMPs are related to agricultural and dairy production. (Screenshot by Perry Liu, June 30, 2021).

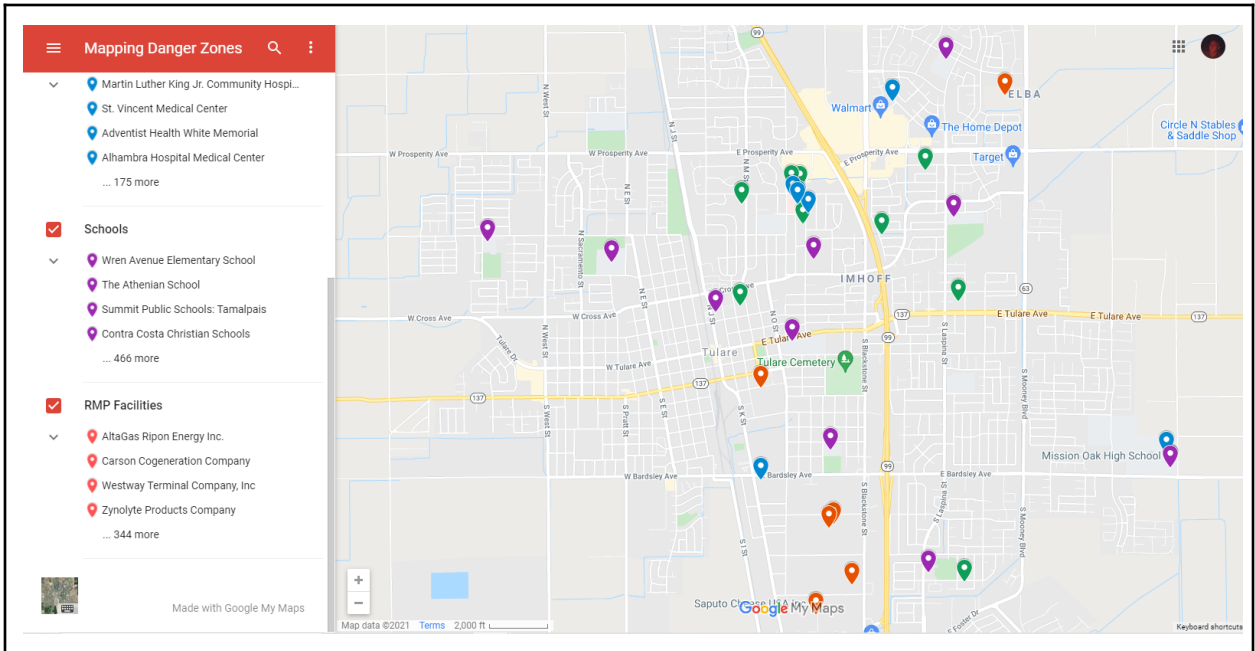


Figure 7. This map shows RMP facilities and nearby schools, hospitals, and nursing homes in Tulare, California. The map is being produced by UCI EIJ researchers and isn't yet complete. RMP facility information was drawn from the Right-to-Know Network RMP Database.

<https://www.google.com/maps/d/u/0/viewer?mid=119X9gp22fKfyjfRzlz96jKceaSAz33kM&ll=36.20983767841881%2C-119.33926913004989&z=14> (Screenshot by Christopher Martin, June 30th, 2021)

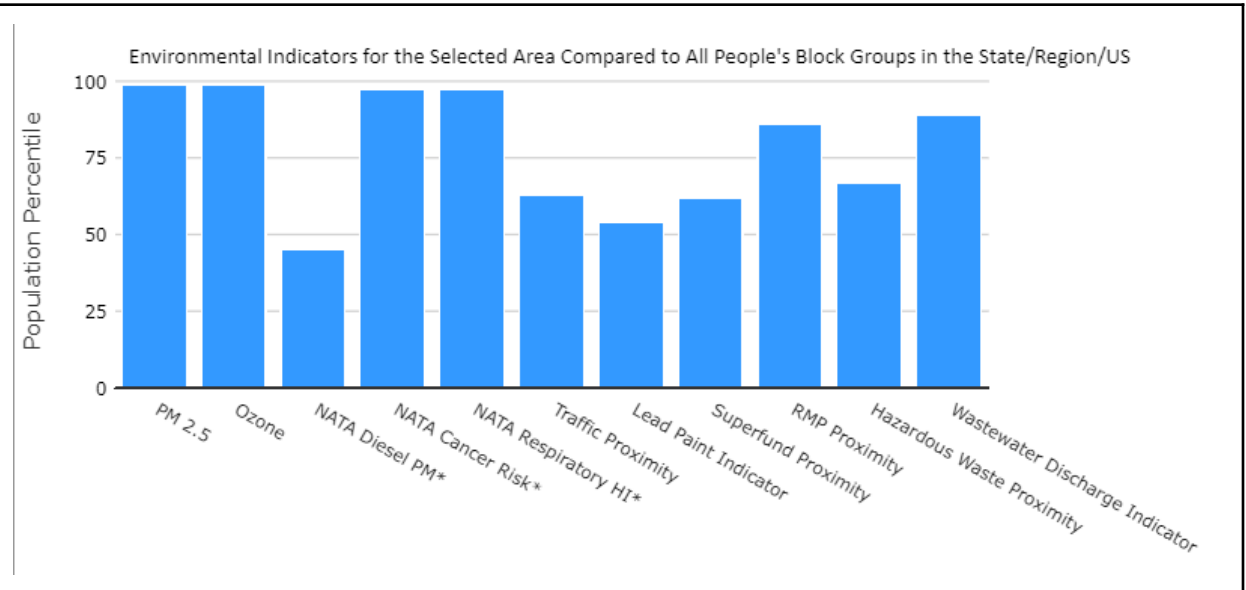


Figure 8. This chart shows that residents of Tulare County are in closer proximity to RMP facilities than 86% of residents in the country. <https://ejscreen.epa.gov/mapper/> (Screenshot by Moez Hussain, June 30, 2021).

