ABOUT EYCEJ

Introduction:
East Yard Communities for Environmental Justice (EYCEJ) is a community-based organization that works to facilitate self-advocacy in East Los Angeles, Southeast Los Angeles and Long Beach. By providing workshops & trainings, EYCEJ prepares community members to engage in the decision-making processes that directly impact their health and quality of life.

Our Work:
East Yard Communities for Environmental Justice emerges from years of the unheard community voices that have silently suffered the effects of pollution in their neighborhoods. Through grass-roots organizing and leadership building skills, EYCEJ works to enable under-represented communities to be heard, which in turn influences policy change, policy makers and agencies that can institute health protective environmental justice policies that are in the best interest of local, regional, and statewide residents.
East Yard Communities for Environmental Justice is committed to making real change happen in our communities. As a cohesive unit, the organization has developed a plan of action that utilizes research-based information, workshops and trainings to empower our communities.

The method works because it affects not only public opinion, but policy makers, stakeholders and regulators, who feel strong pressure to respond to well-crafted solutions-oriented community demands. It encourages good corporate citizenship on the part of companies, and most of all, it affects the community members, who learn the skills of self-determination and are forever able to exercise their power in a democratic system.

EYCEJ History:
EYCEJ was established in 2001 by residents of the Commerce/East Los Angeles area who were concerned with the increasing environmental health impacts of industrial pollution in their community, as well as several pending expansion projects adjacent to homes, schools and parks. After running into each other at several public meetings and realizing the huge wall they came up against as individuals, these concerned residents made the decision to work in unity and formed a community group that would fight for the lives of their families and neighbors. In 2002, EYCEJ was formally funded as a non-profit organization under the fiscal sponsorship of Social and Environmental Entrepreneurs (SEE). Since its inception, EYCEJ has achieved many important successes, including bring issues of environmental justice and air quality to the forefront for other community, environmental, and governmental entities at both regional and statewide level.

Mission:
East Yard Communities for Environmental Justice (EYCEJ) is an environmental health and justice non-profit organization working towards a safe and healthy environment for communities that are disproportionately suffering the negative impacts of industrial pollution.

Vision:
EYCEJ recognizes and promotes full and authentic community participation in making policies that affect them directly, promoting the implementation of Environmental Justice guidelines for local, state, and federal governments and agencies as well as industry. EYCEJ promotes direct democratic decision-making and taking collective action for safe and healthy communities where we live, work, learn and play.

Theory of Change:
Base Building: Build self-advocacy and community power to reach self-determination among those most severely affected by toxic pollution.
Policy Change: Improve our community’s health and quality of life by influencing policy decisions that are health protective and environmental justice focused.
Movement Building: Working in collaboration with all stakeholders and influencers to build a local, statewide, national and global movement for environmental health and justice.
Researchers

Estephanie Garcia is a first-gen Mexican-American that was born and raised in Bell Gardens, CA. She became passionate about EY’s work when she joined Youth In Action! during high school. Throughout her membership, she felt both furious and empowered when EY taught her about the systematic obstacles that plagued her community sparked her interest in social justice. Currently, Estephanie is a Sophomore attending USC where she is majoring in Gender and Sexuality Studies. She also plans to add a major in order to pursue law after college. During her free time, Estephanie enjoys reading and painting at local parks.

Cristhian Tapia is a Long Beach resident and first generation student at UCI. As a Political Science major, he plans to bring back the knowledge he gains to his community organizing work. Having been a part of the EJ movement since high school, he hopes to create a space at UCI where he can continue his activism while away from his community.

Diego Mayen was born and raised in Long Beach and is now a resident of Carson. He is currently a second year at Long Beach city college not really knowing what kind of degree and career route he wants to take. Diego has been involved with EYCEJ since 2015 starting with organizing youth and now being part of planing committees and being an East Yard representative in The Moving Forward Network. He enjoys playing badminton and spending time with loved ones.
Hello! My name is **Vicente Ceja**, I am a proud resident of Boyle Heights and a recent graduate from the University of California, Los Angeles with a bachelors degree in Geography and Geographic Information Systems and Technology. I am currently an active member of East Yard Communities for Environmental Justice. My passions include working with demographic and statistical data in order to create analytical models via ArcGIS, particularly focusing on both large and small urban/rural areas facing problems such as public health, social injustice, and public policy. On my free time, I love to cook, go to the gym and produce music!

**Ana Aldaco** was born and raised in the City of Bell. She started at Cerritos Community College where she earned her AA in Geography. Later, transferred to UC Santa Barbara and earned her BA in Geography in March, 2019. While being at UC Santa Barbara, she was head of the planning committee for the geography club and organized events for her campus community, which developed her interested in community organizing. She was also part of the Peer Mentor Program at UC Santa Barbara where she was a mentor to help transfer students adjust to a four-year institution and served as a critical advising and support role for students. She always had an appreciation for the environment since she was younger and started to escalate as she got older when she took her first geography course at Cerritos. While attending UC Santa Barbara, she had access to better air quality, smelled clean air, the freeways and railroads were more than a mile away, and lived nowhere near an industrial site. This made her perspective on her community, completely change, and realized she wanted to have a voice to represent low-income communities to fight for environmental justice. Within the year of being a member at EYCEJ, Ana has showed leadership in her community, dedication, and passion in environmental justice work, and wishes to one day pursue a career where she gets to work with low-income communities of color for environmental justice.

