Ventura County

COMBO DISASTER
CASE STUDY

ENVIRONMENTAL
INJUSTICE

Fall 2021

GROUP NO. 13

AUTHORS

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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, Kaitlyn Rabach, Prerna Srigyan, Margaret Tebbe, and Maggie Woodruff for the Department of Anthropology, Fall 2021. The University of California Irvine is on the ancestral homelands of the Tongya and Acjachemen nations.

COVER PHOTO

Photo of Ventura County, a coastal county. It is at the risk of many geological changes due to climate change, especially the rise in sea level by approximately 1.5 meters. This sea level rise directly causes flooding, impacting homes and infrastructure near the beaches as well as the beaches themselves, preventing visitors from coming to the area. (Screenshot by Neha Muvvala https://coastalresilience.org/project/ventura-county/)

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Name	**Publish? (Y or N)**
Ally Avidan	**Y**
Carmen Broadnax	**Y**
Aiden Browne	**Y**
Maximillian Einstein	**Y**
Vin Kanno	**Y**
Ilya Kulikov	**Y**
Matthew Le	**Y**
Julianne Lim	**Y**
Anissa Marosy	**Y**
Neha Muvvala	**Y**

BIOGRAPHICAL STATEMENT	PHOTO
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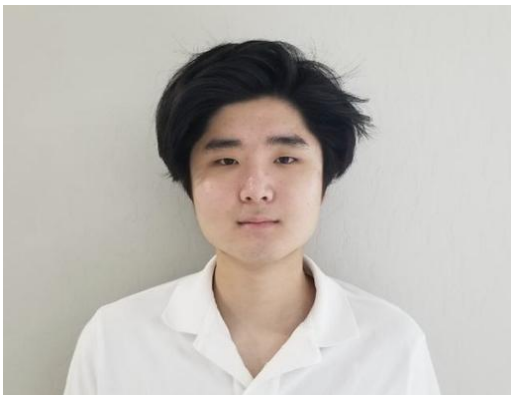
Carmen Broadnax is a first year Environmental Science and Policy major at the University of california Irvine. She hopes to become an environmental lawyer.	

Aiden Browne is a first year Political Science major at the University of California Irvine. His goal is to get a degree in political science and pursue a career in government. He is interested in running for public office one day with an emphasis on environmental justice.	
Max Einstein: Is a second year applied physics major at the University of California Irvine. His home town is Torrance, CA and is interested in environmental activism.	
Vin Kanno is a first year biological sciences major at the University of California, Irvine. He is looking to develop a heightened understanding of the environmental injustices that local communities in California are facing.	

Ilya Kulikov is a first year computer science and engineering major with interests in robotics and remote control systems at the University of California, Irvine. He hopes to use the information that is being taught throughout the course to be better informed on where to look for information and how to better react to environmental changes.	
Matthew Le is a first year environmental science and policy major at the University of California, Irvine. He is a native of Sacramento California and is interested in better ways to manage water/clean up waterways.	

Julianne Lim is a first year business administration student at the University of California, Irvine. She hopes to use the knowledge gained in this class in order to advocate for others.	
Anissa Marosy is a first year biological sciences major at the University of California, Irvine. Her goals are to go to UCI Medical School to become a surgeon.	
Neha Muvvala is a first year biomedical engineering: premedical student at the University of California, Irvine. She grew up in Irvine, California. She loves traveling all over the US to different national parks, and hopes to use this class to gain a better understanding of environmental issues in her community. She hopes to be a pediatrician in the near future.	

TABLE OF CONTENTS

INTRODUCTION

This case study report focuses on climate change and the array of environmental hazards it creates and intersects with in Ventura County.

Climate change causes both fast and slow disasters: Climate change is linked to increasing incidence of extreme weather (hurricanes, catastrophic flooding, and dams breaking, for example) and also to slow, less dramatic but still very threatening changes -- in water availability, agricultural productivity, disease incidence, and so on. This is why we refer to climate change as a "combo disaster."

The case study highlights ways climate change is hitting poor and politically marginalized communities hardest. It also describes how climate change produces many intersecting injustices, which together produce environmental injustice. Intergenerational injustice is a particularly important result of climate change. Intergenerational injustice occurs when decisions and actions by people in one generation (people today, for example) lower the life chances and well-being of people in the future.

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.

Throughout the case study, key concepts, such as climate change mitigation, community resilience, climate change denial, and climate change adaptation helped to focus our

research. Climate Change Mitigation is the effort to prevent or reduce greenhouse gas emissions through new technologies, renewable energy, increasing energy efficiency, and changing practices and consumer behavior. Community Resilience is the sustained ability of a community to use available resources to respond to, withstand, and recover from adverse situations. This allows for the adaptation and growth of a community after disaster strikes. Communities that are resilient are able to minimize any disaster, making the return to normal life as effortless as possible. By implementing a community resilience plan, a community can come together and overcome any disaster, while rebuilding physically and economically. Climate Change Denial is when people do not believe data by scientists that shows how overall temperatures increase or downplay the effects. They misrepresent data for their own benefit and gain support from non-experts. They make it difficult for Republicans to outwardly support actions against climate change. Climate Change Adaptation is the process of adjusting to current or expected climate change and its effects. It is one of the ways to respond to climate change, along with mitigation. For humans, adaptation aims to moderate or avoid harm, and exploit opportunities; for natural systems, humans may intervene to help adjustment.

When researching prior case studies on combo disasters in Ventura County, we found that Ventura County has a scenic environment, but its residents are vulnerable to combo disasters such as flooding or fires. Despite the risks, residents, especially teenagers, have taken action, with “a movement to demand global warming action to all the leaders” (Anonymous 2019), according to a Combo Disaster case study in Fall 2019. In order to take action against climate change, there needs to be better communication to the general public and the media. By bringing awareness to the issues prevalent in Ventura County, residents and other stakeholders can prevent combo disasters from occurring.

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.

FIGURE 2: Ventura County is in Southern California, between Los Angeles, Santa Barbara, and Kern Counties. This area is experiencing extreme temperatures, droughts, and sea level rise due to climate change. (Screenshot by Neha Muvvala, November 8, 2021)
https://californiathroughmylens.com/california-counties/

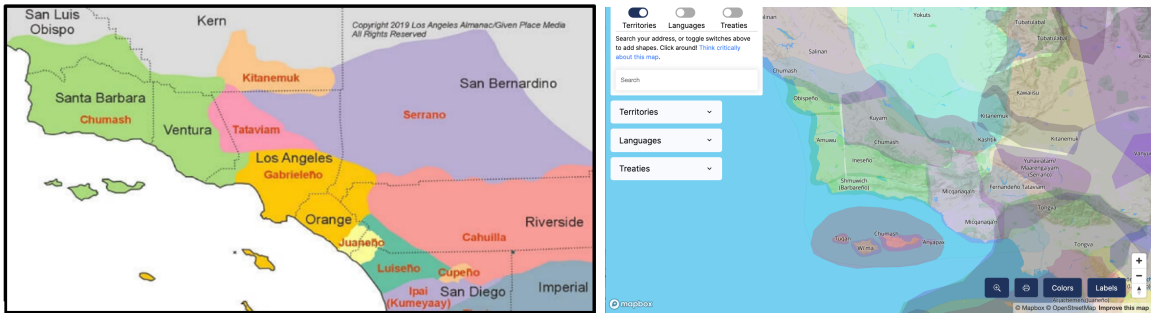


FIGURE 3: Ventura County is on the Chumash and Tataviam Homelands. Native Lands shows us that Ventura County sits on mainly the Chumash homelands. There is no mention of the knowledge and planning about climate change. (Screenshots by Neha Muvvala, November 8, 2021)
https://native-land.ca/,
https://indigenousmexico.org/southwest-us/california/the-native-roots-of-southern-californians

1. COMMUNITY ASSETS & SETTING

The Community and Climate Change

Ally Avidan

Ventura County, a coastal county, along California's southern coast stretches along 1,842 square miles. Ventura county is governed by five people on the board of supervisors using Dillion's rule. With 461 people in each square mile, there are over eight hundred and forty thousand residents (County Explorer 2020) . These residents are 44.7% white, 43.2% Hispanic, 7.9% Asian, 2.4% black among residents of other races. Almost 22% of the residents are foreign born (Census Bureau 2021). When looking at the age statistics of the residents, 5.7% are under the age of five, 22.6% are under the age of eighteen, and 16.2% are over the age of sixty-five. Of the residents under the age of sixty-five, 10.4% do not have health insurance and 6.8% have a disability. Most of the county has an education with 85% being a high school graduate and 33.8% having at least a bachelor's degree (Census Bureau 2021). With the average resident having a median income of $88, 131, the residents are above California's average. The residents also have access to technology with 92.7% of households owning a computer and 88.2% of households having internet access; these are important assets that can help residents to learn more about the county and its problems (Census Bureau 2021).

Ventura County's economy is made up of six main industries that provide the majority of

jobs for the residents. The key industries are leisure and hospitality, construction, manufacturing, health services, technical services, and agriculture (Business Forward Ventura County n.d.). Agriculture is one of the largest industries in Ventura County with Ventura County being responsible for four percent of the state's agricultural sales. With 99% of sales being from crops, Ventura County has 2,135 farms covering 260,102 acres. These farms combine for a total market value of 1,633,293,000 with a net cash farm income of 418,909,000 (United States Department of Agriculture 2021). Farmworkers will spend hours working in their fields, covered in many layers of clothing, to protect themselves from the pesticides and the increasing heat (Public Health Institute 2021).

