

San Joaquin COUNTY

FAST DISASTER
CASE STUDY



ENVIRONMENTAL
INJUSTICE

Summer 2021

GROUP NO. 3

AUTHORS

Raymond Tu, Khue Tu Thy Tran, May Weng, Joseph William Garcia, Tetsuya Vlaming, Ju Yeon Kim.

CITE AS



Tu, Raymond, May Weng, Joseph W. Garcia, Tetsuya Vlaming, Ju Yeon Kim, Khue T.T Tran. 2021. *Fast Disaster Case Study: San Joaquin Valley. Environmental Injustice, Disaster STS Research Network.*

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 image is the Tracy Combined-Cycle Power Plant located in San Joaquin County.

Source: [Tracy Combined-Cycle Power Plant, Licensing Case - Docket # 2008-AFC-07](#)

BIOGRAPHICAL STATEMENT	PHOTO
<p>Raymond Tu is an upcoming fourth year computer science major at UCI. He developed an interest in environmental justice issues as a result of hearing about our polluted oceans and various nuclear disasters. He is somewhat knowledgeable about some larger actions taken by the U.S. Government to help mitigate environmental justice issues, such as the Clean Air Act.</p>	<p>Decline to Disclose</p>
<p>Ju Yeon Kim is a 4th year Informatics major at UCI. She first got interested in environmental injustice by watching a Netflix documentary. With deep interests in technology and people, she plans to work in the IT industry.</p>	
<p>May Weng is an upcoming fourth year majoring in Psychology at University of California, Irvine. She was born and raised in Bangkok, Thailand. She hopes to attend graduate school for clinical psychology. Her interests include listening to true crime podcasts and practicing yoga.</p>	

Tetsuya Vlaming is an upcoming fourth year student studying Computer Science and Engineering at the University of California, Irvine. To not be ignorant about environmental injustice he decided to learn more about it. His goal at the moment is to graduate and find a job.



Joseph William Garcia is a graduating fourth year student studying Anthropology at the University of California, Irvine. With passions in community-oriented research and activism, he strives to continuously learn how to implement effective research to combat environmental injustice. In the following months, he is to start the Masters of Science in Information Management graduate program at the University of Washington.



Khue Tran is an upcoming fourth year student at University of California, Irvine. She majors in Biomedical Engineering with a minor in Mathematics. She is an international and a transfer student from Irvine Valley College. She is going to pursue a master's degree after she graduates.



TABLE OF CONTENTS

INTRODUCTION	6
1. COMMUNITY ASSETS & SETTING	10
2. FAST DISASTER & OTHER ENVIRONMENTAL THREATS	15
3. COMPOUND VULNERABILITIES	25
4. STAKEHOLDER ANALYSIS	31
5. STAKEHOLDER ACTIONS	34
6. ROLE OF MEDIA AND BIG ENVIRONMENTAL ORGANIZATIONS	37
7. RECOMMENDED LOCAL ACTIONS	39
8. RECOMMENDED EXTRA-LOCAL ACTIONS	42
9. RECOMMENDATIONS FOR FUTURE RESEARCH	44
10. INJUSTICE ANALYSIS	47
BIBLIOGRAPHY	51
FIGURES	57

INTRODUCTION

This case study report focuses on “worst case” scenarios for release of toxic chemicals in San Joaquin Valley County. 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 San Joaquin County, the native homelands of the Yokut Native American Tribe.



Figure 2. One of the smaller counties in the area in California, it has a high population density and is growing rapidly from it's mainly Agricultural Economy.

Source: Wikipedia

(https://en.wikipedia.org/wiki/San_Joaquin_County,_California#Economy Screenshot by Raymond Tu 6/29/2021)

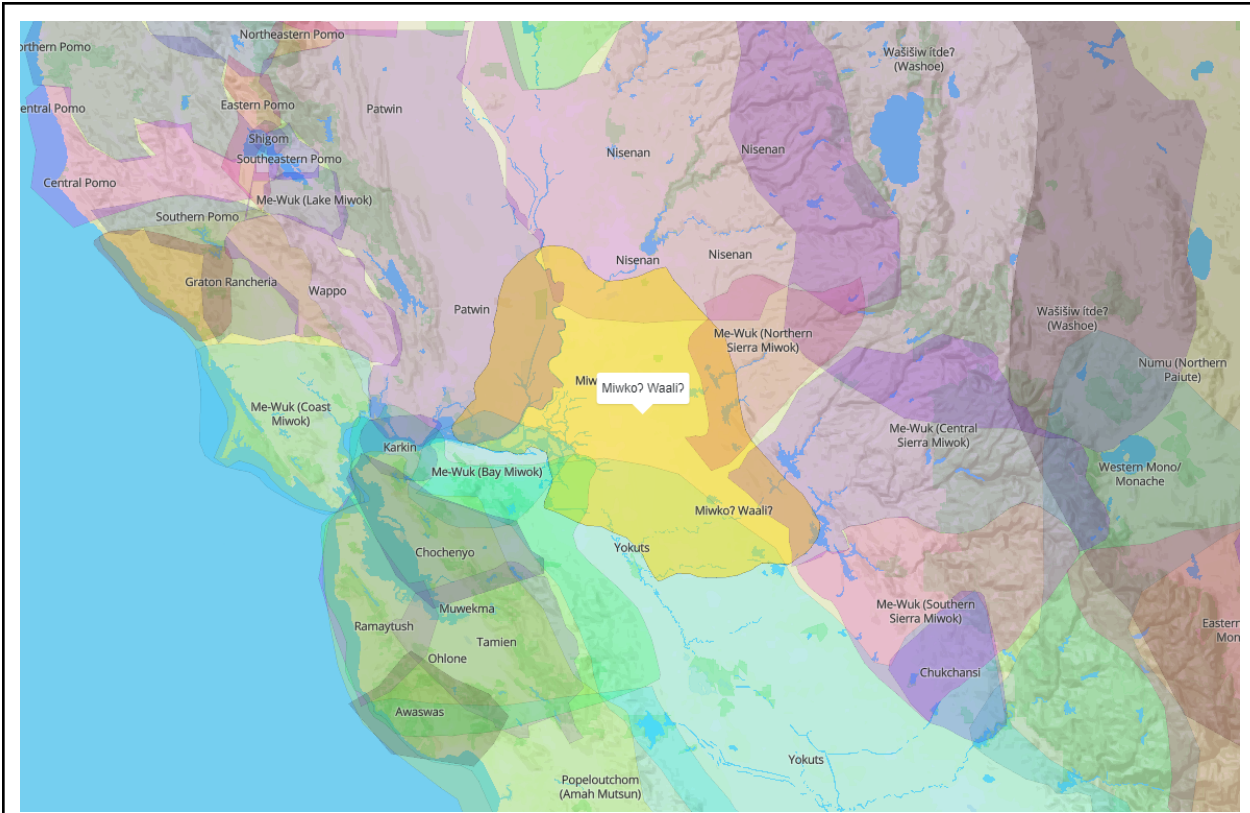


Figure 3. Native Lands' digital maps show San Joaquin's City of Stockton on Miwok, Yokuts, Waali homelands.

Source: <https://native-land.ca/> Screenshot by Raymond Tu 6/29/2021

1. COMMUNITY ASSETS & SETTING

Significant Wealth Divide in Prosperous Agricultural County

Raymond Tu

This case study takes place in San Joaquin County, which is a mainly agricultural county in Central California, with nearly 920,000 acres of land area, making it the 7th largest producer of Agriculture (San Joaquin Council of Governments, n.d.). Economically, the County is reliant on Agriculture and Manufacturing. The network of rivers that runs through the County supports both Agriculture and Manufacturing.

San Joaquin Valley contributes 7.1% of California's Total Direct Economic Output. It generates more than 5 billion dollars in economic contribution and supports more than 33,000 jobs, which represents 9.0 percent of all County employment or about one out of every eleven jobs (Pelican, Tim, and Kamal Bagri, 2020).

This is in contrast to San Joaquin County's relatively low average income. Currently, a San Joaquin resident's average earned income is \$22,645 (per capita), \$7,673 less than California's average. San Joaquin's median household income is \$53,274, behind the state's median income, \$61,818 (San Joaquin Council of Governments, n.d.). Historically it has been comparable to the U.S.'s median income, only being above or below by a couple

thousand dollars. This implies that there is a significant wealth divide between the wealthiest and average residents in San Joaquin County, since the 5 billion dollars in economic contribution is not contributing to the economic prosperity of its average residents.

The county is quite dry, with an average annual amount of rain ranging from 8 inches to 18 inches. The temperature of the county “ranges from average daily maximums of 94 degrees to average daily minimums of 59 degrees in June and from average daily maximums of 53 degrees to average daily minimums of 36 degrees in January” (“Overview” 2017, 7).

San Joaquin County has surrounding cities like Escalon, Lockeford, and Morada. Communities located in the center of the county like Stockton, August, and French Camp have a lower index Health Score. Low qualities of health are dispersed throughout the county. Tracy is the only exception with a high Healthy Places Index score (The California Healthy Places Index). The county has an estimated population of 762,148, with the highest density of people living in the major cities: Stockton, Tracy, Manteca, Lodi, Escalon, Ripon and Lathrop. The plurality of the population are Hispanic or Latino at 42.0%, followed by Caucasian at 30.5%, and Asian at 17.4% (U.S. Census Bureau 2020).

There are also many community assets in San Joaquin County, including environmental organizations, local news organizations, libraries, and parks.

For environmental organizations, an example is the Environmental Justice Project Stockton. Established in 2005 through the Catholic Charities and the Diocese of Stockton, this organization challenges environmental issues of Air Quality and global warming issues through a religious voice. With an emphasis on community engagement, the focus is to provide county residents proper information to combat these disparities (Environmental Justice Project). With the limitations of the COVID-19 pandemic, folks have been limited and unable to attend physical meetings. This affects the ability to physically mobilize and take proper actions because of physical distancing. The majority of

organizing is done online, which can pose problems in effectively mobilizing (Environmental Justice Project).

For local news organizations, there is CBS Sacramento. CBS Sacramento is a news organization providing local and community news throughout Northern California/the Bay Area. Residents of San Joaquin County are able to receive all types of news relating to politics, entertainment, and weather. This news organization is community-oriented, where stories about residents or local information is constantly presented. This asset has been affected by COVID mostly because news regarding the pandemic is at the forefront of information. With the news station being entirely dedicated to the local community, much of the attention is towards bringing credible and reliable information too. The challenge is making sure this information is readily accessible and true to members in San Joaquin County (CBS Sacramento, n.d.).

For libraries, there is the Stockton-San Joaquin County Public Library. The local library is an open resource where folks can have access to open research databases and can participate in community events. Because this source is open to the public, folks have information on any type of item related to local events and environmental news (Stockton-San Joaquin County Public Library, 2021). Because COVID has placed limitations in accessing potential areas due to Social Distancing, areas like the library are off limits. This means that folks can't have regular daily access to certain educational or online resources especially if they don't have their own methods to technology (Stockton-San Joaquin County Public Library, 2021).

