

# Environmental Injustice Case Study Design Book



EcoGovLab



Prepared for  
Climate Change and  
Environmental Justice  
Program

Developed by  
UCI EcoGovLab

# Acknowledgements

This book is based on the EIJ Case Study Framework, developed for Anthropology 25A: Environmental Injustice at the University of California, Irvine.

**Authors:** Margaret Tebbe, Prerna Srigyan, Nadine Tanio, Margaux Fisher, and Kim Fortun

**Contributors:** Taranjot Bhari, Jean Flanagan, Sierra Howard, and Katie Vo

**Design:** Margaret Tebbe

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**Cover image:** A view of the shore of the Salton Sea near Salton City in Imperial County. Photo by Katie Vo.



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# Overview

## About this Unit

Over the course of this 15-hour unit, you will select a school in California and develop and research your own case study of climate and environmental injustice in the surrounding area. Your work is guided by the EIJ Case Study Framework (read more in “Why use case studies?”), which integrates interdisciplinary science and social science concepts and practices for active and place-based environmental education. Developing your case study will help you learn to access, analyze, and integrate many different forms of data and expertise to characterize climate and environmental justice. By doing so, you will learn how to move from describing a problem to identifying specific actions to address that problem. You will also be introduced to many different careers that use these skills, which we hope will help you think about how you can help advance environmental justice in your communities and beyond.

## About the Writing Team

This unit was written by the EcoGovLab, an interdisciplinary research group based at the University of California, Irvine. Led by social scientists, EcoGovLab brings together researchers and educators across generation, geography, and discipline. A key goal is to bring social science perspective into interdisciplinary environmental research and education. Kim Fortun directs the EcoGovLab.

## Climate Change and Environmental Justice Program

This unit is part of a larger K-12 curriculum coordinated by Ten Strands, in partnership with the San Mateo County Office of Education and the California Department of Education. The curriculum is open access and focuses on climate change and environmental justice, integrating both state standards and California's Environmental Principles and Concepts. The curriculum was written by seven community- and student-centered organizations. We hope that these materials will help students to take action in their communities.

# Why use case studies?

Climate change presents a global and intergenerational challenge that requires mobilization of all sectors of society and extensive efforts to ensure a just transition to a sustainable future. Climate change impacts disproportionately affect historically marginalized groups, including Black, Indigenous, and people of color (BIPOC) communities and economically disadvantaged communities. They exacerbate already existing environmental injustices. To analyze and address environmental injustice and climate change in our communities and beyond, the EcoGovLab at the University of California, Irvine, has developed the Environmental Injustice (EiJ) Case Study Framework (citation/link) that integrates place-based environmental education in a comparative and planetary frame. Using this framework, researchers across the world have produced interdisciplinary environmental injustice case studies to understand different types of environmental problems—air pollution, toxic waste, industrial hazards, plastic pollution, petrochemicals, and climate change (citation/link to global record page).

Case studies help us to analyze and act on complex problems that require many perspectives and types of knowledge. As case studies are frequently used by federal and international environmental and disaster research and governance institutions for developing policy guidelines, building case study literacy is an important skill for current and future generations of environmental advocates. The EiJ Case Study Framework diverges from usual case study building approaches by taking researchers through a kaleidoscopic research process where different parts of the problem move together and are changed by their mutual interactions. Doing this case study will help you to learn and practice real-life scientific and research skills laid out in the NRC Framework for K-12 Science Education and the resulting Next Gen Science Standards (citation/link). It will prepare you for diverse career pathways.

**A world beyond environmental injustice will require rigorous analysis, enormous creativity and meticulous organizing. Building these case studies is one way we want you to prepare for the task ahead.**



# How to Use this Book

This book will guide you through the process of developing a case study of a school in California. It is designed to be interactive and collaborative. Empty boxes (like below) mark spaces for you to collect notes or answer questions. If you are using this book online, try to click inside the boxes to avoid formatting issues. Try it here!

Test!

Much of your work will be contained in this book, but some (like visualizations of your case study location) will be done in other documents that are linked here. Links to other documents are [orange](#).

## Workflow

On the next page, you will see a diagram that explains the process of developing a case study. The first step, which you will complete when you receive this book, is to select a case study location. In steps two and three, you'll begin to get a "lay of the land" in your location by visualizing it and looking for sources.

Most of the work that goes into developing a case study is done in step four, where you will complete "sketches." Sketches may look like worksheets, but they have some important differences. First, they should be seen as a workspace, not a final product that you will be graded on. They are a place to collect notes and work through ideas and form the foundation for more final work later, just like a sketch provides the foundation for a finished piece of art. Second, they are designed to be reusable and useful in many places, so you can return to them and explore many different places.

In steps five, six, and seven, you'll build out your case study using what you learned from working through the sketches and make sure it has all the components of a true research case study--like a summary at the beginning that explains why your case matters. Then, the last step is to publish! You can then list your case study on your resume as evidence of your analytical skills.

**1.** Select your case study location

**2.** Begin to visualize your location by completing the case study figures

**3.** Search for sources, evaluate their credibility, and add to your bibliography

**4.** Complete sketches and write summaries of what you learned

**5.** Revisit figures and expand captions, using knowledge from sketches

**6.** Compile all of your summaries and figures into a full case study

**7.** Add an abstract, bio-statement, and a conclusion

**8.** Publish your case study!

# Initial Model

Over the course of this unit, you will be developing an explanatory model that visually represents what you learn from your case study. Your initial model is meant to be a starting point for representing how your thinking evolves as we learn more. There will be things you aren't sure about or don't know yet, and that is okay—figuring out what we don't know is the point of creating an initial model! Below, add your version of the model as your class discusses it. Add your model by clicking Insert > Drawing > New.

Step 1: What do you find convincing when someone is trying to get you to do something?

Step 2: What do we need to know to make an environmental justice case that convinces many people?

**Step 1: knowing how you would personally benefit, including how it would affect you/your job/your income, etc.; why not doing something is bad/harmful; how much effort is required to be put in; a strong counter-argument; how will it impact my community as a whole**

**Step 2: firsthand perspectives of stakeholders directly affected (farmers, indigenous people); scientific tests (water quality) to gather numerical data; population monitoring; human health effects; similar case studies in other regions; what the plan looks like (methodology); how would your day-to-day be affected/logistics**



# Selecting a Location

1.



# Choosing a Region

California has many regions, ranging from the arid Inland Deserts to the foggy North Coast. Each region has a unique combination of demographics, built environment, and natural characteristics that produce widely varying experiences of environmental injustice. The first step in developing your case study is deciding which region you want to focus on. It could be the region you live in, or one you have never been to and want to learn more about—it's up to you!

## Instructions

Open the [Case Study Site Selector Tool](#). Scroll down and read through the descriptions of each region. As you read, write down some notes on what you found interesting and what you would like to learn more about. Write down at least three observations or questions:

- 1) Indigenous groups to the region
- 2) Racial demographics of the region
- 3) Current environmental issues of the region related to air, water, and land

After browsing through each of the California climate regions, write down at least one region you'd like to focus on and explain your choice:

Los Angeles

Work with your group to choose a region to focus on. Each member of the group should share which region(s) they are interested in and their reasons for choosing that region. After everyone shares, the group can vote on a region. Remember to be respectful of everyone's preferences and willing to compromise. Write down your group's final decision below.

Culver City

# Choosing a School

Schools are important locations during environmental disasters. K-12 students, especially young children, are some of the most vulnerable members of society, and schools have a responsibility to protect them. Schools are also often used as command centers, resource distribution hubs, or shelters during emergencies. This makes it important for schools and their surrounding areas to be physically safe from environmental disasters.

Finally, schools help shape the views of new generations on issues like climate change and environmental justice. If they choose to embrace this role, they can help reduce environmental injustice. For all of these reasons, your case study will be focused on a school, drawing out the particular dynamics of environmental injustice in its community and its potential for addressing both climate and environmental injustice.

## Instructions

Scroll to the “Choosing a School” section of the [Case Study Site Selector Tool](#). In the search bar at the bottom, type in your region. The map should automatically zoom in and only show you schools in that region.

Click on each school to learn more about it (for example, you can see the percentage of the students who are Latino/a).

Use the box at the bottom right to look at different kinds of information on the map. The default map shows you each tract’s CalEnviroScreen scores. You can also look at Disadvantaged Tribal Areas and Disadvantaged Communities.

Talk with your group about what kind of school you want to study (for example, a school that is mostly Latinx and is in a disadvantaged area) and select a school that matches those criteria. Write down your selected school and reasoning below:

The school we go to - understanding the issues that directly affect us/our community.





# Visualizing the Location

**2.**

Figures are visualizations—mostly maps and photographs—that help communicate details about your case study locations. They are an important part of initially getting to know a place, both for you as a researcher and for readers of your case study who may not be familiar with the location. They also make it easier to compare your location with others across the state, country, or world.

## Instructions

There are many possible figures. Your group or class likely will not be able to complete all of them. Below, write down the names of the figure(s) you have been assigned by your teacher or chosen in your group:

N/A - this is a group case study book, each student was assigned 2-3 figures to record.

You will complete your figures using two Google Slides presentations. The first, located [here](#), contains step-by-step instructions for creating each figure. The second is where you will add your completed figures. Your teacher will make a class copy and share it with you, or your group can make a copy of this template.

After you complete each figure, you should write a short explanation of what it shows so you remember when we return to it in a few weeks. These can be very simple. For example: “This map shows childhood asthma rates in the San Gabriel Valley. Note that La Puente, El Monte, and Azusa have higher rates than other areas.” Put your caption below your figure on the slide.



# Gathering Sources

3.



# Keyword Searches

Now that you have chosen a school from a California climate region, explore your site more closely using the suggested search terms in the table below, or your own. You can return to the list of keywords you generated after looking at figures for ideas. Select and search: region + search term OR county + search term OR school + search term.








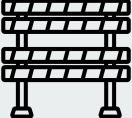




Hazards	Society and Culture	Health
<ul style="list-style-type: none"> <li>● Agriculture</li> <li>● Air, water, or soil pollution</li> <li>● Brownfields</li> <li>● Community air monitoring</li> <li>● Drought or water scarcity</li> <li>● Environmental issues or problems</li> <li>● Extreme heat or cold</li> <li>● Factories</li> <li>● Hazardous waste</li> <li>● Just transition</li> <li>● Pesticides</li> <li>● Pipelines</li> <li>● Sea-level rise</li> <li>● Superfund sites</li> <li>● Toxic leaks</li> <li>● Water quality</li> <li>● Wildfires</li> </ul>	<ul style="list-style-type: none"> <li>● Community</li> <li>● Culture</li> <li>● Disadvantaged communities</li> <li>● Diversity</li> <li>● Environmental organizations</li> <li>● History</li> <li>● Housing or homelessness</li> <li>● Indigenous nations</li> <li>● Infrastructure</li> <li>● Languages</li> <li>● Literacy</li> <li>● Local news</li> <li>● Redlining</li> <li>● Resilience</li> <li>● Poverty</li> <li>● Tribal community</li> <li>● Unemployment</li> </ul>	<ul style="list-style-type: none"> <li>● Asthma (childhood or adult)</li> <li>● Birth defects</li> <li>● Blood lead levels or lead poisoning</li> <li>● Cancer</li> <li>● Cardiovascular health</li> <li>● Community health workers</li> <li>● Emergency facilities</li> <li>● Endocrine disruption</li> <li>● Healthcare access</li> <li>● Health disparities</li> <li>● Health insurance</li> <li>● Hospital closures</li> <li>● Maternal health</li> <li>● Occupational health</li> <li>● Pediatric health</li> <li>● Senior health</li> </ul>

Collect the resources you find in the table below. Don't worry about reading them closely yet. Do open each resource and place it into the appropriate box according to the source.

<p style="text-align: center;"><b>News resources</b></p> <p>Produced by news organizations like the LA Times, OC Register, or Fresno Bee</p>	<p style="text-align: center;"><b>Government resources</b></p> <p>Produced by government agencies at any level, like the California EPA, Santa Ana Unified School District, or US Census</p>
<p>LA Times</p>	<p>Cal Enviro Screen 4.0            AirNow.gov            California Office of Environmental Health and Hazard Assessment            United States EPA            West Basin Municipal Water District            Culvercity.org            Data.census.gov            Culver City Fire Department            California Health Care Almanac</p>
<p style="text-align: center;"><b>Community resources</b></p> <p>Produced by non-profits or community organizations like the Sierra Club or Communities for a Better Environment</p>	<p style="text-align: center;"><b>Corporate resources</b></p> <p>Produced by for-profit corporations like Chevron or the Irvine Company</p>
<p>Bestneighborhood.org</p> <p>First Street</p> <p>Climate Central</p> <p>Culver City Historical Society</p>	<p>PurpleAIR.com</p> <p>Google Maps</p>

# Data Divergence

Data divergence occurs when different data are used to characterize problems or the same data is interpreted in different ways—resulting in different explanations of what happened, why, the results, and the possible remedies. It can result from many sources, including misinformation or greenwashing, but also from genuine scientific disagreement or different experiences of a problem. Environmental problems are often also data problems.

 <p><b>Structured ignorance</b> occurs when an individual or a group's capacity to avoid, ignore, or not know information is systematically produced. Missing, undone, and covered-up data can mean that environmental harms can be obscured even from people living nearby hazardous zones.</p> <p><small>Created by Nick Bluth from Nour Project</small></p>	 <p><b>Data cover-ups</b> occur when available data is suppressed, modified or removed to undermine its effective use. A famous example is the tobacco industry covering-up scientific data about the harmful health effects of tobacco on human health, even pushing scientific studies to the contrary.</p> <p><small>Created by Palermation from Nour Project</small></p>	 <p><b>Divergent measurement &amp; instrumentation</b> occurs when data is collected, valued or interpreted differently with different instruments or measurements. For example, environmental monitoring data can yield different interpretations than data collected using environmental models.</p> <p><small>Created by Smithe from Nour Project</small></p>
 <p><b>Greenwashing</b> occurs when false advertising actively and deliberately creates misunderstandings of environmental hazards. For years, the fossil fuel industry has advertised liquified natural gas as a sustainable energy resource despite harmful environmental and health effects.</p> <p><small>Created by Kelly Le Lyon from Nour Project</small></p>	 <p><b>Missing data &amp; undone science</b> occurs when environmental data has not yet been created. Legacy contamination sites that have escaped state environmental regulation are one example. New contaminants with long-term impacts that have not yet been studied are another example.</p> <p><small>Created by Palermation from Nour Project</small></p>	 <p><b>Distrust in expertise</b> occurs when experts who work with data are distrusted because of historical, political and social reasons. Harmful messaging by medical systems could mean that disadvantaged communities hesitate to trust environmental health information provided by experts.</p> <p><small>Created by Robert Dhanagan from Nour Project</small></p>
 <p><b>Manufactured doubt</b>, also known as greenwashing, is the practice of spreading disinformation about environmental problems and harms. It has been used to spread distrust in environmental agencies and scientific experts by cherry-picking evidence and exaggerating genuine scientific uncertainty.</p> <p><small>Created by Thang Vignesh from Nour Project</small></p>	 <p><b>Epistemic injustice</b> occurs when an individual, group, or community's capacity to recognize or interpret a problem has been undermined by structural issues. Environmental data collected by citizen science initiatives is often dismissed as less rigorous than data collected by scientists.</p> <p><small>Created by MUHAMMAD SUKIRMAN from Nour Project</small></p>	 <p><b>Binary thinking</b> occurs when people think about data in partisan ways, which makes it hard to integrate or combine different types of data (e.g. qualitative vs. quantitative, subjective vs. objective). This could mean that qualitative data (like personal experiences) is undermined as evidence for environmental harms.</p> <p><small>Created by David Chubbok from Nour Project</small></p>
 <p><b>Divisible governance</b> occurs when the capacity to collect and interpret data is divided between many agencies, causing conflict over appropriate jurisdictions. Proving the harms of plastic pollution is tricky because plastics accumulate in the soil, water, air, and food chain for a long time. Monitoring and regulating these aspects often falls under separate governance jurisdictions.</p> <p><small>Created by Esmayl from Nour Project</small></p>	 <p><b>Data scales</b> can lead to divergent priorities about environmental problems. Residents of a polluted neighborhood may identify problems using their observations and experiences (e.g. negative health effects), which encourages a neighborhood focus, while government agencies may identify problems using environmental monitoring data, which may focus on the regional scale.</p> <p><small>Created by David Stone from Nour Project</small></p>	 <p><b>Frames &amp; paradigms</b> influence how people interpret the data and information they come across. They are hard to recognize and change because they become part of our habits and institutions. One paradigm that undermines environmental protection is the prioritization of economic growth over protecting resources and reducing inequality.</p> <p><small>Created by Hemanth Kavanigadda from Nour Project</small></p>

# Evaluating Sources

An important part of research is deciding whether a particular source is trustworthy and whether information is accurate. Use this sketch<sup>1</sup> to analyze resources related to environmental justice issues in your case study location.

	News Resource <u>Inglewood Oil Field (LA Times)</u>	Government Resource <u>Inglewood Oil Field (Culver City Website)</u>
<b>Author and Intended Audience</b> Who made this? Who is the target audience?	The article was written by LA Times journalist Jaclyn Cosgrove. The targeted audience are the LA County residents, including those that might have greater exposure to toxic pollution.	The City of Culver City wrote this, the target audience are the residents of Culver City.
<b>Primary Argument/Purpose</b> What is the main message? Why was this created?	The main message is that the first steps to phasing out urban oil drilling have been taken. This was created to raise awareness of the issue of urban oil drilling and the progress that has been made so far.	For many years, the Culver City Council has made attempts to establish agreements and regulations on the Inglewood Oil Field Culver City Territory. A working agreement has been settled, which was created to inform residents of the attempts made toward regulating these oil fields and creating a safer community.
<b>Author and Intended Audience</b> Who made this? Who is the target audience?	Jaclyn Cosgrove wrote the LA Times article about the Inglewood Oil Field. The target audience includes Los Angeles County residents, especially those in affected communities, as well as policymakers and environmental advocates interested in public health and environmental justice issues.	The author is a writer for the Culver City Council. The target audience is people living in Culver City and the IOF region and researchers who want to learn more about Culver City's drilling regulations.

<sup>1</sup> Adapted from EcoGovLab. 2023. "EiJ EcoEd Sketch: Analyzing Media Coverage" assignment updated for the Environmental InJustice Curriculum Program. July 2023.