Ventura County is home to an abundance of biodiversity and natural resources. As a spot of plant diversity, there are 1,817 species of native California plants within the county with eleven of these plants only occurring in the county (Brown and Magney n.d.). Parts of Ventura County's northern half is within the Los Padres National Forest, which contributes largely to habitat diversity in the county. There are three major riverine systems in the county; they are the Ventura River, the Santa Clara River, and Calleguas Creek and all three are home to many endangered species (City of Ventura - Granicus n.d.). As seen in figure four, one of Ventura County's species, the American Badger, is being affected by climate change reducing its habitat. Ventura County has begun to create measures, such as wildlife corridor ordinances to help species like the badger (Forestwatch 2020). These measures will help to increase and maintain the biodiversity of Ventura County. Biodiversity is important in helping to provide pollinators for plants and crops and controlling population levels of high-producing wildlife (City of Ventura - Granicus n.d.).

Within Ventura County, climate change is leading to global warming. Global warming has led to Ventura County's vulnerable position, where it is currently at risk of being in a severe drought. Ventura County has a water supply of 16,345 feet with 15,631 feet currently in demand. The county's current water conservation efforts are a huge asset

allowing the county to stay out of a state of emergency and away from a water shortage (City of Ventura 2021). However, the drought has already begun to affect agriculture in the county, as seen in figure five (VC Star n.d.). If crops cannot grow, there would be serious ramifications on Ventura County's economy. On the other side, Ventura County is threatened by climate change causing further sea level rise. Ventura County has "approximately 16,000 people own homes and businesses that are vulnerable to flooding" (Coastal Resilience n.d.). Most of Ventura County believes in climate change, including 74% of adults, as seen in figure eight. Although 67% of adults are worried about global warming, only 45% believe that global warming will negatively affect them. 72% of adults do believe global warming will affect future generations though. However, only 41% of residents in the county discussed global warming occasionally and only 28% heard about global warming in the media at least once a week (Marlon et al. 2020).

Ventura County has several government and non-government programs and organizations helping to manage the country's response to climate change. The Ventura County Multi-hazard mitigation plan, a local government program that supports climate change mitigation, has partnered with nine incorporated cities and the school, water, and park districts to develop the 2015 Ventura County Multi-Hazard Mitigation Plan. With the plan created, the county has a mitigation strategy to reduce the risks caused by wildfires, flooding, tsunamis, agricultural hazards, earthquakes, and other climate change hazards (Community Rating System n.d.). A local government program that supports climate change adaptation is the VC Resilient Coastal Adaptation Plan, which utilizes scientific knowledge and technologies to understand the county's weaknesses and develop a response to sea-level rise, a part of climate change. With active planning for dealing with potential severe climate change, the potential impacts to businesses and county residents will be minimized (County of Ventura n.d.) The Institute for Local Government, as seen in figure seven, has created Sustainability Best Practices to help inform the residents of conservation methods (Institute for Local Government n.d.). Ventura County has also begun to open several cooling centers to help the residents deal

with high temperatures and heatwaves. Cooling centers are important to allow residents to stay healthy and productive when the heat could lead to health issues (Patel 2021). The Ventura County Climate Hub with 350.org is a non government climate change organization that is working to help build resilient communities within Ventura County that can help the climate through transitioning to clean energy and increasing the local food system (Ventura County Climate Hub n.d.). The Ventura County regional alliance is supporting the change to clean energy as well, by holding a Ventura County EV ride and drive, as seen in figure six (Local Government Commission 2021). There are also several educational programs that help teach children and teenagers about climate change. The city of Ventura has a green schools program, where schools can access free educational presentations, recycling bins, signage, and compost bins. The program is also accessible online for students and schools that can no longer meet in person (City of Ventura 2021). There is also the Environmental Voices Academy, which is a fourteen week program for high school students to teach them lessons on environmental advocacy. With their skills, they can become climate justice activists and help Ventura County (Climate First n.d.). Ventura County's current organizations and programs are working to increase climate change awareness within the county.

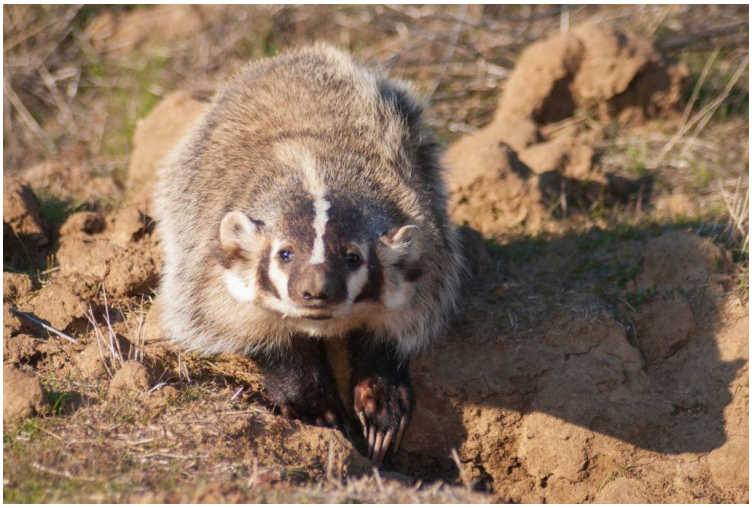


FIGURE 4: The American Badger is being affected by the climate changes Ventura

County is currently undergoing. According to the Los Padres Forestwatch, the American Badger would be one of the species that would be helped by the inclusion of wildlife corridor ordinances. The ordinances would help protect the American badger and other species from extinction by facilitating interactions between isolated populations. (Screenshot by Ally Avidan, November 8, 2021)
https://lpfw.org/judge-allows-conservation-groups-to-defend-ventura-county-wildlife-connectivity-from-industry-legal-challenge/

FIGURE 5: Climate change is worsening Ventura County's drought. As the picture above featured in the VC Star shows, the plants are drying up. Agriculture is an important aspect of the county's economy; a long drought could drastically affect the well-being of the county. (Screenshot by Ally Avidan, November 8, 2021)
https://www.vcstar.com/get-access/?return=https%3A%2F%2Fwww.vcstar.com%2Fstory%2Fnews%2F2021%2F04%2F30%2Fventura-county-drought-heres-what-we-know-record-dry-spell%2F7393267002%2F

FIGURE 6: The Ventura County Regional Energy Alliance received a grant in order to support energy vehicles. In order to advertise this change, they held a Ventura EV Ride and Drive during September's National Drive Electric Week. (Screenshot by Julianne Lim, November 8, 2021)
https://www.lgc.org/newsletter/vcrea-is-in-the-fast-lane-when-it-comes-to-electric-vehicle-efforts/

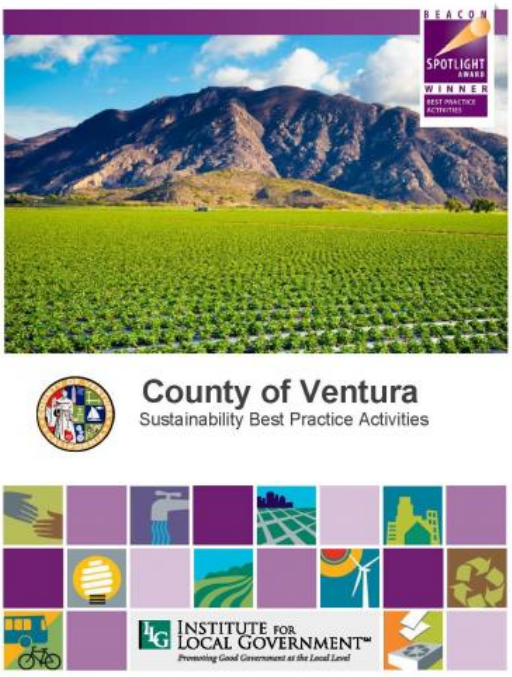


FIGURE 7: Institute for Local Government has been serving local government in Ventura County for decades. They created Sustainability Best Practice Activities in order to

inform the residents of Ventura of ways to reduce waste, save water and energy, and more. (Screenshot by Julianne Lim, November 8, 2021)
https://www.ca-ilg.org/post/county-ventura-sustainability-best-practice-activities

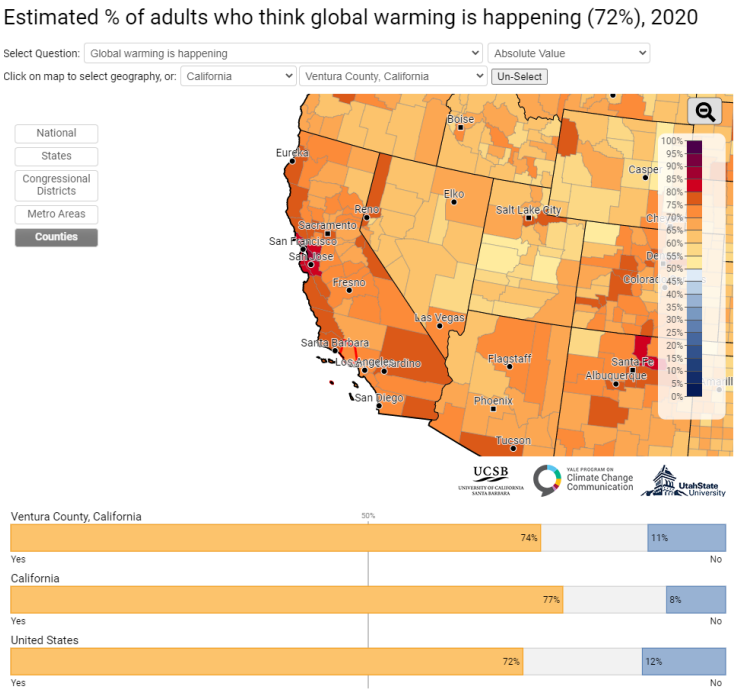


FIGURE 8: This figure shows the national, state, and Ventura County's opinion on whether or not global warming is happening. In Ventura County the citizens exceed the national average but fall short of the statewide average. (Screenshot by Aiden Brown, November 8, 2021)
https://climatecommunication.yale.edu/visualizations-data/ycom-us/

2. COMBO DISASTER & OTHER ENVIRONMENTAL THREATS

Threats and Consequences

Ilya Kulikov

Ventura County is one of the hottest counties with one of the fastest rates of temperature change. It keeps increasing. The region has set records regarding the highest rise in temperatures and has one of the most elevated temperatures in 2019 on paper (Carlson 2019) . Increased temperatures manifest as heatwaves, and sustained high heat days directly harm human health through heat-related illnesses (mild heat stress or fatal heat stroke). "Heat also intensifies the photochemical reactions that produce smog and ground-level ozone, and fine particulates (PM2.5)" (CHPR 2014), which can cause severe respiratory problems. However, Ventura has economic stability to adapt to extreme temperatures and the government system to support these adaptations. Furthermore, Ventura has civil engagement and innovative capabilities that allow its residents to adjust to a more volatile environment.