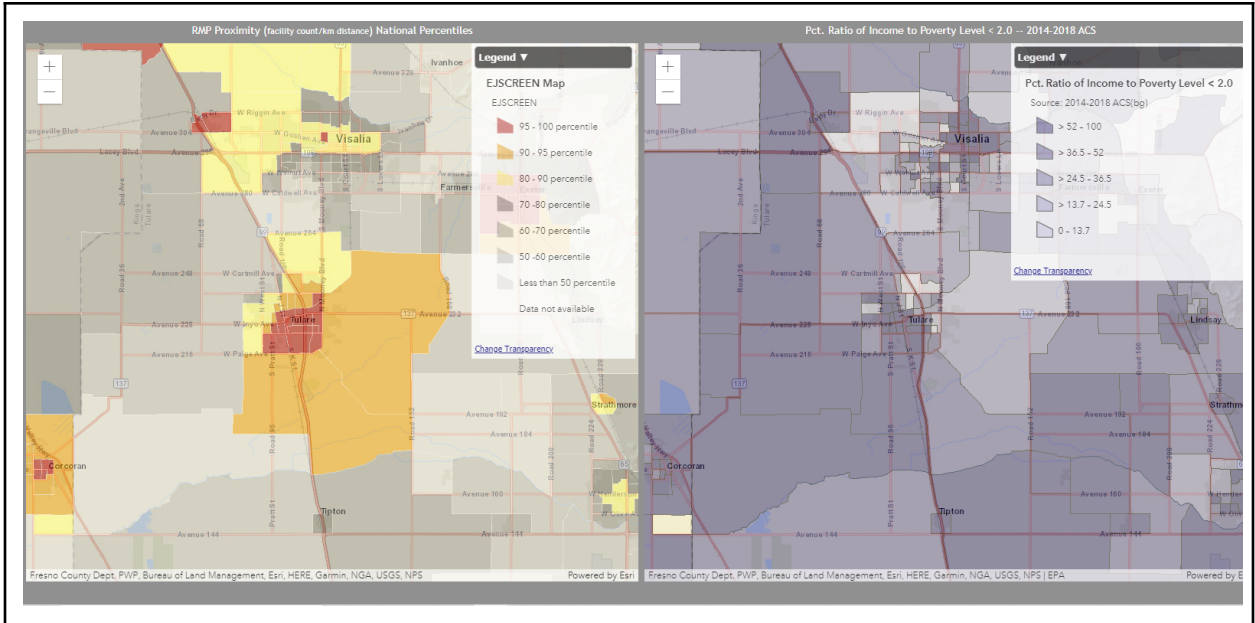


Figure 9. The left side shows RMP Proximity, and the right side shows Pct. Ratio of Income to Poverty Level < 2.0

<https://ejscreen.epa.gov/mapper/comparemapper.html>

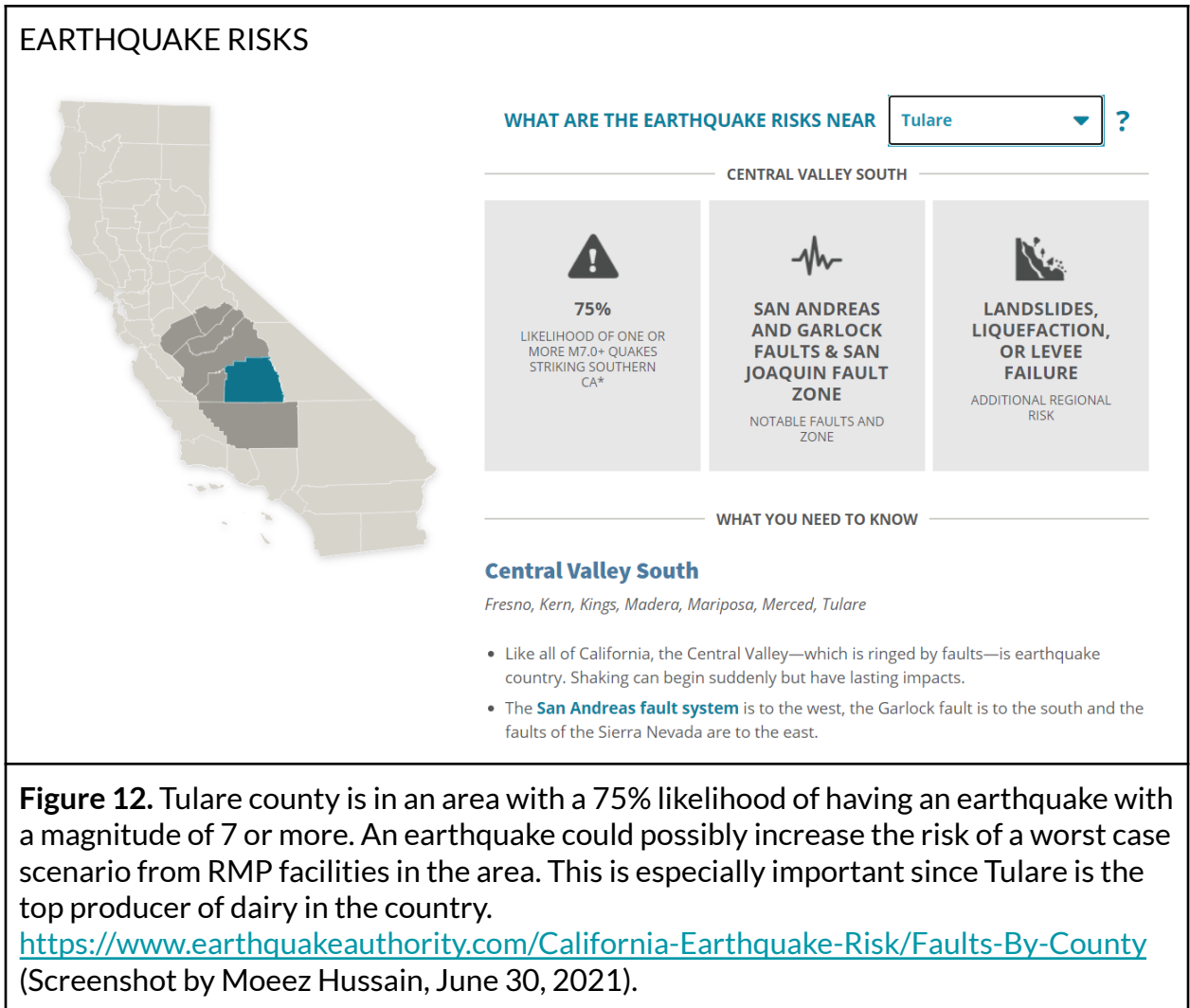
(Screenshot by Christopher Martin, June 30, 2021)



Figure 10.Image shows the Kraft food inc. facility in Tulare County. It is not located near any schools or hospitals and poses little threat to the surrounding area, but does use the water supply and pollutes the surrounding area. (Screen shot taken by Rithvik Tirumala, source Google Maps Street View)



Figure 11. United States Cold Storage located in Tulare. This facility has had accidents before and had to evacuate. (Photo Credit to <https://www.stellar.net/projects/uscs-tulare/>)



Tulare county has suffered from large-scale pollution from agriculture and from forest fires and dairies giving it the “Top five worst air quality in the nation” (Byrnes and Haas, 2020). The air pollution generated by these sources gets worse as Tulare is located in a valley between two prominent mountain ranges, the Sierra Nevada and the California Coast range, where the air gets trapped and stays, increasing the density of pollution in Tulare. Much of this air pollution consists of ash and soot from fires which may contain burnt plastics and metals that are very harmful to humans and animals, or from cars and trucks which burn diesel or gasoline creating PM 2.5 particles, particles 2.5 microns or less in diameter, which can get into the lungs and bloodstream (“Fine Particles”, 2018).