For parks, there is the Micke Grove National Park. With this park having tons of green areas and an open lake, this is a meeting place for all-types of recreational activities. Such areas include the Micke Grove Zoo, a Fun Town at Micke Grove (Amusement Parks), and the San Joaquin Historical Museum. The park is unable to hold many events due to Social Distancing laws of COVID-19. Folks can still attend the park but must be mindful of the COVID restrictions at place. Additionally, with certain events being cancelled because of the pandemic, community involvement and organizational events limit the possibility for

engagement (San Joaquin County Parks & Recreation, n.d.).

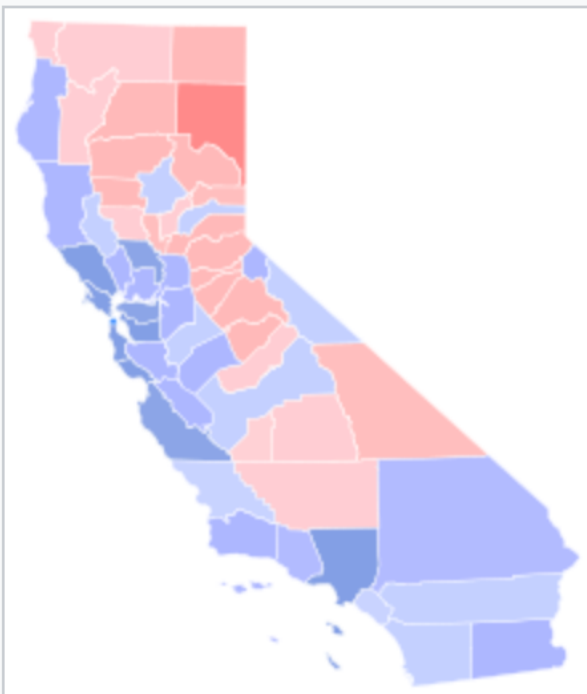


Figure 4. This is a freeway and agricultural overview of San Joaquin County. As the county is intertwined with city and agricultural life, main forms of air pollution come from these sources affecting the health wellbeing of residents of the county.

Source: Commons Wikimedia

(https://commons.wikimedia.org/wiki/File:San_Joaquin_River_Viaduct_aerial_2019.jpg)

Screenshot by Joseph William Garcia 06/29/2021



Party registration by county (October 2018):

- Democrat \geq 30%
- Democrat \geq 40%
- Democrat \geq 50%
- Republican \geq 30%
- Republican \geq 40%

Figure 5. This Wikipedia map shows that Kern County has a significant Democratic majority. Given the pro-regulatory stance of most Democrats, this suggests that it may not be difficult to create and enforce regulatory policies that help reduce environmental hazards.

Source: Wikipedia
https://en.wikipedia.org/wiki/California_locations_by_voter_registration
 Screenshot by Raymond Tu 6/29/2021

2. FAST DISASTER & OTHER ENVIRONMENTAL THREATS

Toxic Land, Toxic Food, Toxic People

Khue Tran

One of the most common fast disasters are natural disasters. They are powerful, unpreventable, difficult to fight back, and people only have a limited amount of time to react and evacuate. Earthquakes, for instance, can damage houses and buildings as well as injuries to people from falling debris. San Joaquin County is in the Delta Sierra region where many earthquakes happened. Notable faults zones in this county are Cleveland Hills and Sierra Nevada. Moderate earthquakes have occurred in the high Sierra, the foothills and in the Central Valley since they are on active faults through Lake Tahoe and in Sacramento Valley. Although San Joaquin experiences occasional earthquakes, their magnitudes are low (<4 magnitude). However, the county may experience large earthquakes from large, distant faults such as the San Francisco Bay Area, which can cause significant property damages, injuries, and deaths. Furthermore, earthquakes can leave after-effects on lands and roads. Soils in lowland areas may be subject to liquefaction. Liquefied soils can cause houses to move on slopes with small angles or landslides on steep hillsides.

Despite the diversity in landscape, San Joaquin County is heavily polluted by particles and contaminants. Most of the contaminants come from fertilizers, pesticides, and cattles manure, which commonly appears in agricultural industries. These contaminants seep into the soil and groundwater, transferring harmful chemicals to the human body. Below are the list of most common contaminants in San Joaquin groundwater:

TEN MOST FREQUENTLY DETECTED PRINCIPAL CONTAMINANTS IN GROUNDWATER

PRINCIPAL CONTAMINANT	NUMBER OF WELLS	NUMBER OF COMMUNITY WATER SYSTEMS	TYPE OF CONTAMINANT
ARSENIC	587	287	Naturally occurring
NITRATE	451	205	Anthropogenic nutrient ¹
GROSS ALPHA ACTIVITY	333	182	Naturally occurring
PERCHLORATE	179	57	Industrial/military use ¹
TETRACHLOROETHYLENE (PCE)	168	60	Solvent
TRICHLOROETHYLENE (TCE)	159	44	Solvent
URANIUM	157	89	Naturally occurring
1,2-DIBROMO-3-CHLROPOPANE (DBCP)	118	36	Legacy pesticide
FLOURIDE	79	41	Naturally occurring
CARBON TETRACHLORIDE	59	17	Solvent

¹ Also can be naturally occurring, but typically at levels below the MCL

Sources: State Water Resources Control Board

WATER DEEPLY

Figure 4a: The list of contaminants in groundwater

While arsenic is naturally occurring, nitrate, on the other hand, builds up from synthetic fertilizers. Nitrate-contaminated groundwater poses public-health risks for approximately 254,000 people living in San Joaquin Valley. It also has critical health impacts on infants. Nitrate limits the oxygen into the blood, causing methemoglobinemia or "blue baby syndrome." Infants with this condition express symptoms such as dizziness, lethargic, and

some can even lead to death. Among California’s list of water systems that violate health standards in 2015, 63% of them originate in the San Joaquin Valley. When asking local citizens, many express concerns about drinking water quality and its potential hazard. In a survey conducted in Beverly Grand, researchers reported “two-out-of-five households expressed dissatisfaction with the degree to which government agencies were protecting the water in the community. A third of homeowners and a quarter of renters feel that drinking water problems have reduced the value of their property. Finally, nearly half of households feel that drinking water quality has become worse over the last five years” (Moore).

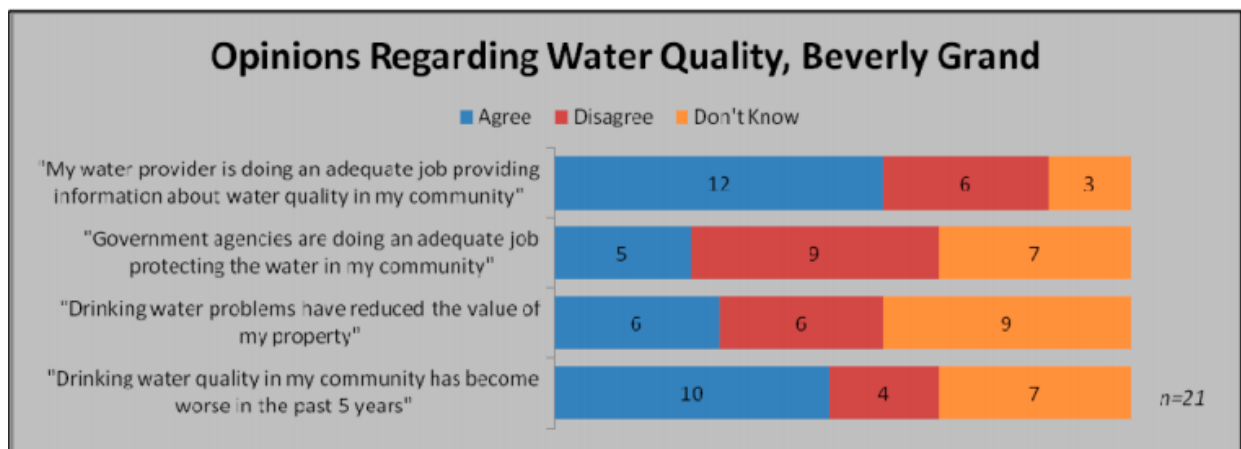


Figure 4b: Community survey of water quality in Beverly Grand

Nitrate contamination is currently a major problem in San Joaquin. Unfortunately, it is hard to fully filter the contaminants within both the soil and groundwater due to the complex water network in farmlands across the county.

Aside from the water contamination, San Joaquin County also suffers from fire caused by power plant facilities. San Joaquin County is closer in proximity to RMP facilities than 98% of the population in the US. There are various RMP facilities that could bring about fire disasters, such as the AltaGas Ripon Natural Gas Facility. These facilities could cause Residential fires. There are also numerous wildfires in the region, such as the currently ongoing Blue Fire (6/30/2021), which may cause damage to homes and cities and cause massive amounts of air pollution. RMP facilities that are closed to schools and hospitals

can cause disasters and major health hazards to vulnerable people. For example, the AltaGas Ripon facility in Ripon had two accidents during the past five years. The accidents were both related to ammonia and caused by equipment failure, resulting in the evacuation of 125 people in total. Although ammonia's flammability is low, the exposure, whether through direct contact or inhalation, can cause irritation and burn. High exposure of ammonia can damage the lung and lead to death.

<u>RMP FACILITIES IN SAN JOAQUIN COUNTY</u>			
Facility	City	Zip	Schools and hospitals within a mile-radius
<u>AltaGas Ripon Energy Inc.</u>	Ripon	95366	Ripon Elementary School (1.2 mi) Ripon High School (1.4 mi) Harvest High School (1.4 mi) And more
<u>John Taylor Fertilizers Company, Inc - Stockton</u>	Stockton	95206	Gretchen Higgins Elementary (1.0 mi) Dixon Community Day School (1.2 mi) Linford L Anderson Elementary (1.3 mi) And more
<u>Pacific Ethanol Stockton, LLC</u>	Stockton	95206	No
<u>Swiss American Sausage Company</u>	Lathrop	95330	No
<u>City of Tracy Waste Water Treatment Plant</u>	Tracy	95304	North Elementary School (0.8 mi) Millennium Charter School (1.7 mi)

RMP Facilities in San Joaquin County, CA

Show 25 entries

Search:

Facility Name	City	State	Zip Code	Registered	Number of Accidents	Number of Deaths	Number of Injuries	Number of Evacuations	Amount of Property Damage
AllaGas Ripon Energy Inc.	Ripon	CA	95366	Yes	2	0	0	125	0
Wastewater Quality Control Facility	Manteca	CA	95337	No	0	0	0	0	0
SSI Dry Grocery & Frozen Foods Division	Lathrop	CA	95330	Yes	0	0	0	0	0
SIMPLOT GROWER SOLUTIONS - STOCKTON	Stockton	CA	95215	No	0	0	0	0	0
Tri-Ag Fertilizers, Inc., Manteca Facility	Manteca	CA	95336	No	0	0	0	0	0
Westside Facility	Lodi	CA	95242	Yes	0	0	0	0	0
White Slough Water Pollution Control Facility	Lodi	CA	95242	No	0	0	0	0	0
John Taylor Fertilizers Company, Inc - Stockton	Stockton	CA	95206	No	0	0	0	0	0
TRACY BIOMASS PLANT	TRACY	CA	95376	Yes	0	0	0	0	0
Western Farm Service - Vernalis	Vernalis	CA	95385	No	0	0	0	0	0
Stockton, CA 514	Stockton	CA	95205	No	0	0	0	0	0

Figure 6. RMP Facilities in SanJoaquin County, CA. 78 facilities listed in the RMP database.