Due to climate change, dry land cannot counteract fires. Wildfire season has been getting worse in California every year. In 2017, a wildfire in Ventura County traveled "45,000

acres and destroyed 150 structures, with windy conditions hampering efforts to combat the flames" (Thompson 2017). Wildfires make huge amounts of ash, which may irritate the skin, nose, and throat. According to the Center for Disease Control and Prevention (2020), "smoking exposure increases respiratory and cardiovascular hospitalizations; emergency department visits; medication dispensations for asthma, bronchitis, chest pain, chronic obstructive pulmonary disease (commonly known by its acronym, COPD), respiratory infections; and medical visits for lung illnesses". The County is not well prepared for massive wildfires. According to figure 11, around 80% of the area is shown as vulnerable to fires. However, firefighters do their best to fight the fires - they practice a lot and gain knowledge that can save people's lives. Residents are also provided with instructions from the local fire department in case of fires.

Approximately 25% of the County's water demands are currently met with imported water from the State Water Project (SWP), brought into the County by the Calleguas Municipal Water District. According to Calleguas Municipal Water District officials in Ventura County, there is a water shortage and a need for "residents to conserve water" (Hernandez 2021). This concern was after United States officials declared a water shortage of the Colorado River, which supplies the Calleguas Municipal Water District. Ventura County's water supplies are vulnerable due to the effects of climate change (more droughts) as well as legal, regulatory, and operational challenges. Droughts decrease the availability and quality of water for humans, increasing the risk of "exposure to health hazards, including wildfires, dust storms, extreme heat events, flash flooding, degraded water quality, and reduced water quantity" (CDCP 2020). Nevertheless, Ventura County has a lower index score combining information about 13 contaminants and two types of water quality violations that are sometimes found when drinking water samples are tested than 62.5% of other California counties (HPI). These statistics mean that residents still experience issues with water, but the overall conditions are better than they could be.

Floods and hurricanes in Ventura County do not happen often, but the consequences are always wide-scale. For instance, in 1962, "flooding caused severe damage to many rural areas near key watersheds," leaving over four thousand acres of cropland flooded (Setnicka 2021). The flooding also led to erosion and sediment damage. Massive flows of water mixed with debris can easily kill people and cause expensive construction damage. Moreover, floods can also affect superfund sites unleashing contamination. Residents may be exposed to various hazardous chemicals that can cause cancer and liver and nerve damage.

Rising sea levels are also among the most significant contributors to environmental instability in Ventura County. As a consequence of water level elevation, "35 percent more land in Ventura County will be vulnerable to 100-year floods" (CCHPR 2017), which can cause coastal flooding during storms, periodic tidal flooding, increased coastal erosion, higher tides, and more extensive coastal flooding. Through sea level rise, saltwater may intrude into coastal aquifers, thus reducing the quality and quantity of water supply. Coastal erosion can contribute to the loss of recreational venues and pose various hazards to infrastructure and public safety. However, residents of Ventura County are familiar with the situation - according to the Resource Management Agency of Ventura County Report, more than 75% of residents claim that future coastal development should consider sea-level rise. Locals support proposals from the report such as "science to guide decisions, minimize coastal hazards through planning and development standards, maximize protection of public access, recreation, and sensitive coastal resources, maximize agency coordination and public participation" (RMAVCR 2019).

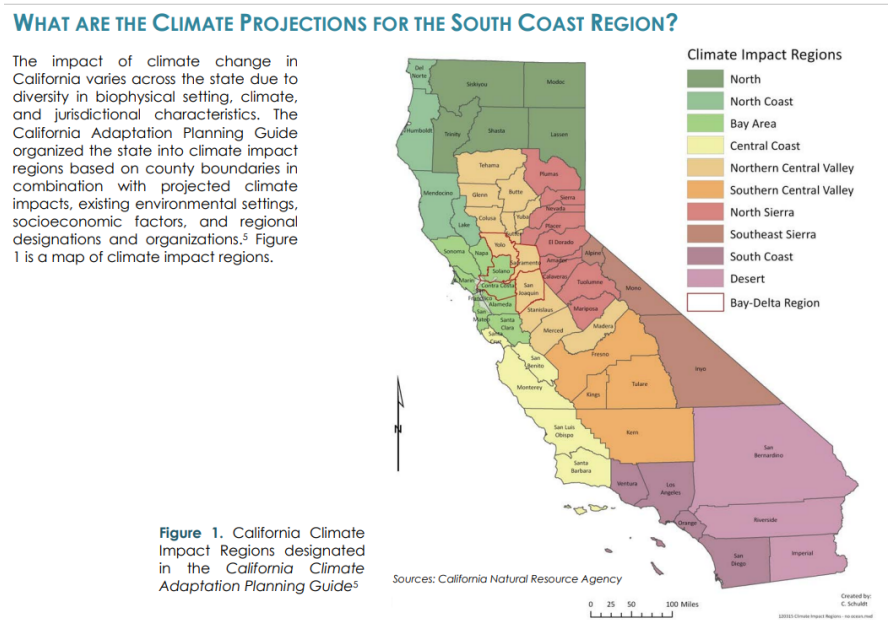


FIGURE 9: This map shows the designation of different climate impact regions from the California Adaptation Planning Guide, in turn used by California's Department of Public Health. Ventura county is in the "desert" and "south coast" combination region, which is reported to have a high likelihood of substantial temperature increases over the next century. (Screenshot by Ilya Kulikov, November 8, 2021) https://resilientca.org/projects/27eb1d93-ebe1-497e-95f1-06d181d7e3a1/

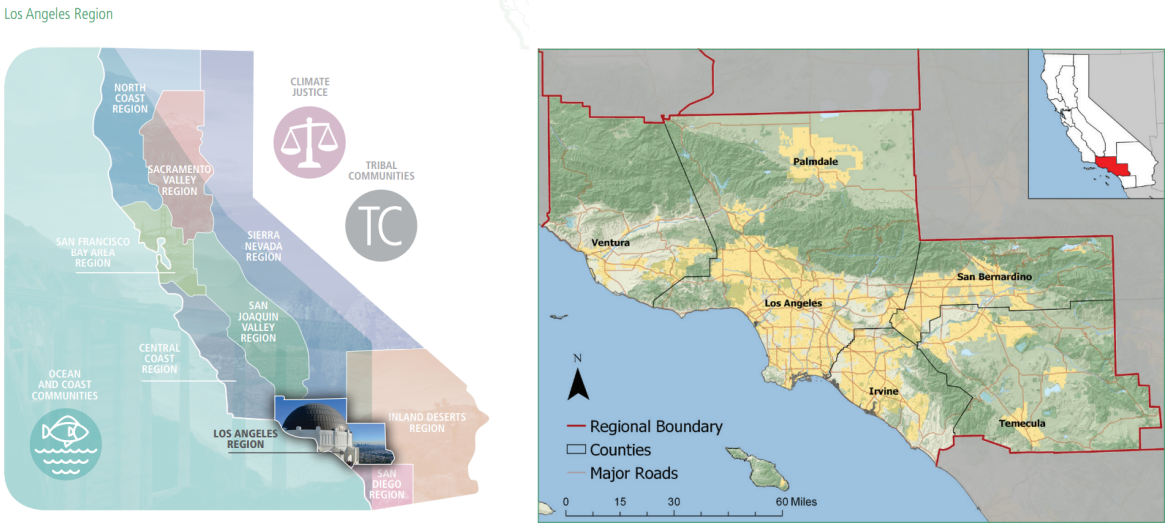


FIGURE 10: These maps show how California regions were divided up for study in California's Fourth Climate Change Assessment. The Los Angeles region includes Los Angeles, Orange, San Bernardino, Riverside and Ventura counties (Hall 2018).