<p><b>Evidence and Sources</b> What sources and evidence does the argument rely on? How can I confirm this information?</p>	<p>This argument relies on motions published by supervisors, and websites on oil production. I can click the links to view the sources or search up the names mentioned to check for credibility.</p>	<p>The source relies on Historical context, Culver City's Regulatory Efforts and Community Perspectives/Response. All this can be confirmed with a google search. Some specific evidence: -IOF operations dating back to the 1920s -Communities increased concern in IOF activities following gas releases in 2005-2006. (Resulting in LA County starting the Environmental IMPact report in 2008. -Culver City's release of the Discussion Draft Oil Drilling in 2013 and Draft Specific plan in 2014. -SPR's acquisition of the IOF and their request to participate in Culver City's regulatory process.</p>
<p><b>Context</b> When was this created? What aspects of the historical context are important to consider? How does the media form impact the message?</p>	<p>This was created in September 2021, in the middle of the covid pandemic and quarantining. Because people were forced to stay at home, that may have affected the urgency of the issues presented by the oil field. Additionally, being produced in recent years means that it was written during a time that society is beginning to take the environmental crisis more seriously, due to the increased education level and scientific evidence on the subject. Finally, being written as an educational article makes the piece more likely to be taken seriously and addressed according to the gravity of the problem at hand.</p>	<p>This was created in the 1920s. The Inglewood Oil Fields' most recent developments include the Freeport McMoRan Oil and Gas becoming the field operators in 2014. The Inglewood Oil Fields were then sold to Sentinel Peak Resources California in 2017. Several instances of accidental gas release and odor events in 2005-2006 increased awareness and concern among the community. The media form spreads awareness</p>
<p><b>Effects</b> How does this make me feel and why? What impact might this article have? Who does this message benefit? Who does it</p>	<p>This makes me feel like climate justice in the future is hopeful. This article has impacts on the people of Los Angeles county. The people benefiting from this article are the</p>	<p>This article makes me feel connected to the city as it provides information about drilling regulations in Culver City. This article ensures our health by</p>



harm?	people of Los Angeles County, as the air quality, environment, and natural resources will benefit. But this will harm the oil industry and the workers.	notifying us what is happening in the surroundings. Thus, this message benefits residents in Culver City while harming oil companies, which seek to acquire more profits despite their complaint.
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	Community Resource <u>Inglewood Oil Field (Sierra Club of Culver City)</u>	Corporate Resource <u>Inglewood Oil Field (Inglewood Oil Company)</u>
<b>Author and Intended Audience</b> Who made this? Who is the target audience?	Liz Doherty wrote the article, the target audience is environmentalists and people interested in this topic.	The Inglewood oil field website made this explaining the history of the site. Its intended audience is the community of Culver City to know what this fuel is about.
<b>Primary Argument/Purpose</b> What is the main message? Why was this created?	The main message is that the Inglewood oil field is located right by a community of mostly colored people, which exposes these people to diseases from the pollution such as lung disease, leukemia, lymphoma, lung cancer, nervous system damage, birth defects, and premature death. This article was created to spread awareness for those that live right by the oil field and the dangers they face.	The main message is that the oil fields fuel the economy and energy industry and provide a source of wealth and abundance for the community. This was created to support the maintenance and growth of the Inglewood oil field.
<b>Author and Intended Audience</b> Who made this? Who is the target audience?	Sommer Yesenofski. The main target audience is the people in power of Inglewood, the citizens of Inglewood, and Inglewood's neighboring cities.	Sentinel Peak Resources LLC (SPR). People that live in Inglewood and around there.
<b>Evidence and Sources</b> What sources and evidence does the argument rely on? How can I confirm this information?	The argument relies on comments of officials in several committees and environmental programs that deliver the facts of the oil field and comments on oil spilling. This information can be confirmed by searching for this issue on famous news sources or government websites.	The source doesn't mention much about resources used but does say "engineers estimate" which can't be confirmed as there are no actual sources listed.

<p><b>Context</b> When was this created? What aspects of the historical context are important to consider? How does the media form impact the message?</p>	<p>This was created on April 7, 2021. The historical context is that this article was written right after an oil spill from the Inglewood Oil Fields. Additionally, this article was published a couple weeks before a motion to phase out oil drilling went before LA County's Planning Land Use and Management Committee. Generally, environmental activism in America has been on the rise starting in the late 2010s. This media form impacts the message by making it seem more legitimate (because it is a written, researched article).</p>	<p>The website was created in 2017, the Inglewood Oil Field was purchased by Sentinel Peak Resources a year before this in 2016, environmental awareness has been increasing and concerns about the safety and correctness of oil fields has been questioned. The media form impacts the message as there can be quite a bit of bias and misinformation surrounding the oil field as this website would obviously be in support of the oil field.</p>
<p><b>Effects</b> How does this make me feel and why? What impact might this article have? Who does this message benefit? Who does it harm?</p>	<p><b>Angry! It's insane how long local communities have been exposed to these toxins! While it's great news that the county and city are trying to phase out oil/gas production this is WAY overdue. Thankfully this article is here to help educate the public on the environmental racism going on in Culver City. With information like this we can keep ourselves healthy and safe from toxic chemicals! And hopefully tarnish the image of oil companies.</b></p>	<p>This makes me feel like the oil field in Inglewood is a good thing because it says that it supports the local economy. This article might be misleading to others and benefits these corporations that make money off the oil field. It harms the residents that lives near the oil field because the public perception might be misinformed.</p>

# Analyzing Data

4.

# Case Study Framework

The Environmental Injustice (EIJ) Case Study Framework developed by Kim Fortun and the EcoGovLab aids researchers in collaborative and comparative analysis of environmental injustice in different settings. Supported by “sketches,” the ten questions that make up the framework guide researchers through data collection and analysis of the many dimensions of environmental injustice. The framework invites collaboration by drawing in many different skill sets and types of knowledge, from toxicology to political science. Answering the same set of questions across many settings helps researchers understand the shared problems of environmental injustice across the world.

**Setting:** What is the setting of this case? What are its assets? What opportunities and challenges will there be in coming years?

**Hazards:** What environmental hazards are there in this setting, what is their source, and what are their effects?

**Vulnerabilities:** What intersecting factors contribute to environmental health vulnerability and injustice in this setting?

**Stakeholders:** Who are stakeholders, what are their characteristics, and what are their perceptions of problems?

**Stakeholder Actions:** What have different stakeholder groups done (or not done) in response to environmental problems in this setting?

**Media:** How have environmental problems in this setting been reported on by media, environmental groups, companies, and government agencies?

**Local Actions:** What local actions would reduce environmental vulnerability and injustice in this setting?

**Extra-Local Actions:** What extra-local actions would reduce environmental vulnerability and injustice in this setting?

**Missing Data:** What kinds of data and research would be useful in efforts to characterize and address environmental threats in this setting and similar settings?

**Intersecting Injustices:** What intersecting injustices combine to contribute to environmental injustice in this setting?

Learn more about the framework, including guides and resources for answering each of the questions, [here](#).



# Setting

These sketches are designed to help you analyze the specific characteristics of different places that shape how many things, including environmental disasters, play out. Remember that sketches are not worksheets—your answers don’t have to be perfectly polished, and you will not answer every question. Instead, use this sketch set to collect your thoughts as you gather information about your case study site.

## Sketch 1: Location

This sketch<sup>2</sup> helps you describe a setting. Use the categories and questions as a guide for topics you should research, and put your findings in the middle column. The right column contains suggested sources. You should also refer to the sources you gathered in step 3 and your [Figures](#) from step 2. Add any other sources you use to the right column.

Remember that this list is not exhaustive: you can add your own categories and facts at the bottom!

TOPIC	DETAILS	SOURCES
<b>Physical landscape</b> Is this place coastal or mountainous? What are the typical temperatures? What are the ecosystems?	Culver City has a Mediterranean climate, which is a type of coastal climate in California. One major ecosystem of Culver City is the Ballona Creek, which allows for a lot of wildlife to thrive. Temperatures typically ranges from 49 F to 78 F. It has a Chaparral Biome	Wikipedia
<b>Built environment</b> How old are buildings, on average? Are they densely packed or spread out? Are there spaces for people to gather in public?	Maybe about 20 years old  Spread out, everyone has plenty of space  There are many different places to gather in public, such as parks, and other recreational facilities.	<a href="#">California Healthy Places Index</a>

<sup>2</sup> Adapted from EcoGovLab. 2023. “EiJ EcoEd Sketch: Location” assignment updated for the Environmental InJustice Curriculum Program. June 2023.

<p><b>Demographics</b> Racial breakdowns, median income, health indicators</p>	<p>45.6% white, 20.4% latino, 17.7% asian, 7.5% black, 7.8% two or more races; median household income is \$114,429, Culver City is about on par with the California average in every category, except pre-school obesity</p>	<p><a href="#">US Census Data</a> <a href="#">City Data</a> <a href="#">EPA EJScreen</a> <a href="#">Fast Disaster Map</a></p>
<p><b>Economics</b> How do people earn money? What are the major sources of employment?</p>	<p>Jobs in technical services(13.8%), Educational services(11.7%), and Healthcare(8.2%) are the top 3 ways people earn money. #1 occupation: Management occupations except farmers and farm managers (6.3%) #2 occupation: Secretaries and administrative assistants (4.4%) #3 occupation: Office and administrative support workers, including supervisors (4.0%)</p>	<p><a href="#">US Census Data</a> <a href="#">City Data</a> <a href="#">US County Data</a> <a href="#">California Healthy Places Index</a></p>
<p><b>Social environment</b> What are key cultural and community locations? What are the major cultural groups?</p>	<p>The culver city area is rich in culture, some key cultural and community locations are the culver hotel, the sony pictures museum, the culver city movie theater.</p>	<p><a href="#">City Data</a> <a href="#">EPA EJScreen</a></p>
<p><b>Political environment</b> What is the structure of local government? How does this area usually vote? Who are they represented by, and do those representatives attend to residents' interests?</p>	<p>The local government is that of a representative democracy in which we elect city council members, school board members, and other city officials to reflect the beliefs of the community. This area votes through local elections every year for various positions. They are represented by the above listed positions, and, generally, these representatives do attend to and uphold the interests of the Culver City population.</p>	<p><a href="#">City Data</a></p>
<p><b>Historical context</b> When was this place founded, and what has it looked like since then? Are there important historical tensions between groups of residents? Are there important historical events that occurred here?</p>	<ul style="list-style-type: none"> <li>- Culver City was founded in 1917, first considered a small town for nuclear families, has since become more industrial with the booming film industry and downtown</li> <li>- Harry Culver promoted his “model little white city”, with police officers enforcing these racial discrimination</li> <li>- Considered a “sundown town”, meaning that no native people were allowed to live in the city, nonwhite and Jewish people also restricted</li> <li>- In the 1940s, Culver City’s Chief of Police was</li> </ul>	<p><a href="#">City Data</a></p>

	accused of misconduct, including openly recruiting for the KKK	
<p><b>Indigenous past/present/future</b></p> <p>What are the Indigenous groups in your community? Are they recognized by the federal government? How many members still live in the community? How and when was their land taken?</p>	<p>Culver City is homeland of the Gabrielinos (Tongva) natives. To this day they are still not recognized by the federal government. There are around 162 members still living in Culver City. They lost their land because the U.S Senate refused to ratify treaties because the California legislature and businesses did not like them.</p>	<p><a href="#">List of federally recognized native tribes</a></p> <p><a href="#">Map of native lands</a></p> <p>Individual tribe wikipedia pages &amp; websites</p>
<p><b>Schools and districts</b></p> <p>What kinds of students do your school and district serve, and is this different from the overall population of the community? Are there special programs available to support certain groups?</p>	<p>Students in Culver City are very diverse. There is more Latino and Black students served in the district than the demographic of the actual city (due to out-of-district permits). We have a free/reduced lunch program, we have homeless youth services, among many others to help create equity for students.</p>	<p><a href="#">Public school information</a></p> <p><a href="#">School district profiles</a></p> <p><a href="#">Fast Disaster Map</a></p>

# Sketch 2: Community Assets<sup>3</sup>

Community assets are people, skills, organizations, social networks, histories, technical infrastructure, public spaces, and many other things that can be leveraged to solve problems and develop effective pathways for community development. Before looking ahead, make a list below of as many examples of community assets as you can, explaining briefly why each one is an asset. Then, look at the infographic on the next page and compare it to your list.



<sup>3</sup> Adapted from EcoGovLab. 2023. "EiJ EcoEd Sketch: Community Assets" assignment updated for the Environmental InJustice Curriculum Program. June 2023.

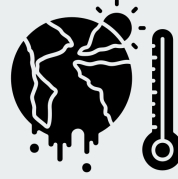


Created by Benkh 1000 from Noun Project

**Legal aid** can help communities fight back against injustice in their community.



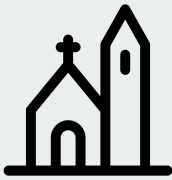
**Local labor unions** can help defend workers exposed to occupational environmental hazards.



**Local action plans** to mitigate climate change are powerful tools to help prevent combo disasters from getting worse.



**Environmental organizations** play an important role in educating and mobilizing communities.



**Churches** can grow community networks to help people get food, rent, and other necessities. This is helpful in disasters to keep people alive and well.



**Community air monitoring networks** help grow data about the severity of environmental injustice and can be helpful in appealing to larger bodies that there is a problem.



Created by Alicons from Noun Project

**Libraries** are great third spaces for communities to congregate and can double as cooling centers. They often have programs that benefit residents and boost community engagement.



Created by Allison from Noun Project

**Community colleges, public universities, and schools** teaching climate change and other environmental issues can be an important first step in combating injustices in the community.



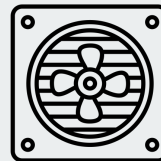
Created by Xicoms.co from Noun Project

Healthy citizens with access to **affordable community healthcare** are better able to advocate for their community.

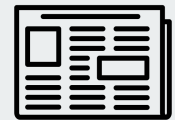


Created by Path Lord from Noun Project

**Emergency notification systems** are essential for evacuating and letting community members know what to do in the event of an emergency.



**Cooling centers** are helpful resources for environments vulnerable to urban heat islands, and general temperature/climate dangers.



Created by jonata hangga from Noun Project

**Local news organizations** are important assets for disseminating media coverage of environmental issues, scientific research and advocacy efforts.



Created by Bakumetsu Kaito from Noun Project

As traditional stewards of the land, **Native California tribes** contribute indigenous and alternative epistemologies and approaches to ecological



Created by Wilson Joseph from Noun Project

**Proactive elected officials** can help direct the allocation of resources to support communities and advance environmental justice goals.



**Parks** can help to mitigate the impact of climate-change induced extreme heat, and can also help to support the physical, social and mental



Created by agna raharjo from Noun Project

**Sports clubs and facilities** can help to promote the social, mental, and physical health of a community.



sciences. The work of indigenous communities is critical in protecting and restoring land and its diverse inhabitants and in transitioning to just and sustainable economies.		health of community members.	
	*Salmon are sacred to many Native Californian tribes who have also worked to restore harvestable fisheries for all people that depend on salmon for survival. More information on the significance of salmon to Native Californian tribes is available <a href="#">here</a> and <a href="#">here</a> . A short overview of California Indian History, written by activist and former professor Edward D. Castillo, of the Luiseño-Cahuilla tribes, is available <a href="#">here</a> .		

Finally, use the data resources below to find community assets in your community. You may not be able to find examples of all of these categories–this is also important to notice!

ASSET TYPE	DATA SOURCE	DETAILS
affordable community healthcare	<a href="https://findahealthcenter.hrsa.gov/">https://findahealthcenter.hrsa.gov/</a>	VENICE FAMILY CLINIC - SANDY SEGAL YOUTH HEALTH CENTER, VIA CARE WEST LA COLLEGE, WESTSIDE FAMILY HEALTH CENTER MOBILE MEDICAL UNIT (MMU).WESTSIDE FAMILY HEALTH CENTER
churches that support inclusive prosperity		Prosperity churches place a strong emphasis on the importance of giving.
climate change action plans	<a href="https://webmaps.arb.ca.gov/capmap/">https://webmaps.arb.ca.gov/capmap/</a>	Green New Deal, RTPA Climate Action Plan, Elenda Plan.
community colleges and public universities	Community colleges: <a href="https://www.cccco.edu/Students/Find-a-College/College-Alphabetical-Listing">https://www.cccco.edu/Students/Find-a-College/College-Alphabetical-Listing</a> Public universities: <a href="https://www.universityofcalifornia.edu/campuses-locations">https://www.universityofcalifornia.edu/campuses-locations</a> <a href="https://www.calstate.edu/apply/Pages/contact-a-campus.aspx">https://www.calstate.edu/apply/Pages/contact-a-campus.aspx</a>	Local community colleges include west la college, santa monica college, LA southwest college, LATTC, and Los Angeles City College Local public universities include UCLA and cal state la
community air monitoring networks		This system contains six different monitoring spots in Culver City: Jasmine2, Turning Point School, Lindberg Park, Culver Crest, SJ, Blanco Way, and El Marino Elementary School. The numbers are the Air Quality Indexes, which is based on a scale from 0 (good) to 500 (bad).The colors correspond to the different health impact categories (good, moderate, unhealthy... hazardous)
cooling centers		Culver City Senior Center The centers main goal is to provide a variety of educational and recreational classes for Older adults (50+), Residents with disabilities and Members of the public;

ASSET TYPE	DATA SOURCE	DETAILS
		includes rooms for cooling off.
environmental organizations		The Sierra Club's West Los Angeles Group is part of the Angeles Chapter of the Sierra Club, a major grassroots environmental organization in the U.S. The West LA Group focuses on advocacy and policy work to protect the environment. It includes members from Beverly Hills, Culver City, Malibu, Pacific Palisades, Santa Monica, and West Los Angeles. The site provides information about their history, goals, volunteer opportunities, events, and ways to get involved.
emergency notification systems	<a href="https://calprep-calema.hub.arcgis.com/">https://calprep-calema.hub.arcgis.com/</a>	California residents are provided with emergency notifications through California Preparedness Platform, which provide sources from the California State Warning Center's Daily Operations Report, Cal EOC, California Department of Water Resources (DWR), National Oceanic and Atmospheric Administration (NOAA), and the National Weather Service (NWS).
labor unions		There are few labor unions specific to Culver City, most involved in Culver City are spread throughout California. One Culver City labor union, though, is the Culver City Employees Association. They are recognized by the city "as the exclusive representative of the full-time, non-management, non-safety, general service classified employee classifications of the Cit
legal aid		City's Public Works Division of Environmental Programs & Operations (EPO) Initiatives: cleaning/preserving the Ballona Creek Water conservation efforts Banning Polystyrene
libraries	<a href="https://www.library.ca.gov/services/to-libraries/library-directory/">https://www.library.ca.gov/services/to-libraries/library-directory/</a>	Julian Dixon library Heldman Resources learning library

ASSET TYPE	DATA SOURCE	DETAILS
local news organizations	Newspapers: <a href="https://cnpa.com/directories/cnpa-member-directories">https://cnpa.com/directories/cnpa-member-directories</a> Public radio: <a href="https://www.npr.org/stations/">https://www.npr.org/stations/</a> Public TV: <a href="https://www.pbs.org/stations/">https://www.pbs.org/stations/</a>	Culver City Observer (Newspaper) NPR West Radio Station (Public Radio) PBS SoCal (Public TV)
Native tribes	<a href="https://www.native-land.ca">https://www.native-land.ca</a>	The main native tribe in Culver City is the Chumash, and the Tongva (Gabrieleno)
proactive elected officials	<a href="https://calmatters.org/legislator-tracker/home/">https://calmatters.org/legislator-tracker/home/</a>	(LA) María Elena Durazo is a longtime labor activist. (LA) Lola Smallwood-Cuevas is a labor and civil rights activist and former newspaper journalist
parks	<a href="https://parkserve.tpl.org/mapping-dev/">https://parkserve.tpl.org/mapping-dev/</a>	There are many public parks and greenspaces available including Baldwin Hills Scenic Overlook, Stoneview, Kenneth Hahn, Bill Botts Field, Culver City Park, El Marino Park, and much more.
schools teaching climate change	<a href="https://schoolsforclimateaction.weebly.com/school-boards.html">https://schoolsforclimateaction.weebly.com/school-boards.html</a>	Culver City High School, West LA College, UCLA
sports clubs and facilities		Facilities: Mar Vista Rec Center, Bill Botts Field, Equinox Culver City, Culver City Little League, Jerry Chabola Stadium, Culver City Municipal Plunge, Culver City HS Fields, LA Fitness, YMCA Palms, Topgolf  Clubs: Soccer, Tennis, Football, Lacrosse, Swim, Baseball, Basketball,
[add others here!]		



