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# COMMERCE

FAST DISASTER CASE STUDY | GROUP 11

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**ANTHRO 25A: Environmental Injustice**

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TABLE OF CONTENTS

<b>What is the setting of this case? [Brian Caballero]</b>	<b>3</b>
<b>What environmental threats from worse case scenarios are there in this setting? What data is available to characterize worse case scenario potential? What other environmental hazards are there in this setting? [Judith Castellanos]</b>	<b>6</b>
<b>What factors -- social, cultural, political, technological, ecological -- contribute to environmental health vulnerability and injustice in this setting? [Shreya Kini]</b>	<b>7</b>
<b>Who are the stakeholders, what are their characteristics, and what are their perceptions of the problems?. [Anthony Manzke]</b>	<b>9</b>
<b>What have different stakeholder groups done (or not done) in response to the problems in this case? [Matthew Olivarez]</b>	<b>11</b>
<b>How have big media outlets and environmental organizations covered environmental problems related to worse case scenarios in this setting? [Maritza Ortega]</b>	<b>13</b>
<b>What local actions would reduce environmental vulnerability and injustice related to fast disaster in this setting? [Julian Perez]</b>	<b>15</b>
<b>What extra-local actions (at state, national or international levels) would reduce environmental vulnerability and injustice related to fast disaster in this setting and similar settings? [Brandon Sorn]</b>	<b>17</b>
<b>What kinds of data and research would be useful in efforts to characterize and address environmental threats (related to fast disaster, pollution and climate change) in this setting and similar settings? [COLLABORATIVE ANSWER]</b>	<b>20</b>
<b>What, in your view, is ethically wrong or unjust in this case? [COLLABORATIVE ANSWER]</b>	<b>21</b>
<b>REFERENCES</b>	<b>22</b>
<b>APPENDIX</b>	<b>26</b>
<b>ABOUT THE AUTHORS</b>	<b>27</b>

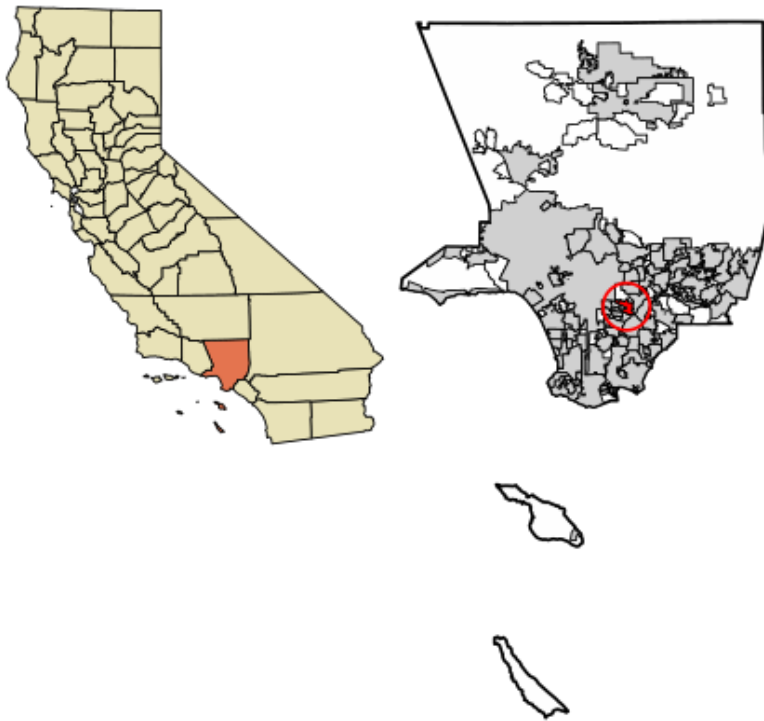


Fig 1: Community map of Commerce, CA in Los Angeles County. Wikipedia, CC BY-SA 4.0. Retrieved October 24th, 2019 from [https://en.wikipedia.org/wiki/Commerce,\\_California](https://en.wikipedia.org/wiki/Commerce,_California)

## 1. What is the setting of this case? [Brian Caballero]

Since Commerce, California is in Los Angeles County, I looked into the LA County's landscape and in an article dedicated to Los Angeles California, United States by Leonard M. Pitt, I found that "Los Angeles County is a vast and varied geographic entity. It includes a group of inland valleys, a coastal plain separated by low mountains that are interspersed with steep passes, an arc of still higher mountains, and a long seacoast." (Pitt, 2019) So this article gives not only a detailed report of the landscape of the Los Angeles County, but also detailed reports on the Climate, City site, People, Natural Environment, and City layout. These are all characteristics of the city and has a lot more information. As for the population, there were 12,844 residents estimated, these estimations were based on April 1, 2010. The land area in square miles in 2010 was 6.54, leading to the Populations per square miles in 2010 being roughly 1,961.6. (US Census Data, 2010) The percent of male civilian labor force workers, counting people ages 16 and older between 2013 and 2017 was 61%. Moreover, females are also working hard as a civilian labor force with 54.4%. To add to insult, the mean travel

time to work, for workers string from 16-year-olds and older, was 27.8 minutes. (US Census Data, 2010) Can you imagine traveling almost half an hour to go work, people like to mage their time and if there is an hour of travel, then that is going to cut into something. The percent of people that are probably doing blue collar jobs are insane to earn how much? Between 2013 - 2017 the median household income was \$42,734. (US Census Data, 2010) For MAGI, Medi-Cal <138% Federal Poverty Level (FPL) earning \$42,732 is just barely above the Poverty Line for a family of five. (California Department of Public Health, 2019) The average person per household is 3.60, (US Census Data, 2010) but people do understand that the average is not the best description, especially for persons per household. Some families will have more children and some people will be living alone and struggling, so therefore the person per household is not completely reliable. Even with an average that seems to be below the poverty line, there are still 16% of the population that is labeled as in poverty. That is 313.9 people that live in poverty. (US Census Data, 2010) The setting of this case is drastic with a factory being near some schools and parks and furthermore, with the issues that this community is going through, it is not a case to be taken lightly.