(Screenshot by Ilya Kulikov, November 8, 2020)
https://www.energy.ca.gov/sites/default/files/2019-11/Reg%20Report-%20SUM-CCCA4-2018-007%20LosAngeles_ADA.pdf

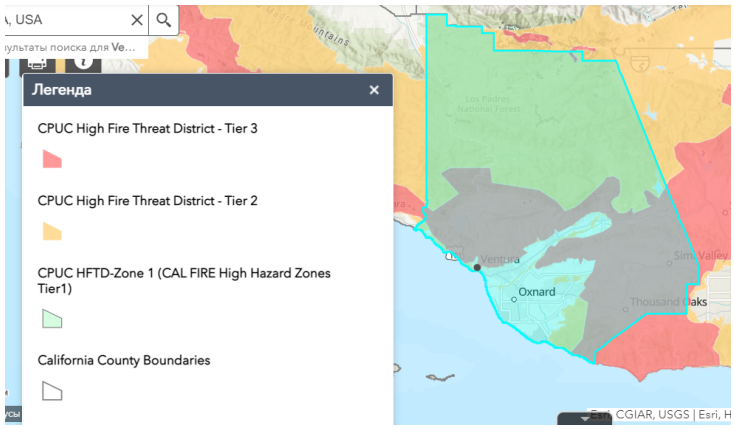


FIGURE 11: According to the map, Ventura county is at high risk of fires. Around 80% of the area is shown as vulnerable for fires. (Screenshot by Ilya Kulikov, November 8, 2020) https://capuc.maps.arcgis.com/apps/webappviewer/index.html?id=5bdb921d747a46929d9f00dbdb6d0fa2

3. COMPOUND VULNERABILITIES

The Contributing Factors

Vin Kanno

As time progresses, it is evident that there is a steady increase of environmental health vulnerability and environmental injustice present in Ventura County. There are multiple factors contributing to environmental health vulnerability and injustice in Ventura County. Some of these factors include health, ecological, social, and cultural. Identifying these key factors that contribute to environmental health vulnerability and injustice is essential to addressing these problems.

The first factor that contributes to environmental health vulnerability and injustice in Ventura County is the health factor. According to Tom Kisken, residents in Ventura County that already have pre-existing health conditions such as asthma will be “heavily affected by the fire exposure in Ventura County” (Kisken 2017). As the wildfires in Ventura County start rapidly increasing, these individuals that suffer from pre-existing health conditions will be negatively impacted even more than individuals without these conditions. Even the individuals without pre-existing health conditions will be negatively impacted to some degree, as they can form poor health due to the large amount of smoke that arises in the area.
Another factor that is a major contributor to environmental injustice and health

vulnerability in Ventura County is the ecological factor. This is due to the fact that the people of Ventura County that live on the coastline will be vulnerable to increasing sea levels. Because of the increasing sea levels, erosion can take place and damage their homes, which can cost millions of dollars to fix. According to the Ventura County Coastal Resilience, the "increase of residents in the coast has raised housing prices and the cost of living, leaving low-income people struggling to live in Ventura County and other coastal cities. They do not have as many resources and are unable to move to avoid the effects of flooding or erosion from climate change" (Coastal Resilience 2021).

One factor that is forgotten about is the social factor. Most of the wildfires that occur in Ventura County are due to a man-made accident. When it starts, it is very difficult to put out immediately and the negative effects can be created quickly. Ventura Regional Fire State Council states that "much of the destruction and loss of homes is caused by firebrands landing on and igniting flammable materials outside or around a home. Before firefighters can reach these burning homes, often a good distance from the main fire front, flames quickly spread to neighboring homes, increasing the destruction" (Ventura Regional Fire State Council 2020). Because of this, people are mostly responsible for the chain effect of wildfires throughout the entire county, leading to more smoke in the air that arises from these fires.

The last factor that contributes to environmental injustice in Ventura County is the cultural factor. This is due to the fact that a majority of the affected population in Ventura County is of Hispanic descent. Race Counts depicts this by showcasing that "9% of the Hispanic community in Ventura County is diagnosed with asthma" (Race Counts 2021). Due to this, the Hispanic community will be negatively impacted the most when the smoke from wildfires arises and contaminates our atmosphere. This will be evident in the years to come.

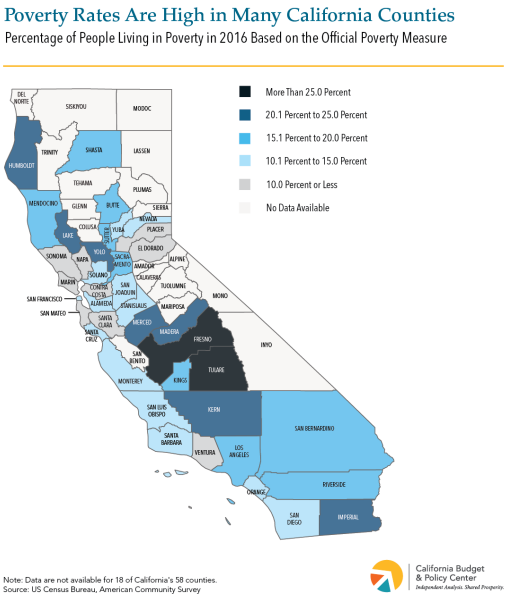


FIGURE 12: The above map shows the poverty rates by county in California. Ventura County represents 10.0% or less on the scale of poverty, however, is surrounded by increased counties with higher rates of poverty. (Screenshot by Anissa Marosy, November 8, 2021) https://calbudgetcenter.org/resources/californias-official-poverty-rate-declined-in-2016/

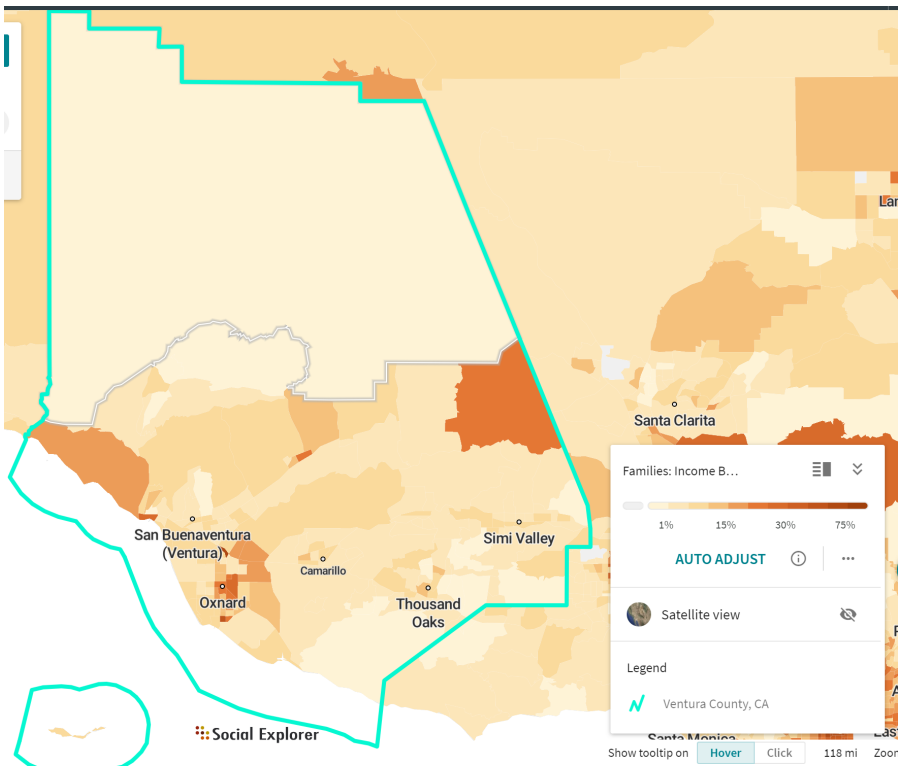


FIGURE 13: Ventura County has a relatively low rate of poverty (less than 10 percent) besides Oxnard, one of its major cities. The poverty rate in Oxnard is 21.67% with parts around Oxnard having varying rates from 10%-25%. (Screenshot by Max Einstein, November 8, 2021)
https://www.socialexplorer.com/a9676d974c/explore

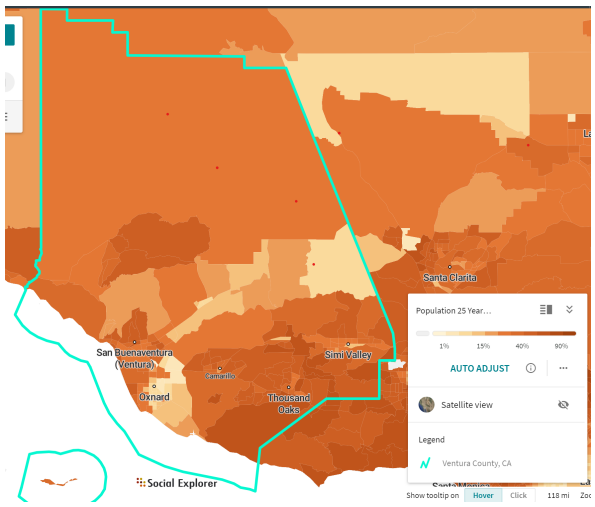


FIGURE 14: A lot of the area in the middle of Ventura County has a very low rate (less than 15 percent) of people over the age of 25 that do have a bachelor's degree. In the

southern part of Ventura County the rate is much higher with a lot of the area being close to over 90 percent having a bachelor's degree. (Screenshot taken by Max Einstein, November 8, 2021)
https://www.socialexplorer.com/a9676d974c/explore