# Sketch 3: Native Land Acknowledgement

This is an example of a Native Land Acknowledgement:

“We acknowledge that we are on the traditional territory and homelands of the Luiseño/Payómkawichum people.”

- Luiseño (Loo-sin-yo)
- Payómkawichum (Pie-yom-ko-wi-shum)<sup>4</sup>

Use this sketch to compile notes about Native history, peoples, and organizations in your setting. These should focus on the specific Native communities in your setting, past and present, but they can also include general points about Native issues.

Consider answering the following questions:

- Which Native nations were/are present in your community?
- Are these nations recognized by the federal government?
- Do they have a reservation?
- How many members are there total? How many members still live in the community?
- How and when was their land taken?
- How are Native people and organizations active in your community today?

Resources:

- [List of federally recognized native tribes](#)
- [Map of native lands](#)
- [Digital Atlas of California Native Americans](#)
- Individual tribe wikipedia pages & websites (often linked to from [Native Lands](#))

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<sup>4</sup> American Indian Resources Center. (n.d.). *Land Acknowledgement: You're on California Indian Land, Now What?* California Indian Culture and Sovereignty Center; CSUSM American Indian Studies. Retrieved August 30, 2023, from <https://www.csusm.edu/cicsc/land.pdf>

NOTES	SOURCE
<p>Culver City is homeland of the Gabrielinos (Tongva) natives. To this day they are still not recognized by the federal government. There are around 162 members still living in Culver City. They lost their land because the U.S Senate reduced to ratify treaties because the California legislature and businesses did not like them.</p>	<p><a href="#">List of federally recognized native tribes</a>  <a href="#">Map of native lands</a></p>

Now, review this [Land Acknowledgement Toolkit](#) designed in collaboration with the California Indian Culture and Sovereignty Center (CICSC) and CSU San Marcos American Indian Studies Department.

Below, draft a land acknowledgement for your case study location. Remember that land acknowledgements are meant to be reflective acts that work to undo the intentional erasure of Native peoples by recognizing them as traditional stewards of the land. Consider this sketch a draft, one that you will return to as you reflect, build, and learn more about your case study location and the Native peoples who have cared for this land.

**We acknowledge that we are on the traditional territory and homelands of the Gabrielinos (Tongva) people. We strive to deepen my own understanding of the local Indigenous communities. We come with respect for this land that we are on today, and for the people who have and do reside here.**

# Hazards

## Sketch 1: Identifying Hazards

This sketch<sup>5</sup> helps you identify the most important hazards in a particular setting through three widely used data resources. Check the data resource you were assigned below:

- [CalEnviroScreen 4.0](#)
- [EJScreen](#)
- [Climate Mapping for Resilience and Adaptation tool](#)

Work with your group to fill out the first three columns of the sketch. In the first column, write down one of the hazards described by your data resource (for example, “PM2.5”). In the second column, write down any details about the hazard you can find. These can be about your case study location (for example, “our school is in the 75th percentile for PM2.5 exposure”) or more general (for example, PM2.5 stands for airborne particulate matter that is less than 2.5 micrometers wide). Then, return to your Figures and your resources list to look for additional resources that may give you more information. You will fill out the fourth column as a class.

HAZARD	DETAILS	ADDITIONAL RESOURCES	COMBINATIONS
Ozone	73rd percentile	<input type="checkbox"/> <a href="#">CalEnviroScreen 4.0</a>	
Particulate Matter	53rd percentile	<input type="checkbox"/> <a href="#">CalEnviroScreen 4.0</a>	
Diesel Particulate Matter	43rd percentile	<input type="checkbox"/> <a href="#">CalEnviroScreen 4.0</a>	

<sup>5</sup> Adapted from EcoGovLab. 2023. “EiJ EcoEd Sketch: Identifying Potential Hazards” assignment updated for the Environmental InJustice Curriculum Program. June 2023.

HAZARD	DETAILS	ADDITIONAL RESOURCES	COMBINATIONS
Lead (Housing)	26th percentile	<input type="checkbox"/> <a href="#">CalEnviroScreen 4.0</a>	
Carbon Monoxide	25th percentile	<input type="checkbox"/> <a href="#">CalEnviroScreen 4.0</a>	

After you complete this sketch, you will decide as a class which five hazards are the most important in your setting. Write down the class's consensus here:

- |  |
|--|
| <ol style="list-style-type: none"> <li>1. Ozone</li> <li>2. Particulate Matter</li> <li>3. Diesel Particulate Matter</li> <li>4. Lead</li> <li>5. Carbon Monoxide</li> </ol> |
|--|



## Sketch 2: Modeling Hazard Exposure Pathways

After you have identified the most important hazards in your setting, this sketch<sup>6</sup> is designed to help you move both backwards—to identify root causes—and forwards—to connect health effects and vulnerable groups. The exposure pathway we use (below) is adapted from materials created for the National Institute of Environmental Health Sciences<sup>7</sup>.



You may not be able to fill out each of the six steps in the pathway for each of the hazards you will investigate. It is often easiest to start from a hazard or health effect and then work backwards to environmental conditions, climate drivers, and root causes.

Remember the distinction between environmental conditions and hazards: environmental hazards lead directly to detrimental health outcomes, and environmental conditions may lead to or exacerbate hazards.

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<sup>6</sup> Adapted from EcoGovLab. 2023. “EiJ EcoEd Sketch: Hazard Exposure Pathways” assignment updated for the Environmental InJustice Curriculum Program. June 2023.

<sup>7</sup> Haine, Dana and Stefani Dawn. 2020. “A Student Exploration of the Impacts of Climate Change on Human Health in the United States,” lesson plan developed for the National Institute of Environmental Health Sciences.  
[https://www.niehs.nih.gov/health/assets/docs\\_a\\_e/a\\_student\\_exploration\\_of\\_the\\_impacts\\_of\\_climate\\_change\\_on\\_human\\_health\\_in\\_the\\_united\\_states\\_lesson\\_plan\\_508.pdf](https://www.niehs.nih.gov/health/assets/docs_a_e/a_student_exploration_of_the_impacts_of_climate_change_on_human_health_in_the_united_states_lesson_plan_508.pdf)

ROOT CAUSE(S)	CLIMATE DRIVER(S)	ENVIRONMENTAL CONDITION	ENVIRONMENTAL HAZARD	HEALTH EFFECTS	VULNERABLE GROUPS
Heat and sunlight cause chemical reactions between nitrogen oxides and VOCs which can be from: combustion, cars/transportation, emissions	O3 raises temperature, and can hold heat. It causes changes in Sun's energy output because it absorbs UV rays, Earth's Orbital Cycle, large volcanic eruptions, traffic conditions.	Hot, sunny and calm weather help promote the formation of ozone. (hydrogen and nitrogen oxide gases reacting in the presence of sunlight).	O3 inhibits photosynthesis as it can form smog which blocks sunlight.	O3 can cause respiratory issues such as asthma, and it irritates the airways. Basically, it complicates breathing.	Children, people with lung disease, adults who are active outdoors, people with respiratory issues (asthma, bronchitis, etc), the elderly
particulate matter is emitted directly from construction sites, wildfires, wood burning, gravel pits, agricultural activities, and dusty roads	Black carbon which is a component of particulate matter contributes to global warming by absorbing sunlight. Stifles air circulation and stains materials.	Some conditions that make this problem worse include unpaved roads, fields, smokestacks, volcanic eruptions, soil erosion, pollen, and sea salt.	Can contribute to acid rain (making water bodies much more acidic) Can change weather patterns Damage stone and other materials	Health effects may include cardiovascular effects such as cardiac arrhythmias and heart attacks, and respiratory effects such as asthma attacks and bronchitis.	People with asthma or other respiratory issues, children, pregnant people, older people, people with heart and lung problems.
Transportation emissions- big trucks, buses Port Activities- port of long beach(diesel	Contributes to the production of ground-level (tropospheric) ozone. Damages vegetation. Causes acid rain	Diesel fuel is found in exhaust which can be prominent at any time, however, can be more active when the engine isn't producing enough	DFPM can reduce visibility and increase black carbon which also increases global warming. It can also affect soil, plants and water which can yield	DFPM can cause cardiovascular and respiratory disease, lung cancer, dizziness, headache, nausea, irritation to the	The most vulnerable groups for diesel fuel particulate matter is young children, and the elderly. Children because

ROOT CAUSE(S)	CLIMATE DRIVER(S)	ENVIRONMENTAL CONDITION	ENVIRONMENTAL HAZARD	HEALTH EFFECTS	VULNERABLE GROUPS
powered ships) Construction activities- construction can elevate diesel pm levels into the atmosphere.	which damages soil and bodies of water, which then impacts food chains.	heat, like in an underloaded truck.	their growth. Lastly, DFPM can cause acid rain which can harm soil and lakes.	eyes, nose, and throat	their lungs are still developing, and elderly because they are more susceptible to health problems.
Lead pollution is caused chiefly by ore and metal processing, particularly lead smelters and piston-engine aircraft processing on leaded aviation gasoline.	Lead can be toxic to plants, which can disrupt photosynthesis and lead to other atmospheric changes. Lead particles in clouds can help ice crystals form, which can impact rain and other precipitation, and possibly the global climate.	Lead can be found quite literally everywhere, this includes the air, soil, water, paint, oil, ceramic pipes, plumbing materials,, gasoline, batteries, ammunition, and cosmetics.	Leaches into atmosphere and bodies of water. Loss in biodiversity, change in community composition, decrease growth and reproductive rates of plants and animals.	Short term: Headaches, stomach aches, fatigue. Long Term: Anemia, Kidney damage, nerve damage, brain damage. Learning ability impairments and possibly cancer.	While lead affects everyone, children, including unborn babies, are most at risk for lead poisoning . Children are most often exposed to lead by swallowing items or soil containing lead or breathing in dust containing lead.
heaters, fireplaces, furnaces, and many types of appliances and cooking devices. It can also be	fossil fuel combustion, cars, gas stoves, industry, plastic production.	Strong temp. Inversions and nearby hills that block windflow → basically any sort of atmospheric	Can increase temperature on land and sea, which can change ecosystems. More ground level ozone , especially in	Health effects are fatigue, headaches, confusion, and dizziness because of a lack of oxygen to the brain.	Vulnerable groups to carbon monoxide include children, the elderly, and individuals with

ROOT CAUSE(S)	CLIMATE DRIVER(S)	ENVIRONMENTAL CONDITION	ENVIRONMENTAL HAZARD	HEALTH EFFECTS	VULNERABLE GROUPS
produced from vehicles that are idling.		stagnation can increase CO levels	the summer months		chronic heart or respiratory conditions. These groups are more susceptible to the harmful effects because their bodies are less able to cope with the toxic exposure.



# Sketch 3: Data Ethnography

Data ethnography is a research method used to understand the backstories of data resources—datasets, archives, maps, visualizations, audiovisual artifacts, documents, teaching material, and so on. Understanding the backstories of data is important because creating, maintaining, and circulating data requires many intentional choices of appropriate measurements, scales, language, definitions, collection and analysis strategies, and maintenance. These choices depend on who is interested in the data and how it is used and involve complex social and political dynamics. When we understand the backstory of data, we can understand how to use it responsibly.

In this sketch<sup>8</sup>, you will analyze one of the data resources you have already explored in your Figures and previous sketches.

<b>CREATION</b> Who created this resource? Why was it created or collected and when? What environmental issues is it responding to? Who might use it and why?	CalEnviroScreen 4.0 is created by the California division of the Environmental Protection Agency (EPA). CalEnviroScreen is a screening tool used to help identify communities disproportionately burdened by multiple sources of pollution and with population characteristics that make them more sensitive to pollution. It would be used by both scientists and community members in order to better understand what pollutants are prevalent in their community.
<b>SCALE</b> At what scale(s) is this data resource meant to be useful? Neighborhood, region, state, other?	While the scale is for the entire state, the most information is gleaned on a region/neighborhood basis. Even within one city, small subsections of that city can provide distinct data.
<b>DATA DIVERGENCE</b> What sources of data divergence, if any, do you notice in this data resource?	<b>Data scales</b> can lead to divergent priorities about environmental problems. Residents of a polluted neighborhood may identify problems using their observations and experiences (e.g. negative health effects), which encourages a neighborhood focus, while government agencies may identify problems using environmental monitoring data, which may focus on the regional scale.

<sup>8</sup> Adapted from EcoGovLab. 2023. "EiJ EcoEd Sketch Template: Data Ethnography", assignment updated for the Environmental InJustice Curriculum Program, and Dr. Lindsay Poirier's [Data Ethnographies Workbook V 1.0.0 March 2022](#).

**MISSING**

What is missing in this data resource that you think should be included? Does it adequately respond to important environmental issues?

Possibly more specific information, including ppm values, as well as what EMP facilities are nearby (if they are hazardous).

# Sketch 4: Designing Civic Data

Civic data are data tools, resources, and artifacts that produce a shared concern for an issue. In environmental advocacy, governance, and justice, civic data can be created by many types of experts: federal environmental agencies, nonprofits and even by citizen science initiatives. Civic data needs to be maintained and updated to keep animating its users and communities.

In this sketch, you will design a civic data resource responding to a problem in the United States that needs to be addressed using data. In groups, discuss what problems you have encountered in your setting so far, and if creating civic data tools and resources can help to advance environmental justice.

<p><b>CHOOSING A PROBLEM</b> Describe a problem in the United States that needs to be addressed using data (in any sector: environmental, education, health, transportation, law).</p>	<p>Air pollution and climate change from fossil fuel combustion (environmental)</p>
<p><b>IMAGINING USEFUL DATA</b> Describe data that would be useful in characterizing and addressing the problem.</p>	<p>Corporate website information, environmentalist group information, air quality data, health data, local testimonies from community members, legal court cases, similar cases of air pollution elsewhere (precedents), long-term climate data</p>
<p><b>PRODUCING USEFUL DATA</b> Describe the process through which this data could be produced and interpreted.</p>	<p>Quantitative - numerical data collection (air pollution values, temperature changes, illnesses) Qualitative - in-person interviews, court cases (public record), precedents (government sites, etc)</p>
<p><b>BUILDING DATA COMMUNITIES</b> Describe at least three stakeholders who would use or be impacted by this data.</p>	<p>Government officials (federal, state, local); community members; fossil fuel corporations; environmentalist groups</p>
<p><b>DATA VISUALIZATION AND ACCESS</b> Describe how the data should be accessed, visualized, and circulated.</p>	<p>Public record, graphs/figures, maps, health records, etc.</p>
<p><b>DATA RESISTANCE</b> Describe challenges or resistance that could emerge in trying to build, publish, or make use of this data.</p>	<p>Bias (depending on the source of information)</p>

# Sketch 1: Stakeholder Mapping

Stakeholders are individuals, groups or organizations that have a stake in a problem or project. They are affected by the problem (positively or negatively) or have an interest in the outcomes of interventions in the problem. There are both local and non-local stakeholders. Read more in FAQs about Eij Stakeholders.

This sketch asks you to map who has a say in environmental injustice in a particular setting. You will review the resources you gathered earlier, supplementing with new sources if necessary, to create a list of environmental justice stakeholders in your community. These lists should be detailed and specific—for example, instead of listing “community members,” think about local officials, health professionals, parent-teacher associations, etc. as separate stakeholder groups. Remember that individuals are not usually stakeholders.

You will describe how stakeholders impact or have been impacted by environmental justice, how they perceive environmental problems, what evidence and data they use to make arguments and claims, and what they have done (or not done) to address environmental injustice.