Tulare county also has the issue of pesticides being sprayed constantly during the growing season. These pesticides are sprayed within a mile of some residential areas and float over to pollute the air over these communities and the residents breathe in these harmful pesticides. “Studies have repeatedly shown that communities near pesticide use have increased cases of cancer, Parkinson's disease, learning disabilities, birth defects and autism” (Miller, 2021). These pesticides are also detrimental for insects that pollinate plants like bees and butterflies. These pesticides also get into the groundwater that residents and farmers rely on to drink and water their plants, which plays into the water scarcity and drought in the region.

Tulare county has 83 total RMP facilities. A majority of these RMP facilities are associated with the blooming agricultural industry in Tulare County. Most of these RMP facilities store farming supplies, provide cold storage for dairy products, and handle hazardous chemicals for fertilizers and pesticides. Some of these facilities are in close proximity to amenities such as schools and hospitals. For instance, facilities like Pregis Innovative Packaging, Inc. and United States Cold Storage, Tulare have multiple schools and hospitals within a mile-radius of them. This is quite alarming considering how these facilities store, handle, or process extremely hazardous materials. As such RMP facilities exist around the communities of Tulare County, the residents are in constant danger of potential fast disasters. The hazardous materials handled in these facilities can easily create massive destruction. Ammonium nitrate, for example, is a chemical used in the production of fertilizers and is stored in various facilities in Tulare County. This chemical is also the root cause of the 2020 Beirut explosion, in which “[n]early 200 people were killed and more than 6,000 injured” (Osseiran 2020).

In addition to the pollutants in Tulare County, the residents of the county also face other environmental problems, namely wildfires and drought. In a 2021 article by CalMatters, it is said that around 10% of Tulare County’s population is in a state

where “their drinking water supply is unreliable or nonexistent” (Cart 2021). The absence of water supplies added to the problems that people in Tulare County have to face. Not only do they not have clean water supply, they are also running out of water supply of any sort. Drought is also not the only environmental factor that impacted the residents of Tulare County. In 2020, the Sequoia Complex Fire chain, a wildfire in the Sequoia National Park region, endangered the communities of Tulare County. This wildfire spread towards the residential areas of Tulare County and put various communities under evacuation warnings (Rodriguez-Delgado, 2020). The high temperature of the wildfire also continues to drain moisture from the region, worsening all other threats the Tulare communities faced.

It is evident that the communities of Tulare are experiencing the devastation of environmental disasters, but more importantly, these factors are disproportionately impacting the region. Due to the reliance on the agriculture industry, Tulare County experienced severe air and water pollution. The environmental factors, such as drought and wildfires, increased the vulnerability of the Tulare County communities.

3. COMPOUND VULNERABILITIES

Wealth is the Environment

Moez Hussain

Although Tulare County is regarded as the nation's top dairy producer with a gross value of \$1.61 billion dollars being placed on its dairy operation, economic conditions in the county are relatively poor compared to other California counties. The California Healthy Places Index finds that the county has healthier economic conditions than only 16.1% of other California counties, placing it on the lower end of the spectrum (CHPI). As a result, there are numerous conditions in the community that increase environmental health vulnerability, such as the increased poverty rates, lower educational attainment, higher police killings, lack of healthcare access and more.

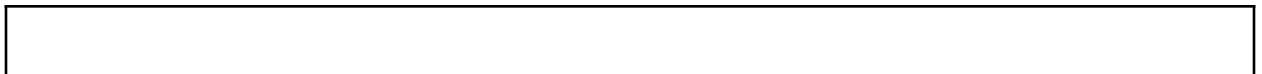
According to City Data, the percentage of Tulare County residents living in poverty in 2019 was measured at 23.6%, with a majority of that number being Black, Pacific Islander, and Hispanic (City Data 2021). That is about 10% higher than the national average of 13.7%. On top of that, Tulare County leads the nation in the highest percentage of homeless people who are unsheltered in urban areas, with 96% of its 286 homeless people living without shelter (FOX26 2020). These conditions lead to economic vulnerability for those in Tulare County as they are unable to afford the necessities to live a healthy life. Air pollution is rampant in the county, and those in poverty are unlikely to be able to afford air purifiers or utilize air conditioning in order

to clean the air that they breathe, which will lead to more health problems in the future. This is especially true for the homeless population without shelter as they are constantly breathing the polluted air and have no choice but to, and in the case of a worst case scenario, would.

Another condition in the community that increases environmental health vulnerability is the lack of higher educational attainment. According to the California Healthy Places Index, only 13.01% of people over age 25 have a bachelor's education or higher in the county. This is a higher percentage than only 1.8% of other California counties, placing the county near last place for bachelor's education attainment or higher. For reference, 33.9% of the population in California aged 25 and up have a bachelor's degree or higher (CHPI). A higher education level is helpful/essential to get higher paying jobs in today's society. Without it, you are more likely to end up in poverty, which will increase environmental vulnerability for the reasons already stated above. Having a higher education also helps in making smarter and healthier choices, for yourself and the environment. If the population was more educated, they would be more likely to know about the dangers of air/water pollution and more willing to fix those situations by prioritizing use of electric/hybrid vehicles and solar panels to reduce their own carbon footprint. They would also be more likely to be able to do so as they are more likely to have a higher paying job.

The last condition that will be focused on that increases environmental health vulnerability is the lack of healthcare in Tulare County. According to the California Healthy Places Index, 73.51% of people aged 18-64 are insured, which is only a higher percentage than 5.4% of counties in California (CHPI). Research indicates that health insurance dramatically improves health outcomes by allowing people to access the necessary care they need. Especially in an area like Tulare County with one of the highest levels of air and water pollution, having access to healthcare services could be crucial in saving lives. According to the American Lung Association State of the Air Report, they found that "of the 459,863 people living in Tulare County: 10,292 have

pediatric asthma, 24,222 have adult asthma, 200 have lung cancer and 12,265 have a chronic obstructive pulmonary disease” (Martin 2018). Without access to healthcare, the residents of Tulare will continue to be environmentally vulnerable to air and water pollution, and won’t be able to do anything about it.