Image source: Houston Chronicle; The Right-to-Know Network

(https://rtk.rjifuture.org/rmp/location_search/search_by_location/?city=&county=San+Joaquin+&state=CA)

Screenshot by Joseph William Garcia 06/29/2021

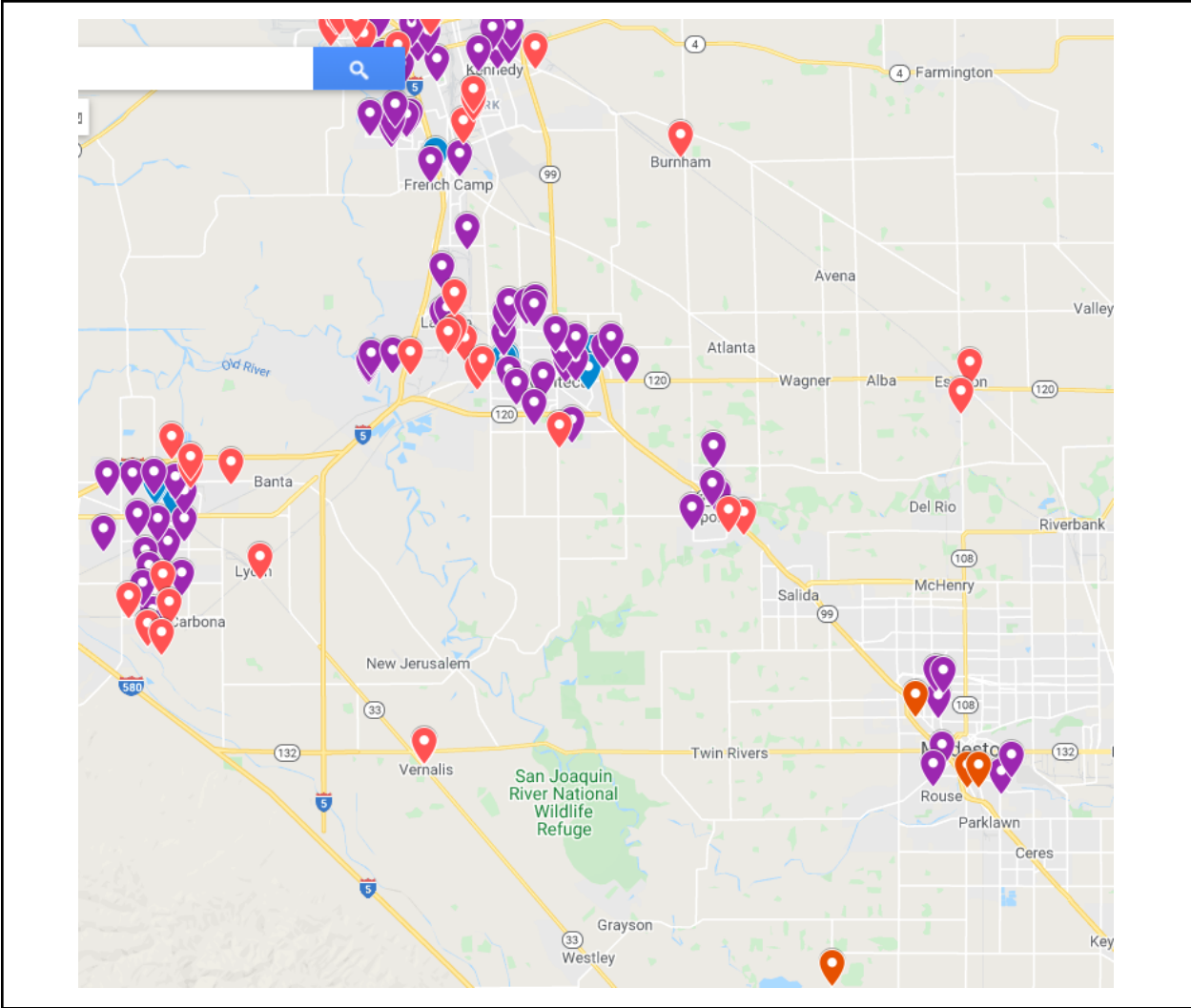


Figure 7. Locations listed for RMP in the Fast Disasters

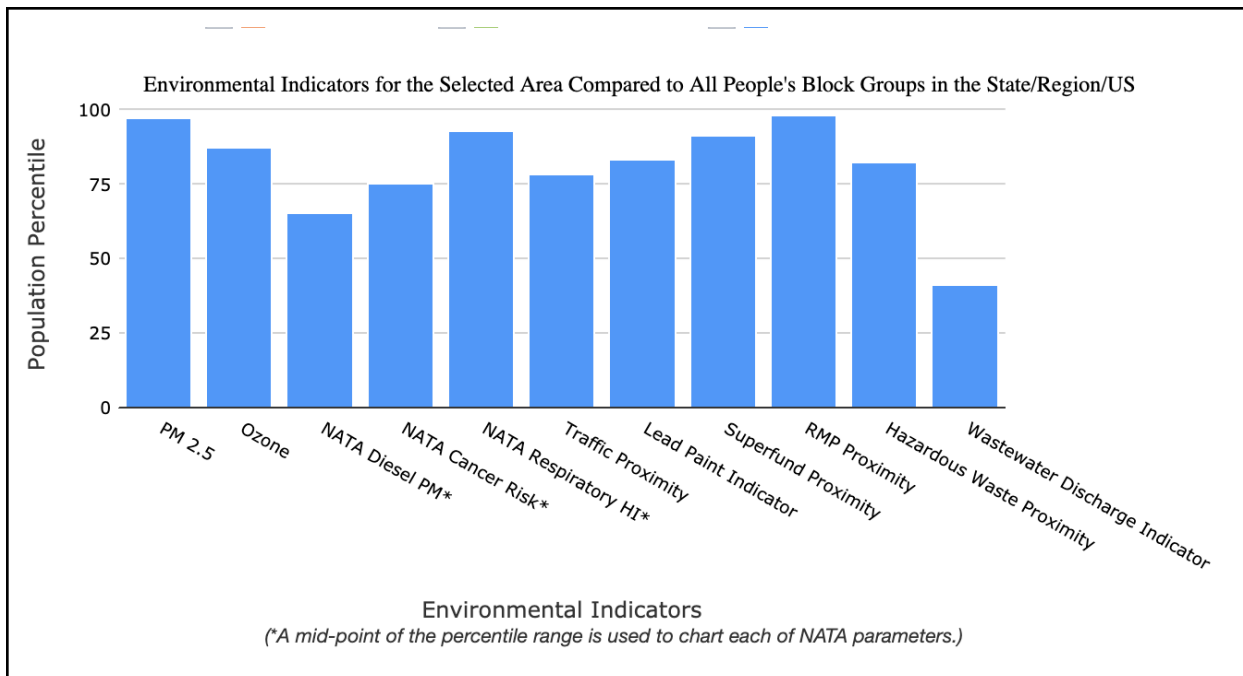


Figure 8. This chart compares environmental indicators against the population percentile in San Joaquin County. It shows that San Joaquin County is closer in proximity to RMP facilities than 98% of the population in the US.

Image source: <https://www.epa.gov/ejscreen> (Screenshot by May Weng on June 29, 2020)

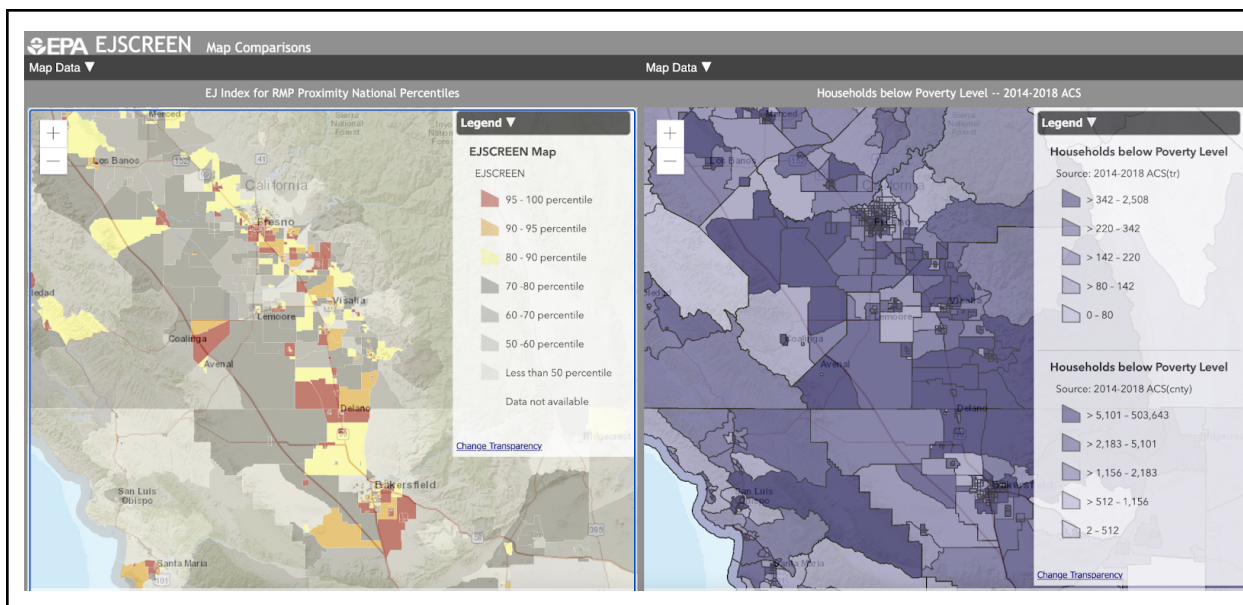


Figure 9. This visualization uses two EJScreen maps to compare RMP proximity (left) and households below poverty level (right) in San Joaquin Valley. The comparison indicates that areas with higher rates of households that are below poverty level are located close

to RMP facilities.

Image source: <https://www.epa.gov/ejscreen> (Screenshot by May Weng, June 2021. EPA Ejscreen, retrieved June 29, 2020).