STAKEHOLDERS	IMPACT	PERCEPTIONS	ACTIONS
Exxon-Mobil Corporation	Exxon has been pressured through social media as well as much more serious litigation to reduce emissions and help the move towards green energy: but the impact has not been very large as the corporation has largely avoided the regulations put on them and has been able to continue their practices largely unmonitored or regulated.	Exxon does not deny the fact that there are emissions which result from their production methods, however they often view this problem as something that is not worth curtailing profits and or production. To Exxon, it seems as though climate change and pollution are largely secondary problems behind concerns about profits and expansion.	Using advanced technology, Exxon has been able to reduce emissions by a significant amount, despite its practice still being very harmful to the environment, and federal regulations as well as litigation against Exxon for the most part attempt to hold the corporation accountable for upholding environmental justice practices, although the effects of these are not as big due to Exxons power and wealth.
Environmental Protection Agency	EPA is advancing environmental justice by carrying out their responsibilities under the	Air Quality: EPA notes climate change is expected to increase ozone, PM, worsening the	- Setting and enforcing standards such as as pollution limits



	<p>law to identify and address disproportionate and adverse public health and environmental, climate-related, and cumulative impacts on communities with environmental justice concerns.</p>	<p>air pollution.  Waste: EPA’s circular economy programme works with businesses, governments, and other organizations to support low-carbon circular economy.  Other environmental issues: EPA also has views on chemicals, pesticides, and toxins. EPA works with businesses, non-profits, and govts. on partnerships to address these issues. EPA also provides funding for low-income/disadvantaged communities.</p>	<p>for greenhouse gases.</p> <ul style="list-style-type: none"> <li>- Conducting research to support its standards, such as studying emerging threats like global warming.</li> <li>- Providing Assistance to state and local governments with environmental management.</li> <li>- Developing programs to help people protect the environment, such as the Safer Choice program, which helps consumers choose safer products.</li> </ul>
<p>California Air Resources Board</p>	<p>CARB is committed to racial equity and environmental justice as a fundamental part of all it does, including programs that reduce exposure to pollutants and improve the quality of life in California communities facing environmental and economic challenges.</p>	<p>Due to the success of the California Air Resources Board, the state is expected to meet their emission reduction goals – including their targets of lowering greenhouse gas emissions by 40% from 1990 levels before 2030. Ultimately, CARB will strive to help California reach its ultimate environmental goal: to reduce greenhouse gas emissions by a whopping 80% before 2050.</p>	<p>Some of the programs implemented by CARB include regulations, market programs, and incentives that will transform the areas of transportation, industry, fuels, and others, to take California into a sustainable, low-carbon and cleaner future, while maintaining a robust economy.</p> <p>The state is also ensuring programs funded by California Climate Investments (CCI) are benefiting all Californians, particularly those in</p>

# Stakeholders

			disadvantaged communities, by reducing health burdens of air pollution.
South Coast Air Quality Management	South Coast Air Quality Management impacts the environment because it controls emissions from stationary sources of air pollution.	They control and manage emissions to reduce air pollution on the south coast. With 28,400 businesses being under the eye of South Coast Air Quality Management	The “Warehouse indirect Source Rule” prohibits unnecessary trucks that emit gas from bringing shipments and they offset the pollution that is emitted.
LA Department of Water and Power	helps by implementing sustainability programs throughout its network of laboratories and facilities	prioritizing environmental justice on path to 100% renewables! So very pro-environmental justice!	Develop and increase the use of renewable energy resources. Implement the city's green building policies at all LADWP facilities (so reducing their buildings energy and water use, reduce waste, and carbon footprint.
Sierra Club of Los Angeles	The Sierra club of Los Angeles advocates for several environmental issues and takes action against them. This includes: Clean Air, Water & Energy, Coastal Preservation, and Open Space & Habitat Preservation.	Environmental issues are bad, and we should do all we can to stop them.	Several action teams to help prevent environmental issues from getting worse.
Culver City High School Students and Staff	CCHS students and staff advocate for the environment with the Green New Deal club and other groups that advocate for change.	CCHS students and staff perceive air pollution and climate change as huge issues that require action.	The Green New Deal club is working to shift the school to entirely renewable energy and there is a lot of recycling going on.

## Sketch 2: Scaling Stakeholders

Stakeholders can be both local and non-local, often at the same time. The International Atomic Energy Administration -- though headquartered in Vienna, Austria -- is a stakeholder in problems associated with nuclear power plants in many settings around the world (as in Fukushima). They can also have limited scope at a particular scale. For example, neighborhood associations could be very active at the neighborhood or even regional level, but they might need more networking to become effective at a broader scale. Similarly, environmental agencies working at the federal level might not have the capacity or investment to partner with neighborhood associations.

In this sketch, you will analyze how the stakeholders in your setting are activated and constrained by the scale(s) at which they operate. In the left column, there is a list of scales--you can add your own at the bottom. In the middle column, assign one or more stakeholders to each scale. The same stakeholder could be assigned to multiple scales. In the right column, describe how the scale(s) at which a stakeholder operates influence (positively or negatively) their perceptions and actions.

This sketch can be very helpful to obtain an overview of how particular scales can influence whether stakeholders see themselves as a collective (or not). It can clue us in to gaps in stakeholder power and guide us towards strategies for building a collective environmental justice movement.

SCALE	STAKEHOLDERS	PLACING STAKEHOLDERS
<b>International</b> (e.g. United Nations, World Health Organization)	Exxon-Mobil Corporation	Operating at an international scale negatively affects a stakeholder's actions because controlling a larger area is much more difficult and many restrictions can affect policies and decisions on a much larger level.
<b>Federal</b> (e.g. U.S. Environmental Protection Agency)	U.S. Environmental Protection Agency	The EPA's federal scale ensures uniform environmental standards and effective interstate pollution management, supported by comprehensive data collection and resource allocation. However, it also faces bureaucratic delays and may apply a one-size-fits-all approach that doesn't always suit local conditions.

<b>State</b> (e.g. California Air Resources Board)	California Air Resources Board	Sphere of influence limited to state of California. Board members chosen by Governor, Senate, and Legislative Assembly. Actions in accordance to agenda of Cal Governor. More action when more environmentally-driven governor is elected.
<b>County</b> (e.g. Orange County Department of Public Health)	South Coast Air Quality Management Department	Operating on a county level positively influences a stakeholder's actions, as they are able to dedicate their attention to what works for a smaller area, so they do not need to account for a variety of situations. The South Coast Air Quality Management even has a latest news section as it is much easier to stay in touch with only a county. It is likely that the AQMD can respond much more quickly to complaints and investigations than a higher department as well.
<b>City/Town/Village</b> (e.g. municipal water districts)	Los Angeles Department of Water and Power	Operating at a city scale allows the LA Department of Water and Power to communicate with and understand the needs of the local communities. They can mandate specific actions like water conservation and emission reductions. Operating at a city scale means that they also have to respond to local issues like power outages, water supply disruptions and billing concerns.
<b>Neighborhood</b> (e.g. community non-profits)	Sierra Club - Los Angeles Chapter	Operating at a Neighborhood scale allows the Los Angeles chapter of the Sierra Club to more personally educate individuals and lead them to living more environmentally friendly lives. This positively affects their perceptions and actions, allowing people to feel more directly connected to the environment and giving them a greater sense of personal responsibility in its preservation
<b>School</b>	Culver City High School Students and Staff	Initiating programs such as Green5, which increases awareness about climate change in school, and promotes environmentally sustainable practices such as recycling and composting, and walking and biking to school instead of driving.



# Sketch 3: Emics and Etics

In this sketch, you will draw out the differences between stakeholders’ perceptions of a problem and reasons for action and your own interpretations of their actions. In the first column, copy your list of stakeholders from earlier sketches. In the second column, write down what you notice about how stakeholders think about a problem and what they do. In the third column, write down what you wonder about the reasons and influences behind stakeholders’ perceptions and actions.

STAKEHOLDERS	EMICS	ETICS
Exxon-Mobil Corporation	Perceive the problem as balancing energy demands and environmental impact. Emphasize technological advancements and investments in cleaner energy. Highlight their role in providing affordable energy globally.	Seen as prioritizing profit over environmental concerns. - Actions viewed as reactive rather than proactive regarding climate change. - Investments in cleaner energy often seen as insufficient or as PR stunts.
U.S. Environmental Protection Agency	As U.S. Environmental Protection Agency’s goal is to protect human health and environment, it would attempt to mitigate or solve climate change and air pollution by implementing laws and regulations. To support its argument, it would conduct research, showing numerical values regarding people’s health and its environment.	Since U.S. Environmental Protection Agency is a federal institution, it would simply prioritize actions that help its missions to protect humans health rather than trying to seek its profits off from people. Their perceptions are objective, unbiased, and equally applicable to citizens
California Air Resources Board	CARB's mission is to promote and protect public health, welfare, and ecological resources through effective reduction of air pollutants while recognizing and considering effects on the economy. CARB is the lead agency for climate change	Other than state funding, where do they get money to achieve their mission?

	programs and oversees all air pollution control efforts in California to attain and maintain health-based air quality standards.	
South Coast Air Quality Management Department	The SCAQMD goal is to clean the air and protect the health of all residents in the South Coast Air District through practical and innovative strategies.	How does this company manage to keep track of all their information?
Los Angeles Department of Water and Power	The LADWP delivers water and power to households and businesses in the Los Angeles County Area. It is a government corporation that delivers these resources to the exact buildings that need it.	I wonder if government funds in the form of taxes is enough to keep this company in business, as fossil fuel prices rise due to the unsustainability of the non-renewable resource.
Sierra Club - Los Angeles Chapter	The Sierra Club views this issue as something that can be broken down into smaller pieces and handled through local community-based campaigns. These campaigns are handled by citywide chapters.	I wonder if the structure of TSC's approach has anything to do with <i>its</i> structure as an organization. I also wonder if any research or community feedback as helped to promote bottom-up solutions and approaches such as the TSC's.
Culver City High School Students and Staff	Culver City students and staff created the Green 5 Program to focus on this issue. This Program aims to encourage students and staff to ride bikes, recycle more, and compost. This will help save money, and reduce their carbon footprint.	I wonder if the future students and staff will try to hold up this program. I wonder how air pollution and will change if this program only lasts for 2-3 years.

# Sketch 4: Stakeholder Power Grid

In this sketch, list diverse environmental injustice stakeholders in your community that you identified in the Stakeholder Mapping sketch to fill out the center column. In the left column, list catalysts—things that *enable* this stakeholder group to get what they want. For example, money, a good reputation, or political power might help a group accomplish their goals. In the right column, list corrosions—things that *undermine* this stakeholder group’s capacity to get what they want. For example, a lack of money or a reputation as unreliable could prevent a group from getting what they want.

In sketching this, you quickly draw out who has power, how they exercise it, who doesn’t and where change might be possible (or difficult).

CATALYSTS	STAKEHOLDERS	CORROSIONS
Public awareness and education campaigns Policy changes and regulatory enforcement. Protection of natural habitats and ecosystems	Exxon-Mobil Corporation	Leo Policy changes and regulatory enforcement. Public apathy and lack of awareness, division among activist groups
Established by President Nixon, helps protect the population by developing and enforcing regulations and aims to protect them.	U.S. Environmental Protection Agency	Many say that it is too expensive, reduces economic growth and forces businesses to go to more accommodating countries.
Founded by Ronald Reagan, with goals to protect public from air pollution and finding solutions to climate change. Has access to a lot of resources.	California Air Resources Board	California’s air quality remains unhealthy, and regulations for this organization are expensive, so it benefits higher income communities.
The SCAQMD regularly inspects sources of air pollution to ensure they can accomplish their purpose. They also set standards on emissions to reduce the amount of emissions.	South Coast Air Quality Management Department	Environmental justice groups or communities impacted by the department that point out faults in the SCAQMD and can pursue a legal fight against them to make sure they are regulating properly and in line.

<p>It is the largest utility stakeholder so it has core initiatives that customers and other utility companies are expected to follow because of its fundamental influence.</p>	<p>Los Angeles Department of Water and Power</p>	<p>The Los Angeles City Council has authority over this stakeholder and can influence their decision to change an agenda by for example preventing the LADWP from sticking to prior energy uses and moving to more renewable sources.</p>
<p>Numbers (a lot of members) Political power</p>	<p>Sierra Club - Los Angeles Chapter</p>	<p>Lack of visibility Lack of legitimacy</p>
<p>Reducing school waste → better learning environment Sanitation means less diseases will spread</p>	<p>Culver City High School Students and Staff</p>	<p>Lack of awareness and incentive</p>

# Sketch 5: Community Stress Indicators

In this sketch, you will describe how certain conditions increase environmental health vulnerability in communities. You can find a guide on how to answer the question, along with helpful resources, here. When referring to data resources, always indicate where the data comes from, explaining any limitations of the data that you know about. You can use phrases like this: “According to City Data, Santa Fe Springs has... an exceptionally high crime rate compared to the US average.”

As you write these descriptions, be careful to not put blame on particular groups of people or communities for having problems like a high crime rate. Instead, ask why those groups of people or communities are experiencing those problems in the first place, and how they might impact environmental health in relation to climate change induced disasters. This helps us to lift our gaze from individual bodies and voices and instead focus on collective responsibility and action.

In the first column, list evidence of at least five sources of stress and vulnerability that worsen the impact of environmental health hazards in your setting. For ideas, see the table below, this [list of social determinants of health](#), [CalEnviroScreen indicators](#), or the [Opportunity Index](#). In the second column, provide evidence (from your bibliographic sources or from data resources) about how the community stress indicators are impacting people in your setting. When possible, provide this information at the Census tract level. In the third column, write about how the community stress indicator would impact occurrence of climate change-induced disasters in your setting.

COMMUNITY STRESS INDICATOR	QUESTIONS
Poverty	What is the income distribution in your setting?
Disinvestment in public services and infrastructure	Are there public services, including education (K-12 and beyond), health, and transportation, available in your community? Why?
Structural inequality (systemic racism, sexism, homophobia, etc.)	Do certain groups in your setting face more environmental stress or other forms of harm? What forms of discrimination are present in your setting?
Education and employment opportunities	Do people in your setting have adequate and equitable education and employment opportunities? Do young people



	stay in the area or move elsewhere?
Prisons and/or incarceration	Are there prisons and incarcerated people in your setting? How is their health impacted as a result of being incarcerated?

COMMUNITY STRESS INDICATORS	EVIDENCE AND SOURCE	IMPLICATIONS FOR CLIMATE CHANGE AND ENVIRONMENTAL JUSTICE
Poverty	<a href="https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics">https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics</a>	People of lower SES living near freeways, oil sites, etc., and have less political say in decisions related to their health/environmental justice
Disinvestment in public services and infrastructure	<a href="https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics">https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics</a>	Neglect of road/freeway repair, lack of smog-check enforcement, can lead to anthropogenic climate change, as well as harmful air pollution
Structural inequality (systemic racism, sexism, homophobia, etc.)	<a href="https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics">https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics</a>	Culver City is historically founded as a “little white city,” so remnants of that racism remain; provides inequitable access to resources
Proximity to freeways, hazardous waste facilities, and active oil/fracking fields	<a href="https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics">https://health.gov/healthypeople/priority-areas/social-determinants-health/literature-summaries#block-sdohinfographics</a>	Proximity to these urban infrastructure sites can negatively impact human health, and the fossil fuel combustion from these sites can lead to anthropogenic climate change

# Sketch 6: Stakeholder Vulnerabilities

In this sketch, describe which stakeholders are made vulnerable by the intersection of two or more community stress indicators in your setting. Very rarely do we find that only one factor or condition contributes to how stakeholders experience (or do not experience) environmental health hazards. Instead, the presence of one stress indicator compounds the effects of other stress indicators. For example, fenceline communities often face both poverty and systemic racism. The combination of both reinforces environmental health vulnerability for fenceline communities.

Begin by listing different stakeholders in your setting who are impacted (positively or negatively) by environmental health hazards or those who might have a say in it in the middle column. For example, farmworkers in agricultural communities are disproportionately impacted by hazardous health effects of pesticides. However, pesticide companies are a stakeholder group that profit from pesticide use.

Then, in the first column, provide evidence of at least three ways that community stressors combine to affect particular stakeholder groups, in both positive and negative ways. For example, linguistic barriers and systemic racism might prevent farmworkers from addressing health hazards of pesticide use—this is an example of intersecting community stressors to produce environmental health vulnerability. On the other hand, pesticide companies can readily access capital and form networks with large land-owners in agricultural communities, while living far away from these communities. This protects them from environmental health effects but also produces environmental health vulnerability for farmworkers.

In the third column, describe how and why the stakeholder groups are disproportionately affected (or protected) by compounded community stressors during climate change induced disasters. For example, during climate change induced flooding, farmworkers might get even more exposed to pesticides as it can leak into their drinking water supply.

INTERSECTING COMMUNITY STRESSORS	STAKEHOLDERS	IMPLICATIONS FOR ENVIRONMENTAL HEALTH VULNERABILITY
People in lower SES areas People living near oil refinery plants	Exxon-Mobil Corporation	Rates of cancer from chemicals emitted (as effluent) Rates of asthma from air pollution from

INTERSECTING COMMUNITY STRESSORS	STAKEHOLDERS	IMPLICATIONS FOR ENVIRONMENTAL HEALTH VULNERABILITY
<p>Literal and figurative gaps in power and access prevent community members from pushing back against oil company</p>		<p>refineries Company executive decisions have massive community impacts, without directly impacting the executives, themselves</p>
<p>Federal government agency, so can have large impacts on community (for good) May be influenced by desires of big oil companies (via bribery) May not be aware of the needs of community members, only basing their decisions off of quantitative data</p>	<p>U.S. Environmental Protection Agency</p>	<p>Depending on political administration (Dem vs. Repub), could affect reach/impact of EPA, nationally Policies/laws related to environmental protections are influenced by political party affiliation, people in power, and influence of big energy companies</p>
<p>Provides accurate quantitative data regarding air pollution, state-wide Community members CAN access this data, but may not know where to look Report to federal Air Quality Management Dept, may not be able to make federal/national decisions or policies</p>	<p>California Air Resources Board</p>	<p>Environmental benefits for the state can be attained (air pollution levels, CO2 emissions), but federal policies may supercede these Influenced by political affiliation of the state government leaders (regulations, policies, laws, etc)</p>
<p>More community impact, closer to the “ground”; less national impact; can provide accurate quantitative air pollution data, but difficulties in accessing it can occur</p>	<p>South Coast Air Quality Management Department</p>	<p>Community members with access are aware of pollutants in their area, but other community members are not (data injustice); influenced by political affiliation of local gov’t officials</p>
<p>Strong community impact, but as a grassroots organization may be “preaching to the converted.” A larger community impact may be difficult to attain, particularly due to funding issues for the organization</p>	<p>Sierra Club - Los Angeles Chapter</p>	<p>Can have more profound community impact, allowing community members to know about climate change factors in their neighborhoods, and could incite political action at the local level; leadership of the organization influences amount of impact.</p>

# Injustices

## Sketch 1: Intersecting Injustices I













This sketch will help you learn to identify the many different forms of injustice. For each example of injustice described in the column on the right, come up with a name for that type of injustice in the column on the left.