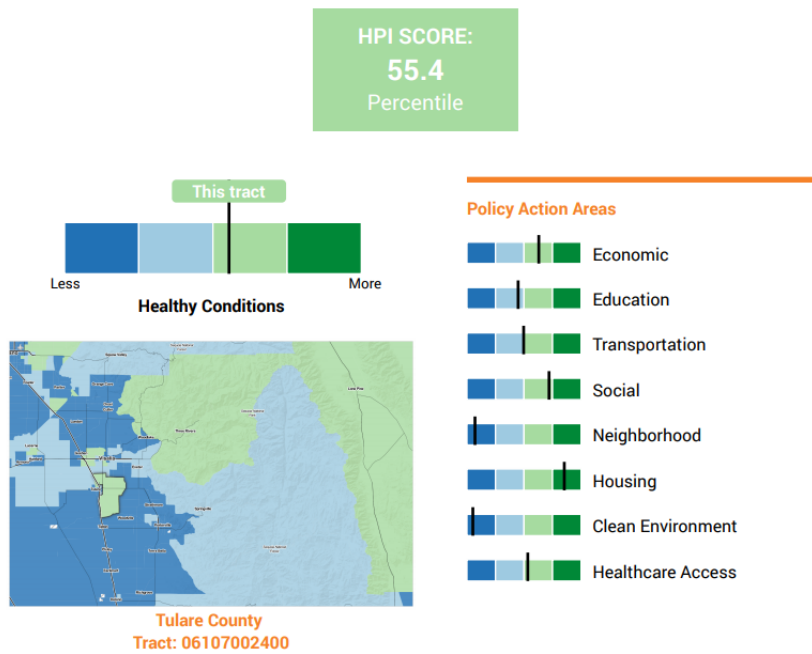
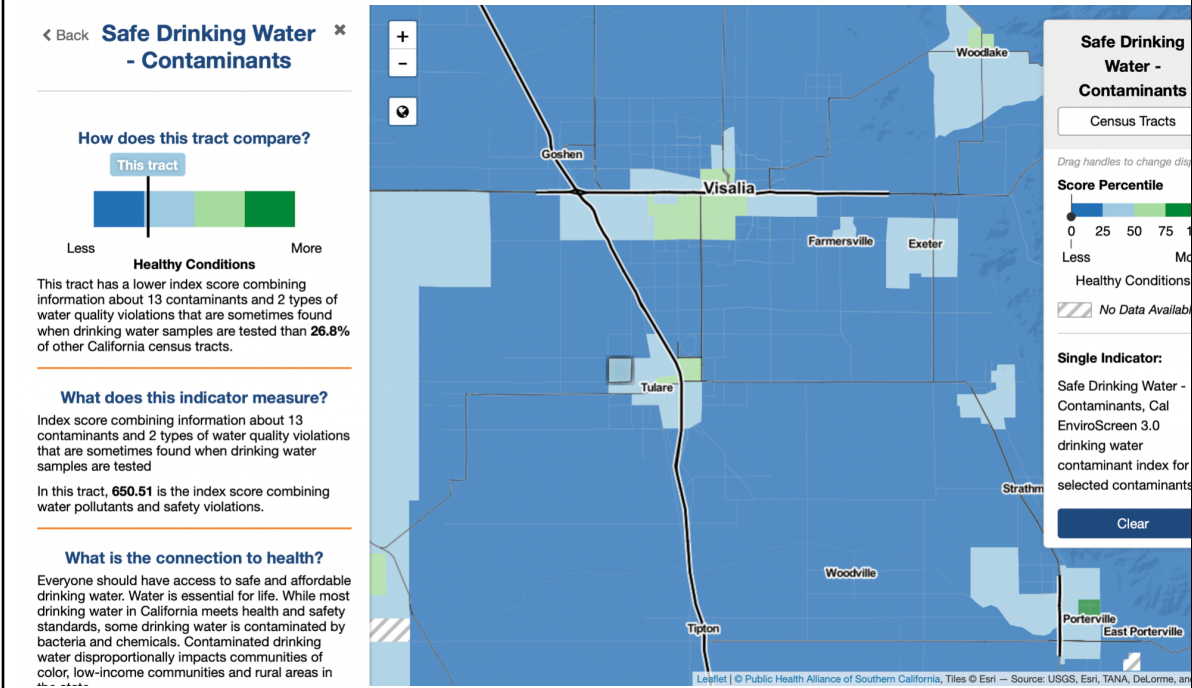


Figure 13. This is a representation of the Healthy Places Index (HPI) of Tulare County. Although the overall score looks neutral at first glance, it is largely balanced out by the Sequoia National Park, which is not a place of residence for people. In addition, the neighborhood and clean environment scores of Tulare County is towards the bottom of the scale, implying serious problems in those areas of HPI in Tulare County.

<https://map.healthyplacesindex.org/>

(Screenshot by Perry Liu, June 30, 2021)

Figure 14. Similar to many of the Central Valley counties, Tulare has some of the worst drinking water conditions as it is contaminated with animal manure, septic tank leakages, and chemical fertilizers. The county stands at just the 27th percentile of clean drinking water.



<https://map.healthyplacesindex.org>
 (Screenshot by Paul Hissen. July 1st, 2021)