Figure 10. Sierra Chemical Company located in Stockton is a water purification chemical industry. This facility contains chlorine and sulfur dioxide. Last RMP submission as well as safety inspection was made in 2015. Multiple high school and elementary schools are located within a two-mile radius from the facility. RMP source:

<https://rtk.rjifuture.org/rmp/facility/100000133991>

Image source: [Google Maps](#)



Figure 11. Pacific Ethanol facility located in Stockton. Processes ethyl alcohol that contains ammonia and flammable mixtures. Last RMP submission was made in 2013 while the last safety inspection date was in 2012. San Joaquin Elementary School is located 1.6 miles away. RMP source: <https://rtk.rjfuture.org/rmp/facility/100000203665>
Image source: <https://www.pacificethanol.com/images/locations/stockton/stockton-facility-02.jpg>

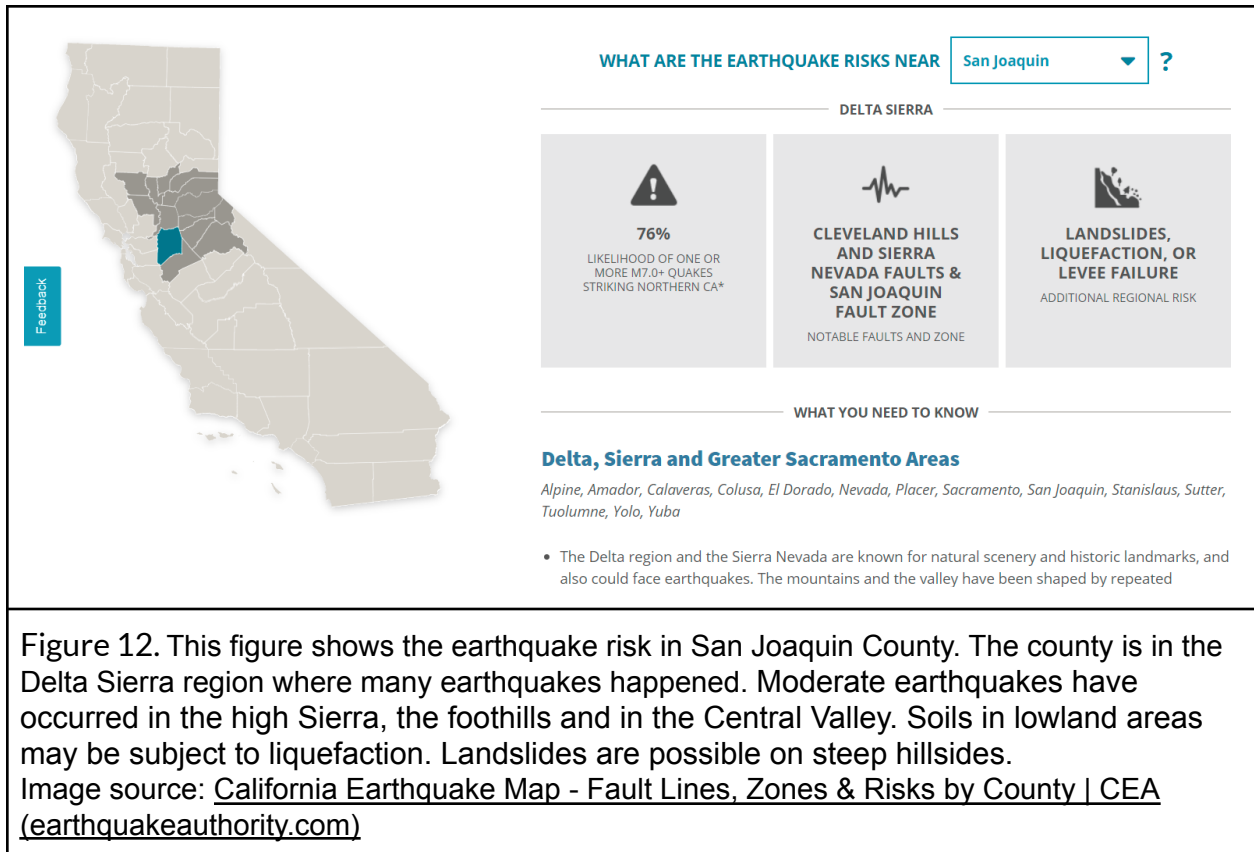


Figure 12. This figure shows the earthquake risk in San Joaquin County. The county is in the Delta Sierra region where many earthquakes happened. Moderate earthquakes have occurred in the high Sierra, the foothills and in the Central Valley. Soils in lowland areas may be subject to liquefaction. Landslides are possible on steep hillsides.

Image source: [California Earthquake Map - Fault Lines, Zones & Risks by County | CEA \(earthquakeauthority.com\)](http://earthquakeauthority.com)

3. COMPOUND VULNERABILITIES

Economic and Racial Factors Intensify Environmental Injustices

Ju Yeon Kim

San Joaquin County is a significant agricultural and oil drilling site for the U.S. At first glance, the county looks exceptionally fertile, rich in resources; especially places like San Joaquin Valley full of fruits, nuts, and vegetables reinforce this impression. Yet, numerous sources unveil that the county's people are vulnerable to environmental hazards and injustices due to different reasons.

Being an agricultural and oil drilling site means contaminated water, gas emissions, chemical hazards, and more. In San Joaquin County, residents not only live in polluted environments but also live too close to high-risk industrial facilities. In fact, the county is closer in proximity to RMP facilities than 98% of the population in the US (EPA). However, residents remain vulnerable to the hazards due to economic reasons. The poverty rate of people living in the county is 30.6% (City Data). Household income as a whole is also lower than other counties; the median household income of San Joaquin County in 2019 is \$36,690, while California's median household income in 2019 is \$80,440. (City Data) Additionally, California Healthy Places Index Map represents that in San Joaquin County, 26.13% of low-income people pay more than 50% of their wages for housing. All these

economic factors make it hard for people to relocate, despite the serious environmental hazards they are facing daily. Community members who are working at farms or oil refineries have no choice but to work there to support their families.

Economic hardships are often linked with educational levels, since earning a degree requires money. According to the San Joaquin Council of Governments website, San Joaquin County ranks 46th out of 58 California counties with its 78% high school graduation rate. Only 18.2% of people have a bachelor's degree or higher.

Also, historically disadvantaged populations take up a large percentage of the population in the county, especially Hispanic and Latinx groups. Since many of them are non-US citizens and Undocumented, they cannot file complaints about their poor working conditions and low wage, not to mention longer working hours. Furthermore, many people are more likely to have linguistic barriers.

Both low educational attainment and linguistic isolation prevent people in San Joaquin Community to access the information they need to address the environmental health hazards, causing them to think that environmental health hazards can't be reduced.

Compound vulnerabilities including poverty, low educational attainment, and race are closely related to each other. All these factors contribute to health disparities and disproportionate environmental injustices among San Joaquin County, excluding the community members from clean air, clean soil, and clean water.

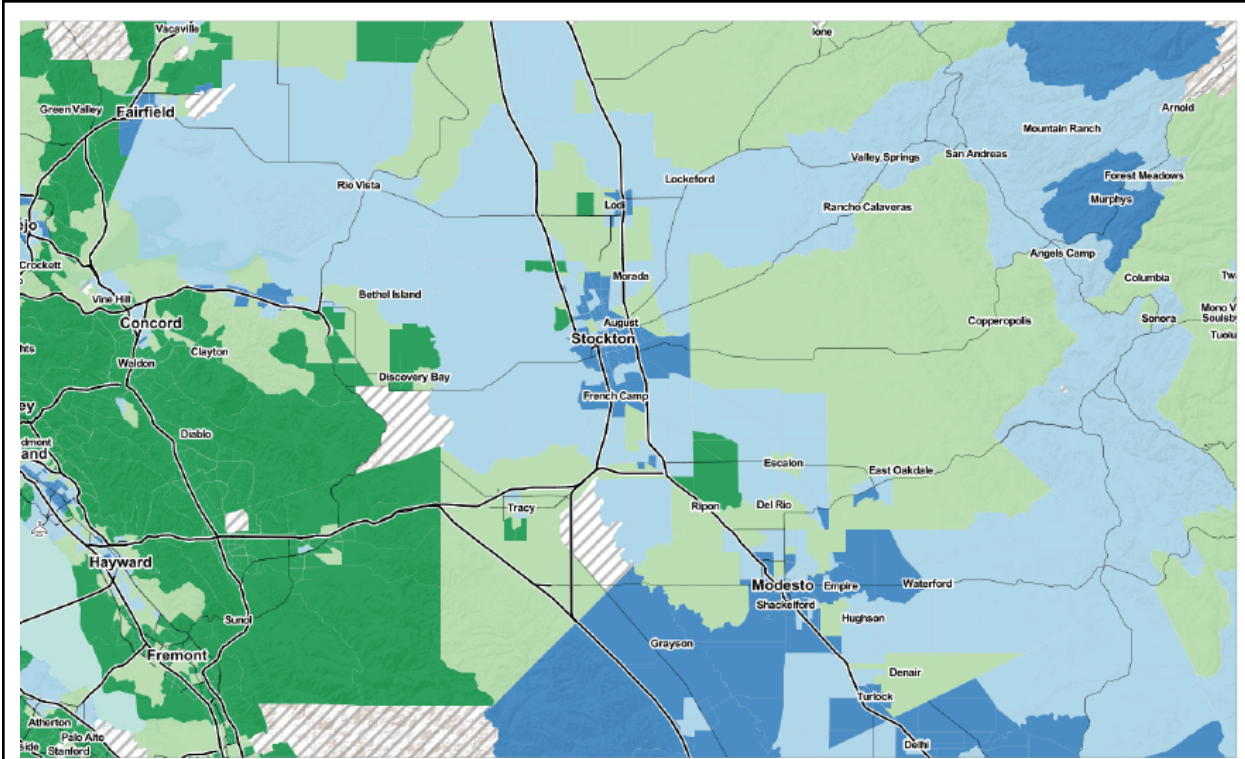


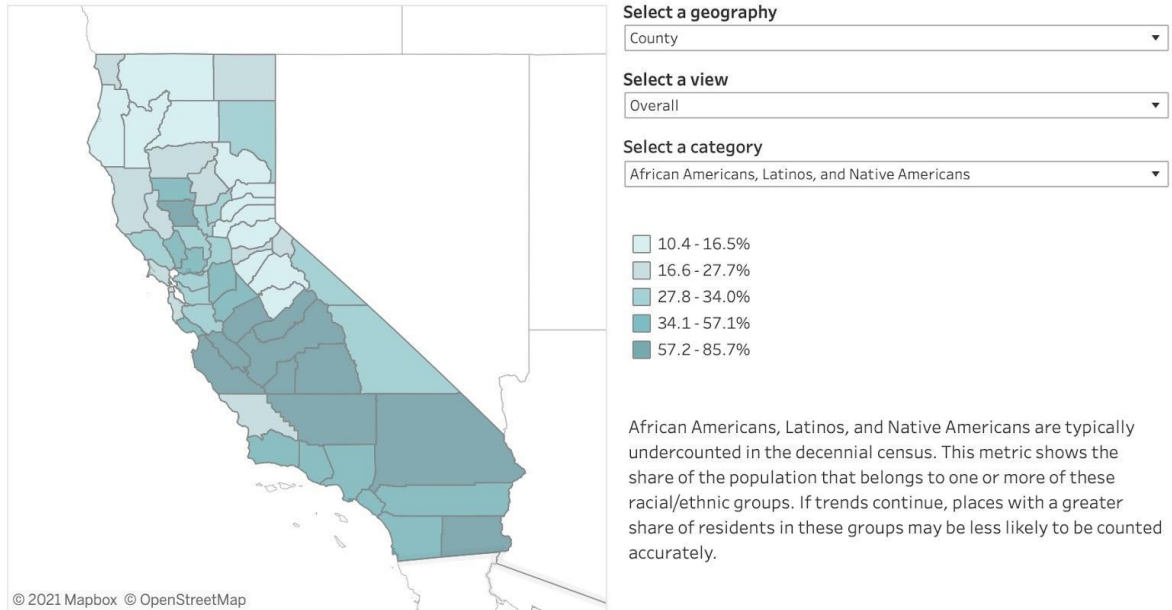
Figure 13. The figure represents the California Healthy Places Index. When looking at poverty levels a great majority of San Joaquin County is in the bottom 50 percentile for people employed, and in poverty as well. When looking at the Clean air - Ozone Indicator and the P.M. 2.5 levels they again rank in the bottom 50 percentile range for a large majority of the county.