TYPE OF INJUSTICE	EXAMPLE(S)
Data	Missing, inaccurate, or incomplete blood lead testing data.
Economic	Low-income families not being able to afford to move, air conditioning, or cover costs created by environmental hazards.
Epistemic	When parents with limited formal education make claims about how environmental hazards have impacted their children's health, they are often dismissed because they don't look and sound like "experts."
Racial	When communities of color are disproportionately affected by environmental hazards, such as in the case of Hurricane Katrina.
Gender	The gender wage gap (where women are systematically paid less than men for the same work), and the "second shift," or the expectation that women will perform the unpaid labor of housework and childcare in addition to paid work in the labor force.
Health	The nationwide trend in the closure of safety net hospitals that predominantly serve low income and underinsured communities.
Disability	Disaster preparedness, such the design of evacuation plans, that does not address the needs of people with disabilities.
Intergenerational	When youth have little to no involvement in decision-making processes regarding environmental hazards and climate change.

TYPE OF INJUSTICE	EXAMPLE(S)
Media	Communities of color are disproportionately impacted by climate change and yet TV outlets have often failed to make connections between climate change and racial justice.
Procedural	When some immigrants may not speak on environmental hazards because of the threat of deportation.
Reproductive	When climate-related disasters leave people without access to reproductive health services, and without the resources necessary to safely parent their children.
Infrastructural	Lack of investment in upgrading and maintaining water pumps to protect low-income communities and communities of color from flooding.



# Intersecting Injustices

 <p><b>Data injustice</b> occurs when stakeholders do not have the data they need to understand and respond to environmental hazards.</p> <small>Created by Edo Pomoro from Noun Project</small>	 <p><b>Gender injustice</b> occurs when people have inequitable experiences as a result of their gender. Gender injustice does not affect only women—it also negatively impacts people who are outside of the gender binary and, in some ways, men.</p> <small>Created by Wilburio from Noun Project</small>	 <p><b>Procedural injustice</b> occurs when people don't have an opportunity to participate in decisions and the design of law and policy impacts them.</p> <small>Created by Matthew Tait from Noun Project</small>
 <p><b>Economic injustice</b> refers to the inequitable distribution of economic resources (such as income) across a population. It is strongly intertwined with other forms of injustice.</p> <small>Created by Adam Coquet from Noun Project</small>	 <p><b>Health injustice</b> is produced through inadequate access to healthcare services, including health insurance, as well as inadequate access to health-supporting environments and resources (e.g. education).</p> <small>Created by Karyna Studio from Noun Project</small>	 <p><b>Reproductive injustice</b> occurs when parents don't have the opportunity to raise healthy children because of environmental stress.</p>
 <p><b>Epistemic injustice</b> results from inadequate knowledge for understanding problems and possible solutions. It also occurs when the claims made by people in particular social groups are discounted because of prejudice.</p> <small>Created by Candy Design from Noun Project</small>	 <p><b>Intergenerational injustice</b> occurs when environmental resources and burdens are disproportionately distributed between different age groups. It also refers to how future generations will be environmentally impacted by present-day conditions and actions.</p>	 <p><b>Infrastructural injustice</b> occurs when harms result from failures to invest in technologies that would reduce environmental hazards and exposure.</p> <small>Created by Pineda from Noun Project</small>
 <p><b>Racial injustice</b> occurs when communities of color are disproportionately impacted by environmental hazards, in part due to historic discriminatory housing laws.</p> <small>Created by 3. Hales from Noun Project</small>	 <p><b>Media injustice</b> occurs when there isn't adequate news coverage of all the forms of environmental injustice we've pointed to here. It also occurs when news fails to convey the perspectives and vulnerabilities of all stakeholders.</p> <small>Created by WIZZYCE STUDIO from Noun Project</small>	 <p><b>Disability injustice</b> occurs when people with disabilities are disproportionately impacted by environmental hazards. It also refers to how other injustices can cause disability.</p> <small>Created by Lucas Helle from Noun Project</small>

What are the similarities and differences between your list and the infographic?

# Sketch 2: Intersecting Injustices II

This sketch will help you identify intersecting injustices in your case study location. Review everything you’ve learned so far, including your figures, list of sources, and previous sketches to identify whether each form of injustice is present in your case study location.

In the second column, list evidence of each form of injustice in your setting. These could be statistics, narratives, or other forms of evidence. Use the questions in the first column to guide your search for evidence. In the third column, provide an argument for why these pieces of evidence or examples count as these types of injustices.

TYPE OF INJUSTICE	EVIDENCE/EXAMPLE	ANALYZING INJUSTICE
<p><b>DATA INJUSTICE</b> Do stakeholders have the data they need to understand and respond to environmental hazards in this setting?</p>	<p>the Census Bureau has historically overcounted certain groups—including white people—while undercounting others—including people of color, young children, and people experiencing homelessness, which can have extreme impacts when environmental hazards are prioritized based on the risk to the human population around it, which in many cases may be inaccurate for people of lesser socioeconomic status.</p>	<p>This counts as data injustice because it is a form of injustice related to data but not directly caused by it. Data is taken but certain groups are overcounted which creates unjust situations for those with a lesser socioeconomic status. Data injustice like this recognizes how data collection, use, and datafication can affect society and how political and economic organizations can enable datafication to advance their own vision for social and environmental issues.</p>
<p><b>DISABILITY INJUSTICE</b> Are there ableist assumptions in environmental disaster response plans?</p>	<p>Lack of preparation Ex- lack of accessible escape exits : a person in a wheelchair is less capable of escaping safely when they have to deal with stairs, narrow doorways, broken elevators, etc.</p>	<p>When a society doesn’t properly help prepare a group for disaster it’s their way of saying “you don’t matter.” A staircase is basically a “screw you, go figure it out yourself!” It’s important that we include EVERYONE in the planning of response plans. No more of this ableist nonsense. Aslo, rescuers need to be properly trained to deal with people with mental disabilities who will have a harder time dealing with the panic around them.</p>

TYPE OF INJUSTICE	EVIDENCE/EXAMPLE	ANALYZING INJUSTICE
<p><b>ECONOMIC INJUSTICE</b> Does poverty or uneven wealth exacerbate environmental hazards in this setting?</p>	<p>Income inequality in the U.S. is the highest of all the G7 nations, according to data from the Organization for Economic Cooperation and Development.</p>	<p>Economic Injustice, including income inequality, can cause systematic oppression of groups of people which can be difficult to dismantle and is BAD.</p>
<p><b>EPISTEMIC INJUSTICE</b> Are some ways of understanding environmental hazards and harms discounted or silenced? Is environmental sense-making actively undermined?</p>	<ol style="list-style-type: none"> <li>1. The U.S. government's failure to recognize the traditional fire-management strategies practiced by Native Americans</li> <li>2. Ignoring accounts of environmental justice told by children because of assumptions that they are unreliable narrators</li> <li>3. Ignoring community knowledge about the health impacts of a chemical because it has not been scientifically proven</li> </ol>	<ol style="list-style-type: none"> <li>1. U.S. gov disregards Native techniques because they see them as primitive despite centuries of use → uncontrolled fires</li> <li>2. Children don't have the same mental capacity as adults but they can certainly discern and make opinions, so their accounts should not be disregarded → loss of valuable data</li> <li>3. Despite a large community experiencing the same effect from a chemical and reporting it, people refuse to believe them because they don't have a degree → avoidable health issues by listening to community</li> </ol>
<p><b>GENDER INJUSTICE</b> How do gender hierarchies shape both exposure to environmental hazards and capacity to address them?</p>	<p>Climate-related health issues pose a greater risk to women. Floods, monsoons, and cyclones lead to higher rates of waterborne illnesses, to which women are often more susceptible. They use more water in their daily routines, making them more susceptible to parasites, and they inhale more toxins when cooking over unsafe stoves. Maternal and child health are also impacted by climate disasters, and women are the first to cut back on their own food consumption when harvests fail or run out. Women are less likely to</p>	<p>The evidence provided shows that women are more affected by pollution, aggravating more diseases like asthma and other cardiovascular issues. The evidence also points out that on average, women's daily activity involves them using more water, making them more susceptible to waterborne parasites. Generally, traditional roles confine women to responsibilities that increase risking their health. Women having lower incomes limits their ability to adapt to environmental changes, and women also happen to have less access to health care which increases their mortality rate. Addressing these inequalities are</p>

TYPE OF INJUSTICE	EVIDENCE/EXAMPLE	ANALYZING INJUSTICE
	<p>survive a natural disaster. A report from the London School of Economics looked at 141 natural disasters and found that female mortality rates are higher than men's in situations where gender inequality is the norm. A 2023 UN Women report revealed only 55 national climate action plans make a specific reference to gender equality, and only 23 of those plans recognize women as agents of change in addressing the climate crisis</p>	<p>essential to improve women's health in the face of climate change.</p>
<p><b>HEALTH INJUSTICE</b> Are there health disparities or uneven access to health care in this setting?</p>	<p>Lack of access to primary care services can accentuate the negative effects of lead pollution by creating gaps in public health data infrastructure. This happens in Santa Ana, leaving the community unaware of blood lead levels.</p>	<p>Communities are unaware of the the levels of lead in their blood due to the lack of public health data infrastructure. Corporations can continue to exploit communities by putting lead in metal household necessities such as pipes.</p>
<p><b>INFRASTRUCTURAL INJUSTICE</b> Has insufficient investment in infrastructure exacerbated environmental hazards in this setting?</p>	<p>- Only 5% of the city's budget is allocated to infrastructure, compared to the national average of 15% Increased river pollution has led to a 30% rise in waterborne diseases. - Frequent flooding in low-lying neighborhoods due to outdated drainage systems.</p>	<p>Marginalized communities often bear the brunt of industrial pollution due to the location of factories, waste sites in their neighborhoods and lack of the amount of budget allocated to infrastructure. Additionally, inadequate infrastructure, such as lack of access to public transportation, green spaces, or drainage systems, shown in the date, can lead to higher levels of vehicle emissions.</p>
<p><b>INTERGENERATIONAL INJUSTICE</b> Are current residents being impacted by hazards present in the past? Will future generations be impacted by</p>	<p>More than 9.2 million American households connect to water through lead pipes and lead service lines. Due to decades of inequitable infrastructure development and underinvestment.</p>	<p>At first they were not aware that lead could get into the houses but now they are fully aware of it and the dangers it caused to those living in these homes.</p>

TYPE OF INJUSTICE	EVIDENCE/EXAMPLE	ANALYZING INJUSTICE
environmental hazards and exposures in this setting today?		
<p><b>MEDIA INJUSTICE</b> Is there adequate news coverage of the environmental hazards in the setting? Does news convey the perspectives and vulnerabilities of all stakeholders?</p>	<p>The media's ability to spread information quickly, can also lead to misinformation being spread. Hearing one side to a story enables the reader to pick a side, which is harmful because there are multiple sides to a story. Stereotypes are also very popular surrounding the internet, given that people can mock and criticize anonymously.</p>	<p>Injustice because it leads to unequal attention to issues that affect historically marginalized groups, leading to further disproportionality in how these issues are addressed and who receives funding/aid.</p>
<p><b>PROCEDURAL INJUSTICE</b> Have all stakeholders had fair access to government support and law to address environmental hazards in this setting?</p>	<p>There are definitely some people who do not have fair access to government support and law. Some examples of these procedural injustices include racial profiling, the Cash Bail System, and voting barriers.</p>	<p>not all stakeholders actually participate, and that the participation must actually influence the decision-making process. Procedural injustice occurs when decisions are made without any input from the people affected by the decision.</p>
<p><b>RACIAL INJUSTICE</b> Do environmental hazards in this setting disproportionately impact particular social groups, especially communities of color?</p>	<p>They do affect communities of color more, people of color are more likely to die of environmental causes, more than half of the people that live close to hazardous waste are people of color.</p>	<p>Yes, because lower income communities of color are more subject to environmental hazards, since legislations favor rich, white communities.</p>
<p><b>REPRODUCTIVE INJUSTICE</b> Do hazards in this setting undermine possibilities for safely raising children?</p>	<p>No access to infertility care and discrimination against LGBTQ people. Pregnancy related deaths are a lot higher for women of color . A majority of states require parental approval for a minor's decision of abortion and people with disabilities are more likely to be sexually assaulted than non-disabled people.</p>	<p>Yes, removing barriers for reproductive health care is incredibly important. The right to parent a child in a healthy and safe environment is not available to everyone, as there are obstacles such as infertility, miscarriage, birth defects, and developmental disabilities in children that can be caused by environmental factors and a lack of access to proper reproductive care.</p>



# Actions

## Tracking Ideas

Throughout the unit, you may come up with ideas for how to solve problems in your case study location. On this page, collect ideas for actions that CAN be taken to address environmental injustice. You can include actions from other settings that you found interesting (left column) or specific ideas for your own setting (right column).

IDEAS FROM OTHER SETTINGS	IDEAS FOR OUR SETTING
<p>Addressing environmental injustice involves community engagement, policy changes, economic initiatives, corporate accountability, and education. Key actions include educating and empowering communities, enforcing stricter regulations, and promoting sustainable urban planning and green jobs.</p>	<p>Holding corporations accountable and providing legal aid to affected communities are crucial. Transparency in environmental data and using advanced monitoring technologies help track issues. Integrating environmental justice into education ensures ongoing awareness and action.</p>
<p><b>San Francisco plans on recycling 80% all of its waste. They enforce pay-as-you-throw policy for non-recyclable waste.</b></p>	<p>We can implement harsher sentencing for polluters, devise plans to to reduce waste by building recycling centers throughout the city.</p>
<p><b>There are many organizations that aim to combat environmental injustice, a few include Indigenous Environmental Network and Labor Network for Sustainability. They aim to incorporate indigenous traditions into healing the planet, organizing climate strikes, and creating jobs.</b></p>	<p>Use of social media is essential to spread awareness about how certain groups are targeted/bear the worst effects of an environmental issue. Big corporations that target marginalized groups often aim to conceal their doings so this would help to hold these corporations accountable.</p>
<p>Chicago's mayor proposed new policies to promote environmental justice in the city. The proposals include new policies for city departments that include better response times to environmental complaints, air monitoring and measures to reduce air pollution, public engagement around planning and development, and investments in so-called environmental justice communities, areas that receive a disproportionate share of pollution. (Chicago Sun Times)</p>	<p>Collaboration across activist groups (both organizations and people w/ different levels of privilege) in order to promote environmental justice for all people in Culver City.</p>

# Sketch 1: Analyzing a Tactic

To complete this sketch, work with your group to identify one tactic that you would like to analyze. Work through the sketch focusing on that tactic, identifying the specific components of the tactic that did or did not work. Remember to think throughout the sketch about the role of scale. Completing this sketch will prepare you to successfully design your own actions.

<b>BRIEF DESCRIPTION</b> What happened?	<b>San Francisco plans on recycling 80% all of its waste. They enforce pay-as-you-throw policy for non-recyclable waste.</b>
<b>TYPE OF ACTION</b>	Implementing harsher sentencing for polluters, devising plans to to reduce waste by building recycling centers throughout the city.
<b>SCALE OF ACTION</b> Was the action local (individual, neighborhood, city, county) or extra-local (region, state, or nation)?	City-wide (San Francisco)
<b>PARTICIPANTS</b> Who planned or took part in this action?	The City of San Francisco, city employees, government officials, lobbyists, lawmakers
<b>GOAL</b> What was this action trying to accomplish? Who named this as a need?	Reduce the amount of solid waste the city accumulates each year, therefore reducing landfill space needed
<b>MOTIVATION</b> Why did the participants want to achieve this goal?	Cleaner city streets, responsible waste management, reducing harmful methane emissions from landfill decomposition (contributing to climate change)
<b>TARGET</b> If relevant, who did participants want to convince to act through this action?	San Francisco residents and visitors.
<b>STRENGTHS</b> What did this action do well?	Marketing of waste management was effective, created strong culture among San Francisco natives to be mindful of waste, and the properly dispose of it in the proper waste receptacle.
<b>WEAKNESSES</b> What did this action not do well?	Difficult to enforce policies/establish cultural norms among visitors to the city. Also difficult to enforce for growing unhoused population in the city center. This is an example of economic injustice.

<p><b>OBSTACLES</b> What prevented the success of this action?</p>	<p>Extenuating circumstances, including unhoused population increasing, large tourism population, and buy-in from gov't officials and city residents.</p>
<p><b>QUESTIONS</b> What questions do you have about this action, or about environmental justice action more generally?</p>	<p>What are essential components of a comprehensive waste management plan, and what strategies are needed for it to be successful on a city-wide scale?</p>

## Sketch 2: Planning a Strategy

This sketch will guide you through the process of planning a campaign designed to accomplish a specific goal. This campaign will be composed of different tactics, all brought together for a single purpose.

The first step in planning a strategy is to identify what you think is the most pressing issue in your community. Then, generate a list of specific ways to address this issue. For example, if your issue is fossil fuel-related emissions, one way to address it would be banning oil companies from extracting fossil fuels. Another might be increasing electric vehicle sales and decreasing gas-powered car sales. Make an initial list of problems and solutions below:

KEY PROBLEMS	POSSIBLE GOALS
A lack of clear, progressive environmental policy on a school-wide and city-wide scale	Passing a city-wide Green New Deal initiative
Close proximity to active oil drilling/fracking fields	Shutting down active oil drilling/fracking sites in the Inglewood Oil Field
Close proximity to freeways, and the resulting air pollution	Stricter air quality standards for vehicles, along with taller walls along freeway overpasses to reduce air pollution
Growing number of unhoused people, without access to affordable housing	Creating more affordable housing opportunities across the city
Poor traffic flow in downtown areas, resulting in increased air and noise pollution	Improved urban planning design of downtown Culver City, including better-timed traffic lights

Choose one of these to be your campaign's goal. Identify who (an individual or a group) needs to actually take action to achieve this goal. For example, banning fossil fuel extraction would require action from either powerful government officials or oil industry executives and shareholders, while increasing electric car sales would require action from many regular people. This individual or group is your target.

Then, choose three tactics that will help you achieve your goal. There are many different kinds of tactics. Your first tactic should be selected from the list of additional sketches

below, which include EcoEd Programs, Qualitative Research Proposals, Advocacy Letters, and Artivism Projects. Your second and third tactics could also come from this list, or they could be anything else you can imagine!

As you decide, think carefully about how each tactic will help convince your target(s) to take action. For example, if you need to convince citizens to vote for something, a letter-writing campaign might not be effective—that tactic is more appropriate for an elected official. You should also consider which tactics utilize your own strengths.