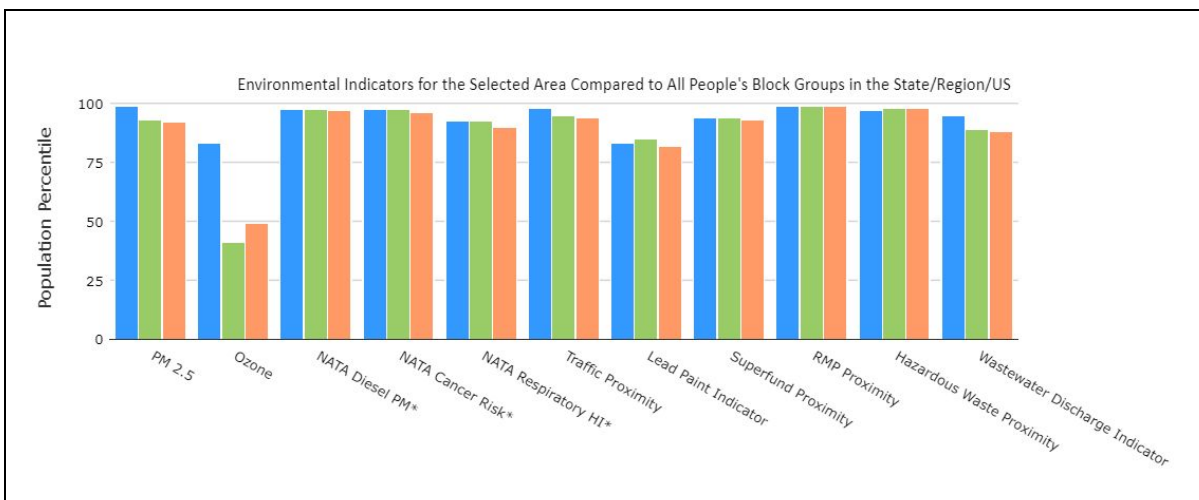


Fig 2: EPA EJ Screen Community Parameters for Commerce. EPA EJScreen Report, City of Commerce, 2018. Retrieved October 24, 2019. Screenshot taken by author. <https://ejscreen.epa.gov/mapper/>

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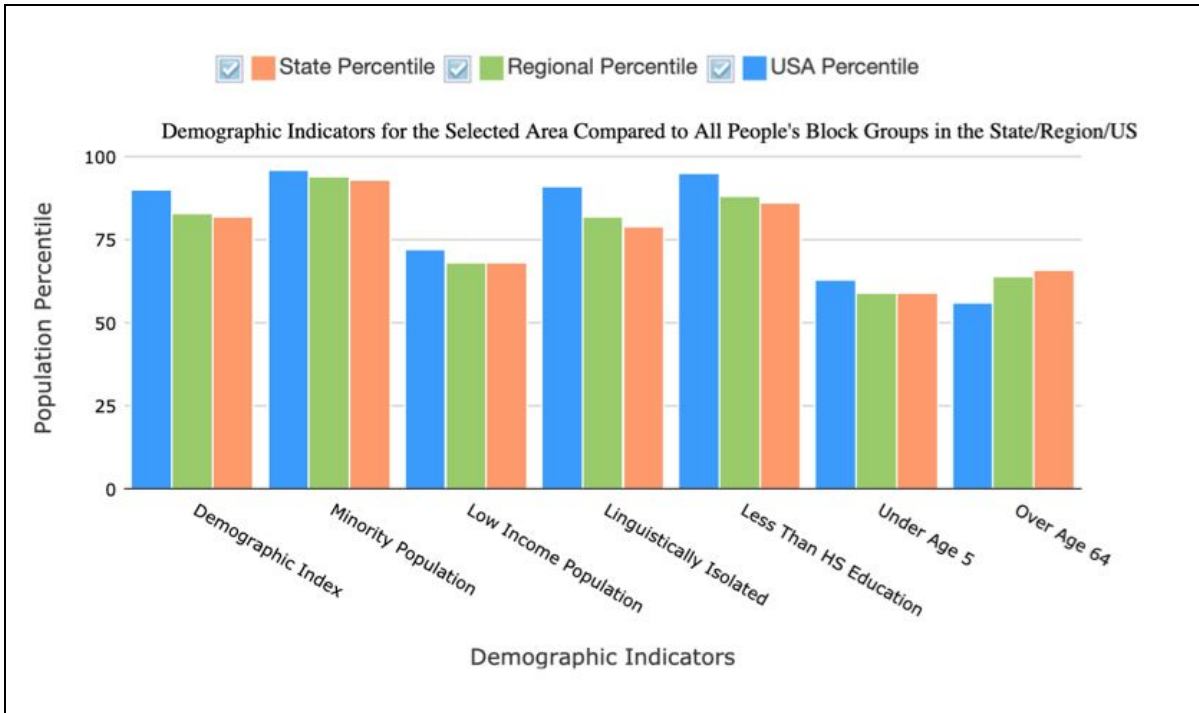


Fig 3: Demographic indicators for Commerce. EPA EJScreen Report, City of Commerce, 2018. Retrieved October 24, 2019. Screenshot taken by author. <https://ejscreen.epa.gov/mapper/>

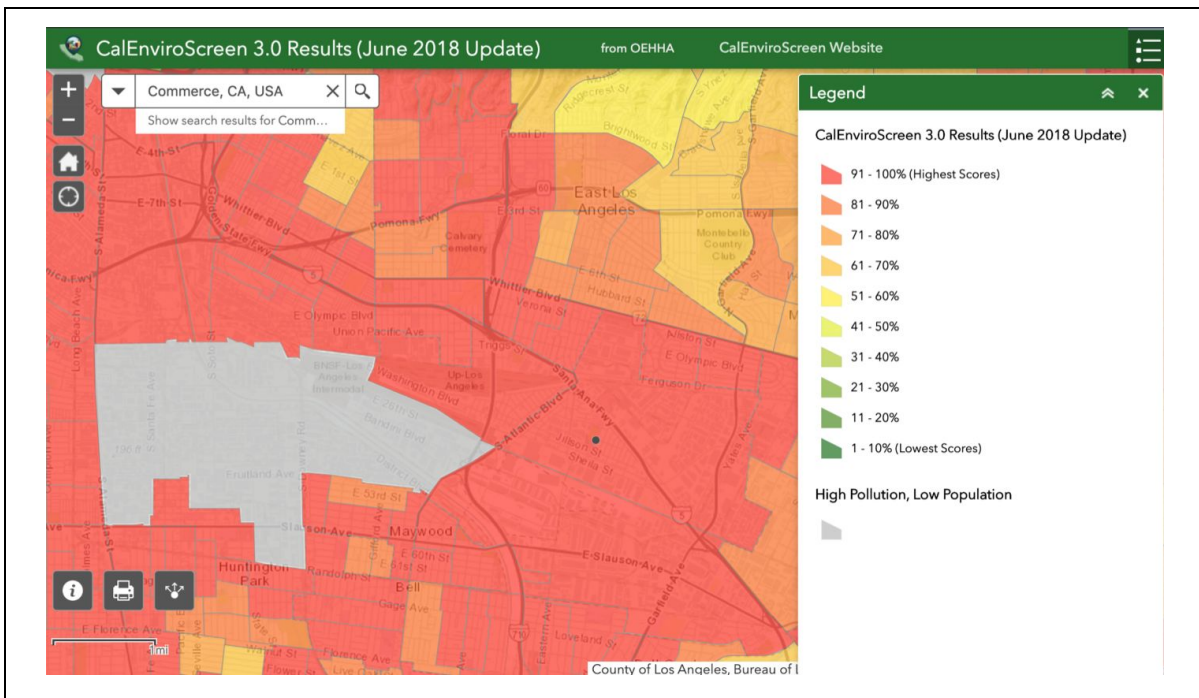


Fig 4: High scoring census tracts in Commerce, CalEnviroScreen 3.0, 2019. Retrieved October 24, 2019. Screenshot taken by author. <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