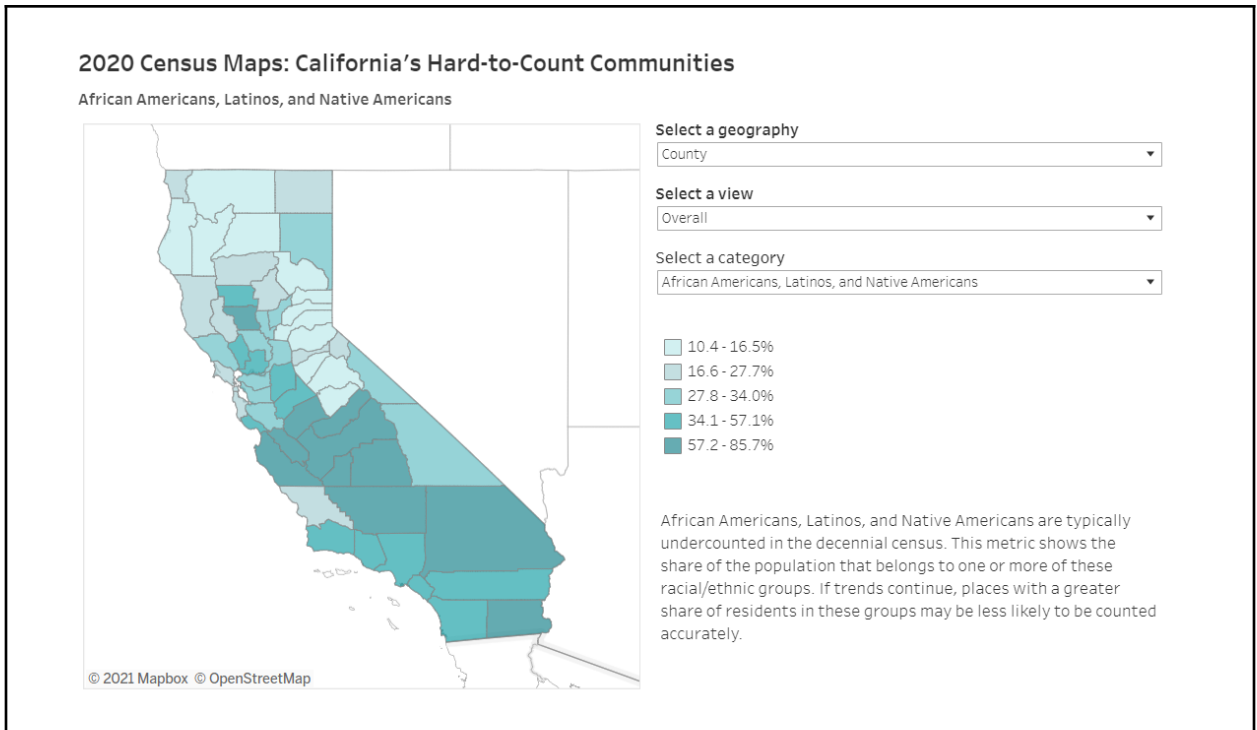


Figure 15. This map shows us the percentage of the population in California counties that are African American, Latino, and Native American. Tulare County is among the highest, with the percentage being 64.9%. This further supports the research which shows that “residents of chemical facility ‘vulnerability zones’ are disproportionately African American or Latino, have higher rates of poverty than the U.S. as a whole, and have lower housing values, incomes, and education levels than the national average. The disproportionate or unequal danger is sharply magnified in the ‘fenceline’ areas nearest the facilities. (Environmental Justice and Health Alliance for Chemical Policy Reform 2014)

<https://www.ppic.org/interactive/2020-census-maps-californias-hard-to-count-communities/>

(Screenshot by Moez Hussain, June 30, 2021)

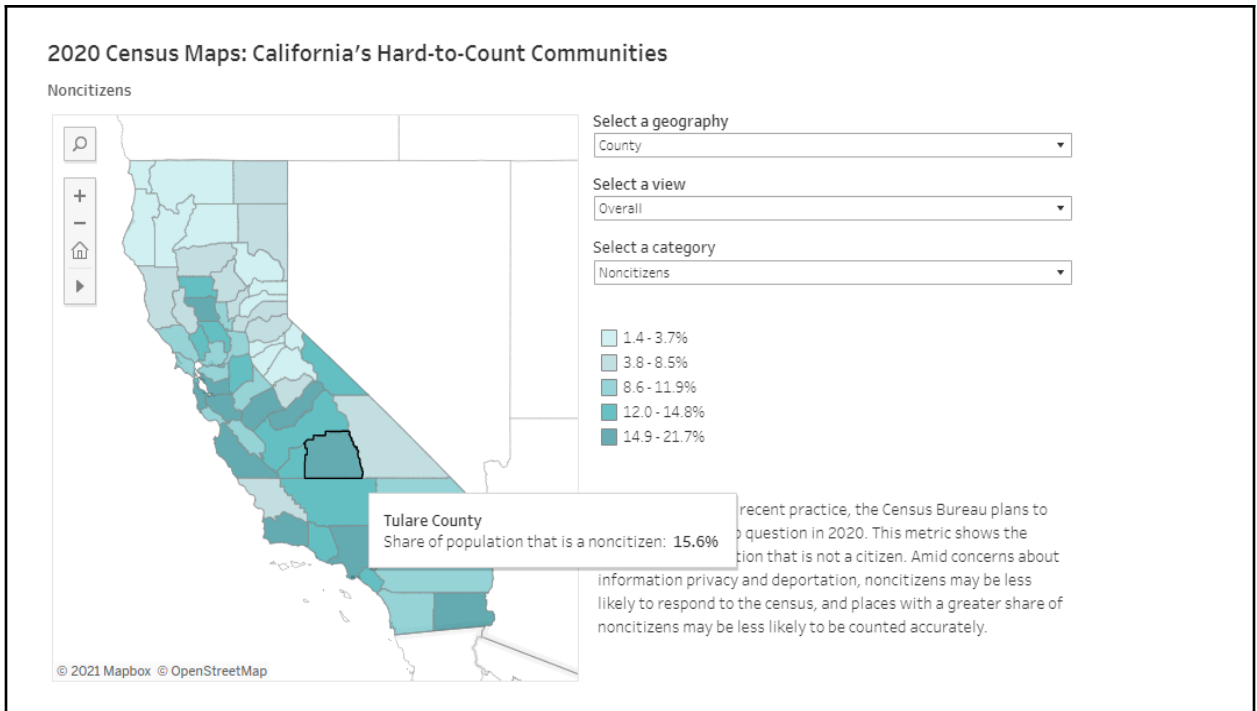


Figure 16. This map portrays the percentage of noncitizens in different counties of California. Non-citizens are likely to be disproportionately affected by environmental disasters as they might not have familiarity with the socioeconomic and political landscape of the places where they reside. In Tulare County, the percentage of noncitizens out of all residents is 15.6%.

<https://www.ppic.org/interactive/2020-census-maps-californias-hard-to-count-communities/>

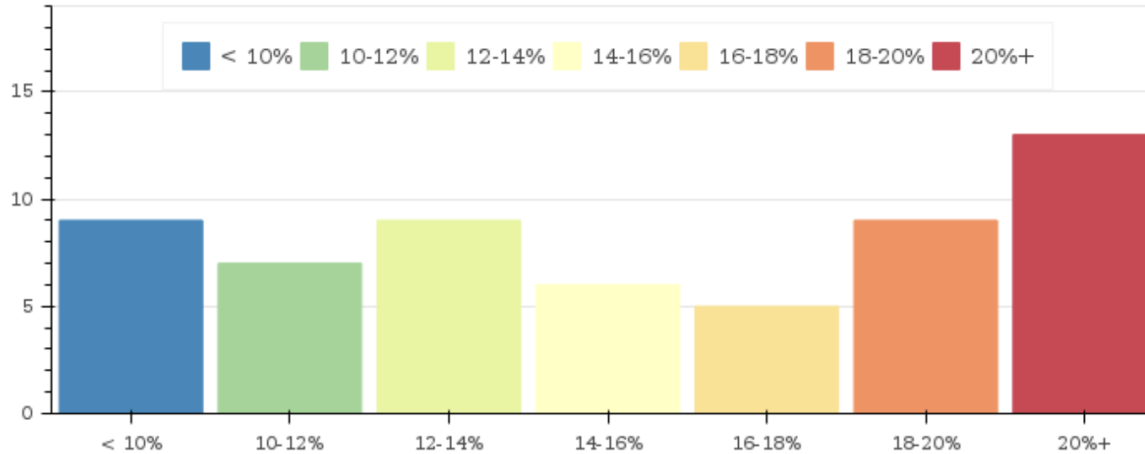
(Screenshot by Perry Liu, June 30, 2021)

Figure 17. Here we see that Tulare has one of the highest poverty rates in California, standing with over a quarter of their population in poverty. Percentage of residents living in poverty in 2019: 23.6% (13.0% for White Non-Hispanic residents, 33.8% for Black residents, 26.9% for Hispanic or Latino residents, 23.5% for American Indian residents, 35.8% for Native Hawaiian and other Pacific Islander residents, 22.0% for other race residents, 21.9% for two or more races residents)

The Poverty Rate in Tulare County is 27.1%.