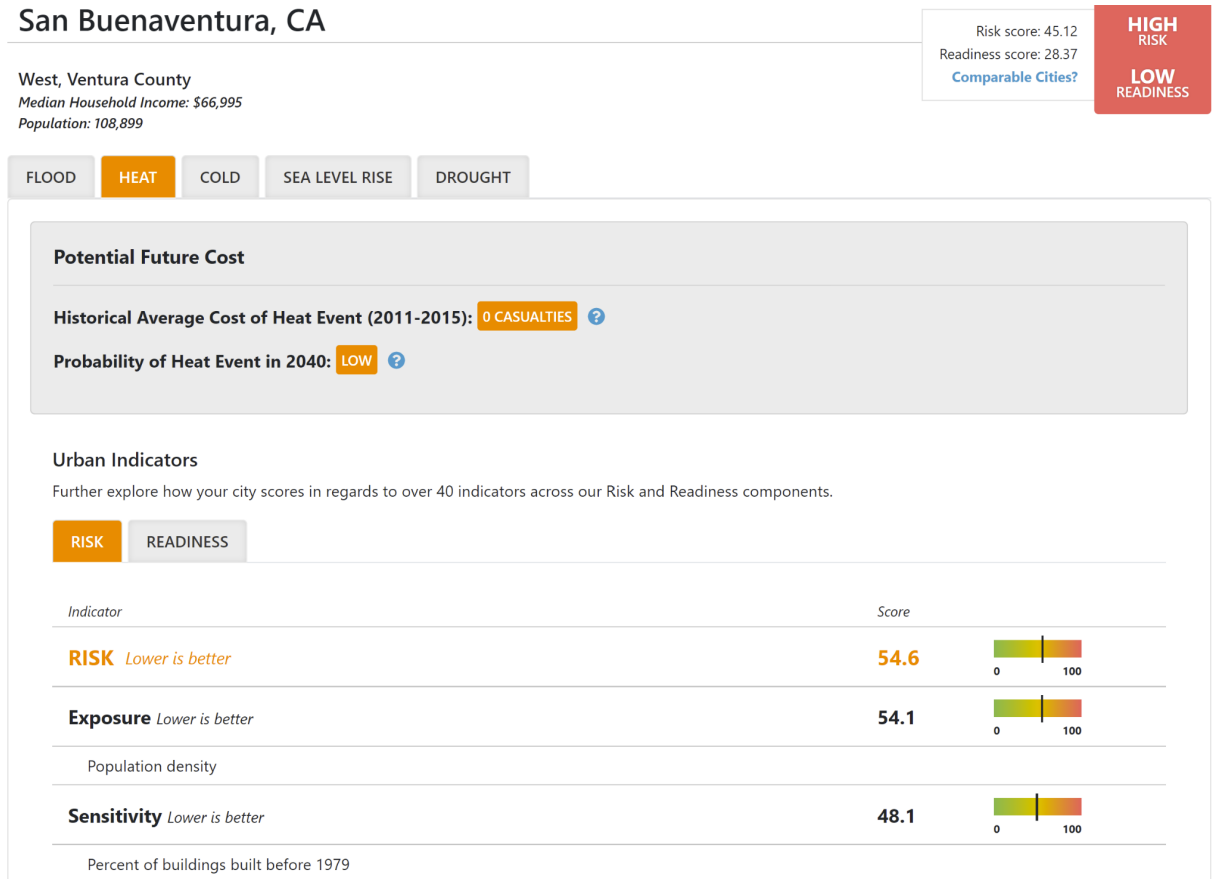


FIGURE 15: Ventura county has a low risk of extreme heat. There have been no casualties to heat in the county and there is a low probability of heat in the county up until 2040. (Screenshot by Matthew Le, November 8, 2021).
https://gain-uaa.nd.edu

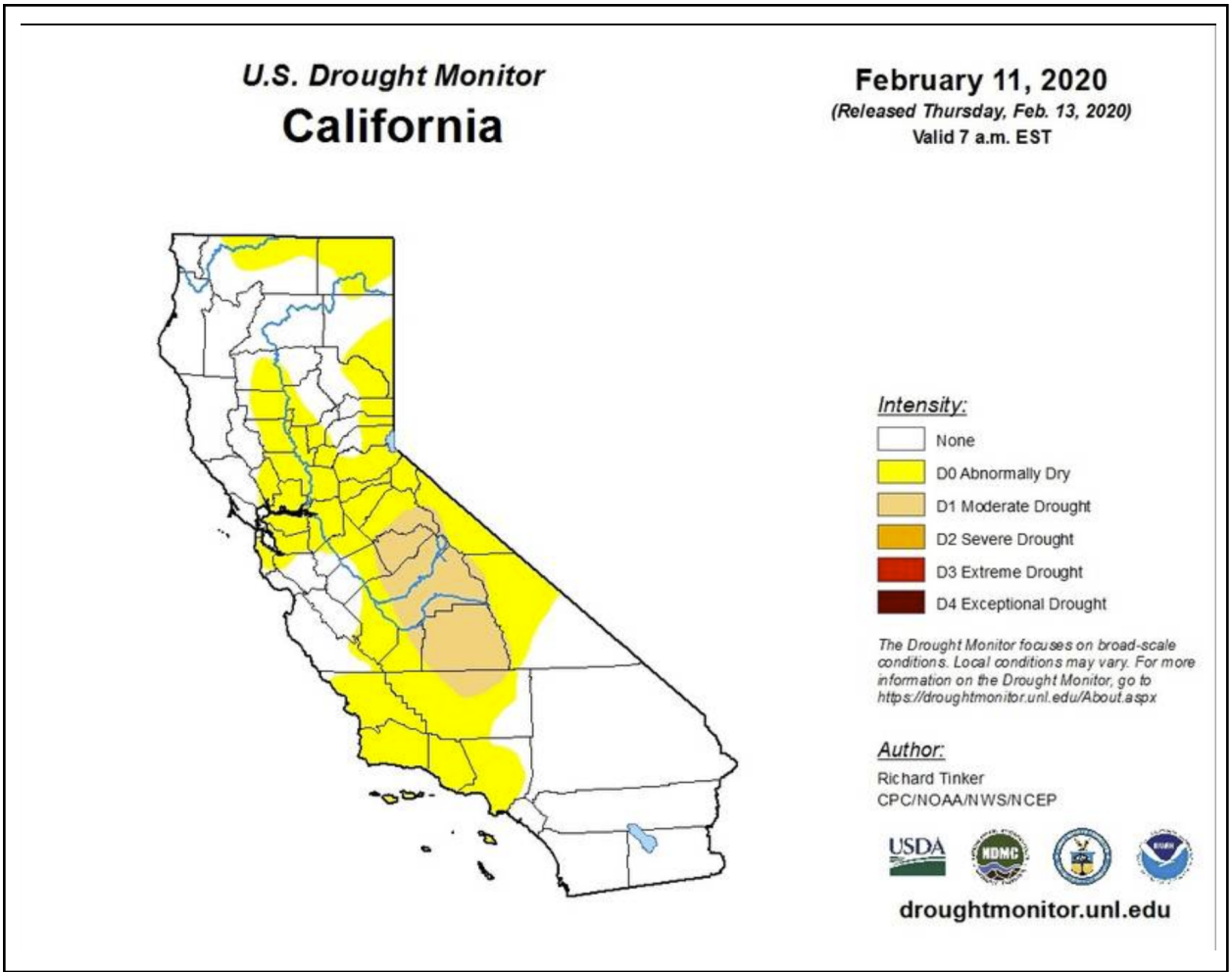


FIGURE 16: As of February 11, 2020, Ventura county is considered abnormally dry. The whole county is dry without any parts that are normal in water quantity. (Screenshot by Matthew Le, November 11, 2021). https://www.sacbee.com/latest-news/ld6ba9/picture240262776/alternates/FREE_1140/droughtmonitor021_fitted.jpeg

FIGURE 17: This map shows the most recent recorded tree cover in Ventura County. The data shown here was collected in 2010. (Screenshot by Aiden Browne, November 8, 2021).
https://www.globalforestwatch.org/map/?map=eyJjZW50ZXIiOnsibGF0IjozNC40NDg1MjY2MDQxODAxOTUsImxuZyI6LTExOS4wNTg4NzQxMjA3NzUzOX0sInpvb20iOjkuMTI5MjU4Mjk3NTQxNjU0LCJkYXRhc2V0cyI6W3siZGF0YXNldCI6InBvbGl0aWNhbC1ib3VuZGFyaWVzIiwibGF5ZXJzIjpbImRpc3B1dGVkLXBvbGl0aWNhbC1ib3VuZGFyaWVzIiwicG9saXRpY2FsLWJvdW5kYXJpZXMiXSwib3BhY2l0eSI6MSwidmlzaWJpbGl0eSI6dHJ1ZX0seyJkYXRhc2V0IjoidHJlZS1jb3ZlciIsImxheWVycyI6WyJ0cmVlLWNvdmVyLTIwMTAiXSwib3BhY2l0eSI6MSwidmlzaWJpbGl0eSI6dHJ1ZX1dfQ%3D%3D&mapPrompts=eyJvcGVuIjp0cnVlLCJzdGVwc0tleSI6InJlY2VudEltYWdlcnkifQ%3D%3D

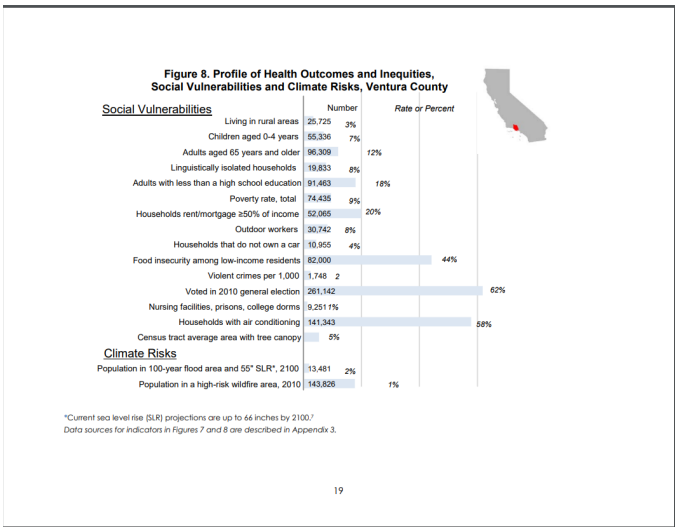


Figure 8. Profile of Health Outcomes and Inequities, Social Vulnerabilities and Climate Risks, Ventura County