**2. What environmental threats from *worse case scenarios* are there in this setting? What data is available to characterize worse case scenario potential? What other environmental hazards are there in this setting? [Judith Castellanos]**

The conversion of Commerce to an industrial area began way back in 1887 with the construction of the Santa Fe Railway to increase the ease of product delivery. The city suffers from truck congestion which leads to severe air pollution caused mainly by the trucks driving along the Long Beach freeway - Interstate 710 which on a single day has over 260,000 cars and over 40,000 diesel trucks passing through, increasing the PM levels (EYC 2019). Over hundreds of thousands of shipping trucks pass through these shipping ports and freeways, and they of course rely on diesel as their energy fuel that increases the levels of particulate matter that roams in the air (The Nation 2019). It also has many industrial plants located nearby which opens a lot of risks to chemical spills and toxic leaks

There is also a popular pesticide company, AMVAC Chemical Corporation, which has bought the rights to produce many old pesticides which are restricted and deemed very risky by the Environmental Protection Agency (Malkan 2018). This company has also had incidents in the past of pesticide leakage which has led to thousands of field workers in California having to be evacuated. AMVAC has an agreement with Dow Chemical Corporation to sell "Lorsban", a very harmful pesticide which has been shown for years to damage children's brains (Malkan 2018). In fact, a compound in Lorsban is banned by the EPA, yet AMVAC continues to use it and markets it as a "good choice". Evidence suggests that in a worse-case scenario, exposure to pesticides in early life leads to pediatric cancers, decreased cognitive function and behavioral problems. There is also another facility called Univar USA Inc. that specializes in producing over more than 18 different categories of chemicals that are shipped world-wide which in hand increase the carbon footprint (Orum 2014). The companies worst-case scenario chemical is Formaldehyde, which aside from affecting a human's nervous system, is also a strong respiratory irritant that has been shown to be the

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cause of cancer and asthma in children (Fox 2015). In addition, pesticide exposed farmers have elevated risks of prostate cancer and other skin cancers. In a situation where any of these chemicals were to leak into the ground, or excessively be used on our crops, it would have devastating effects. This is especially in relevance to Commerce, since California is the largest food producer in the US.

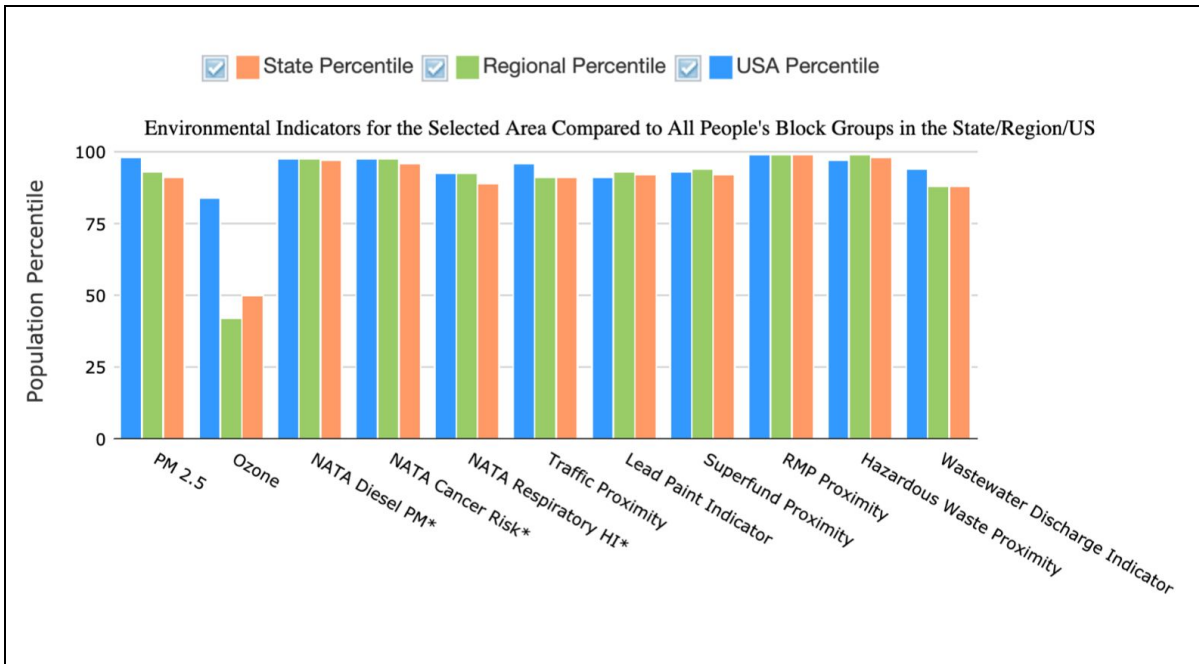


Fig 5: EPA EJ Environmental Indicators for Commerce,CA. EPA EJScreen Report, City of Commerce, 2018. Retrieved October 24, 2019. Screenshot taken by Judit Castellanos. <https://ejscreen.epa.gov/mapper/>

This screen report compares the levels of environmental indicators that signify the health status of certain locations. For the city of Commerce, CA we know the EPA sets regulations to ensure and protect the health of community residents but here we can see that for Commerce their Particle Matter that is present in the air is higher than the state percentile. Typically these regional percentiles should be ranging much smaller than the overall state and USA percentiles but for the majority of these indicators Commerce places at the same level.

**3. What factors -- social, cultural, political, technological, ecological -- contribute to environmental health vulnerability and injustice in this setting? [Shreya Kini]**

A combination of factors and stakeholders contribute to the continuous environmental racism and injustice that has been taking place in the city of Commerce, California. Ecological factors are a major contribution to health vulnerability in this city. Commerce and much of its surrounding area ranks astronomically high in pollutant abundance. The majority of its revenue and profits come from the products manufactured by high polluting facilities, fossil fuels burning in rail yards, and the transport of goods through the many freeways running near the city. In other words, a lot of the city's income comes from "polluting jobs". Due to the harsh air quality in the Los Angeles region, residents of this city have also become victim to issues like children's health problems, asthma, cancer, and other chronic health issues in adults.

The high power that the environment polluting businesses have prevents the voice of the minority populations (which comprises mainly of Latino households) from being heard. For example, the Southern California International Gateway (SCIG) is a project that was proposed by BNSF railway with the intention of reducing carbon emissions and greenhouse gases, by building a new state-of-the-art rail yard which would help reduce congestion. However, although the project was marketed as being a "green project", in reality it would actually contribute further to the already high levels of air pollution in the area. Many community members and environmental justice groups such as East Year Communities fought to keep this from moving forward, but high potential profits enabled the city council to approve this project with no concern given to the increasing health threats that would be imposed on immediate nearby residents and communities (EYCEJ). This serves to show how political and social factors come into play, since these communities are simply more prone to health injustice. This is solely because companies as well as city council members only look at the economic benefits, and this to them outweighs the health risks they are exposing these communities to (EarthJustice). Researchers even determined this area to be one of the deadliest in the country, with an estimation of 1,341 deaths per year due to poor air quality (Press-Telegram).