Tulare County is in California.

California County Average Resident Percent in Poverty in 2016



<https://www.welfareinfo.org/poverty-rate/california/tulare-county>

(Screenshot by Paul Hissen. July 1st, 2021)

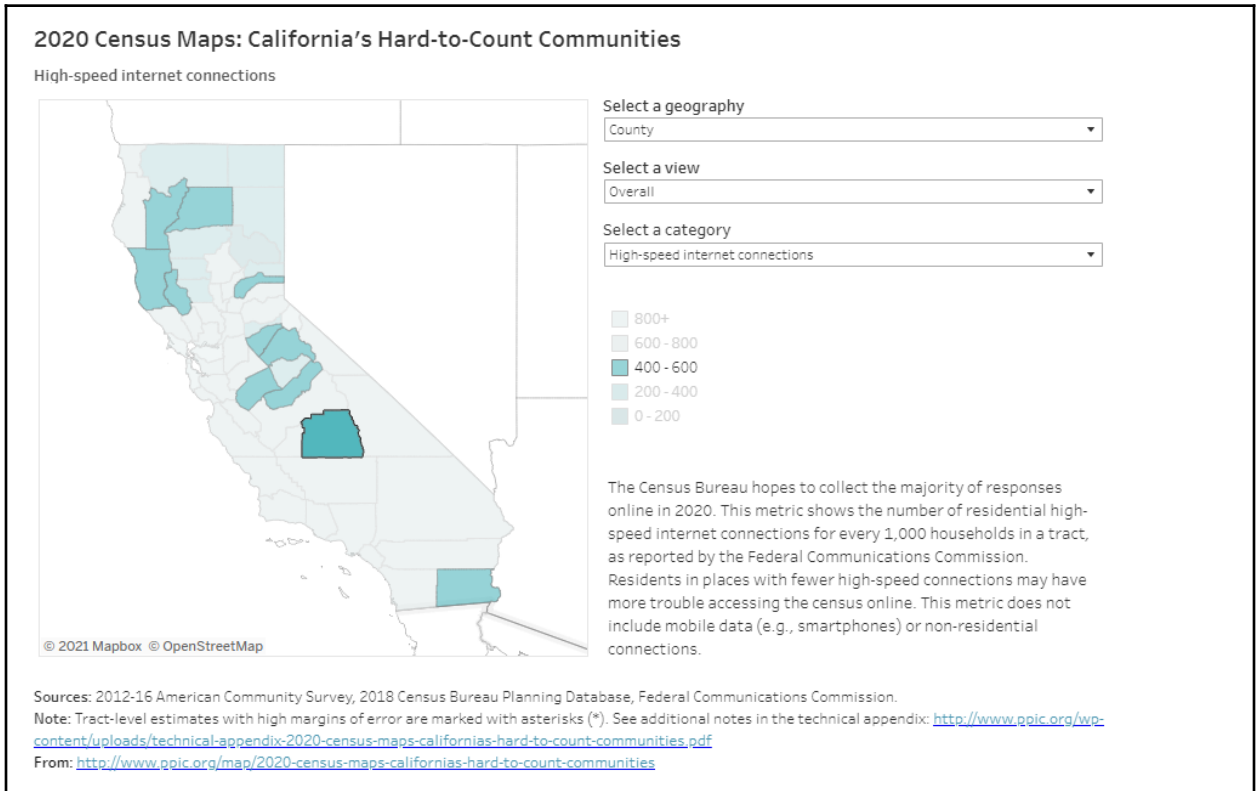


Figure 18. This map portrays the number of households (per 1000) that have access to high speed internet in counties of California. Households without high speed internet might lack the accessibility to the latest information regarding environmental disasters, which increases their vulnerability. In Tulare County, the number of households that have access to high speed internet is 400-600 per 1000 households, which means about half of the households do not have high speed internet access.
<https://www.ppqc.org/interactive/2020-census-maps-californias-hard-to-count-communities/>
 (Screenshot by Perry Liu, June 30, 2021)

4. STAKEHOLDER ANALYSIS

Trapped in Tulare

Thomas Wang, Christopher Martin, Perry Liu

Stakeholder groups are any population or organization that are involved with a certain issue. In our case study, we talk about the issue of fast disaster hazards. One of the main issues is the lack of power of certain stakeholder groups, specifically the ones that are directly affected by the pollution released out into the air, water, and land. The stakeholder groups that are indirectly affected are actually benefiting from these processes.

One of the largest stakeholder groups in Tulare County are the residents and workers. These farmers are burdened with poverty. Much of the population of workers in Tulare County are low-income. As such, they focus heavily on their work, rather than the pollution that looms over their county. When a reporter, Carroll, told a nearby farmer that Tulare County resides in the area with the country's worst air pollution, he simply responded with "really?" (Carroll 3). Carroll explains that "of all life's challenges - feeding his family and paying rent top of the list - this seemed less urgent," (Carroll 3). It's easy to see how these stakeholders would think the way that they do, given their conditions. However, that does not change the fact that they are the ones directly affected by the pollution.

Moving on from the impoverished stakeholders, the politicians of the County. This stakeholder group is responsible for making the policies that can make changes in this community. These stakeholders do not directly feel the effects of the pollution because they live in better neighborhoods than the impoverished farmers and workers. It is also widely believed that they are being paid off by corporate executives to make and change policies to work in their favor and allow them to continue pushing out harmful polluting emissions. They do this because it puts money in their pocket and keeps their jobs. After all, they have the support of a larger audience and are being supported for it.

Another stakeholder group are the companies that are involved with the sheer amount of pollution. For example, the dairy industries in Tulare County are very ubiquitous and polluting. These companies get to make more money and generate more profit by cutting costs on air pollution and emissions. They can invest that money back into their products so they generate more profit.