	Number	Rate or Percent
Social Vulnerabilities		
Living in rural areas	25,725	3%
Children aged 0-4 years	55,336	7%
Adults aged 65 years and older	96,309	12%
Linguistically isolated households	19,833	8%
Adults with less than a high school education	91,463	18%
Poverty rate, total	74,435	9%
Households rent/mortgage ≥50% of income	52,065	20%
Outdoor workers	30,742	8%
Households that do not own a car	10,955	4%
Food insecurity among low-income residents	82,000	44%
Violent crimes per 1,000	1,748	2
Voted in 2010 general election	261,142	62%
Nursing facilities, prisons, college dorms	9,251	1%
Households with air conditioning	141,343	58%
Census tract average area with tree canopy		5%
Climate Risks		
Population in 100-year flood area and 55" SLR*, 2100	13,481	2%
Population in a high-risk wildfire area, 2010	143,826	1%

*Current sea level rise (SLR) projections are up to 66 inches by 2100.[7]
Data sources for indicators in Figures 7 and 8 are described in Appendix 3.

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FIGURE 18: The Department of Public Health states that one percent of the population is near high-risk wildfire areas. This is significant, as 1% of Ventura County is still a large portion of people. Around 140,000 people are at extremely high risk to wildfires. (Screenshot by Vin Kanno, November 8, 2021)
https://www.cdph.ca.gov/Programs/OHE/CDPH%20Document%20Library/CHPRs/CHPR111Ventura_County2-23-17.pdf

4. STAKEHOLDER ANALYSIS

Groups and their Involvement

Julianne Lim

With climate change impacting nearly every disaster in Ventura County, there are numerous stakeholders that have a vested interest or involvement in contributing to or reacting to said disasters. Stakeholders range from local groups to federal ones, all of which are concerned with Ventura County. One major stakeholder is Governor Gavin Newsom, who has funding as the governor of California, but has faced opposition from voters, shown from the recall election in 2021. He has the most political power in California, but is unable to focus on every county in California, making it easy for counties like Ventura to continue being affected by climate change.

The National Weather Service monitors climate conditions and has meteorologists make observations. They are also able to inform the general public about the climate, as a government agency. However, they are not actively reacting to climate conditions and do not interfere in operations. In contrast, the City of Ventura City Council is very active in Ventura County, with the power to enforce water conservation efforts and funding. They are trusted because they are elected officials, but that can also limit their actions, due to fear of losing voters in their district.

Other stakeholders include the Calleguas Municipal Water District and the Metropolitan Water District of Southern California, Ventura County Public Health officers and air

pollution officials, Ventura Police Department and firefighters, Ventura County Public Works Agency (VCPWA), and Ventura County residents.

Every year, California has become drier, with exceptional drought conditions in nearly all counties. Stakeholders that are particularly affected are the Calleguas Municipal Water District and the Metropolitan Water District of Southern California (MWD). The MWD supplies water to various California counties, including Ventura County, especially to Calleguas Municipal Water District, "which serves approximately 75% of Ventura County" (Hernandez 2021). Both are businesses that heavily depend on water, which powers their funding. Unfortunately, the lack of water from drought disrupts their operations, which are already strained because of less workers from lack of attraction to water utility jobs. They have supported water conservation and less consumption, but Southern California can make more effort to prevent drought from climate change.

Fires in Ventura County in 2017, especially the Thomas Fire, burned "more than 90,000 acres" (Kisken 2017). Ventura County Public Health officers and air pollution control officials issued smoke advisories and recommendations to Ventura County residents to prevent damage to their health, especially those with pre-existing conditions. However, Ventura County Public Health officers lack funding to react to fires, even if they have control over the public health of residents. Similarly, air pollution officials can monitor air levels, but are limited by their inability to actively react to fires because they are meant to inform the public. Both groups are extremely important for information and instructions in cases of fires, but do not have the power to stop them.

Conversely, the Ventura Police Department and firefighters are able to be on the ground and stop fires from spreading and preventing further damage. Volunteers also dealt with spot fires throughout Ventura County, especially in Ojai Valley, which required evacuations of residents. Their health is a concern while in close proximity to fires, but they know that their work is important in protecting residents, even if they have no institutional power to stop fires from occurring in the first place.

One group that is actively working to protect Ventura County residents is the Ventura County Public Works Agency (VCPWA). Their goals include improving infrastructure and services, building the Beardsley Watershed as part of their plan to prevent floods, such as the 1962 flood, which caused “severe damage to many rural areas near key watersheds” (Setnicka 2021). Although it appears that VCPWA has extensive funding to create similar structures, unfortunately, they lack political power to prevent conditions that create disasters like floods and they cannot prevent all disasters.

Arguably the most important stakeholder in Ventura County, the residents of Ventura County have faced various challenges due to climate change. With fires strong enough to cause evacuation and rising sea levels, residents simply want housing security and safety. They are passionate about climate change, organizing and participating in environmental groups, even if many are low-income and lack power or media attention. Still, many who are in power are working to protect these communities that make up Ventura County.

5. STAKEHOLDER ACTIONS

Combo Disasters Affect Everyone in a Community

Aiden Browne

The primary combo disaster occurring in Ventura County is man-made climate change. This climate change causes severe drought, wildfires, intense weather systems, and rising sea levels to name a few. Climate change causes multiple environmental disasters that affect almost everyone in Ventura County. Due to these factors, there are multiple stakeholder actions made in the county in relation to these environmental disasters. Actions made by the following stakeholders will be discussed, Ventura City Council, the Calleguas Municipal Water District, the EPA, the California Governor Gavin Newsom, and university researchers.

Regarding the local government, the Ventura City Council and the Calleguas Municipal Water District (CMWD) are major stakeholders. The Ventura City Council has taken action to address wildfires caused by man-made climate change. They launched the Ventura County Wildlife Collaborative with the goal to help increase communities' resilience to wildfires. The other local government stakeholder is the CMWD. They are responsible for managing all the water in Ventura County. Due to the severe drought the CMWD officials are taking actions to help combat the drought. "In Ventura County, Calleguas Municipal Water District officials have declared a water shortage, continuing their call to residents to conserve water"(Hernandez 2021). Local officials are not the only

government officials taking steps to address the drought across southern California.

The state government is also addressing the drought while the federal government is focusing on other climate change related disasters in California. California State Governor Newsom has been pushing residents to help stop the drought. "Last month, Gov. Gavin Newsom's office called for all California residents to voluntarily reduce their water consumption by at least 15%"(Hernandez 2021). This action from the state government is important for getting through climate change related disasters. On the federal side the EPA is addressing how climate change is affecting superfund sites. The EPA has been stressing to local communities in Ventura County that they must stay away from superfund sites and avoid trespassing while their cleanup is underway. While they are taking these positive actions they are failing in other fields. The EPA has not used current climate change projections for flooding or rainfall when they conduct their superfund assessments. This fails to address climate change and causes superfund sites to potentially be dangerous.

The last stakeholder action to be mentioned is the research conducted by USC Researchers and UCLA Scientists. UCLA scientists are conducting research that is critical in preparing California to fight against wildfires. Specifically, they are studying the effect of the Santa Ana winds. "Work Miller has done suggests that the Santa Ana winds could become faster, hotter and drier as overall higher temperatures intensify the high-pressure systems that fuel the winds."(Thompson 2017). As for the USC researchers they conducted a study that found more people are moving to coastal cities such as Ventura County. These coastal communities are at the most risk from rising sea levels caused by manmade climate change.

These stakeholder actions are some of the most critical actions occurring in Ventura County.

6. ROLE OF MEDIA AND BIG ENVIRONMENTAL ORGANIZATIONS

and how it is not fulfilled by these organizations.

Neha Muvvala

Ventura County does not get much media coverage from larger media organizations and environmental activist groups. It is surrounded by larger counties like Los Angeles and Santa Barbara counties. These counties get more media attention, overshadowing smaller areas in between. Amongst the little coverage Ventura County gets on the news, there is rarely anything on the environmental problems in the area. Even climate change, one of the largest environmental problems the whole world is tackling, is not covered in Ventura County, whether it is by large news stations, local news outlets, or even environmental organizations.

Large media organizations like the *LA Times* do not provide much media coverage on the climate change problems in Ventura County. There are only two articles that talk about climate change in Ventura County, one from 1997 and one from 2021. The more recent article was on the drought worsening in California, especially in “Ventura and other

Southern California counties [where they] have shifted from “extreme” to “exceptional” drought conditions, according to the U.S. Drought Monitor Report” (Hernandez 2021). This is a fact that was asserted throughout the news article, but there was never any action suggested or reported against it. There is nothing said about what people should take away from the information given to them nor was there anything about what they should do with it. There was coverage of the problem, but it was not effective for anything more providing a little bit of context to their negatively-affected surroundings.