Race and Hispanic Origin		
White alone, percent		66.1%
Black or African American alone, percent (a)		8.3%
American Indian and Alaska Native alone, percent (a)		2.0%
Asian alone, percent (a)		17.4%
Native Hawaiian and Other Pacific Islander alone, percent (a)		0.8%
Two or More Races, percent		5.5%
Hispanic or Latino, percent (b)		42.0%
White alone, not Hispanic or Latino, percent		30.5%

Figure 14a. According to the U.S. Census Bureau’s population estimates in 2019, San Joaquin County’s largest population group is white alone. The second largest population group is Hispanic or Latino, and the third largest population group is white alone, not Hispanic or Latino. Screenshot taken by Ju Yeon Kim.

2020 Census Maps: California's Hard-to-Count Communities

African Americans, Latinos, and Native Americans



Sources: 2012-16 American Community Survey, 2018 Census Bureau Planning Database, Federal Communications Commission.

Note: Tract-level estimates with high margins of error are marked with asterisks (*). See additional notes in the technical appendix: <http://www.pplic.org/wp-content/uploads/technical-appendix-2020-census-maps-californias-hard-to-count-communities.pdf>

From: <http://www.pplic.org/map/2020-census-maps-californias-hard-to-count-communities>

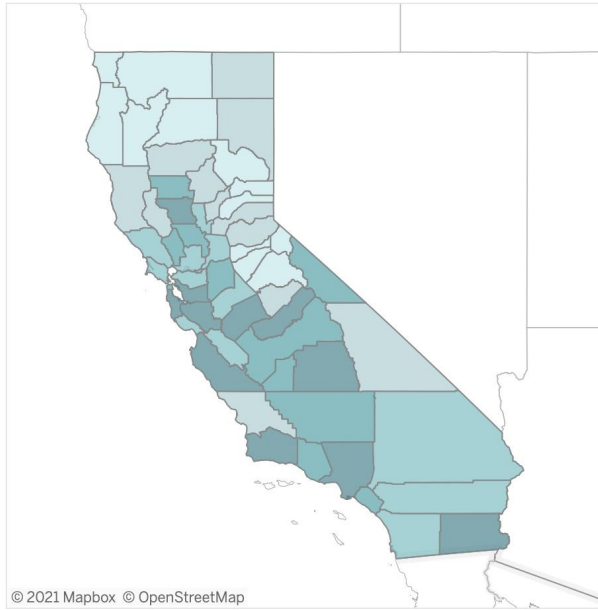
+ a b | e a u

🔗 📄 🖨

Figure 14b. The data visualization shows the percentage of African Americans, Latinos, and Native Americans in California counties. In 2020, the percentage of African Americans, Latinos, and Native Americans in San Joaquin county is 47.7%. Screenshot taken by Ju Yeon Kim.

2020 Census Maps: California's Hard-to-Count Communities

Noncitizens



Select a geography

County

Select a view

Overall

Select a category

Noncitizens

- 1.4 - 3.7%
- 3.8 - 8.5%
- 8.6 - 11.9%
- 12.0 - 14.8%
- 14.9 - 21.7%

In a departure from recent practice, the Census Bureau plans to include a citizenship question in 2020. This metric shows the share of the population that is not a citizen. Amid concerns about information privacy and deportation, noncitizens may be less likely to respond to the census, and places with a greater share of noncitizens may be less likely to be counted accurately.

Sources: 2012-16 American Community Survey, 2018 Census Bureau Planning Database, Federal Communications Commission.

Note: Tract-level estimates with high margins of error are marked with asterisks (*). See additional notes in the technical appendix: <http://www.ppic.org/wp-content/uploads/technical-appendix-2020-census-maps-californias-hard-to-count-communities.pdf>

From: <http://www.ppic.org/map/2020-census-maps-californias-hard-to-count-communities>

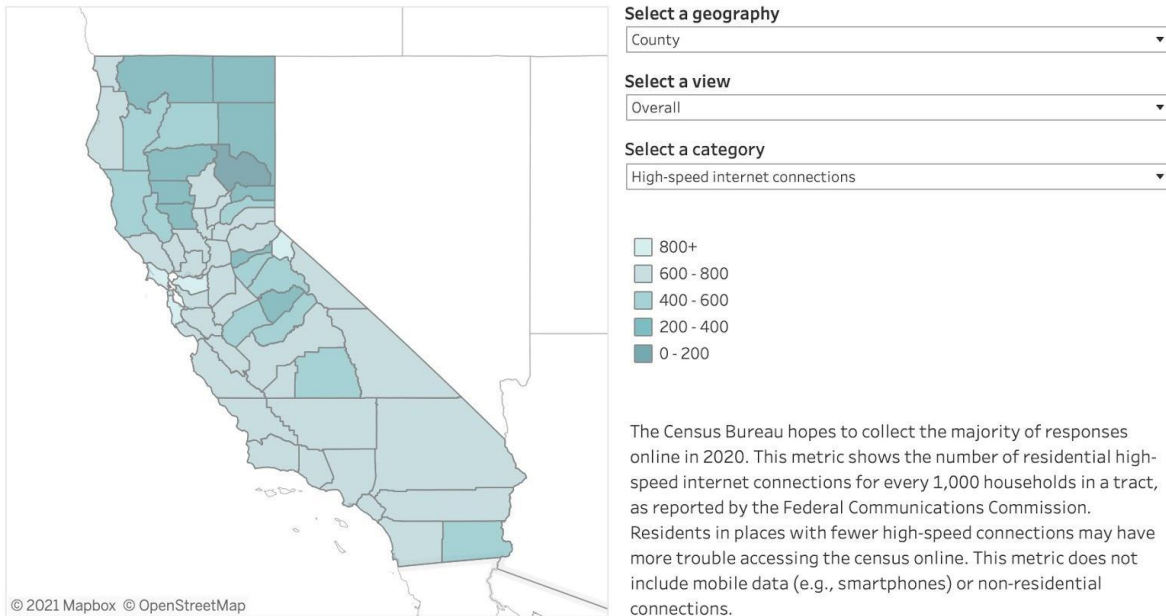
tableau

Share Download Print

Figure 15. The data visualization shows the percentage of non-citizens in California counties. In San Joaquin county, the percentage is 12.5%. Screenshot taken by Ju Yeon Kim.

2020 Census Maps: California's Hard-to-Count Communities

High-speed internet connections



Sources: 2012-16 American Community Survey, 2018 Census Bureau Planning Database, Federal Communications Commission.

Note: Tract-level estimates with high margins of error are marked with asterisks (*). See additional notes in the technical appendix: <http://www.ppic.org/wp-content/uploads/technical-appendix-2020-census-maps-californias-hard-to-count-communities.pdf>

From: <http://www.ppic.org/map/2020-census-maps-californias-hard-to-count-communities>

+ a b l e a u



Figure 16. The data visualization shows the percentage of people without high speed Internet connections in California counties. In San Joaquin county, the average number of high-speed internet connections per 1,000 households, across tracts, is 600-800. Screenshot taken by Ju Yeon Kim.

4. STAKEHOLDER ANALYSIS

Stakeholder's Motivating and Undermining Factors

Raymond Tu

There are various stakeholders, such as Agricultural Companies or poor farm workers, in San Joaquin County, of which many have contrasting views regarding fast disasters and environmental impact.

Poor farm workers want better working conditions, so that they do not get sick, and want higher wages, since the average median income is significantly below California's median. They are influenced by their knowledge about working conditions and poor wages, and are impeded by their lack of money, political power, and their lack of organization (Carroll Rory, May 13, 2016).

Large Agricultural Corps want to keep the current status quo, low wages for workers and generate a lot of revenue without having to care about environmental impact. They are motivated by their immense revenue, economic importance, substantial political power, and the lack of significant environmental protection restrictions. They are undermined by stronger Environmental Protection Laws, global warming and droughts, and new findings about the health risk of chemicals.

Crop Consumers want good quality and cheap agricultural products, and also limited negative effects on their health due to chemical use. They are motivated by their awareness about the harmful effects of chemicals and the cheap prices of crops. They suffer from the lack of proper organization, lack of money and political power, and the lack of concrete data proving the negative effects of chemicals.

Environmental Activist Groups, such as the Environmental Justice Project (Stockton) want less pollution and less negative impacts on the health of workers, local residents, and consumers. They are motivated by their organization, care towards residents, substantial research about the harmful effects of chemicals, honorable reputation, and somewhat significant political influence. They are undermined by their relative lack of money compared to large Agriculture and Manufacturing companies, collective action problems such as free riding, and lack of concrete data proving the negative effects of chemicals.

Manufacturing and Chemical Companies, such as the AltaGas Natural Gas Facility in Ripon, want to keep the current status quo, low wages for workers and generate a lot of revenue without having to care about environmental impact. They are motivated by the money they generate, their economic importance, their substantial political power, the lack of concrete data proving the negative effects of chemicals, and the lack of significant environmental protection restrictions. They are undermined by Environmental Protection Laws and Restrictions, new findings about the health risk of chemicals, and laws requiring Chemical and Manufacturing Companies to find and address health risk of their chemicals/processes. (Cheuse, Emma, and James Pew, January 30, 2020).

Residents living in vulnerability zones of Factories/Chemical use/storage Facilities want to live in a safe and clean environment free from health risk resulting from exposure to pollutants and chemicals. They are motivated by community knowledge about the negative effects of chemicals and by various environmental activist groups. They are undermined by their lack of money and political power, their lack of proper organization,

and the lack of concrete data proving the negative effects of chemicals (Cheuse, Emma, and James Pew, January 30, 2020).

Small Farmers who own and farm their own land want high demand for their crops and high crop productivity. They are motivated by knowledge about farming and what chemicals (pesticides) are used, knowledge about market demand, knowledge about working conditions, and the well-being of the economy. They are undermined by their lack of money, lack of organization, and Environmental Protection Laws and Restrictions.