Finally, create a name for your campaign. This should be something short that makes it clear what your goal is (and why it matters). Think about slogans you might see on social media as a hashtag!

<b>NAME: Improving Affordable Housing Opportunities in Culver City</b>	
<b>ISSUE</b> What is the general issue that this strategy aims to address?	In Culver City there is a massive socioeconomic divide among residents. The city is newly-gentrified, with housing prices out of reach for most folks in LA. Additionally, there are very few affordable housing options for residents. This means that many are unable to afford to live in the community, and those who work there are then having to drive long distances to get to work, negatively impacting mental and physical health. Finally, there is a growing number of unhoused people in the area, due in large part to the growing cost of living.
<b>RELATED CASES</b> Where else have people faced this problem? How have they addressed (or attempted to address) it?	In the San Francisco Bay area similar socio economic divides were experienced, resulting in a large number of unhoused people and increased crime rates in the city. Because the problem was left unaddressed, the economic bubble eventually burst, with a massive drop in property values, and an enduring unhoused population/crime.
<b>GOAL</b> What is this strategy's specific goal?	To provide more affordable housing opportunities, particularly for those who work in Culver City, in an effort to reduce traffic congestion on major roads/freeways, as well as create more equity in the community rather than unjustly ostracizing lower income folks.
<b>TARGET</b> If relevant, who did participants want to convince to act through this action?	Members of the Culver City government, who can create legislation that mandates newly-constructed apartment buildings needing to allot a certain percentage of their units to be dedicated to low-income/subsidized housing. Additionally,

	monetary incentives/housing priority for those who work in Culver City-related jobs (government, police, fire, education), in an effort to help localize citizens who work in the area.
<b>TACTIC 1</b> Describe your first tactic.	An activism project - designed to evoke a strong emotional response from onlookers, in order to bring awareness to the issue of unaffordable housing in Culver City.
<b>JUSTIFICATION</b> Why did you choose your first tactic? How does it relate to your target's or your own catalysts and corosions, or the ways that this problem has been addressed elsewhere?	In order to encourage political activism, it often involves drawing on stakeholders' emotions on the topic. If the artwork is able to inspire a strong emotion, that can ultimately lead to strong action in wanting change to occur.
<b>TACTIC 2</b> Describe your second tactic.	An advocacy letter - designed to directly appeal to the Culver City government officials who make laws concerning affordable housing laws/subsidies.
<b>JUSTIFICATION</b> Why did you choose your second tactic? How does it relate to your target's or your own catalysts and corosions, or the ways that this problem has been addressed elsewhere?	Advocacy letters show a strong outcry from politicians' constituents about changes in their community. Because these politicians are voted on by these people, politicians are incentivized to care what their constituents have to say, as their votes could ultimately determine whether or not they remain in office.
<b>TACTIC 3</b> Describe your third tactic.	An EcoEd program - designed to help educate the public (particularly K-12 students) on the importance of environmentally just housing opportunities in an effort to continue to promote racial and economic diversity in the Culver City Community.
<b>JUSTIFICATION</b> Why did you choose your third tactic? How does it relate to your target's or your own catalysts and corosions, or the ways that this problem has been addressed elsewhere?	Providing educational opportunities helps to allow young community members understand the importance of protecting and enhancing their community. If you are able to inspire empathy and compassion at a young age, it will likely endure into adulthood.



# Sketch 2a: Designing an Artivism

## Project

Art can be a powerful tool to motivate people to take action on a problem. This sketch helps guide you through the process of designing an “artivism” project that would inspire environmental justice action in Madera County.

Begin this sketch by identifying your goals for the project—what you want to accomplish and who you want to impact. For example, you might want to reduce the amount of non-organic produce people buy to reduce the need for pesticides. Make a note of why this particular goal is important to you in the motivation section.

Then, move to design, articulating what the project will actually look like. Explore different options: there are many art forms that you could use, including everything from murals to music to performance art.

Then, think about how to get the word out about your project. Go back to your goals to make sure your outreach plans will reach the people that you want to reach (putting up posters in supermarkets might not reach lawmakers, for example).

Finally, think about how you will know if your project succeeded or not (number of attendees, follow-up surveys, etc).

### RESOURCES AND IDEAS:

[6 Pieces of Climate ‘Artivism’ That Will Make You Stop and Stare](#)

[12 Artists On: Climate Change](#)

[10 Artists Tackling Climate Change in Their Work](#)

[Climate Change Art - Wikipedia](#)

<b>NAME: Lower the prices of houses or a child will die.</b>	
<b>DESIGN</b> What is this project? This section should include at least five bullet points.	<ul style="list-style-type: none"><li>- This project is a painting of how the affordability of homes are becoming more scarce</li><li>- It will include families searching for these houses and will also show how the have no money for it</li></ul>

	<ul style="list-style-type: none"> <li>- There will be a caption following the painting with some statistics on it describing the issue</li> <li>- This painting will be displayed in places where our issue will be spoken about such as galleries.</li> <li>- Another form of our project can be a sculpture showing a house falling apart and then money covered in it.</li> </ul>
<p><b>OUTREACH</b> Where will you display this project and why? How will you let people know it is there and encourage attendance?</p>	<ul style="list-style-type: none"> <li>- This project will be displayed in downtown Culver City. I will let people know through CCUSD district bulletin, local newspapers, and social media to encourage attendance.</li> </ul>
<p><b>GOALS</b> What do you hope to accomplish with this project?</p>	<p>To increase awareness about how unaffordable housing in Culver City sets socioeconomic disparities within our community.</p>
<p><b>MOTIVATION</b> Why did you choose to do this project?</p>	<p>Housing is important, people need homes. Without a home, people are more susceptible to illness and injury. Not having a home also creates a positive feedback loop, as you can't get a job properly without a home address, and without a job you cannot work towards getting a home. #generationaltrauma #generationalpoverty</p>
<p><b>EVALUATION</b> How will you know if your project was successful?</p>	<p>We will know if our project was successful if there is a decrease in prices of housing. Also if we notice more advocating and passion about the subject, specifically more young people being motivated to protest resist paying absurd prices for a basic human necessity.</p>

# Sketch 2b: Designing a Qualitative Research Proposal

In this sketch, design a qualitative study that will help characterize and address environmental injustice in Madera County. Your proposal should include these three methods widely used by anthropologists: participant observation, interviewing and focus groups. See tips for and an example of rapid qualitative research design [here](#).

Qualitative data is any kind of data that cannot be easily expressed in numbers or measured. This kind of data answers different questions than quantitative data. A qualitative study cannot determine cancer rates, but it could answer questions about how people experience and make sense of the process of being diagnosed with cancer. [Flammable: Environmental Suffering in an Argentine Shantytown](#) is a good example of a qualitative study. The study asks these questions:

- 1) How do poor people make sense of and cope with toxic pollution?
- 2) Why do they fail to understand what is objectively a clear and present danger?
- 3) How are perceptions and misperceptions shared within a community?

**These questions can't be answered with numbers;** the researchers need qualitative data -- collected through observations, interviews and focus groups -- to answer them.

Begin this sketch by identifying the research questions you want to answer. Then, decide who you need to talk to and the methods you need to use in order to answer that question.

<b>TITLE: The Costs of Housing in Culver City</b>	
<b>RESEARCH QUESTION(S)</b> What do you want to investigate?	Why is housing so expensive in Culver City? What do residents think about housing costs in Culver City?
<b>STUDY POPULATIONS</b> What social groups will you study and interact with?	People who are on the market looking for housing. People who live in both apartments/condos and houses. People of diverse financial backgrounds.
<b>ACCESS</b> How will you gain access to these social groups? How will you protect their privacy?	For unhoused individuals, we can walk around and attempt to interview them or collect anecdotes in person. Otherwise, we can ask through online surveys distributed through events. Another way could be to hand out flyers with qr codes for an anonymous surveys to anyone walking around downtown or in different

	<p>areas. Door knocking in neighborhoods and apartment complexes.</p>
<p><b>PARTICIPANT OBSERVATION</b>  How could observation of people help answer your research question(s)? Name at least one specific context where you would observe people.</p>	<p>Observation helps researchers see how people behave in a given situation or dilemma like expensive housing as well as what things and people are important factors when considering the research topic. In this case, observation of the trends in the type of housing and/or costs of housing in Culver City can help researchers develop potential solutions problems such as rising housing costs, socio economic imbalance, injustice, ect.</p>
<p><b>IN-DEPTH INTERVIEWING</b>  How could interviewing people help answer your research question(s)? Develop at least two questions that you might ask during an interview.</p>	<p>Interviewing people directly can provide more unbiased information and help researchers better understand the subjects' behaviors, experiences, opinions, and more. Interviewing individuals who live in Culver City can help address questions such as. . .</p> <ul style="list-style-type: none"> <li>- Are you satisfied with the housing costs in Culver City? Why or why not?</li> <li>- How has increasing housing costs negatively affected your life?</li> </ul>
<p><b>FOCUS GROUPS</b>  How could conducting focus groups help answer your research question(s)? Develop at least two questions that you might ask during a focus group.</p>	<p>Focus groups, in this case, individuals struggling to find affordable housing such as individuals/families with low income or underprivileged individuals (over 18, any gender) could help focus on the group of individuals that are most affected by the increase in prices. Throughout the state, many of the individuals affected by unaffordable housing costs are POC.</p> <ul style="list-style-type: none"> <li>- How can the government better the housing crisis for individuals that are underprivileged/ receive low income?</li> <li>- What are some of the personal experiences in regards to housing for individuals that are underprivileged/ receive low income?</li> </ul>

# Sketch 2c: Designing an EcoEd

## Program

Environmental education programs can serve many purposes: getting kids more interested in and engaged with their environment, raising awareness about environmental issues, and providing other benefits (like improving mental health). In this sketch, work through the process of designing your own environmental education program to be implemented in Madera County.

Begin by identifying your goals for the environmental education program. What do you want students to learn from the program, or come away feeling motivated to do? Then, decide what age group you want to work with: early elementary (K-2nd grade), late elementary (3rd-5th grade), middle (6th-8th grade), or high school (9-12th grade). After you have an age group, return to your goals to make sure they are age-appropriate and edit as needed.

Then, develop specific plans for how you will achieve these goals with these students. Next to outreach, write down how you will encourage students (or their parents) to sign up for the program. Next to activities, describe at least three detailed activities you will do with students in the program. Next to assessment, write down how you will know whether you taught students what you wanted to teach them. Finally, next to dissemination, write down how you will share your students' accomplishments with others.

As a last step, come up with a (catchy!) name for your program. Think about students as your audience when coming up with a name!

### RESOURCES:

[Youth Engaged Participatory Air Monitoring: A 'Day in the Life' in Urban Environmental Justice Communities](#). 2020. International Journal of Environmental Research and Public Health. Johnston, J. E., et al.

[Communities for a Better Environmental Youth Summer Training WeAct Youth Environmental Injustice Education](#)

NAME: Affordable Housing Education Initiative (AHEI)	
GOALS	Raise awareness about the housing crisis and empower students

	to take action
<b>AGE GROUP</b>	High school age teens → freshman and sophomores
<b>ACTIVITIES</b> Identify at least three activities you will do with students. Be specific!	Game guessing housing prices in Culver City, activity learning about housing history in CULver City, working in teams to compete and pitch different solutions to housing problems
<b>OUTREACH</b> How will you get students to join your program?	Instagram posts, communication with CCUSD ESC, communication with CCUSD green team ambassadors, Posters, Clubs at school, Climate Palooza conference.
<b>ASSESSMENT</b> How will you know if your program was successful?	End the program with a kahoot evaluating knowledge on the covered content; winner gets a prize (gift card?)
<b>DISSEMINATION</b> How will you tell others about your program?	Instagram posts, word of mouth, accounts on all socials promoting.



# Sketch 2d: Writing an Advocacy Letter

Advocacy letters are a mode of civic and political engagement that are designed for a specific target audience. Writing advocacy letters is [a good way to teach and learn about issues](#): writing a strong advocacy letter requires careful analysis of a problem and possible ways to address the problem. It also requires careful analysis of the person or organization that the letter is addressed to, recognizing their particular perspective and capacity for action. Writing advocacy letters thus builds our capacity for nuanced, multi-scalar analysis, political vision and effective communication.

In this sketch, you will draft a letter to a person of your choice that advocates for a specific action to address injustices in Madera County. The first challenge is to identify what you will advocate for. Then, you will need to identify a person with the power to enact or contribute to these actions.

Once you have identified what you will advocate for and who you will write to, you can build up your letter's content using the sketch template below. Then, use your answers to these sketches to complete a rough draft of your advocacy letter.

## RESOURCES:

Advocacy letter examples:

[WuJ Professor VOC editorial on Santa Ana General Plan](#)

[CoxK Comment on Santa Ana General Plan](#)

[FortunK Comment on Santa Ana General Plan](#)

[FortunM Comment on Santa Ana General Plan](#)

[Advocacy Letters: Anthropological Calls for Public and Global Health Change](#)

[Skylight | An Open Letter to President Donald J. Trump and the Government of the United States of America](#)

[Advocacy Letters: An Invitation | Somatosphere](#)

Other resources:

[Advocacy Letter Guide 1](#)

[Advocacy Letter Guide 2](#)

[Advocacy Letter Guide 3](#)

**GOAL:** Increasing amount of affordable housing in Culver City

<b>ADDRESSEE:</b> Individuals on City Council, in order for them to make affordable housing possible (Yasmine-Imani McMorrin, Dan O'Brien, Freddy Puza, Goran Eriksson, & Albert Vera)	
<b>RELATIONSHIP</b> Describe your relationship to the addressee (ex: I am a resident of your Congressional District).	I am a long-time resident of the city of Culver City. I've lived here for ten years and two of my children currently attend elementary school at Farragut Elementary which is part of the city's school district.
<b>ACTION</b> What are you asking your addressee to do?	Provide more affordable housing in Culver City communities for families of different income levels and classes. Dedicate plots of land to building tiny homes for people of low income to live in. Equip them with just the basic needs for people to live in (toilet, sink, kitchen)
<b>DETAILS</b> List three factual details supporting the action you are asking your addressee to take.	<ul style="list-style-type: none"> <li>• In Culver City, the average price of a house is around \$1.2 million, and the average rent is \$2,640 per month (74% higher than rent average of U.S.)</li> <li>• There are hundreds of homeless people in Culver City.</li> <li>• To live comfortably in Culver City as of now, it is estimated one would need to make \$8,800 per month or \$105,600 per year.</li> </ul>
<b>EXAMPLES</b> Provide examples (personal, if possible) that demonstrate the positive impacts that would result from your addressee's support.	Lowered levels of homelessness in Culver City, improved standards of living and happiness, increasing economic mobility and financial security, reduced social services cost, and increases job creation since more people with homes increase resident earnings.
<b>SUPPORT</b> List who will support this action.	Communities of color, lower income families, historically marginalized communities, the unhoused,
<b>OPPOSITION</b> List who will oppose this action.	Landlords, business owners, upper class families, homeowners
<b>DRAFT LETTER</b>	
June 7, 2024	
4401 Elenda St Culver City, CA 90230	
Mayor of Culver City Atrium at One Culver, 10000 Washington Boulevard, Culver City, 90232	
I am a long-time resident of the city of Culver City. I've lived here for ten years and two of my children	

currently attend elementary school at Farragut Elementary which is part of the city's school district. This letter is to urge you to provide more affordable housing in Culver City communities for families of different income levels and classes. Additionally, dedicate plots of land to building tiny homes for people of low income to live in, and equip them with just the basic needs for people to live in (toilet, sink, kitchen).

In Culver City, the average price of a house is around \$1.2 million, and the average rent is \$2,640 per month (74% higher than rent average of U.S.) There are also hundreds of homeless people in Culver City. To live comfortably in Culver City as of now, it is estimated one would need to make \$8,800 per month or \$105,600 per year. This is unattainable for most people, causing them to commute long distances to get to work, creating more traffic congestion, air, noise and light pollution, and lowered physical and mental health.

With more affordable housing opportunities, there will be lowered levels of homelessness in Culver City, improved standards of living and happiness, increasing economic mobility and financial security, reduced social services cost, and increases job creation since more people with homes increase resident earnings. This decision would immensely benefit many important members of the community, including communities of color, lower income families, historically marginalized communities, the unhoused, and state/local employees like government employees, teachers, police officers, and fire fighters.

Landlords, business owners, upper class families, homeowners would all likely be in opposition of such a bill, and they possess a tremendous amount of political and economic power, but we urge you to consider the stakeholders in your community that are too often overlooked and ignored when important decisions come about.

In conclusion, it is imperative to provide affordable housing opportunities for lower income people in the Culver City community. Their health and livelihoods depend on it.

Respectfully,

The Culver City High School Environmental Science Class  
Grade 12



# Putting It All Together

5.