Smaller media organizations in the area do report more specifically on Ventura County, but they are focused on more disastrous or apparent problems. One of these outlets is the *VC Star*. Out of all their articles on Ventura County and surrounding areas, there are only a few articles that are directly related to informing the public about climate change and its effects, and only one of them describes actions people can take to address climate change. The article, “Eco-tip: Here are local ways to address global fear of climate change,” mentions a survey done by locals to address the preparation of the public for climate change and the disasters that come with it, and they emphasize that “preparing local resiliency and providing input to policy makers are empowering steps available to everyone, including our youth” (Goldstein 2021). This article was informative and was very proactive in terms of mentioning ways people can take action, but it was the only article on climate change and addressing the problems that come with it. There are other informative articles on climate change, but they do not give enough attention to the issues that are at play.

Even large environmental organizations do not provide much media coverage. There are many that talk about climate change, maybe almost all of them, but when it comes to Ventura County, there is almost nothing on climate change and ways to start fixing it. 350.org is an organization that has a Ventura County branch with a Facebook page. It is active and there are discussions bringing the issue to life. However, not many people know about it as it is not spread widely to the public. Other than this group, there are not many

articles on climate change and Ventura County. This is probably because of the lack of confidence the public has on tackling climate change as well as the lack of information anyone has on the problem.

The widespread lack of information can be seen on Wikipedia. Even though it is the largest encyclopedia on the web, when it comes to Ventura County's page, there is nothing said about climate change, its effects, and how to change it. There are articles on the internet about these issues in Ventura County, but the Wikipedia page does not address it, and neither do the people editing or talking on the page.

Ventura County needs to have better news coverage. This includes the information being presented as well as the needs and suggestions for actions to be taken. The climate change problem needs to be addressed, and one of the first steps would be to inform the public and activists groups about their situations and their first steps through large and small media platforms alike.

7. RECOMMENDED LOCAL ACTIONS

What local residents can do to mitigate combo disasters

Carmen Broadnax

California is currently at risk from impacts brought on by a changing climate. Rising sea levels have already begun to creep up California's shores, bringing with them a host of problems for local communities. In coastal Ventura County alone, approximately 16,000 people own homes and businesses that are vulnerable to flooding during a 100-year storm coupled with the expected 4.6 feet of sea level rise; replacement costs for those homes and businesses top more than two billion dollars. Ventura's beaches, that provide habitat for 25 special-status species, including the endangered Western Snowy Plover and California Least Tern, buffer communities from flooding, and serve as an economic engine driving tourism, are at risk, as are indispensable agricultural lands, more than 170 miles of roads and railroad tracks, and critical facilities such as water treatment and power generating facilities and the Naval Base Ventura County (Pikey 2010). Ventura County in Southern California should utilize the Coastal Resilience approach to engage local communities by illustrating the impacts of inundation, intrusion and river flooding while identifying vulnerable human and natural communities. Building the tools and engaging stakeholders will enable appropriate adaptation solutions.

Locally, early impacts of rising seas are already being experienced, including coastal

flooding during storms, periodic tidal flooding, and increased coastal erosion. Sea level rise will lead to higher tides, more extensive coastal flooding. Rising sea levels alone will not be the primary cause of damage to County resources and infrastructure. These impacts will be caused by coastal erosion during large wave events.Coastal cities around the world are putting up sea walls, relocating populations, and increasing green space in an effort to prepare themselves for rising sea levels.In the Netherlands, a massive system of flood gates has been implemented to keep out the dangers of rising waters. An adaptation policy, building standards for homes and infrastructure in vulnerable areas may require strengthened foundations, designed to withstand predicted levels of inundation during the expected lifetime of the structure being built.

The Washington Post published a report this summer about extreme climate change that showed Ventura County's average annual temperature had increased by 2.6 degrees Celsius from 1895 to 2018. A recommendation for people who work outdoors or in a physically demanding job without air conditioning, should work with their employer to establish a committee at your workplace to develop a heat response plan. Additionally, getting involved in children's school and athletic organizations to ensure that proper measures are in place for extreme heat days and outdoor athletic practices take place during the coolest part of the day. Lastly, the number and access to cooling centers should be increased so that they are established throughout the county to protect vulnerable populations from the heat.

Vulnerable populations to the impacts of climate change in Ventura county aren't participating in climate adaptation planning. Increase participation by low-income, immigrant, non-English speaking, racially and ethnically diverse, and special needs residents starting from the beginning of climate adaptation planning and implementation. Water district officials are calling for residents to begin conserving water, with the Metropolitan Water District of Southern California issuing a supply alert. These are water restrictions that are stricter than other communities. Governor Gavin Newsom has also

asked California residents to "voluntarily reduce their water consumption by at least 15%" (Hernandez 2021).

Climate activism in the form of art installations can greatly impact the way people view the impacts of climate change. Artists use their talents to direct attention to the social and political issues of the moment. In an attempt to foster community engagement in the climate change impacts that are faced by residents of Ventura county, high school students could form their own art activism. This project is modeled after the art installation called “Lines”. Located off the west coast of Scotland are the Outer Hebrides, an island chain where Finnish artists Pekka Niittyvirta and Timo Aho decided to install their piece, Lines. The installation is composed of lines of light wrapped around buildings or hovering on a grass field. At high tide, the lights turn on, illuminating the serene landscape, and marking the height of future sea-level rise on the low-lying archipelago. In order to adapt this project to high school students, they would put a line of lights that would replicate the level that the sea is projected to rise. They could use led lights or even Christmas lights if more accessible. This project grabs people’s attention as it provides a visual representation of an impending environmental crisis. Students could hang up the lights on the school, by the coast, and even on students' houses who live by the coast. Just like in the original piece the lights would be turned on during high tide to demonstrate the rising sea levels. To amplify the project's outreach, students could reach out to local climate activist groups and even to local news outlets like Ventura County Star.

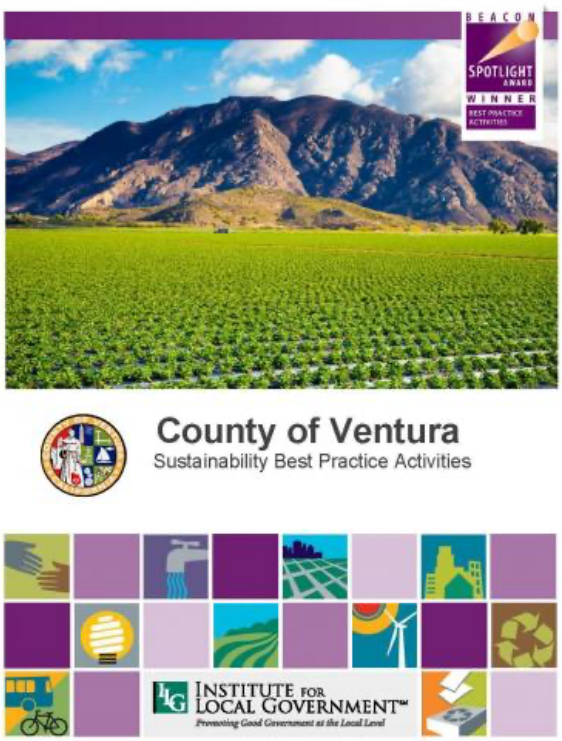

FIGURE 19: The County of Ventura has committed to cutting its GHG emissions by 15 percent by the year 2020. The following Climate Protection Plan lays out a roadmap and strategies to meet this goal by addressing six action areas: climate protection leadership, countywide responsibility (Screenshot by Carmen Broadnax, November 8, 2021)
https://cobapps.countyofventura.org/sustain/for-employees/climate-protection/

FIGURE 20: The following is a picture of an art installation completed by Finnish artists Pekka Niittyvirta and Timo Aho. By use of sensors, the installation interacts with the rising tidal changes; activating on high tide. The work provides a visual reference of future sea level rise.The installation explores the catastrophic impact of our relationship with nature and its long term effects. The work provokes a dialogue on how the rising sea levels will affect coastal areas, its inhabitants and land usage in the future. (Screenshot by Carmen Broadnax, November 17 2021)
https://niittyvirta.com/lines-57-59-n-7-16w/

8. RECOMMENDED EXTRA-LOCAL ACTIONS

Actions that can be taken by the Biden Administration and California

Anissa Marosy

Climate change, being a global issue, is deteriorating the environment and human health day by day. Looking closer at Ventura County, we see these effects directly impacting communities through high amounts of pollution due to the clustered population there. There are many efforts, both local and extra-local, in an attempt to decrease pollution and climate change. However, there needs to be more of an emphasis on extra-local actions to contribute to slowing climate change, considering there is more authority in this area.

On a national scale, there are actions that the Biden Administration can take to reduce climate change, which would largely impact Ventura County. Because there are a lot of oil and gas wells in Ventura County, reduction in methane and carbon emissions would greatly improve the amount of air pollution being released. “Mr. Biden has indicated that, early in his administration, he will sign executive orders instructing agencies to develop new methane limits for oil and gas wells, to reinstate and strengthen fuel economy standards, and to tighten efficiency standards for appliances and buildings” (Friedman, 9 Things the Biden Administration Could Do Quickly on the Environment). Though oil

companies will oppose this plan, it is important to reduce these emissions in order to therefore reduce climate change.

Additionally, the Biden Administration could create a tax on carbon and methane to reduce the amount of emissions released from both elements which are large contributors to climate change. The higher the tax on carbon and methane, the less it will be used because people will not want to utilize it as much, hence reducing the amount of pollution and emissions into the air. As mentioned above, the oil and gas companies will oppose this act because less and less people will use oil and gas, potentially putting them out of business and jobs, however it is mandatory that Ventura County/ the United States moves away from fossil fuels and towards renewable energy.