On the other hand, there is a stakeholder group that sets out to help Tulare County, the environmental groups. These groups are making an active effort to push for change in Tulare County. They are trying to sue the companies for their pollution and emissions in the community. However, as simple grassroots non governmental organizations, they have less power than the companies and the politicians.

There is another stakeholder group, who are not directly affected by the pollution emissions, which is the California state government. The government is actively making changes to their policies in order to regulate pollution and factory emissions. In fact, the federal government did lift bans on a neurotoxic pesticide called chlorpyrifos. However, in order to take action against these pollutants, the California government reimplemented the ban in their state.

5. STAKEHOLDER ACTIONS

Actions speak louder than words

Tom Chiu, Thomas Wang, Christopher Martin, Perry Liu

There are numerous groups of stakeholders in Tulare County. However, not all of them are trying to reduce the impacts of environmental injustices. Not to mention, their approaches aren't always the most effective.

Residents of Tulare county are the primary stakeholders in this community. There are many that work on farms or in the factories that deal with food production in the United States. Since many of these stakeholders are workers, they live in poverty as well. There are more cows than people, considering it's long tradition of dairy farms. Homes are half the value of California's average, which is already quite expensive. In addition, they have limited access to broadband and computers. "More than a quarter of the country's residents live in poverty, twice the national average," (<https://calmatters.org/environment/2021/06/drought-tulare-county/>). The citizens of Tulare county that have been water insecure because of lack of infrastructure in their cities. Members of the community have reached out to Senator Melissa Hurtado to vote in favor of a bill that would help provide the state with clean drinking water.

There are also environmental and conservation groups that have taken action to fight against environmental injustices. The Association of Irrigated Residents, the Center for Biological Diversity, and the Sierra Club are three conservation groups that banded together in 2018 to sue Tulare County for “approving a climate action plan for giant feedlots and other industrial cattle operations that would worsen air quality and undercut California’s greenhouse gas reduction goals” (Center for Biological Diversity, 2018). They are also raising awareness to politicians gathering research and reports from environmental organizations (EPA and WHO) to serve as proof that change needs to happen.

Tulare County has not done much to help the growing problems in their county. Most of the county’s income comes from the dairy industry, which has led them to giving special treatment to the dairy industry. One of the policies did not require cattle operations to set goals for reduced methane admissions.

California state government and environmental agencies have contributed to helping Tulare County’s environmental problems, but not everything has worked. They proposed plans to help residents of Tulare County gain access to clean water, and made a ratification that clean water is a human right. They also executed a proposed plan (water tax) to aid Tulare County residents. The plan was not put into action as there were other communities that were against it.

6. ROLE OF MEDIA AND BIG ENVIRONMENTAL ORGANIZATIONS

Negative Attention

The environmental quality in Tulare has picked up a lot of coverage from media sources such as large news organizations and environmental organizations, and for reasons not positive:

“Health problems are particularly acute in Tulare County, where more than 90% of residents rely on wells for drinking water. It has above average death rates for, among other maladies, sudden infant death syndrome, liver diseases and all sorts of cancers, according to the Community Water Center.” -LA Times

<https://www.latimes.com/politics/la-pol-sac-skelton-san-joaquin-valley-water-20170213-story.html>

“Agricultural air pollution comes from diesel irrigation pumps, farming equipment, and livestock waste from giant dairy, poultry, and beef factory farms. The Central Valley of California has three of the nation's four metropolitan areas with the worst ozone pollution: Fresno, Bakersfield, and Visalia-Tulare-Porterville.” -EarthJustice

<https://earthjustice.org/news/press/2003/big-california-farms-must-comply-with-air-pollution-regulations>

“Tulare County has been hearing from residents about their diminished water supply since February, but the trickle of calls has become a gusher. The *Fresno Bee* reports that nearly 1,000 people are now impacted by the dry wells. ‘I grew up here. I’ve never seen this many people out of water, Tulare County District Five Supervisor Mike Ennis told the *Fresno Bee*.’” -Greenpeace

<https://www.greenpeace.org/usa/earthquake-drought-wildfires-ravage-california/>

“Industrial cattle operations in Tulare County produce the equivalent of 7.5 million metric tons of carbon dioxide per year — approximately 63 percent of the county’s greenhouse gas emissions in 2013. ‘Cutting methane pollution from cows in America’s biggest dairy-producing county is crucial to fighting the climate crisis,’ said Jonathan Evans, environmental health legal director at the Center for Biological Diversity. ‘We need a range of tools, beyond manure digesters, to speed greenhouse gas reductions and protect public health. As California gets hit hard by global warming, we’ve got to curb methane emissions.’” -Center for Biological Diversity

<https://biologicaldiversity.org/w/news/press-releases/californias-tulare-county-agrees-to-curb-air-pollution-from-industrial-dairies-2019-08-07/>

“Applying the cumulative cancer risk framework to the 2011–2015 drinking water dataset for community water systems in California, we calculated that up to 15,449 lifetime cancer cases could be related to drinking water quality across the state. Our assessment is based on water quality data published by the California State Water Resources Control Board, and the data collected under the EPA’s Unregulated Contaminant Monitoring Rule. Both datasets are publicly available online and can be freely downloaded.” (Page 2)([Link to research study](#)) - The Climate Reporter

<https://medium.com/the-climate-reporter/tulare-countys-water-crisis-explained-267583ca4ae>

Tulare has also been in the news for their struggle against COVID-19. Tulare county is one of the first places in California to deal with the Delta variant according to ABC30 news. Stating "On Thursday, the Tulare County Department of Public Health confirmed the first case of the COVID-19 Delta variant in a county resident.

The case was identified through genomic sequencing conducted by the Tulare County Public Health Laboratory.

"We need to continue the important safety measures to slow the spread of COVID-19, and it is especially important for unvaccinated individuals to wear a face covering or mask while in any public indoor setting," says Tulare County Public Health Officer Dr. Karen Haught.

The COVID-19 Delta variant was first found in India and has now reached more than 80 different countries."

<https://abc30.com/delta-variant-tulare-county-covid/10828966/>

7. RECOMMENDED LOCAL ACTIONS

What can you do about it?

Tom Chiu, Moez Hussain

Tulare county is only one of numerous communities in the world that have to deal with environmental vulnerabilities and injustices due to fast disaster hazards. Some of the main hazards consist of pesticide runoff contaminating water supply, methane emissions and smog increasing air pollution, and the likely possibility of dealing with high magnitude earthquakes. Some ways that the people of Tulare can take action is by spreading awareness and information on the situation and making it accessible to all, encouraging residents to take legal action against polluting businesses, and practicing emergency drills to deal with possible disasters.