Another social problem that shines through in this scenario is that of "environmental racism". Being an area densely inhabited by mid to low income Hispanic households, these people are being made susceptible to diseases and health problems because of the density of polluting factories in the surrounding area. These factors combined with high population density and an increase in the number of trucks commuting through the city has added to the severity of the problem. To summarize, the three main sources of vulnerability are burning of fossil fuels, toxic release from plants and



hazardous material. There are no prevalent technological factors that contribute to health vulnerability in this case.

Census Tract: 6037532400	
Population:	112
CalEnviroScreen 3.0 Percentile:	
Pollution Burden Percentile:	99
Population Characteristics Percentile:	
<a href="#">Ozone:</a>	53
<a href="#">PM 2.5:</a>	84
<a href="#">Diesel:</a>	95
<a href="#">Pesticides:</a>	0
<a href="#">Toxic Releases:</a>	99
<a href="#">Traffic:</a>	67
<a href="#">Drinking Water:</a>	37
<a href="#">Cleanups:</a>	98
<a href="#">Groundwater Threats:</a>	78
<a href="#">Hazardous Waste:</a>	99
<a href="#">Impaired Water:</a>	72
<a href="#">Solid Waste:</a>	91
<a href="#">Asthma:</a>	91
<a href="#">Low Birth Weight:</a>	NA
<a href="#">Cardiovascular Rate:</a>	84

Fig. 6: Figure depicts the CensusTract Scores according to CalEnviro Screen. As shown, Commerce has one of the highest ozone, toxic release and hazardous material levels in the area making the industries a compounding factor in health vulnerability in their community. Screenshot taken by author from CalEnviro Screen. N.d. "Commerce, California." Retrieved October 23, 2019.

#### 4. Who are the stakeholders, what are their characteristics, and what are their perceptions of the problems?. [Anthony Manzke]

In cities such as commerce, It is important to acknowledge that there are many stakeholders. The immediate stakeholders include but are not limited to youth/students, homeowners, families, and plant workers. Many of the community may be entirely unaware of the threat of which they live under. The children, for example, risk several issues through air pollution alone, without even mentioning the

aspect of fast disaster. Infant mortality, asthma rates, birth defects, and more have increased risk(The effects of air pollution on children). Families in the area have potential life threatening risks being in such a close vicinity to plants. Negligence on the plant's part, as well as the communities being uninformed about the details and threats of nearby plants. Local plant workers would be unlikely to whistleblow because of job security and minimal protections.

There are also stakeholders that aren't in the immediate vicinity. The East Yard Communities for Environmental Justice, or EYCEJ, is a locally created organization whose goal is to identify causes of pollution and find solutions for them. They have done work on a small level in Commerce and surrounding cities. In Commerce, EYCEJ has helped to map many potential causes of issue and joined with the community to give them a voice and allow them to help(Grist). EYCEJ is a good example of a stakeholder who may not be directly under threat. EYCEJ's involvement may prove crucial in combating the threats caused by refineries too close in proximity to the community.

Another stakeholder in Commerce is its economy. An article from Grist notes that much of Commerce's economic revenue is pulled in from these factories that are creating an issue(Grist). This brings to the forefront the dilemma between community safety and job prosperity. Another aspect of the economy is homeowners. Increasing placement of plants in low income neighborhoods(and potential fast disasters) can result in the displacement of community members and loss of value of homes. This is rather optimistic, considering that there is also the potential for damage to surrounding structures that are too close to hazardous facilities in the case of an unwanted event.

The most important stakeholder in the risks of Commerce is the California government and eventually, the US government. It is important that we uphold strict regulations against the construction of refineries, factories, and plants close to, and in low-wealth neighborhoods. It is also important that there are clear laws and protections that encourage whistleblowing and company transparency. Plants should be heavily examined for safety violations.

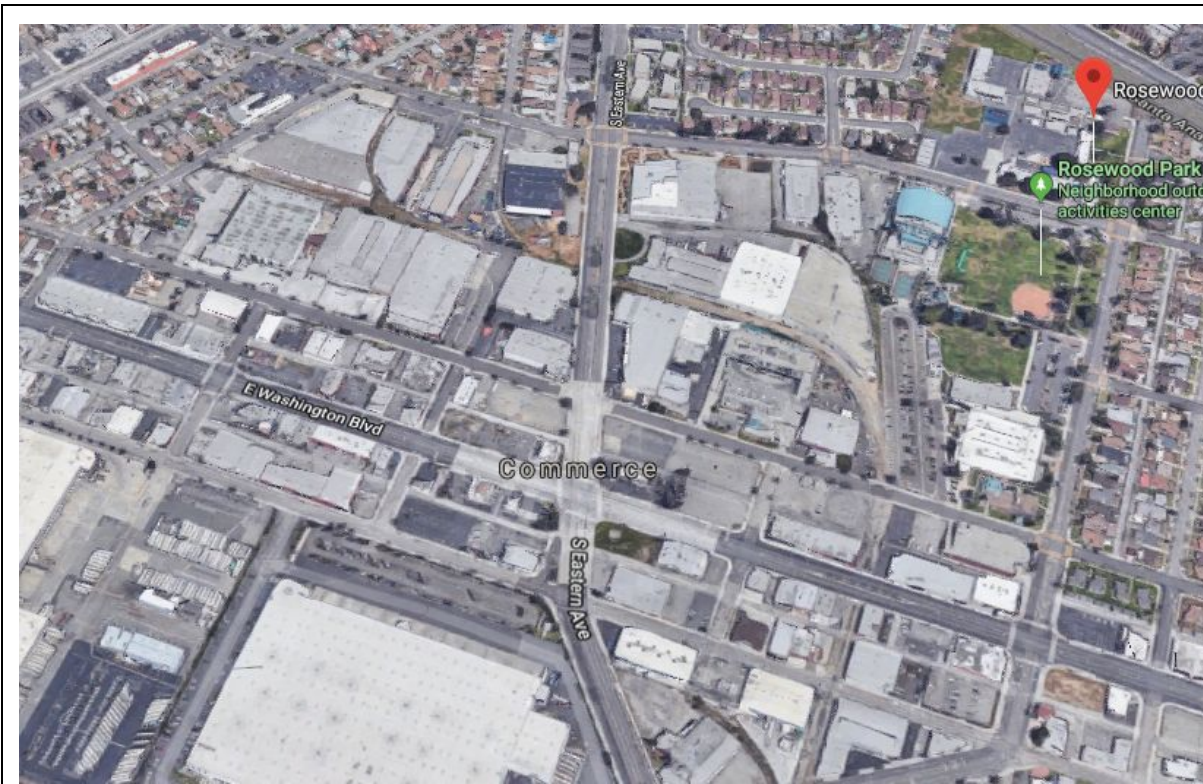


Fig 7: This image portrays the abundance of miscellaneous and potential reinery and plant buildings riddling the city of Commerce, Ca, also within a short distance from the tightly packed neighborhoods and schools. Google Maps. Screenshot taken by Anthony Manzke, Retrieved October 26, 2019 from <https://www.google.com/maps/@33.9943718,-118.1593659,821a.35y,39.15t/data=!3m1!1e3>.