More simply, **"**Biden administration could create an environmental justice advisory board to coordinate policies across agencies and take concrete steps like increasing pollution monitoring in vulnerable communities and creating mapping tools to better understand disparities"(Friedman, 9 Things the Biden Administration Could Do Quickly on the Environment). In creating an environmental justice advisory board, there would be a larger focus on the injustices being experienced in smaller areas such as Ventura County and the focus to reduce these injustices and vulnerabilities of climate change. Bills to reduce environmental injustices would be passed more quickly and easily since there is a certain advisory board to put together plans and present them.

"Biden could issue a new executive order directing the Interior Secretary to halt all oil and gas lease sales and permits. This would not block oil production that's already taking place, but it would prevent more wells from being drilled and would allow for a gradual transition away from natural gas" (Phillips, Five things Joe Biden can do to fight climate change -- without Congress' help). This action would be heavily opposed by oil and gas companies and the Biden Administration would also have to replace the jobs that are lost from cutting the oil and gas lease sales and permits. However, halting new oil and gas

productions would reduce the amount of new drilling sites and furthermore reduce the pollution that goes into drilling. This would also introduce more eco-friendly and green alternatives which are important to use in the future.

Biden should also invoke emergency authority to address climate change and use military funding towards the fight against climate change. This would therefore lead to more funding to quickly move the country away from coal and gas-powered plants and towards renewable energy. This action is more extreme than others, and Congress may not agree with Biden's decision to do so, but in the long run it would be a faster change which would motivate communities to continue the change.

More locally, California's government could implement a state tax credit to make the price of electric cars cheaper and more affordable for people who can only afford gas cars. The result of cheaper electric car prices would result in a major increase of electric car use, reducing carbon emission, and reducing climate change. However, gas companies would be nonexistent and the state would have to create new jobs for gas station and gas drilling employees.

California's state government should also consider making a switch to renewable resources instead of using fossil fuels. Doing such would limit fossil fuel pollution, decreasing climate change. Using more renewable energy sources will help reduce pollution, climate change, and vulnerability to wildfires which is a large concern in Ventura County. There would have to be a plan set in place for the jobs that would be lost due to the elimination of fossil fuels.

Another way that California's government could contribute to slowing climate change is by strengthening marine aquaculture to endure the effects of climate change. Likely opposed by fishermen and taxpayers, doing such would be beneficial to Ventura County considering it is a coastal county. A healthy marine life is essential in the food supply chain

to communities surrounding. Such an action could unfortunately have an impact on fishermen, as stricter regulations could negatively affect them. Taxpayers would also have to contribute to strengthening marine aquaculture, and not everyone might agree.

Lastly, California's state government can construct better and more sustainable urban development. The state should be focused on avoiding clusters of population in one area (Ventura County), because these clusters produce large amounts of pollution, which can be avoided by expanding living areas to outskirts and suburbs more inland. To prevent people from not wanting to buy homes due to its distance to urban areas, the development of these communities should reflect those of any other community in Ventura County.

Actions from the California state government and the Biden Administration would greatly improve the possibility of decreasing climate change in an effective manner. The actions listed above should be heavily considered and executed to save the environment and reduce environmental injustices in Ventura County.

9. RECOMMENDATIONS FOR FUTURE RESEARCH

Data for the future

Maximillian Einstein

Missing data is one of the biggest issues that we have to deal with in modern day society. This is especially true in Ventura County where a ton of data is missing from the general public. With very little data or skewed data that is released from major corporations, this makes having the correct information very difficult. This is why the data that we do not have access to needs to be fought for.

Since many people do not have access to any data they are majorly impacted because of pollution. With more access to data, this would help a lot of people to realize that pollution is very harmful to our society. Since pollution is one of the biggest causes of climate change it is important for the people of Ventura County to stay educated. It is said that "The average temperature in the county will increase by "at least 3-5 degrees Fahrenheit" in the next 20 years in inland and elevated areas of the county, such as Ojai, Thousand Oaks, and Simi Valley. Coastal areas such as Ventura and Oxnard will see average annual temperatures increase by "at least 2-3 degrees." (Stoltz 2019). Climate change is going to affect people's livelihoods majorly. The rising temperatures will cause a ton of health problems especially with the quality of the air diminishing so rapidly.

Health research is also something that is very important but missing in Ventura County.

Without knowing what major qualities climate change can do to our bodies nobody will be worried about such a massive issue. If there was more information on the idea of climate change and how bad it is to our health it would help people to learn more about the negative effects that climate change has on people.

Climate change is not only bad for the people but is also bad for the environment. Ventura County "is being transformed as the climate grows hotter, drier and in some regions windier, fueling more intense wildfires, deadly mudslides and prolonged extreme drought." (Wilson 2019). These environmental issues are a major issue and when they get out of hand have a negative effect on human health and cause a ton of issues, one especially being pollution.

One very good way to retrieve data about the population of Ventura County would be through a survey. First the survey would be conducted completely anonymously.The first question that I would ask them would be if they think they are or if they are familiar with climate change. The next question would be whether or not they think climate change is a major issue or not. Next, I would let them know that Ventura County has a very high pollution rate which is one of the direct causes of climate change being in the top 20 percent of the country in pollution rate. Finally, I would then ask them if they think climate change is a major issue or not. By asking these questions we will know if the people of Ventura County are uneducated on the idea of climate change or if they just don't think that climate change is a big deal. This will help us as the surveyors to see if people are lacking information or not.

The people of Ventura County need to learn more about climate change. This is why we must educate the people of Ventura County and ask if they really know how large of an issue climate change really is? One good way that we can set up interviews with different types of social groups would be to go to different parts of the county with different economic statuses. By getting data from people of different economic statuses we will know if climate change is a concern to a certain social group. The only part of the survey that would not be anonymous would be the part of the county that they live in, besides that everything would remain anonymous. This will help us to understand more about how

certain social groups are being affected by climate change or if they have any prior experience with climate change. With this data, we would be able to find out which parts of the county are less educated on climate change. This data will help environmental activists groups to focus more on providing information and data to these less educated communities so that they will be able to know more about what horrible things are happening in their community. Overall this data would be useful for all people that are trying to get people on board with fighting against climate change in Ventura County. Overall with all the missing information, it makes it very difficult for people to stay educated on these types of topics. Staying educated is the first step in making the right move in the right direction. Without the knowledge, it is very difficult to fight for a side. If there were to be more easy access to this information it would make fighting against climate change a whole lot easier.

10. INJUSTICE ANALYSIS

The Risks of Disasters in Ventura

Matthew Le

There are several injustices occurring throughout Ventura County that could correlate to combo disasters. In the county, there are injustices such as economic, infrastructure, health, and intergenerational. These injustices stem from the pollution in the county combined with climate change globally. Ventur county is a coastal county where there are risks of flooding from the oceans, but also close to certain forests where wildfires could cause damage in the county.

Economic and infrastructure injustices are present in Ventura county where certain groups of people are affected more than others. For example, "'If you live in Ventura, you know that it's rare that temperatures hit 90 degrees,' Hatchett said. "But whatever the hottest temperature you have experienced in Ventura, this study says that you will have about two more weeks of that kind of heat annually in Ventura. People without air conditioning may feel like they're getting cooked with an extra week or two of extremely hot temperatures'"(Stoltz). This shows signs of economic injustice
because people in the county cannot afford to buy air conditioning when temperatures rise. Without air conditioning, community members that could not afford it are suffering through the heat compared to the people that could afford the air conditioning. With extreme heat, there could be multiple health risks. Since there is a change in the climate, people are now facing different temperatures at different times of the year. Another injustice occurring in the county would be infrastructure injustices. An example of the infrastructure injustice would be, "Sixty percent of the nation's heavily polluted Superfund

sites—nearly 950 of them—are at risk from the impacts of climate change, including hurricane storm surges and flooding that could spread their toxic legacies into waterways, communities and farmland, a new federal report warns" (McKenna). Infrastructure injustice is present in this scenario because since the polluting sites are at risk of climate change, the people in the county are also put at a higher risk of being in contact with the pollutants. With the superfund sites being large polluters, the effects of climate change could devastate the waterways and wildlife that are near the sites. With infrastructure injustice, the sites that are built should be broken down or rebuilt to be prepared for future changes in the environment. There are multiple instances of the injustices occurring in the county involving economic and infrastructure injustices.

Alongside economic and infrastructure injustices, there are health and intergenerational injustices in the county. One instance of health injustices in the county would be the presence of radon in the homes and neighborhoods. For example, there is a radon level of "4 pCi/L" (Homefacts) in the county. With a radon level this high, it leads to a higher chance of cancer in the community. This serves as an injustice because people did not choose to be in the presence of radon, but it is naturally occurring. With the radon in the county, it also leads to intergenerational injustice because the kids in the county could also be affected by the radon without ever knowing it is affecting them. Another example of the intergenerational injustice occurring in the county would be the long commutes that people take to work. For example, "Commuting is also a concern. About 77 percent of working people in Ventura County drove alone to their jobs, according to the study. About 34 percent of the people who drove alone had commutes of more than 30 minutes. Time in the car means less time exercising and can contribute to obesity and high blood pressure, according to study leaders. Levin worries for another reason" (Krisken). This is intergenerational injustice because the air pollution from being in the car for long periods of time could affect the younger population in the county. Since pollutants in the air could also cause health risks for the children, they are affected without knowing that the pollutants in the air are causing health issues. Health injustices and Intergenerational injustices are shown in the county with the radon and air pollution.

With economic, infrastructure, health, and intergenerational injustices in Ventura County, there are many groups of people affected in different ways. Minorities and low income are affected by the economic and infrastructure injustices because of the lack of air conditioning and high probability of pollutants being spread by climate change. Also, residents of the county and the youth are affected by health and intergenerational injustices by the presence of radon and long commute times.

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