5. STAKEHOLDER ACTIONS

For Profit or for the People

Stakeholders in San Joaquin County are divided by for-profit businesses or companies and the community that is forced to persevere through the living conditions cast upon them. These stakeholders can be farm workers, residents, families, small businesses to big companies causing most of the pollution.

In agricultural communities, farm workers are the most essential stakeholders. They are also one of the most vulnerable communities. When one migrant worker was asked about possible solutions to the conditions they are working in, they responded by asking about equipment that could help rather than a way to reduce pollution itself (Carroll Rory, 2016).

The truth is, the effects of pollution have always been downplayed by big companies and leaders that are in control. This is due to many industrial companies such as Pacific Ethanol in Stockton or AltaGas in Ripon that cut corners leading to low costs and maximum profit while allowing pollutants to proliferate across San Joaquin County. What allows this to happen are companies like the San Joaquin valley air pollution control district that enforce policies that have little benefit to preventing pollution. For example, the Clean Air Act modernisation bill is one of the ways standards and protections against pollution are being reduced. This bill is being backed by the San Joaquin valley air pollution control district (Carroll Rory, 2016).

In 1999, one big stakeholder was Mayor Podesto of Stockton. As one person holding much influential and political power over this city, one action that heavily impacted environmental injustices was the attempt to privatize access to water through OMI-Thames, Inc (also known as the worst polluter in England and Wales at the time) instead of leaving this power to the municipal utility, or the city, to regulate water usage. Mayor Podesto argued it would benefit the city by reducing costs and allowing another company to follow environmental and health regulations. In fact, at the time, it was shown that privatization led to the opposite as well as more accidents and poor services (Grafton, Bernadette, and Paul Mohai, 2015).

Some of the most important stakeholders in Stockton, the community and citizens it serves, responded negatively to this. At this point, the community had to take action. In 2002, Concerned Citizens Coalition of Stockton (CCCoS) and Public Citizen sought to allow the community to allow the privatization of water in a special election that was declared “moot” or already resolved due to the fact that the city council had already passed the contract 13 days before. CCCoS also collected 18,000 signatures in an attempt to do away with this contract but was not enough. “Citizen watchdog groups reported cutbacks in preventative maintenance, noxious odors drifting from the sewage treatment plant, increased leakage from underground pipes, sewage spills and fish kills. OMI-Thames also refused to provide information about operations, profits and staffing” (Grafton, Bernadette, and Paul Mohai, 2015).

After three years of privatization, Mayor Podesto would listen to the public and return ownership of the water supply to the Stockton Municipal Utility Department as they would help benefit the community and keep costs low. After this incident, essentials such as access to food or water is a fundamental human right and should not be privatized and shows that the voices of the community needs to be heard and taken seriously.

The biggest drive for environmental justice is through the community it serves. While stakeholders in positions of power or wealth downplay the effects of pollution and consequences of their actions and inactions, profit over people is what will make everything worse in the long run. The community cares about the environment they live in and strives to make a positive change on current standards and all it takes is to be heard and taken seriously.

6. ROLE OF MEDIA AND BIG ENVIRONMENTAL ORGANIZATIONS

The More the Merrier

May Weng

There is some coverage and action taken by environmental organizations on the issues in San Joaquin County, however, there is still a lack of coverage in big media. There have been reports on the nitrate contamination in the water, reports on the San Joaquin River, and the air pollution experienced in this area. Residents of San Joaquin have also been outspoken about these issues, such as Jose Gurrola who discusses his experience with asthma from air pollution: “‘In this city,’ Gurrola explains, ‘if you ask people to raise their hand if they have struggled with asthma, almost every hand goes up’” (Statler 2018). Action has also been taken and reported by the Sierra Club; California has invested \$50 million in clean energy electrification and the Sierra Club has a regional unit called the Delta-Sierra Group allocated for raising awareness of environmental issues in San Joaquin County (“Delta-Sierra Group”). As for big media, there is still a lack of coverage on environmental issues specifically in San Joaquin County. However, the Los Angeles Times has written a few articles addressing the sinking of San Joaquin Valley as a consequence of groundwater pumping. Furthermore, there are no other mentions of environmental

problems apart from the Tracy tire fire on the Wikipedia page for San Joaquin County. “Allowing the fire to burn was considered to be a better way to avoid groundwater contamination than putting it out. The cleanup cost \$16.2 million and wound up contaminating local groundwater anyway” (“San Joaquin County, California”).

7. RECOMMENDED LOCAL ACTIONS

Community-Based Participatory Education

Joseph William Garcia

Given the extremities of environmental and agricultural pollution throughout San Joaquin County, a multitude of issues exist in community wellbeing, fears of being exposed to hazardous materials, and overall RMP facility safety (*San Joaquin County 2016 Health Needs Assessment*). As with the many residents of the county, the utmost importance lies in knowing updated information regarding material properties and RMP safety protocols. The status of San Joaquin Valley is well-known for its agricultural chemical production economy. But it should also be well-known for its residential concerns and overall safety.

With the discrepancies between local organizations and federal policies, the fight towards environmental justice is difficult. Members of the San Joaquin County report education levels of almost 100% completing high school while less than 50% attaining a Bachelor's Degree (towncharts.com). With a focus on community-based educational and information programs, residents will have the knowledge to utilize these resources for the environmental wellbeing of themselves. The emphasis towards providing accessible and understandable information is needed immensely.

These educational resources and abilities cannot utilize a universal model to any population or social group. For residents living near high-risk industrial facilities,

community organizers can utilize recreational areas or churches to teach residents how to properly buy out their homes. Additionally, with community members thinking these environmental hazards can't be reduced, the emphasis will be on providing attainable reports and case studies to empower residents. Knowledge, power, and environmental justice coexist but must be ready and equitably available for all folks at any time. With a focus on community engagement to provide forms of accessible environmental and policy-related information, this can greatly impact an individual's ability to effectively mobilize against these environmental injustices.

Given the social and political environment of community members within San Joaquin County, many members think that these environmental hazards can't be reduced. The county can utilize online news-information sessions like *Stockton Record* or *Stockton News of ABC* to push updated environmental information to the community. To effectively challenge and shape community perceptions, types of environmental information must be presented locally, credibly, and impactfully.

Actions from authorities are needed to improve local citizens' health and safety. For residents who live very near high risk industrial facilities, anyone who's currently homeless, community resources and plans should teach folks how to manage their houses and be environmentally aware. The county can also create community centered weekly events on how to properly and effectively buy out homes for relocation. Questions about the event and relocation can be about the appropriate location and possible resources to help them get a home.

Being an agricultural-first production county, community members worry about air pollution as a result. Here, community organizations can promote ways of reducing emissions from vehicles through different alternatives of walking or biking. Additionally, community-organizations can take a stand towards teaching its community members the importance of regulating fertilizers and pesticides to environmentally improve their

conditions.

To understand more about local power plant facilities, their procedures, chemicals used, and potential risk, sites like EPA Ejscreen should be widely known to the public so they can check facilities and air qualities around them. Moreover, companies and communities can provide people, especially those who are within the fence line zone, safety knowledge on how to properly be safe while preventing risk of immediate/long-term injuries. They should address it in simple terms but still be able to convey important information.

Knowing the possibility of RMP facilities causing potential fires, community organizations can partner with organizations at the local level to mobilize and collaborate. Collaborating with the *Certified Unified Program Agencies (CUPA)* can teach folks how to determine the level of detail in RMP facilities, review RMPs, and provide public access to community members ([CUPA](#)).

Improving water quality is the most important mission for the people in San Joaquin County. Although this will be a long-term process, companies can establish water treatment systems in their facilities. Questions to consider are the radius of the filter to completely block particles and toxic chemicals into the water, as well as how to distribute the filtered water to small communities that are affected by the contamination the most. Additionally, authorities should ban or restrict harmful pesticides and regulate the use of fertilizers. Also, farmers can consider using animals as an alternative for pesticides. They are environmentally friendly and more profitable. To maintain water sanitation, animals and their habitats should not be near water sources.

8. RECOMMENDED EXTRA-LOCAL ACTIONS

There's More To Do

May Weng, Tetsuya Vlaming

There are several environmental problems that need to be addressed on a larger scale, this includes hazards of local oil and gas production and processing facilities, schools and residents being near high risk industrial facilities, serious air pollution, RMP facilities that might cause fire, and water contamination. The Paris Climate Accord's goal is used to address gas production by reducing greenhouse gas emissions internationally; California Resources Corporation (CRC) is aligning its sustainability goals for 2030 with the Paris Climate Accord ("Elk Hills Field"). The CRC plans to increase water recycling, integrate renewable power, and reduce carbon and methane emissions. To address the close proximity of schools and residents to high risk industrial facilities, proposals have been frequently made to demand a new state bill which extends the minimum setback distance between oil and gas wells to sensitive sites (Ferrar 2019). However, these bills need to be passed and must be regulated in order for this issue to be properly addressed.

The Clean Air Act, which is a federal law created to regulate air emissions from stationary and mobile sources, has been used to tackle the issue of air pollution. "Among other things, this law authorizes EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and public welfare and to regulate emissions of hazardous air pollutants" ("Summary of the Clean Air Act"). Nonetheless, there still needs to be

compliance from the district for this act to be effective. Furthermore, the California Accidental Release Prevention (CalARP) Program has been used to address RMP facilities that might cause fire. It serves the purpose of “preventing accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws” (“California Accidental Release Prevention”).

Lastly, water contamination is currently being addressed by the State Water Resources Control Board, who unanimously voted to adopt a “drinking water standard for regulating TCP. the [new] maximum contaminant level... [was updated] to 5 parts per trillion (Lohan 2017). While this is a step in the right direction, further actions could be taken. Water agencies could start testing for TCP in water while facilities are also forced to install water treatment systems.

9. RECOMMENDATIONS FOR FUTURE RESEARCH

Digging Deeper

Tetsuya Vlaming

Information and data are essential to bringing about change; to further support San Joaquin residents we need more research. There is a large need for more information about fast disasters in San Joaquin. We recognize factors such as fire, nuclear, transportation disaster, earthquake and disasters that could occur at neighboring chemical companies which would directly and negatively affect the residents of San Joaquin, but we do not have data that demonstrate any red flags. There was also no public information that we could find about fatalities related to respiratory issues. While we are aware of the heightened number of those with asthma and lung-related diseases in this county it is not mentioned anywhere how this affects those living there (Healthier San Joaquin).

There was also a lack of reports about water and air treatment implementation: very few methods, hypothetical effects, nor results demonstrating before and after treatment were highlighted while researching. This is deeply concerning as the United States has been aware of the horrid air conditions in San Joaquin for quite some time. Water and air pollution are both difficult to analyze and require more research. While we now know

where the main sources of this contamination are coming from, what actions could be taken must be researched.