# Summing It Up

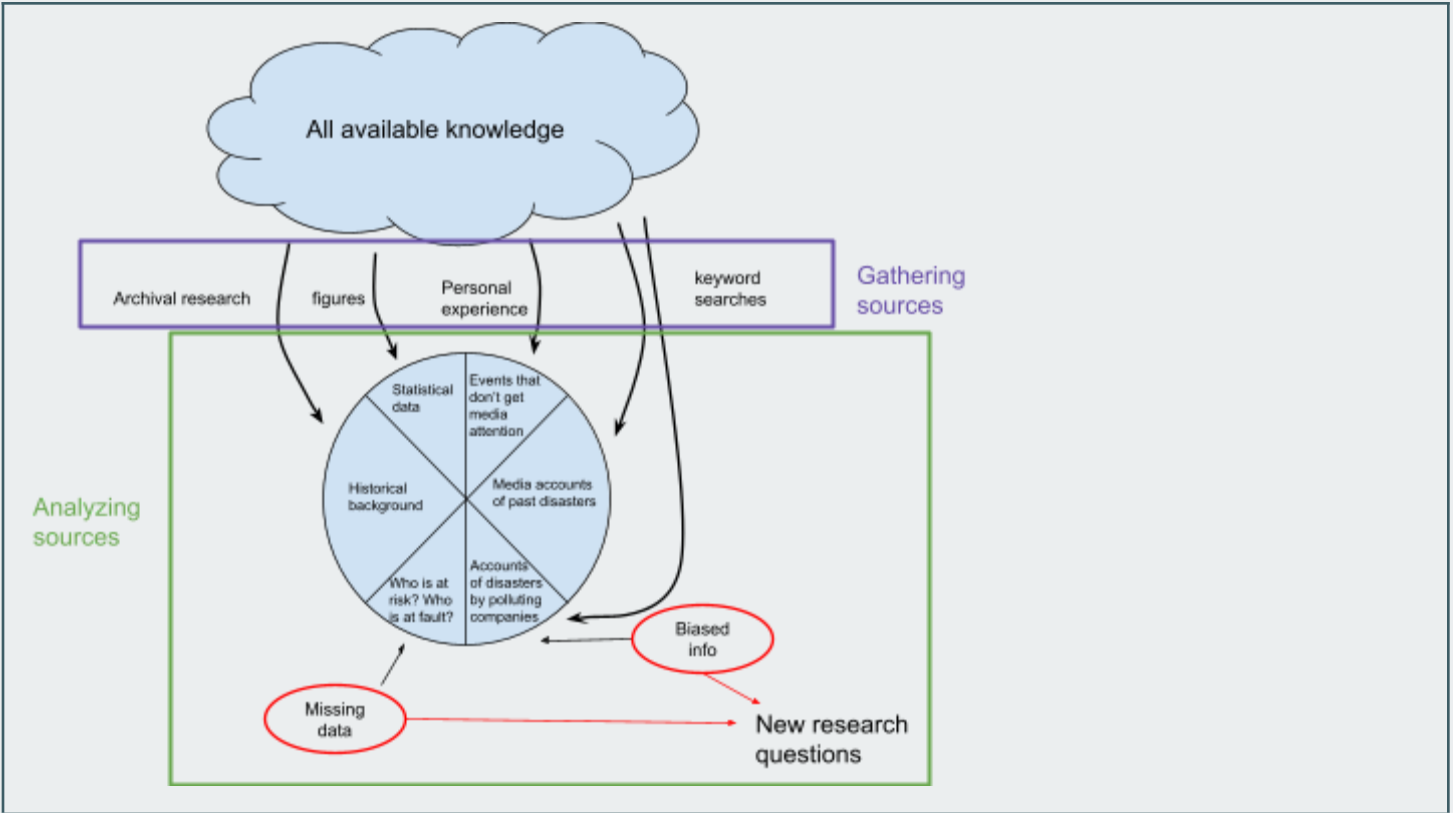
At the end of each lesson, we will return to this section to make sense of what we learned. First, fill in the lesson number and question.

**Lesson 2:** How do we figure out what is known about a place, and what more we need to find out?

Then, write a 100-200 word summary of what you learned during this lesson, including at least one sentence on how this helps you answer our lesson question. This summary will go into the case study you create at the end of this unit.

Through a variety of different sources, we investigated Culver City - its history, along with its current layout/environmental features. While we did figure out the main attributes about Culver City, including proximity to harmful forms of pollution/climate change factors, more information is needed on the health of the residents, and whether rates of illness can be connected to exposure to harmful pollutants. Additionally, we investigated affordable housing, and more information was needed on why affordable housing was not readily available in Culver City at the time of this study.

How could you represent this summary as a model? This can be an updated version of your initial model or a new piece that will be added to that model. You can add a drawing by clicking Insert > Drawing > New.





## Lesson 3: What are civic data resources and how can we use them to understand the environmental problems in a place?

Write a 100-200 word summary of what you learned during this lesson, including at least one sentence on how this helps you answer our lesson question. This summary will go into the case study you create at the end of this unit.

Through a multitude of data sources, including CalEnviroScreen, we investigated the current environmental data related to Culver City - including its high amounts of ozone and particulate matter. We also investigated the vulnerable groups affected by air pollution within Culver City. By looking at these different civic data resources, it provides a more full perspective on the problems the community faces - while data is important, collecting qualitative data about the experiences of the community members is equally valuable.

How could you represent this summary as a model? This can be an updated version of your initial model or a new piece that will be added to that model. You can add a drawing by clicking Insert > Drawing > New.

### Exposure Pathway Model



Step 1: Name three civic data resource

Step 2: Draw lines to indicate which step of the pathway this resource addresses.

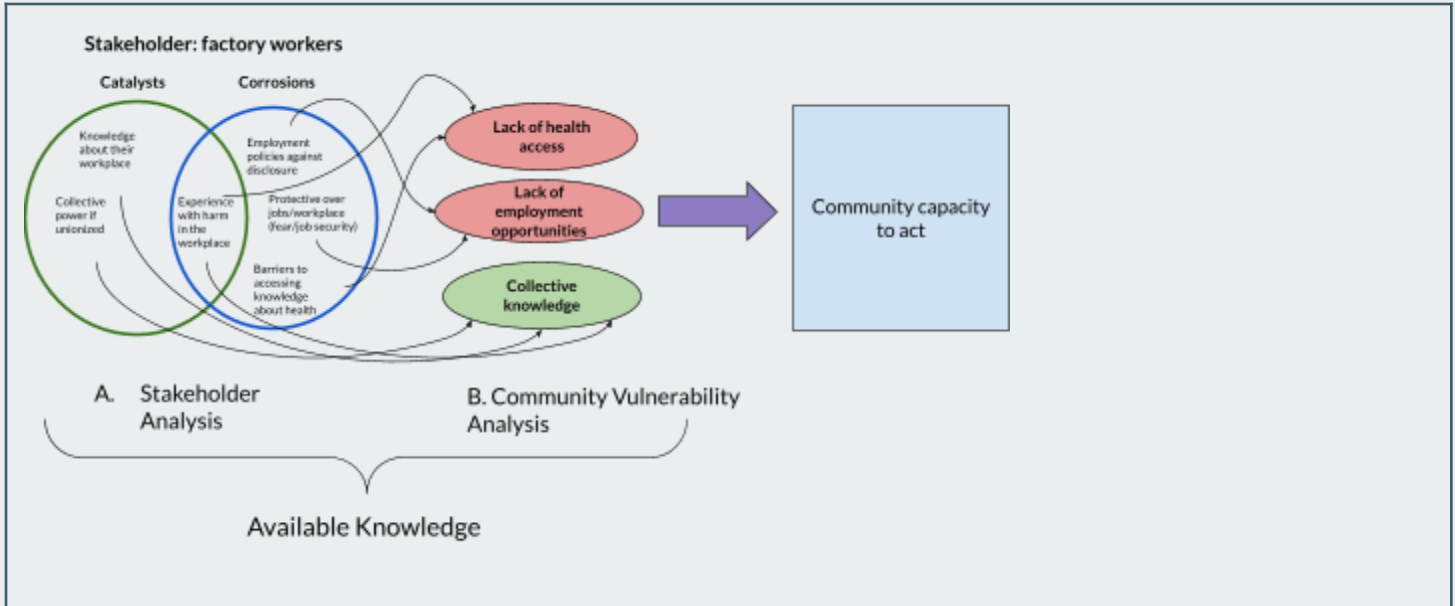
Step 3: What does this resource show?

## Lesson 4: How can we analyze available knowledge to understand who plays a role in environmental injustice?

Write a 100-200 word summary of what you learned during this lesson, including at least one sentence on how this helps you answer our lesson question. This summary will go into the case study you create at the end of this unit.

Through the data we collected, we analyzed different forms of injustice, and how they play out in Culver City. By developing an understanding of who plays a role in environmental injustice, it allows us to better understand who we should hold accountable, who we should be reaching out to in order to enact change, along with what groups could provide an effective role in subverting issues related to climate change/environmental injustice.

How could you represent this summary as a model? This can be an updated version of your initial model or a new piece that will be added to that model. You can add a drawing by clicking Insert > Drawing > New.

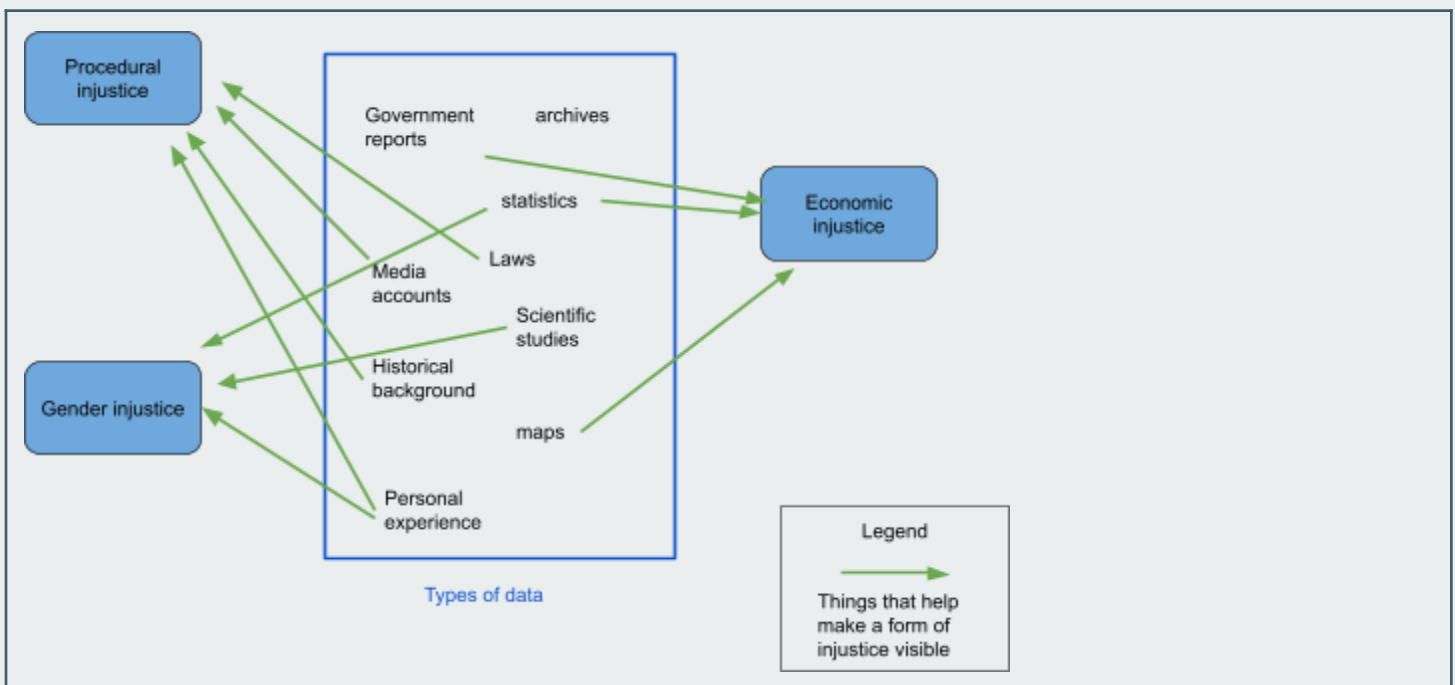


## Lesson 5: How do we analyze and integrate data to see how injustices overlap?

Write a 100-200 word summary of what you learned during this lesson, including at least one sentence on how this helps you answer our lesson question. This summary will go into the case study you create at the end of this unit.

By looking at a multitude of data sources/figures, not only can we develop a more holistic understanding of the Culver City community, we can also begin to analyze problems on a similarly comprehensive level. Environmental justice issues are rarely limited to one stakeholder group, they matriculate down from international-level decisions down to the community level. Given how interconnected environmental justice issues are, data showing a variety of different injustices was also experienced in our case study around affordable housing opportunities.

How could you represent this summary as a model? This can be an updated version of your initial model or a new piece that will be added to that model. You can add a drawing by clicking Insert > Drawing > New.

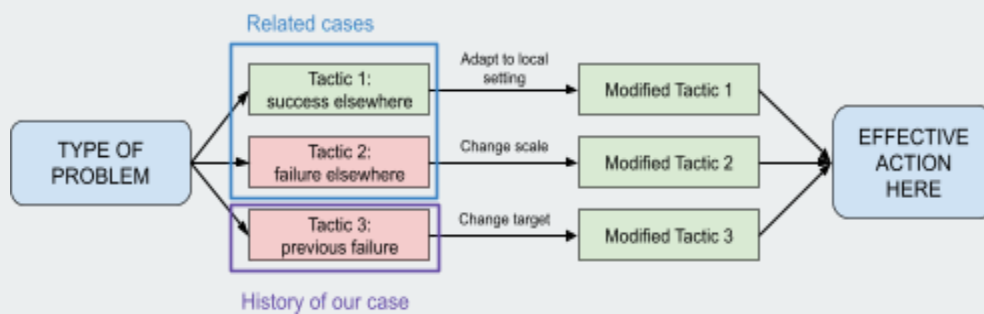


## Lesson 6: How can we integrate knowledge of related cases into our understanding of a place to make effective suggestions for action?

Write a 100-200 word summary of what you learned during this lesson, including at least one sentence on how this helps you answer our lesson question. This summary will go into the case study you create at the end of this unit.

Similar affordable housing endeavors were investigated in the Chicago and San Francisco Bay regions of the country during our case study. By analyzing what other places have done to promote affordable housing options, along with how things went awry, it can inform our action steps within the Culver City community - this includes knowing which action steps we should be taking to effectively reach members of the Culver City government/city council.

How could you represent this summary as a model? This can be an updated version of your initial model or a new piece that will be added to that model. You can add a drawing by clicking Insert > Drawing > New.

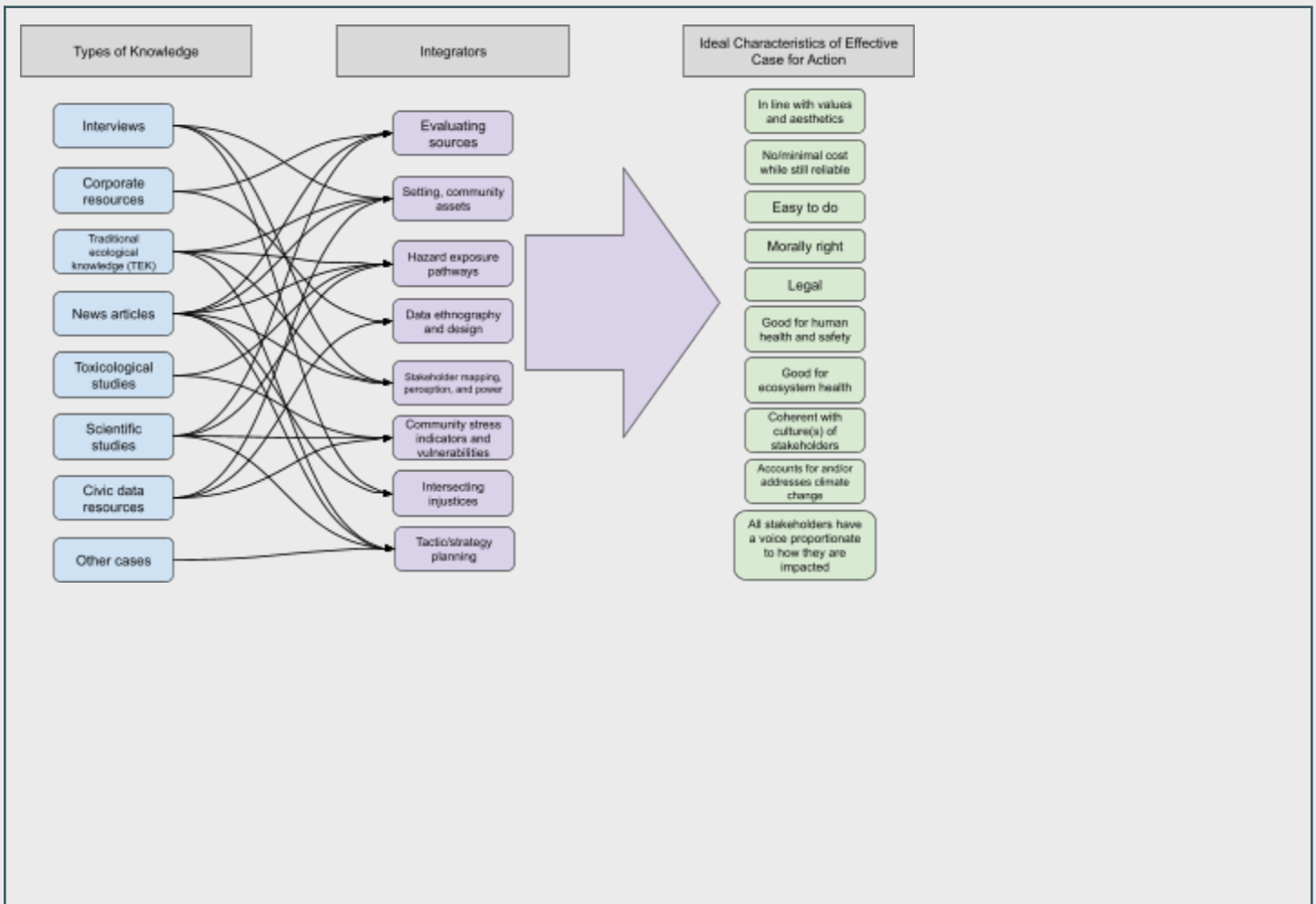


# Final Model

Write down the unit question:

How does bringing together many different types of evidence make an effective case for environmental justice?

Below, create your final model demonstrating what you now know about environmental injustice. Add a drawing by clicking Insert > Drawing > New.





# Expanding Figures

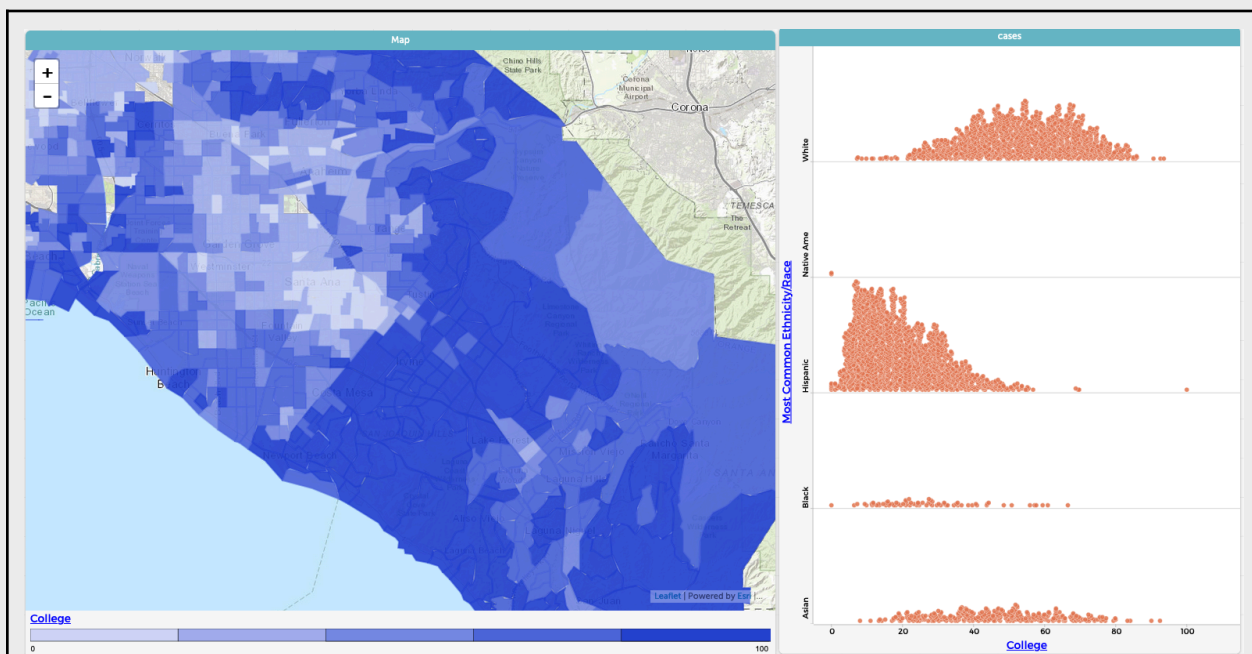
6.