One of the main reasons that methane emissions are so high in Tulare county is due to the fact that it is home to more than a million cattle, which is more than double the human population of the county. According to the Center for Biological Diversity, “Livestock pollution in California accounts for about 55 percent of the state’s methane emissions. The dairy industry is responsible for 82 percent of those overall emissions” (Evans 2019). Local communities already took action by filing a lawsuit against Tulare County in 2018 to cut methane emissions as the air pollution from industrial dairies was causing “health problems like headaches” to residents nearby (Evans 2019). This is a great example as to how people can take action themselves in order to achieve results. The agreement that was reached aims to reduce the air

pollution from the dairies and increase public accountability for dairy and livestock pollution (Evans 2019). However, the people of Tulare should continue to monitor dairy industries in the area so that they can ensure that these factories are actually making a positive difference.

Another contributor to Tulare's poor air quality is the level of particulate matter, specifically PM 2.5, in the air. PM 2.5 refers to particulate matter that is 2.5 microns or less in width, primarily coming from vehicle exhausts, burning of fuels, reaction of gases/droplets from sources such as power plants, etc (NY Health). Also, according to The California Healthy Places Index, 93.62% of households have access to an automobile, which is a higher percentage than 46.4% of other California counties. With this information, it is evident that vehicles contribute to much of the smog pollution in Tulare County. Some ways that the county can help this situation is by informing the public about the benefits of electric/plug-in hybrid vehicles and incentivizing the purchase of them, either in the form of tax credits or investing in the charging infrastructure to support such a change. Another way is to improve the public transportation system in the cities with the most traffic so that people may not need to buy/use their own vehicle, which would in turn greatly reduce emissions from vehicles.

Some residents of Tulare County also have to deal with contaminated water sources due to pesticide runoff and exclusion of certain communities from the main public water system (Foster 2020). Environmental injustice is clearly presented here as county officials back in 1971 named "racially diverse" communities such as Seville and 14 others as "Can't Serve Districts" because they were believed to have little to no future, and 49 years later they are still labeled as such and excluded from the clean public water system (Foster 2020). On top of that, residents of those disadvantaged communities still have to pay for the polluted water, and also pay separately for clean bottled water (Foster 2020). This issue can and already should have been addressed by Tulare County by simply just including these communities into the main public

water system. If they can't do so immediately, then the county should at least not be charging residents to pay for the contaminated water until it has been resolved. Although there are community organizations that are helping to distribute water to families who need it in those areas, it isn't enough until all residents in the county have easy access to clean water whenever they need it.

8. RECOMMENDED EXTRA-LOCAL ACTIONS

What else can be done?

Moez Hussain

Tulare county is known to be in the most polluted region in the United States. The county can attribute that to several of its industry giants in the dairy and produce industry. In addition, growing so much produce requires the use of products like pesticides that act as neurotoxins and cause several harmful effects on the environment. Tulare county has also experienced water droughts in recent years, which indirectly affect their pesticide use.

We suggest petitioning the state government to warn people when pesticides are being sprayed and exactly what is being sprayed. This will spread awareness to the community and let them know the kinds of chemicals that are being released into their environment and their effects. With this knowledge, they can push for banning certain pesticides that are too harmful.

Earthquakes are very apparent and common in Tulare county. Preparing for earthquakes is vital to preserve and maintain communities. In order to provide support for these safety measures, communities could ask the government to support funding for safer architecture and more secure infrastructure in the case of

earthquakes. They can also see if the emergency response front is being properly funded and trained in the event that an earthquake happens.

Like we mentioned previously, air pollution is a huge health hazard in Tulare county. Some ways to fix these are the furthering of research in electric or hybrid vehicles. This will help to cut down air pollution from vehicles. Another option could be to invest in public transport. Standardizing public transport will help people cut down on vehicular emissions because everyone would be carpooling. Tulare county can spread awareness of these benefits in hopes to sway the people to support these changes.

Lastly, Tulare county faces issues with water. They've faced issues with water before, a drought and with runoff from pesticides and other chemical dumps. The EPA proposed a \$1 water tax to supply all California residents with clean drinking water and help with water treatment. This can help Tulare county because they do not have access to clean water at the moment.

9. RECOMMENDATIONS FOR FUTURE RESEARCH

What Does the Future Hold?

Christopher Martin

Something that we wished we had found while researching was how the area copes without having access to water, especially because it is an agricultural area. We also wanted to know why citizens of the county have not mounted a large resistance to the use of pesticides.

We think studying farmers, citizens, and government officials in the area would be part of the study, as well as people who live in desert areas around the world. We think that reaching out to these individuals through email, phone, and going door to door would be the best way to reach these groups. We would do in depth interviews, individually and focus groups, to learn how these individuals cope with lack of drinking water, and what should be done to combat these issues. We would also want to ask residents and workers for their opinions about the air pollution and the use of pesticides in their community. These questions would give us insight into how widespread certain opinions are and how other people in these groups view differing opinions. For example, different citizens might have different reasons for why they do not resist the use of pesticides in the areas they live in. Some citizens may feel like they can't do anything about it, while others do not see a problem with their use.

Some useful information for addressing the issues listed in this paper would be for more scientific and quantitative research to be done in the area. These measurements

should be of the amount of pesticides in the air at any point in time, the level of pollution in the groundwater, the levels of toxic chemicals in residents bloodstreams, and where the sprayed pesticides float to.

10. INJUSTICE ANALYSIS

The Injustices In Tulare County

Thomas Wang

One of the major injustices facing the communities of Tulare is not having access to clean water because they were excluded from the main water supply in the area. This injustice seen in Seville and other neighboring communities is racially motivated since the politicians in 1971 labeled these communities “as ‘Can’t Serve’ Districts because they were said to have ‘little or no authentic future’” (Foster). This creates an infrastructure injustice since having clean water running through the pipes of our homes is a necessity. These communities were intentionally shut out from being able to receive clean water in their communities and the residents are therefore forced to look for different sources of water, such as buying bottled water and using it for daily necessities. There is no reason for a city to be able to get clean water in their home for being racially diverse. This creates unnecessary problems for the community that can easily be avoided. This lack of working infrastructure is coupled with an economic injustice. “More than a quarter of the county’s residents live in poverty, twice the national average ” (Cart). Because of this, many residents don’t have the time to fight the injustice that they are facing in their day to day lives. The State Government needs to be held responsible so that the residents in the area can

live comfortably like any other resident in the state of California.

Another major injustice that that community faces is the detriment of their health. With the area being highly agricultural focused, the community is constantly facing pollution of nitrates in the air and water, leading to the area of Tulare County to have the highest rates of asthma in the United States. Asthma, among other things, are severely affecting the community in ways that even their unborn children are prone to be affected, creating reproductive injustice as well. This community needs a way to help clean their air and water so that they can start living healthier lives without getting some type of respiratory condition.

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