### **5. What have different stakeholder groups done (or not done) in response to the problems in this case? [Matthew Olivarez]**

Nationally, the American Vanguard Corporation, or AMVAC, is infamous, due to their inclination towards chemicals that other companies have deemed not worth manufacturing. AMVAC's subsidiary AMVAC Chemical Corporation produces agrochemicals and agrochemical disbursement devices at four sites across the United States including a site in Commerce, California where a reported 80 million pounds of active ingredient is produced annually (AMVAC 2019). During their efforts to grow

profits the company has failed to do advocate for protections for people who work with their product and for the communities adjacent to where their product is manufactured and distributed. AMVAC however has been taken to court multiple times over issues such as; whether or not their products resulting in chemical-related occupational disease for farmworkers is grounds for being sued for damages (US Appeals Court 2000). Later in 2007, AMVAC paid out \$300,000 US to settle with Nicaraguan workers who claimed they had been sterilized by the chemical DBCP, a chemical that the EPA had proposed to ban due to its harmful properties but remained on the market due to defense by AMVAC, Dow Chemical, and several other companies.

Back in Commerce, the community has begun to be informed by local environmental protection groups, including a community based organization named East Yard Communities for Environmental Justice (EYCEJ). EYCEJ was formed in 2001 by Commerce residents, and their goal has been to empower communities and allow previously unheard voices to have an influence on policy (EYCEJ 2019). While they do have several outreach events to raise awareness, the organization's primary program is its annual publication of the 'Marina Pando Social Justice Research Collaborative,' a series of reports composed by undergraduates exploring environmental issues in the region. Reports in the 2019 edition covered topics such as the gentrification of housing communities which had previously served low-income POC families, finding lower median incomes for communities along the 710 corridor while also finding an elevated number of cases of cancer in residents of those communities, and analysing the tactics companies utilize to construct plants in areas with "least resistant personality profiles" (Garcia 2019) Reports like these, and reports by other community based organizations help educate the residents, and motivate communities.

In 2015 the city of Commerce approved an ordinance titled 'Green Zones Working Group Action Plan,' a first of its kind plan to lower improve the livelihood of residents by reducing emissions of businesses and introducing jobs (Bogado 2015). The plan had been introduced previously to the council, however this version of the draft considered how to support the local economy while transitioning; it offers technical and financial support while helping identify what state and federal subsidies were offered to low emission businesses (Green Zone... 2015). The Green Zone plan was championed by community leaders such as Angelo Logan as well as was supported by long term research done by organizations which includes the EYCEJ.

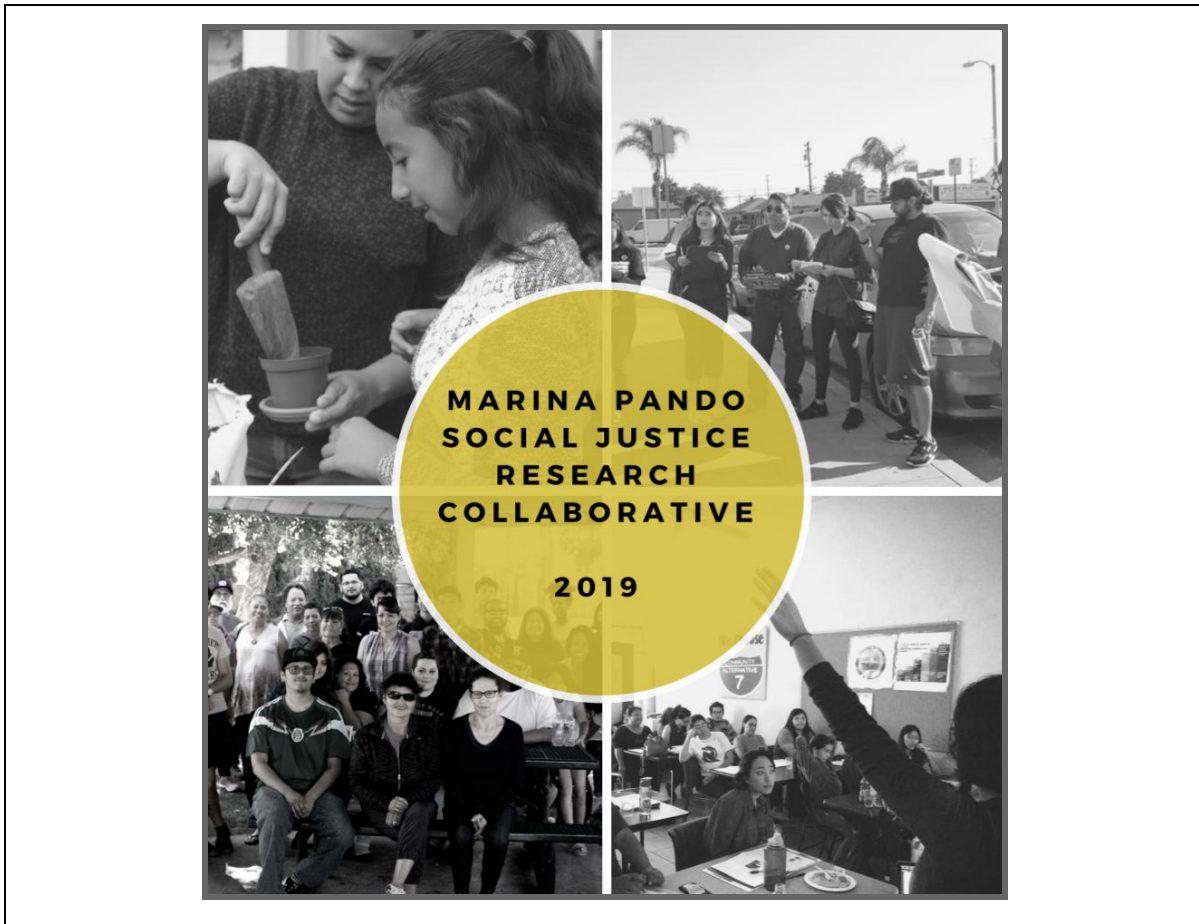


Fig 8: Cover of the 'Marina Pando Social Justice Research Collaborative' 2019 edition, a compilation of reports which explores the causes and effects of environmental injustices in communities of East Los Angeles. Screenshot taken by Matthew Olivarez from "Marina Pando Social Justice Research Collaborative 2019" Retrieved October 26th, 2019 from [http://eycej.org/wp-content/uploads//2019/09/MPSJRC\\_2019.pdf](http://eycej.org/wp-content/uploads//2019/09/MPSJRC_2019.pdf)

## **6. How have big media outlets and environmental organizations covered environmental problems related to worse case scenarios in this setting? [Maritza Ortega]**

Finding coverage on environmental problems related to worst case scenarios in the city of Commerce from big media outlets and environmental organizations is either very little or non-existent. This particular city does not get a lot of news coverage in general, most of what you do find is news coverage on crime rather than environmental problems, which speaks for itself. Luckily, The Los Angeles Times, a

well-known, expansive news source, did happen to mention Commerce while addressing the catastrophic incident that took place at the Exide Technologies battery recycling plant in Vernon that affected the residents of Commerce, along with other neighboring cities (Barboza & Poston, 2017). The LA Times addressed how Exide Technologies exposed several neighborhoods to high lead emissions, threatening the health of thousands, and how there was not enough funding from the state for the cleanup process. Similarly, Commerce's own local weekly newspaper, The Los Angeles Wave, covered how the battery recycling plant's mishap led to lead being found in the teeth of infants, even the unborn. According to the studies mentioned in the article, "...the higher the level of lead in the soil, the higher the amount of lead in baby teeth."(Lemelle, 2019).