The most urgently needed research when concerning pollution in San Joaquin County would be to find the most effective ways to reduce P.M. 2.5 particles and water contamination. These P.M. 2.5 particles put residents with respiratory issues at a high risk of worsening their conditions to even premature death. It would also be beneficial to study the adverse health effects of the various chemicals and pollutants along with ways to mitigate and possibly cure their effects.

Our recommendation for a qualitative study: *Dusty and Contaminated: Environmental Pollution in San Joaquin* would inquire, how residents of San Joaquin County make sense of the environmental hazards they are faced with and contribute to on a daily basis? This research would interact with low-income farmers, low-income agricultural/ industrial workers, industrial workers' families, and nurses or hospital staff that understand the health problems experienced by residents in the county. If conducted as an observational study of participants, researchers would follow the social groups we mentioned above and perform a routine fieldwork observation, focusing on how these residents take precautions for their families. We would inquire what their worries/ fears of their work include. For nurses and healthcare workers, we would focus on the clinical level, evaluating what nurses care about the most and why they are more concerned with certain cases.

This kind of research would be useful to lawmakers and activist groups who would be able to then accurately assess the risk that chemicals have and enable them to have an easier time proposing restrictions. This would also help to have evidence that proves that environmental changes are occurring to combat people such as, "Republican congressman Devin Nunes, a longtime global warming denier and foe of environmental regulation" (Borrell December 3, 2018). Residents in vulnerable areas of various companies would

find research about the harmful effects useful in determining whether to stay or take action against such plants. The research would also assist environmental organizations and researchers wanting to tackle issues of air quality and pollution while focusing on the socio/ political needs of people.

10. INJUSTICE ANALYSIS

Injustices Affecting San Joaquin County

Raymond Tu

Residents in San Joaquin County, like residents in all counties, are subject to all of these intersecting injustices. Residents in vulnerability zones of manufacturing companies, chemical plant workers, and poor farmers suffer from data injustice. They lack proper research about the harmful effects of chemicals used by large manufacturing, chemical, or agricultural companies, leading to the Government doing very little about some pollutants, and contributing to environmental injustice. A way that this inequality is through laws that make Companies investigate their own chemicals and report about the harmful effects of them (Cheuse, Emma, and James Pew, January 30, 2020).

Residents in vulnerability zones of manufacturing companies, mainly low-income minority communities, chemical plant workers, and poor farmers also suffer from economic injustice. Farm Workers make minimum wage with poor work conditions, while the economy and large companies are generating Billions of dollars in revenue (San Joaquin Council of Governments, n.d.). Big cities emit a lot of pollution that drifts towards San Joaquin. These larger cities often face little repercussions, as they have a lot more money to protest these industries. This leads to the continuity of environmental injustice in lower income communities who cannot fight against large companies. A way that this inequality can be mitigated is through better environmental protection laws and enforcement, better work conditions laws, and better studies on the effects of contaminants in water.

For epistemic injustice, Community studies and some scientific studies are discounted by Law Makers and Chemicals Companies because they aren't "true experiments" that can

prove the negative harmful effects of chemicals on humans. This leads to the continuity of pollutants in the environment, and the subsequent continuity of environmental injustice. A way to mitigate this is through laws and legislations that make it easier for community research and scientific studies to be accepted as true as long as the procedure of conducting such research is valid.

For gender injustice, Gendered job aspects dictate how men and women are environmentally impacted. Following the stereotypical gendered-work division, men have potential control in dictating who works and who doesn't. Occupational hazards in the long-run majorly impact men and women. The emphasis is understanding who works more (outside and in the home) to understand these injustices. This could potentially lead to the lack of understanding of the threats of chemicals, and a further increase in economic injustice between men and women, contributing to residents having less power to fight polluting companies. A way to mitigate this is to have stricter laws that prevent gender discrimination in the workplace. Have LGBTQ+ and Women's Centers be readily available to discuss ways of being environmentally safe and challenging the gendered body-politic (Bell, Karen, October 12, 2016).

For health injustice, in the vulnerability zones of Oil Refineries in San Joaquin County, babies and low-income people of color suffer higher risk of cancer and other diseases. This leads to weaker resistance to environmental injustice since people have to spend money to address these diseases instead of fighting chemical companies. Methods of addressing this injustice are new monitoring and operating requirements to minimize pollution from the harmful burning of waste gas, called flaring and tighter control requirements on emissions from various parts of refineries like delayed coker units and storage tanks (Cheuse, Emma, and James Pew, January 30, 2020).

For infrastructure injustice, there is the repeated use of un-nutrient soil and synthetic fertilizers containing harmful chemicals to compensate and the lack of water treatment system in farmlands and facilities. Solutions for this injustice are using alternative methods for fertilizers or letting the soil rest to recover its nutrition. Additionally,

installing water treatment systems and performing periodical checks can help improve drinking water quality, giving the community health safety and reassurance (Meadows, Robin, July 7, 2017).

For intergenerational injustice, the percentage of children, age 1 - 17, reported to have asthma is 34.3% in San Joaquin County, which is more than double California's percentage of 14% (Healthier San Joaquin). This contributes to the continuity of environmental injustice as it now makes environmental injustice have an even more intergenerational impact. This can be addressed by better environmental protection laws that restrict emissions and by new monitoring and operating requirements to minimize pollution from the harmful burning of waste gas, called flaring.

For media injustice, there is some coverage of the environmental hazards in San Joaquin County from environmental organizations. These enviro-orgs convey the perspectives of residents who live in San Joaquin County/Valley, but there still is not enough attention to pollution. This contributes to environmental injustice as it does not help bring this injustice to light in media attention, and thus prevents it from being well known and addressed. This can be addressed by having more media coverage in big media, possibly through incentives, and having more real action instead of plans and ideas for solutions.

For procedural injustice, those with a higher socioeconomic status have the ability to live far away from plants as opposed to those with low socioeconomic statuses. Those living in these unfavorable conditions are permitted from having access to government support due to high costs and inability to find certain resources. This results in those having real political impact not having to face the consequences of environmental injustice, and thus not addressing it as it isn't an issue for them. This injustice can be addressed by having proper research towards understanding literacy rates and educational attainment; and community-based participatory action towards making a home near plants environmentally sound and safe.

For racial injustice, high levels of contaminants in water are mostly found in small

communities whose majority of the population are Latinx. This can be addressed through better environmental protection laws and stricter enforcement of these laws on a national and local level (Cheuse, Emma, and James Pew, January 30, 2020).

For reproductive injustice, given the unhealthy air quality dispersed throughout San Joaquin County, parents have the concern of their children developing upper respiratory problems and asthma, as the rates of children developing asthma in San Joaquin County is significantly higher compared to the average rates in California (Healthier San Joaquin). This injustice can be addressed through providing community-based information of local clinics to measure children's health and wellbeing, and educating kids and family members to identify their own health risks and provide ways of attaining equitable resources.

BIBLIOGRAPHY

- “About.” Environmental Justice Project, February 26, 2021. <https://ejstockton.org/about/>.
- Agriculture | San Joaquin Council of Governments. “Agriculture | San Joaquin Council of Governments,” n.d. <https://www.sjcog.org/245/Agriculture>.
- Bell, Karen, October 12, 2016. [https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5086744/#:~:text=The%20analysis%20confirms%20that%20women,their%20health%20\(substantive%20injustice\)](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5086744/#:~:text=The%20analysis%20confirms%20that%20women,their%20health%20(substantive%20injustice)).
- Borrell, Brendan. “In California’s Fertile Valley, Industry Hangs Heavy in the Air,” December 3, 2018. <https://undark.org/2018/12/03/air-pollution-california/>.
- Breitler, Alex. “A Toxic Peak beneath S.J. County.” Recordnet.com, August 24, 2008. https://www.recordnet.com/article/20080824/A_NEWS/808240322.
- . “Power Trade Has Its Critics.” Recordnet, August 28, 2010. https://www.recordnet.com/article/20100828/A_NEWS/8280317.
- “CA Agricultural Statistics Review 2017-2018.Pdf.” Accessed October 22, 2020. <https://www.cdfa.ca.gov/statistics/PDFs/2017-18AgReport.pdf#page=8>.
- “California Accidental Release Prevention.” Cal OES. Accessed July 2, 2021. <https://www.caloes.ca.gov/cal-oes-divisions/fire-rescue/hazardous-materials/california-accidental-release-prevention>.
- California Department of Parks and Recreation. “Central Valley District.” CA State Parks, 2020. https://www.parks.ca.gov/?page_id=21290.
- Carroll, Rory. “Life in San Joaquin Valley, the Place with the Worst Air Pollution in America.” the Guardian, May 13, 2016. <http://www.theguardian.com/us-news/2016/may/13/california-san-joaquin-valley-porterville-pollution-poverty>.
- CBS Sacramento. Accessed July 1, 2021. <https://sacramento.cbslocal.com/>.
- Cimini, Kate. “Gov. Gavin Newsom Signs First-in-the-Nation Farmworker Protections Package.” The Salinas Californian. Accessed October 23, 2020. <https://www.thecalifornian.com/story/news/2020/09/30/california-gov-gavin-newsom-passes-first-nation-farmworker-protections-package/3573792001/>.

"City Data: San Joaquin County, California", City Data, accessed July 1, 2021,
<http://www.city-data.com/city/San-Joaquin-California.html>.

"City_of_Tracy_Final_LHMP_Compiled_with_Appendices.Pdf." Accessed October 23, 2020.
https://www.ci.tracy.ca.us/documents/City_of_Tracy_Final_LHMP_Compiled_with_Appendices.pdf.

Community Water Center. "Community Water Center." Community Water Center, n.d.
<https://www.communitywatercenter.org>.

"Delta-Sierra Group." Sierra Club. Accessed July 2, 2021.
<https://www.sierraclub.org/mother-lode/delta-sierra>.

dtsc.ca.gov. Accessed July 2, 2021. <https://dtsc.ca.gov/certified-unified-program-agencies-cupa/>.

Earthjustice. "Defending Fenceline Communities From Oil Refinery Pollution," May 17, 2014.
https://earthjustice.org/our_work/cases/2014/defending-fenceline-communities-from-oil-refinery-pollution.

"Elk Hills Field." California Resources Corporation. Accessed July 2, 2021.
<https://crc.com/our-business/where-we-operate/san-joaquin-basin/elk-hills-field>.

Ferrar, Kyle. "Impact of a 2,500' Oil and Gas Well Setback in California." FracTracker Alliance, July 2, 2019.
<https://www.fractracker.org/2019/07/impact-of-a-2500-oil-and-gas-well-setback-in-california/>.

Moore, Eli, Eyal Matalon, Carolina Balazs, Jennifer Clary, and Laurel Firestone, et al. "The Human Costs of Nitrate-Contaminated Drinking Water in the San Joaquin Valley." Pacific Institute, May 19, 2020.
<https://pacinst.org/publication/human-costs-of-nitrate-contaminated-drinking-water-in-the-san-joaquin-valley/>.

"San Joaquin County, California." Wikipedia. Wikimedia Foundation. Accessed July 2, 2021.
https://en.wikipedia.org/wiki/San_Joaquin_County,_California.