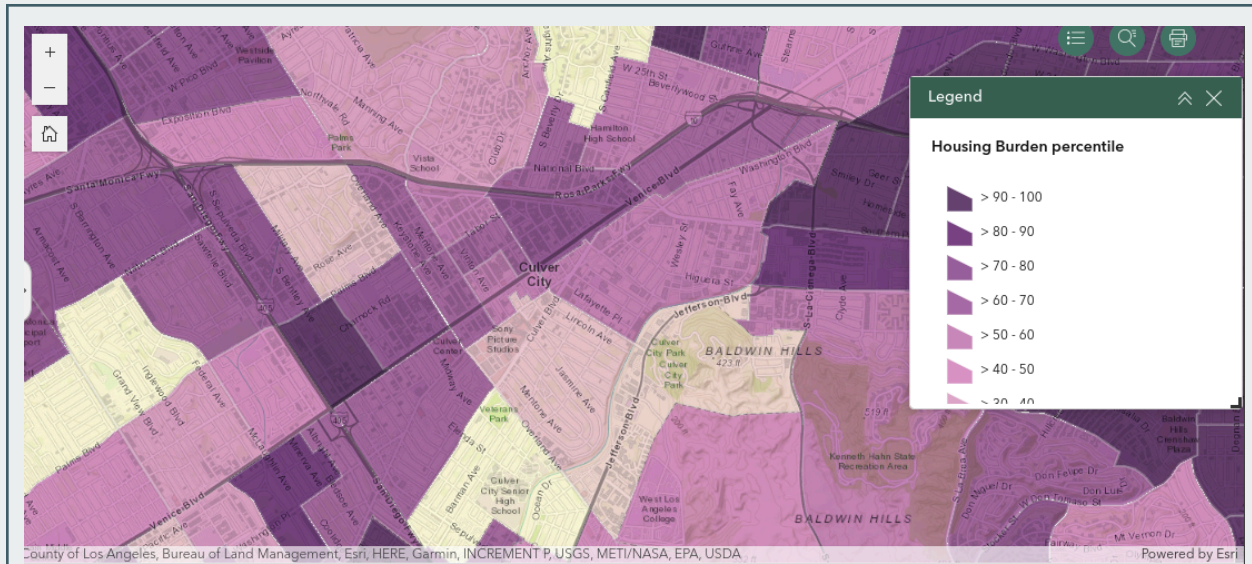
# Writing Captions

Return to your class figures document. Think back through what you have learned throughout this unit and expand the caption for each figure, giving it context and articulating why it is important. You may want to add detail by using a reference. Here is an example of an expanded caption:



**Caption:** This map shows the percentage of residents in each Census tract with a Bachelor's degree or more. Northern Orange County, particularly Santa Ana, is much less educated than Southern Orange County--fewer than 15% of residents in most of Santa Ana Census tracts have at least a Bachelor's degree (7.5% of residents of Madison's Census tract have at least a Bachelor's). Low exposure to higher education may mean that residents of Santa Ana have less exposure to resources supporting knowledge about and action against climate change.

As a class, you will make a list of which figures to include in your final case studies. Write down your class's selections here:



Caption: This map shows the percentile of citizens in various areas of Culver City that are impacted by housing-burden. Housing-burdened low-income households are households that are both low income and highly burdened by housings costs. 31 percent of people in this census tract are housing burdened low income households. The percentile for this tract is 92, meaning the percent housing burdened is higher than 92% of the rest of the state.

Because we investigated the lack of affordable housing in Culver City - we felt this figure was the most important caption to include, given that it addresses our issue most directly.



# Finishing Touches

7.



# Writing an Abstract

An abstract is a communication tactic that prepares a reader about what to expect in a piece of writing. Abstracts are used in scholarly, journalistic, policy, and public-facing documents. They have key components that may be labeled differently but have similar objectives. The objectives are:

1. To provide an overview about the purpose of writing the document (problem statement and aim);
2. To summarize how the research and information supporting the document was conducted (methods);
3. To summarize what the writers and researchers hoped to find and what they have found (expected/key findings);
4. To hypothesize how the document contributes to overall knowledge and to society (intellectual and social significance).

Writing an abstract gives writers an opportunity to strategically position their document in the broader scholarly and public space. It develops creative writing skills that extend synthesis writing to respond to contemporary issues in a knowledge domain.

To complete this sketch, replace and fill in the blanks with insights and statements from your case study research. You may replace words and phrases with yours, but take care to retain the overall message of the statements. When working on this sketch, delete all italicized instructions and remove the highlights and underlines where there are blanks.

## PROBLEM STATEMENT

In the last few decades, a growing body of scientific research has shown that climate change is accelerating and causing cascading harms. In **Culver City, CA**, for example, government actions, along with a rapidly gentrifying community has led to decreasing rates **affordable housing opportunities for lower-income folks within the Culver City community. This leads to people commuting for longer distances, and therefore contributing to climate change through fossil fuel combustion found within most**



	<p><b>cars.</b> Additionally, issues related to slow, less dramatic but still very threatening changes -- <b>proximity to the Inglewood Oil Field affecting the respiratory health of residents (despite many of the active sites being shut down adjacent to Culver City Emissions related to oil can directly relate to climate change,</b> and so on. This is why we refer to climate change as a “combo disaster” in this case study report.</p> <p>It is important to recognize that climate change is hitting poor and politically marginalized communities hardest -- in the United States and around the world. Because of this, it is especially important to proactively characterize and address climate change and combo disaster hazards in communities in California, highlighting environmental injustice.</p>
<b>AIM</b>	<p>The aim of this case study is to characterize climate change and combo disaster hazards and environmental health vulnerability that contribute to environmental injustice in <b>Culver City, particularly access to affordable housing, and proximity to active fracking/drilling sites</b> . Because children and youth are especially vulnerable to the effects of climate change and combo disaster, we have centered the study on a particular school. Our focus is on <b>Culver City High School, and the role its stakeholders can have on the issues that we have selected.</b></p>
<b>METHODS</b>	<p>To characterize climate change and combo disaster hazards and environmental injustice in <b>Culver City,</b> we drew from data resources, information collection and analysis strategies focused on: 1) climate change hazards like wildfires, drought, extreme rain and extreme heat; 2) possibilities for climate change mitigation and adaptation; 3) different stakeholders in climate change and combo disaster <b>Culver City.</b></p>
<b>EXPECTED OR KEY FINDINGS</b>	<p>Through its focus on <b>Culver City,</b> this study points to aspects of climate change and combo disasters that are often unrecognized or underappreciated. The case study highlights the following such aspects:</p>

	<ul style="list-style-type: none"> <li>• Proximity to affordable housing opportunities, along with the housing-burden placed on the community members.</li> <li>• Amount of driving people working in the community have to do, and the air emissions that result from the fossil fuel combustion of their vehicles.</li> <li>• Proximity of residents to the Inglewood Oil Field, and the air pollution emitted from this site, with its effects on human health.</li> </ul>
<p><b>INTELLECTUAL SIGNIFICANCE</b></p>	<p>This study advances knowledge about environmental injustice by identifying multiple, often underappreciated factors that increase environmental vulnerability and harm associated with climate change and combo disaster. Additionally, once a holistic picture is established, an action plan can be undertaken that encourages community members of Culver City to hold their government leaders and themselves accountable. By better understanding how seemingly unrelated issues can be connected, particularly around climate change, this will help inform lawmakers and city planners on how to better address affordable housing and reduced active drilling sites can positively impact climate change within Culver City, and Los Angeles County as a whole.</p>
<p><b>SOCIAL SIGNIFICANCE</b></p>	<p>This study points to the need for:</p> <ul style="list-style-type: none"> <li>• Providing information related to the housing burden of Culver City residents to help inform residents of the predicament, and how it can be connected to rates of fossil fuel combustion, and the unhoused population of the community.,</li> <li>• By understanding the negative health effects of living close to an active fracking site, along with understanding how different sources of information can interpret that, it can help inform stakeholders in Culver City where they should be obtaining their information to inform their decision-making. Information bias is a critical part of any environmental justice issue.</li> </ul>



- |  |  |
|--|--|
|  | <ul style="list-style-type: none"><li>• By sharing precedents of other urban areas that have succeeded in affordable housing options for their citizens, it can help provide ideas for both citizens and members of government on how to effectively implement more affordable housing opportunities in Culver City, learning from the successes and failures of those who have implemented this before.</li></ul> |
|--|--|

# Biographical Statement

Biographical statements are narratives about yourself that describe your current work and experiences and envision future trajectories. They can be helpful in keeping track of how your interests and expertise change and accumulate over time. As part of conducting research, a biographical statement establishes who wrote the case study and explains their qualifications. It helps readers understand why you began this research and how it fits into your overall career trajectory.

Your biographical statement should include the following things:

1. Your name, grade, and school
2. Your current roles and responsibilities
3. Your academic/research/extracurricular/other interests
4. Your future plans
5. How you see yourself as an environmental justice stakeholder
6. A photo of yourself, or a picture that represents something important about you. It's okay to use a picture you found on the internet as long as it has a Creative Commons license.

Here is an example biographical statement:



Katie Vo is a second-year undergraduate Environmental Science and Policy major attending the University of California, Irvine (UCI). Vo is an undergraduate researcher in UCI's EcoGovLab, a UCI College Corps Fellow who volunteers at a local community-based organization to promote food security, and a varsity rower on UCI Women's Rowing team. Vo is planning to pursue a PhD in Environmental Science, Policy, and Management. Vo sees youth, including herself, as important environmental justice stakeholders who have the power to create solutions and be agents of change within their communities.

Write your biographical statement here:



This collective represents the 12th grade students in AP Environmental Science at Culver City High School. Their research interests include environmental sustainability within their community, and creating equity among students and community members as it pertains to environmental justice. These students are all planning on attending 2- or 4-year universities next year, many of whom are majoring in subjects related to Environmental Science. They want to encourage all students, no matter what age, to see the importance in environmental justice, as well as the importance of using your voice to call out and subvert injustices within their communities.

# Writing a Conclusion

A conclusion is a summary of key findings from research. It helps a reader to quickly understand the aim, methods, and expected findings of research. A well-written conclusion includes the following components: (1) Brief overview of aim, methods, and expected findings; (2) Notable findings; (3) Future Research. Rather than a bulleted list, a conclusion should be written in paragraphs.

In the first paragraph, provide a brief overview of aim, methods, and expected findings from your case study research. You may use a condensed version of the abstract to write this.

In the second paragraph, write notable findings from the case study research. These could be potentially: (i) different hazards that show up consistently in your case study location (ii) environmental health vulnerability including community stressors and stakeholder vulnerabilities; (iv) stakeholder actions and community assets that would help address environmental injustice; (v) intersecting injustices that produce environmental injustice in your setting.

In the third paragraph, write about (1) what you were trying to find, but couldn't find information on; (2) research recommendations.

In the last few decades, a growing body of scientific research has shown that climate change is accelerating and causing cascading harms. In Culver City, CA, for example, government actions, along with a rapidly gentrifying community has led to decreasing rates of affordable housing opportunities for lower-income folks within the Culver City community. This leads to people commuting for longer distances, and therefore contributing to climate change through fossil fuel combustion found within most cars. Additionally, issues related to slow, less dramatic but still very threatening changes -- proximity to the Inglewood Oil Field affecting the respiratory health of residents (despite many of the active sites being shut down adjacent to Culver City Emissions related to oil can directly relate to climate change., and so on. This is why we refer to

climate change as a “combo disaster” in this case study report. The aim of this case study is to characterize climate change and combo disaster hazards and environmental health vulnerability that contribute to environmental injustice in Culver City, particularly access to affordable housing, and proximity to active fracking/drilling sites . Because children and youth are especially vulnerable to the effects of climate change and combo disaster, we have centered the study on a particular school. Our focus is on Culver City High School, and the role its stakeholders can have on the issues that we have selected. To characterize climate change and combo disaster hazards and environmental injustice in Culver City, we drew from data resources, information collection and analysis strategies focused on: 1) rent burden of Culver City community members; 2) air quality analysis of Culver City, including identifying air pollution factors within the community; and 3) different stakeholders related to the issues associated with affordable housing, proximity to oil drilling, and in climate change within Culver City.

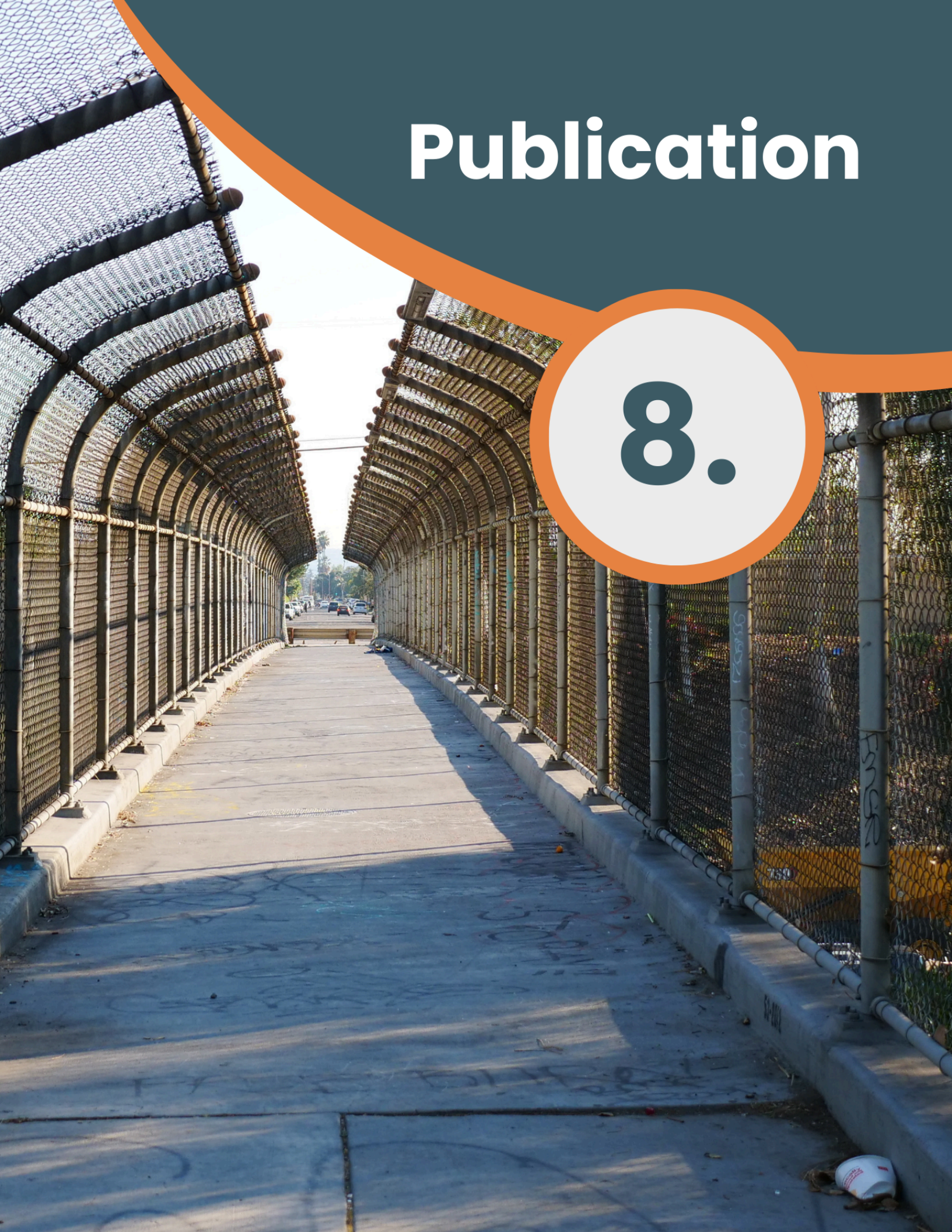
Findings indicated a large amount of air pollution threats, including those of ozone and diesel particulate matter, that are often associated with fossil fuel combustion. This was shown to greatly affect the health of young children and older people within the Culver City community. Additionally, we uncovered that much of Culver City is well above the state and national averages of rent burden, with certain neighborhoods being in the 90th percentile or higher. This means not only inequality of household income among residents, but also an immense burden on people who work in the community who need to drive in from far-away distances. In an effort to help subvert these injustices a variety of suggestions for stakeholder activism are recommended, including: “artivism” projects, writing an advocacy letter to the Mayor of Culver City, ecology education programs, as well as a qualitative research study to better understand the experiences of community members.

Information that would help to create a more comprehensive case study would be to find out the average commute time for those who work within Culver City, as well as how many of them are using internal combustion engine vehicles. By having both of these pieces of information, we can understand the impact that a lack of affordable housing can have on people who work within the community, as well as understand the implications related to climate change caused from fossil fuel combustion. Continued research on the experiences of Culver City residents/employees, along with the long-term effects of air pollution would be important components of future research.



# Publication

8.



# Completing Your Case Study

Congratulations! You are now ready to put everything you've created together into your final case study. Make your own copy of the [case study template](#); this will be your final case study. Then, return to page 65 to begin copying your summary of each lesson into your case study. Follow the instructions on the document to compile your figures, abstract, biographical statement, and conclusion as well.