Although there are not many environmental organizations covering the environmental problems and injustices existing in the city of Commerce, there is one local organization that does fulfill the tasks, and even goes beyond that. East Yard Communities for Environmental Justice, or EYCEJ, is the only known local environmental group in this city for addressing environmental injustice matter. Their goal is to provide the resources for community members to become self-advocates about the things that impact their health and quality of life (EYCEJ). In general, they are informing the community about the existing problems affecting the entirety of the city, as well as neighboring communities, and how they can get involved with the various campaigns and programs the organization composes. They have done extensive research on pollution and were able to find a couple of solutions to prevalent issues seen in the city. As for organizations that are known nationwide, like Sierra Club, Greenpeace, WWF, etc., no coverage on Commerce was to be found. It is time that the injustices that are prevalent in this community are addressed in media platforms, whether it may be locally or nationally. The slightest bit of attention to the city could truly make wonders for its residents, well-known organizations could start campaigns and raise awareness for the community. Step by step, we could all see the world become a better place.





Fig 9: This image depicts community members at a gathering involving the 710 Community Petition started by EYCEJ. Several communities are affected by the unsubstantial air quality the I-710 brings, and the inaction of government agencies providing the community with its needs, calls for an action. Screenshot taken by author from East Yard Communities for Environmental Justice, 2019. "710 Community Petition." Retrieved October 25, 2019. <http://eycej.org/cehaj-petition/>

## **7. What local actions would reduce environmental vulnerability and injustice related to fast disaster in this setting? [Julian Perez]**

The city of Commerce's environmental vulnerability is impacted significantly by industrial pollution coming from the nearby Long Beach Freeway trucks carrying cargo and companies like Exide Technologies Inc. that for years polluted nearby communities with lead contamination. One local action to start reducing some of the air pollution coming from trucks is for the city of Commerce to start issuing a high fine for trucks that are just idling near homes. Idling diesel trucks are a big issue in Commerce due to the nearby freeway so by fining these trucks the money earned will return to community to fight health problems caused by the emissions. Taking this idea one step further, the city of commerce could start working on a way to add a toll to the nearby



freeway and spend that money to fund organizations that dedicate themselves to the cleanup of air quality or provide more local services that benefit community members. According to Mark Lopez a director in a local environmental justice group there is “between 40,000 and 60,000 truck trips a day rolling through our communities” (Ehrenreich 2019). Through this idea, the cars that normally pass by and have a negative impact on the community will also contribute to the solution. In addition, adding a toll to the freeway will also deter drivers from using the freeway hence improving the air quality of the city. Other local actions that can be taken is to make industries more accountable for the damage done towards the environment. Companies like Exide Technologies were able to cause damages that cost hundreds of millions to clean up and got away with paying the bare minimum, “Department of Justice only required the company to apportion about \$14 million for the effort”(Delgadillo 2018). The way to have companies more accountable is through sending an important political, economic or ethical message to authorities in power. The message can be done in public demonstrations that bring attention to the problems so that changes can be made in the laws and arrangements with these corporations. Community members can also try to advocate for the industries to provide better solutions and transparency. Another action is for the community members to be more environment-friendly. This means that buildings should aim to be zero-carbon building and implement clean energy around the city. This can be accomplished with the support of the local city of Commerce government. The city’s actions need to take priority since they are the most guaranteed to be accomplished and have immediate positive effects on the city.



Fig 10: This image displays the issue of idling diesel trucks releasing diesel emissions in Commerce, CA which increases the rate of cancer, asthma and other respiratory illnesses. Screenshot taken by author from Ehrenreich, Ben. "The Road to Climate Catastrophe Runs Through a City Called Commerce." The Nation, 9 May 2019, <https://www.thenation.com/article/climate-catastrophe-solutions-begin-grassroots/>.

**8. What extra-local actions (at state, national or international levels) would reduce environmental vulnerability and injustice related to fast disaster in this setting and similar settings? [Brandon Sorn]**

Under certain circumstances, environmental issues can become detrimental not only to the local communities, but also in higher order in many states and at national/international levels. In the Los Angeles area, Commerce is one of the most polluted cities in California, where low-income and colored communities are the most affected by the unwanted chemicals that flood the entire city. The community is surrounded by many refineries that pollute the area, and when taken into account, the transportation of goods and industrial practice often pollutes the air in the city. As a

result, the State of California--and at the time with the national government--often recognize this issue regarding environmental change in the city of Commerce.

For instance, one of the extra-local actions that have been found to help reduce these problems--and the most important--is collaborating and commencing state and local organizations to help identify and solve these problems on a bigger scale. For example, the I-710 freeway is one of the key freeways in which loaded trucks and automobiles are constantly moving supplied goods that give off chemicals into the air. Furthermore, the freeway is designated to be the best route for industrial activity in the L.A. area, where there are abundant amounts of people living in close neighborhoods, specifically of low-income and colored peoples. As a result, because of the amount of discrimination and disregard for these communities that companies are giving off chemicals to, state and federal action is needed. According to the Environmental Protection Agency (EPA), "a unique collaboration of federal, state, and local governments and nonprofit organizations will work together to improve the environmental and public health conditions for residents along this corridor." In other words, community leaders and partnerships will work together to settle for the worst and address these issues not only to local authorities, but to the state and at most the national authorities as well.

Another way to exercise extra-local actions to state and national levels of work is being able to utilize a nonviolent protest/political group that considers the aspects of civil issues into environmental issues, and put those two problems together. This forms a stronger message to how in the ethical and political standpoint, environmental vulnerability is destructive in all forms of life rather than just being a specific one in the state and federal level. To clarify, let's reiterate the same idea with the I-710 freeway, where goods are at a cost of laying off nasty diesel fuel in the climate. In the article from environmentalist Mustafa Ali, environmental activists laid the foundation of environmental injustice by addressing civil rights tactics on people's health into environmental issues, such as the transportation problems of diesel that affects the communities in and around Commerce. As said before, low-income communities are the first to encounter these pollutants that these trucks are producing from moving these goods in and out of Los Angeles. With the result, many of these civil rights activists are joining in to explain to the L.A. Metro board that the expansion of this freeway is uncivil and unrighteous. Because of that, the state courts of California are aware of this issue and are contemplating whether or not the expansion of this freeway should continue or not (EarthJustice, 2018). The 710 Expansion Project is going

underway until these people have been taken extra-local actions to suppress this project from going on, using past ideas to make their messages stronger.