San Joaquin Council of Governments. "Demographics," n.d.
<https://www.sjcog.org/236/Demographics>.

San Joaquin Council of Governments. "Education," n.d.
<https://www.sjcog.org/241/Education#:~:text=In%20fact%2C%20San%20Joaquin%20ranks,attended%20at%20least%20some%20college>.

EPA. Environmental Justice Screen. "Ejscreen_report.Pdf," n.d.

"English Language Proficiency of Spanish-Speaking Population," November 9, 2002.
http://fairplan.u31.infinology.net/ESL/ESL_charts/California/San%20Joaquin%20County

,%20California_SF3_Language.pdf.

Goldeen, Joe. “New Stockton Amazon Facility Will Create Hundreds of Jobs in SJ Region.”

Recordnet, July 22, 2020.

<https://www.recordnet.com/story/news/politics/county/2020/07/22/new-stockton-amazon-facility-will-create-hundreds-of-jobs-in-sj-region/112712584/>.

———. “San Joaquin Farmers, Farmworkers Share Concerns with Assembly Agriculture Chairman.” Stockton Record. Accessed October 23, 2020.

<https://www.recordnet.com/story/news/2020/10/15/assembly-agriculture-chair-visits-san-joaquin-county-listening-tour/3659609001/>.

Goodyear, Dana. “Death Dust | The New Yorker,” January 13, 2014.

<https://www.newyorker.com/magazine/2014/01/20/death-dust>.

Grafton, Bernadette, and Paul Mohai. “Water Privatization Conflict in Stockton, CA, USA: EJAtlas.” Environmental Justice Atlas, May 7, 2015.

<https://ejatlas.org/conflict/water-privatization-conflict-in-stockton-ca>.

Healthier San Joaquin. “Asthma/Air Quality.” Asthma/Air Quality, n.d.

<https://www.healthiersanjoaquin.org/pdfs/2016/asthma%20and%20air%20quality.pdf>.

Hill, Laura E., and Johnson Hans P. “Unauthorized Immigrants in California Estimates for Counties,” July 2011. https://www.ppic.org/content/pubs/report/R_711LHR.pdf.

“Healthier Places Index.” [Hpi_report6-29-2021.Pdf](#),” n.d.

Ibarra, Rich. “California Is Providing Funds to San Joaquin Valley To Target Air Pollution.”

Accessed October 22, 2020. <http://www.capradio.org/146051>.

Income | San Joaquin Council of Governments, CA. “Income,” n.d.

<https://www.sjcog.org/243/Income>.

Jagannath, Janaki. “Healthy Soil and Environmental Justice in California’s San Joaquin Valley.”

Bioneers (blog), August 15, 2018.

<https://bioneers.org/healthy-soil-and-environmental-justice-in-californias-san-joaquin-valley/>.

Jordan, Miriam. “Farmworkers, Mostly Undocumented, Become ‘Essential’ During Pandemic.”

The New York Times, April 10, 2020, sec. U.S.

<https://www.nytimes.com/2020/04/02/us/coronavirus-undocumented-immigrant-farmworkers-agriculture.html>.

Lohan, Tara. “California’s Plan to Tackle a Carcinogen Widespread in Water.” Water, August 10,

2017. [californias-plan-to-tackle-a-carcinogen-widespread-in-water](#).

Main, Douglas. "Gold Rush's Poisonous Legacy: Mercury Lingerin g for 10,000 Years." NBC, October 29, 2013.
<https://www.nbcnews.com/sciencemain/gold-rushs-poisonous-legacy-mercury-lingering-10-000-years-8C11491331>.

Mathers, Kathy. "Frequently-Asked Questions about Anhydrous Ammonia." FTI, April 26, 2019. <https://www.tfi.org/content/frequently-asked-questions-about-anhydrous-ammonia>.

Meadows, Robin. "How Water Contamination Is Putting California's San Joaquin Valley at Risk - Pacific Standard," July 7, 2017.
<https://psmag.com/environment/how-water-contamination-is-putting-this-california-town-at-risk>.

Morales, Carlos E. "Abbott Signs Bill That Tackles Ammonium Nitrate Storage." Accessed October 23, 2020.
<https://www.kwbu.org/post/abbott-signs-bill-tackles-ammonium-nitrate-storage>.

"Native-Land.ca | Our Home on Native Land." Accessed October 23, 2020.
<https://native-land.ca/>.

"Part 2_Overview_2016_11-18.Pdf." Accessed October 23, 2020.
http://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/Planning/General%20Plan%202035/Part%202_Overview_2016_11-18.pdf.

"Part 3.3a_Public Health and Safety_2016-11-21.Pdf." Accessed October 23, 2020.
http://www.sjgov.org/commdev/cgi-bin/cdyn.exe/file/Planning/General%20Plan%202035/Part%203.3a_Public%20Health%20and%20Safety_2016-11-21.pdf.

Pelican, Tim, and Kamal Bagri. "New Study Reveals San Joaquin County Agriculture Harvests \$5.732 Billion for Local Economy and More Than 33,000 Jobs," July 7, 2020, 2.

Petersen, Tracey. "Update: TCU CAL Fire Crews Assisting Battling Several Roadside Fires In Clements." Accessed October 22, 2020.
<https://www.mymotherlode.com/news/local/1317035/tcu-cal-fire-crews-assisting-battling-several-roadside-fires-in-clements.html>.

"PIO-Crime-Comparison-UCR-December-2019.Pdf." Accessed October 23, 2020.
<http://ww1.stocktonca.gov/-/media/Stockton-Website/Departments/Police-Homepage/News-and-Information/UCR-Reports/2019-Monthly/PIO-Crime-Comparison-UCR-December-2019.pdf?la=en&hash=934E5388023458FD040CE7FEC81A77EF5680E79A>.

"Registrar of Voters Department | San Joaquin County." Accessed October 22, 2020.
<https://www.sjgov.org/department/rov/>.

Rhodes, Scott D., Lilli Mann, Florence M. Simán, Eunyoung Song, Jorge Alonzo, Mario Downs, Emma Lawlor, et al. “The Impact of Local Immigration Enforcement Policies on the Health of Immigrant Hispanics/Latinos in the United States.” *American Journal of Public Health* 105, no. 2 (February 2015): 329–37. <https://doi.org/10/f67xvk>.

Public Health Advocates. “San Joaquin County 2016 Community Health Needs Assessment,” 2016. <https://phadvocates.org/wp-content/uploads/2019/11/San-Joaquin-County-Community-Health-Needs-Assessment-2016-SJC-CHNA.pdf>.

“San Joaquin County Community Health Needs Assessment Access to Medical Care.” San Joaquin County Community Health Assessment Collaborative, 2016. <https://www.healthiersanjoaquin.org/pdfs/2016/access%20to%20medical%20care.pdf>.

“San Joaquin County California Education Data.” Towncharts Education data. Accessed July 2, 2021. <https://www.towncharts.com/California/Education/San-Joaquin-County-CA-Education-data.html>.

San Joaquin County Parks and Recreation. “San Joaquin County Parks & Recreation > Home,” 2020. <http://www.sjparks.com/>.

“San Joaquin Valley APCD Home Page.” Accessed October 22, 2020. <https://www.valleyair.org/Home.htm>.

San Joaquin Valley Library System. “Home | San Joaquin Valley Library System,” 2019. <https://www.sjvls.org/>.

San Joaquin Valley Office of Education. “SJCOE STEM Programs.” SJCOE STEM Programs, 2020. <https://www.sjcoescience.org/>.

Schechinger, Anne Weir. “In California, Latinos More Likely To Be Drinking Nitrate-Polluted Water.” The Environmental Working Group, October 7, 2020. <https://www.ewg.org/interactive-maps/2020-california-latinos-more-likely-drinking-nitrate-polluted-water/>.

SJCOG. “Air Quality,” n.d. <https://www.sjcog.org/253/Air-Quality>.

“Summary of the Clean Air Act.” EPA. United States Environmental Protection Agency. Accessed July 2, 2021. <https://www.epa.gov/laws-regulations/summary-clean-air-act>.

Statler, Ada. “Pollution Makes the Personal Political.” Sierra Club, August 8, 2018. <https://www.sierraclub.org/sierra/can-small-city-take-oil-industry-grassroots-asthma-arvin-california-jose-gurrola>.

“Taichi Yokut Tribe: Education Past,” n.d. <http://www.tachi-yokut-nsn.gov/education-past>.

New York State. “The Facts About Ammonia,” May 2005.

https://www.health.ny.gov/environmental/emergency/chemical_terrorism/ammonia_tech.htm.

The Sun. “Local.” *The San Joaquin Valley Sun* (blog), 2020. <https://sjvsun.com/category/news/>.

Theodore, Nik. “Insecure Communities: Latino Perceptions of Police Involvement in Immigration Enforcement,” n.d., 28.

“Tracy Tire Fire Site.” LFR: Environmental Management and Consulting Engineering, November 10, 2006. 2020-10-22.

https://www.envirostor.dtsc.ca.gov/public/deliverable_documents/4871686637/combined-rpt-RA_summ-Nov06-revfinal-09025.pdf.

US EPA, REG 09. “EPA Activities for Cleaner Air.” Overviews and Factsheets. US EPA, March 7, 2013. <https://www.epa.gov/sanjoaquinvalley/epa-activities-cleaner-air>.

FIGURES

COVER IMAGE

FIGURE 1: ENVIRONMENTAL INJUSTICE CASE STUDY FRAMEWORK

FIGURE 2: MAP OF CALIFORNIA'S COUNTIES

FIGURE 3: MAP SHOWING NATIVE LANDS OF THE COUNTY

FIGURE 4: SETTING PHOTOGRAPH

FIGURE 4a: LIST OF MOST PRINCIPLE CONTAMINANTS IN GROUNDWATER

FIGURE 4b: CHARTS OF COMMUNITY'S OPINION ON DRINKING WATER

FIGURE 5: MAP SHOWING POLITICAL PARTY REGISTRATION IN CALIFORNIA

FIGURE 6: SELECT RMP FACILITIES IN THE COUNTY

FIGURE 7: EIJ DANGER ZONES MAP

FIGURE 8: US EPA EJSCREEN CHART SHOWING ENVIRONMENTAL INDICATORS

FIGURE 9: US EPA EJSCREEN MAPS SHOWING LOCATIONS OF RMP FACILITIES

FIGURE 10: RMP FACILITY PHOTO

FIGURE 11: RMP FACILITY PHOTO

FIGURE 12: EARTHQUAKE RISKS

FIGURE 13: CALIFORNIA HEALTHY PLACES INDEX

FIGURE 14a: COUNTY-SCALE DEMOGRAPHIC INFORMATION

FIGURE 14b: COUNTY-SCALE PERCENTAGE OF AFRICAN AMERICANS, LATINOS,
AND NATIVE AMERICANS

FIGURE 15: NON CITIZENS IN CALIFORNIA COUNTIES

FIGURE 16: HIGH SPEED INTERNET CONNECTIONS IN CALIFORNIA COUNTIES