One last way to emphasize extra-local action is the simplest: being proactive and taking the initiative to help address these issues in the local areas, especially in Commerce.

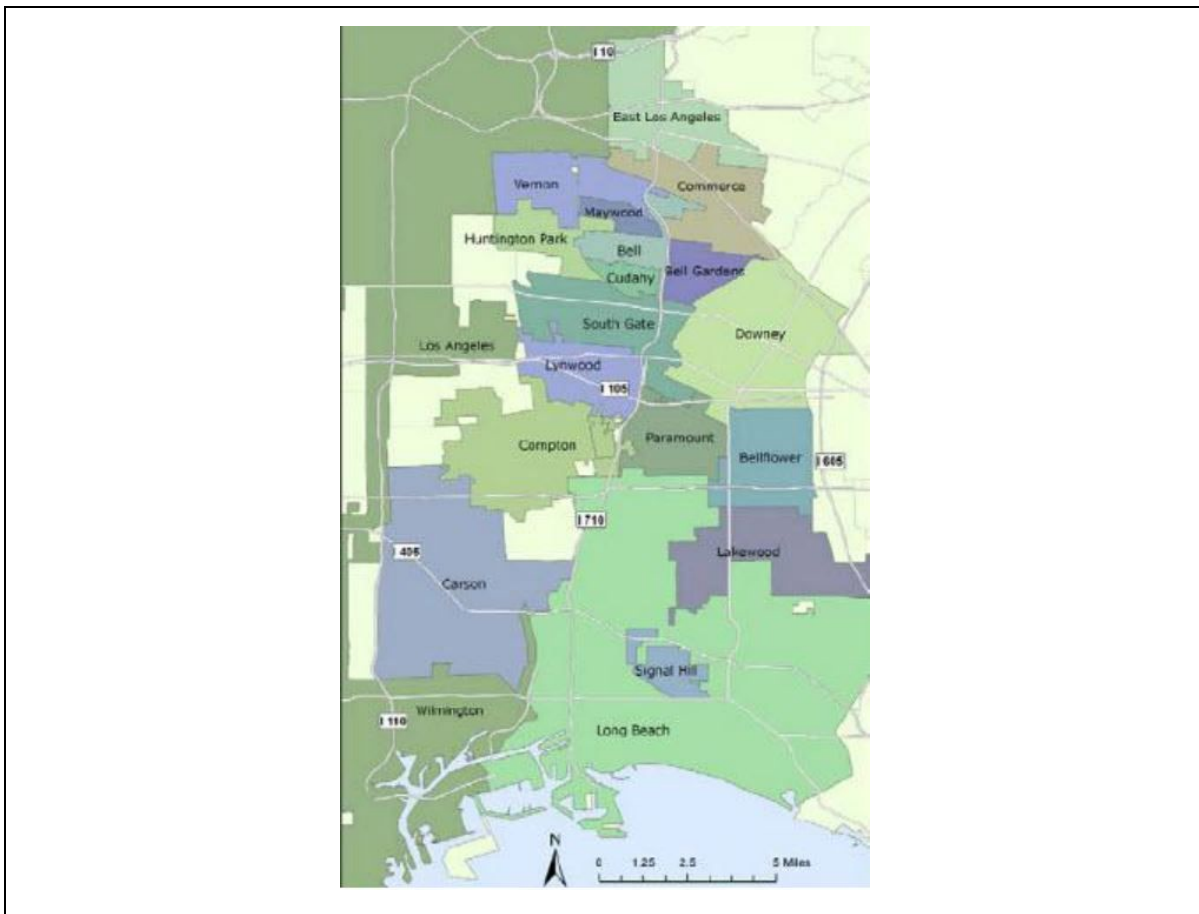


Fig 11: Project Focus Area for the L.A. Environmental Enforcement Collaborative Group, including the city of Commerce, CA  
<https://www.epa.gov/environmentaljustice/los-angeles-area-environmental-enforcement-collaborative>

**9. What kinds of data and research would be useful in efforts to characterize and address environmental threats (related to fast disaster, pollution and climate change) in this setting and similar settings? [COLLABORATIVE ANSWER]**

There are ways in which environmentalists and scientists can claim evidence on how environmental pollution is affecting local communities, especially with the city of Commerce. One thing that these scientists can do is broadcast data about the global temperature that has been recorded over time, and create awareness about how it is caused by these refineries in the area due to the emissions of chemicals in the air. In Commerce, a widely polluted city in Los Angeles, there are many refineries that overall create a cloud of carbon dioxide that sticks in the air and into the environment, which needs to be addressed as a form of environmental pollution. According to the article by Hannah Ritchie and Max Roser, "air pollution arises in various forms, providing a number of parameters with which we could measure and track change through time"(Our World in Data, April 2017)<sup>1</sup>. To emphasize, air pollution can be recorded through time data that can be used to demonstrate the accuracy of pollution and the presence of unwanted chemicals in our atmosphere that causes global climate change. As a result, it is a good emphasis on how this data can be used to characterize these threats. Another way to address environmental threats is by researching the amount of chemicals present in the climate that is present now versus how it was before. Using this data we can show and recognize the issue that these chemicals that are in the atmosphere are increasingly affecting people's lives, and it is time now to advocate for change.

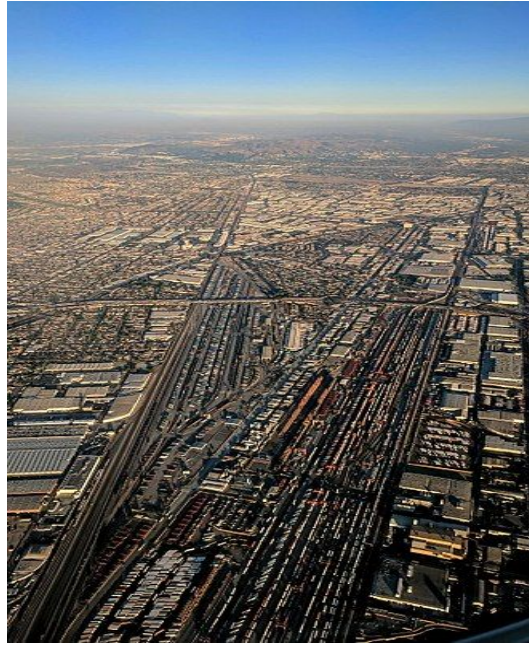


Fig 12: An image of a railyard in Commerce, CA. Rail Yards are a major contribution to air pollution as well as congestion in the area, heavily influencing air quality. Image taken from Wikipedia. N.d. "Commerce, California". Retrieved October 24, 2019. [https://en.wikipedia.org/wiki/Commerce,\\_California#/media/File:Tracks\\_in\\_Commerce\\_and\\_Vernon.jpg](https://en.wikipedia.org/wiki/Commerce,_California#/media/File:Tracks_in_Commerce_and_Vernon.jpg)

**10. What, in your view, is ethically wrong or unjust in this case?  
[COLLABORATIVE ANSWER]**

In my view, I believe there is environmental racism and injustice in this city and not only is it being empowered by the neighboring immediate facilities but also highly empowered by people of higher rank. It is politicians whom are supposed to make the right choices for the people they represent yet they only truly represent the people from their own social class and ignore the needs of those underrepresented populations. For example, the US's Environmental Protection Agency (EPA) mission statement is "to protect human health and the environment", however this can only truly be done so by the ethical administration of the directors (EPA). In recent years, we've all come to notice the unjustly racist acts from the Trump administration and not only is it seen in other factors but, it also caused a big scandal within the environmental



sector. The former EPA administrator, Scott Pruitt, worked closely by Trump's ideology of climate change skeptics in which they held their positions solely for political and monetary gain rather than aiding those minorities (The Guardian). Pruitt even resigned from his position because of ethical scandals and it is people like him whom are being elected to "represent the people". One important thing that could have drastically improved conditions was the Clean Power Plan set forth by the Obama administration but, later repealed by Trump administration which many agree was done so solely for profitable gain (CNN).



Fig 13: Fondacaro, Nicholas. "CNN Strokes Fear for America's Air and Water under Trump's EPA". MRC News Busters. December 8, 2016. <https://www.newsbusters.org/blogs/nb/nicholas-fondacaro/2016/12/08/cnn-strokes-fear-americas-air-and-water-under-trumps-epa>

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## APPENDIX

STAKEHOLDER SKETCH		
<p>In this sketch, list different kinds of social actors -- "stakeholders" in governance parlance -- and the forces that enable and disable them. Sometimes stakeholders will be distinguished by their class position, place of residence, ethnicity or expertise. In some cases, it is important to splice groups usually seen as one: recognizing the way gender and generation makes a difference, for example. <b>List the stakeholders down the middle. In the left column, list catalysts -- things (money, honorable reputation, etc) that enable that group of people to get what they want. In the right column, list corrosions -- things that undermine their ability to get what they want (lack of money or status, youth, gender, poor organizational skills. In filling it all in, you create a quick map of power dynamics.</b></p>		
catalysts	"stakeholders"	corrosions
Uninformed community, plants fly under the radar	People living near Commerce	People are unable to form a strong enough opposition to oppose these plants
Plants have the advantage that they are creating jobs	Workers at the nearby plants/refineries	Lack of legislation which protects whistleblowers Companies' efforts against the formation and action of unions
In many places, income from plants brings food security to the community.	Plant Owners	Exist to make the bottom line, need to profit for business to succeed and workers to be paid
Plants promise "safety" of their workers and other people living nearby, which makes it seem like there are no concerns	City Government	Protect companies which provide income for the city
Plants fund community projects/church	Students	People need these jobs to make a living, often include relatives and parents. Not taken seriously because of the connotated immaturity
Money	Homeless/Poverty Stricken	Poor people cannot find jobs elsewhere as they may lack skills for other jobs.
Community involvement	EYCEJ	Funding and unwillingness of companies

## ABOUT THE AUTHORS

Shreya Kini is a second year undergraduate student at the University of California Irvine's School of Information and Computer Science, pursuing a B.S in Data science. She is currently an intern at UC Irvine's student government association (ASUCI) and is involved in organizing community service events, as well as promoting sustainability and climate change awareness. She is interested in statistics, regression modelling of data, and using these data models to promote research into how we can help in saving the environment. Her biggest goal is to combine her passion for data science and research and use it to positively impact her community.



Matthew Olivarez is a second year undergraduate at the University of California Irvine's Samueli School of Engineering, pursuing a B.S. in Biomedical Engineering. His pursuit to better the lives of others comes from parents who work in medicine, radically impacting the lives of those they serve. Matthew's interest in problem solving comes from his high school experiences, where he acted as the lead designer for his school's robotics team, and interned as a Quality Analyst Engineer at Northrop Grumman. As a Biomedical Engineering student his interests include nanotechnology, and the development of bionic prosthetics



Brian Caballero is a second year undergraduate student at the University of California, Irvine. Currently, undeclared/unaffiliated but looking to enter Computer Science. As a first-generation student and the oldest of 4, he wants to set an example for his younger brothers and work hard to help his parents in the future as they worked hard to get him all the way here. Brian's interest in Computer Science comes from video games and wanting to learn the coding behind the screen, it sparked more when he took a robotics class in high school, where he got to programmed a robotic car to do a course.



Maritza Ortega is a second year undergraduate student at the University of California, Irvine, currently Undeclared/Undecided, but plans to pursue a B.S in Physical Sciences. She is interested in how particular aspects of the environment interact with one another, how human activities affect our planet, and the inaction of political figures to partake in anything environmentally beneficial. Her interest in environmental science stems from a class she took in high school, AP Environmental Science, which inspired her to reduce her carbon footprint as well as seek further knowledge.





Judit Castellanos is a third year undergraduate student at the University of California Irvine pursuing a B.S in Public Health Sciences with a minor in Health Informatics. She interns in a multi-disciplinary research lab at the Children's Hospital of OC as a Co-Investigator on seven ongoing clinical trials - specifically focusing on managing pain in pediatric cancer patients and also holds a leadership position as Secretary for the Orange County Hispanic Youth Chamber of Commerce. Her love for medical research, the well-being of others, and her community is what motivates her to continue a career in clinical research by pursuing a Ph.D to become a Clinical Research Scientist.



Anthony Manzke is a second year undergraduate student at the University of California, Irvine; undeclared in major. He is interested in business, particularly e-commerce, and also likes to learn how he can reduce his negative impacts and optimize his consumption. He is interested in choices such as what diets are better for the environment and wellbeing, which organizations are most effective to donate to, etc. He is seeking to join the Paul Merage school of business at UCI, and majoring in business administration.





Julian Perez is a second year undergraduate student at the University of California, Irvine, who is currently a math major. He is interested in pursuing a specialization in Mathematical Finance due to his interest in the market. Math is his favorite subject since he enjoys finding solutions to the difficult problems you usually see in math. As for the environment he is interested in learning about how our environment is being impacted and what can be done to solve these problems.



Brandon Sorn is a second-year undergraduate student at the University of California, Irvine. He is currently majoring in Aerospace Engineering and is interested in aerodynamics, spacecraft, fluid dynamics, and specialization in airplane architect. He wants to develop new technologies concerning the use of living in an aeroplane or spacecraft in the near future as well as other uses that are unique to the new plane. In addition, concerning the environment, Brandon is interested in environmental political issues and the idea of reversing climate change whenever it is possible.