**Fernando Rios** has been a resident of Bell Gardens for 16 years. He was born in Hidalgo, Mexico and was brought to the U.S. at the age of 3. Fernando is currently a student at UC Santa Barbara and just finished his first year. He is majoring in Physics with the chance of a double major in Mathematics. He chose to study physics to understand how the physical world works and all the laws we follow every day, but don’t know it. As a kid he would like to learn new things and would go online and look up questions that interested him such as how does the sun give light, what is light, why don’t the planets fall into the sun? In his spare time, he still likes to learn new things that interest him. Right now, he is getting back into coding after a year of not being able to code because of college. After college, Fernando hopes to enter a Ph.D. program that would allow him to work for companies such as SpaceX and JPL. His biggest dream is having a technology company of his own.
Shayla is an incoming freshmen at the University of Southern New Hampshire. She has been a member for East Yard for about two and a half years. She plans to pursue her BA in Psychology, Mental Health. She became a member of EYCEJ because she has a passion for the environment and wants to make a difference.

Andrew Valencia is starting his senior year of high school at James A. Garfield High School. He was introduced to East Yard through the Youth in Action club at his school during his junior year and has been going to meetings about his community ever since. He hopes to change the way his community is being affected and make it a healthier place to live in.

Omari “Mars” Sadhan is an EYCEJ member, recent graduate from Cabrillo High School, and prospective music major at CSU San Bernardino. Omari began work with EYCEJ in September of 2018 after learning about the organization through fellow member Melissa and has been an active youth member since. Omari’s goal is to help create a world that’s healthy and safe enough to support his own future children and the next generation of heroes.

Raul Leon is a Freshman in College, he is attending Cerritos College majoring in Environmental Science. He is planning on transferring to UCLA and then attending Law School for Environmental Law. He has been part of EYCEJ for 2 years and has participated in multiple projects such as ROAR and LA river project. He is excited to help make our community a breathable place.
The Early Stages of Displacement in South East LA
Estefanía Garcia and Ana Aldaco

Introduction:
As the City of Los Angeles continually becomes more gentrified, the magnitude of displacement threatens to encroach on Southeast Los Angeles. According to Power, Place, and Public Health, there is scientific evidence that proves that chronic stress and anxiety are associated with gentrification and housing insecurity (Visual 1). For Southeast Los Angeles, we want to understand and document how members of East Yard Communities for Environmental Justice are experiencing the pressures of housing insecurity under the current housing crisis in Los Angeles and how it impacts their emotional and mental well-being.

Gentrification is defined as the process of changing the demographic of an urban neighborhood, which also includes both economic and historical changes. This process incorporates development to make the community more appealing to attract higher-income earning residents to the area. Evelyn from East Los Angeles, stated, “Housing is less accessible because of gentrification happening in our communities... and if people in the community cannot afford it, maybe an outsider will.” Within this process, low-income residents are displaced through rent increases, over policing in their neighborhoods, and/or loss of sense of community. There are many regions in Los Angeles like Echo Park that have experienced gentrification, followed by the threat of displacement, that inevitably leads to housing insecurity for residents who have lived in a community for many years.

Since there is very little research pertaining to housing in our region, our research is both necessary and useful to generate new preventive measures, while spreading awareness about the emotional and mental burden of housing instability. We also recognize that our region is representative of multiple vulnerable populations that must be protected. In our research, we will examine how residents in Southeast Los Angeles experience a rent increase, the threat of displacement, and housing insecurity in their communities.

Literature Review:
Los Angeles is a rapidly ever-growing city with new developments that cause rent increases, inevitably displacing community members and residents that have lived in the area for generations. Reports have stated that residents living in the Southeast LA area have experienced a rent increase by 83% (The Right to Live: Southeast Los Angeles Life in Three Moments). For that reason, it is crucial that community members’ concerns, whether they be financial or emotional, are documented, and accounted for. Our research aims at tackling the threat of housing instability in its early stages as a collective community.

In Power, Place, and Public Health, there is evidence that exposes a correlation between development and rent increase like the experiences of Southeast Los Angeles residents. The study further proves that housing instability has already damaged communities of color in other cities and identifies a trend within low-income communities of color: they are prone to displacement if they are not protected. For example, another study shows that cities in proximity to other gentrified neighborhoods like Echo Park have been a victim to “hipster gentrification,” also known as the rapid development and commerce in low-income cities where residents cannot afford to reap the benefits of the development. Even more concerning, is that in less than ten years, Echo Park went from being known as a dangerous area to a trendsetting housing complex with a view of Griffith Park and the Hollywood sign (The Gentrification of Mi Barrio, Echo Park). Echo Park is a prime example of how rapidly gentrification can occur, and unfortunately, Echo Park is not unique. In the Bay area, nine counties experienced a rent increase from 41% to 50% since 2000 to 2015 (Women of Color Face Highest Rent Burden in Bay).
Clearly, the increases are a cause for concern regionally, yet spaces where populations are most vulnerable are not being investigated. Based on distinctive markers of gentrification and a compared analysis of other communities that have experienced displacement, Southeast Los Angeles is undoubtedly experiencing housing insecurity. Though, the research identifies an ongoing threat for low-income communities around Los Angeles, there is no data that fully acknowledges this threat is also prevalent in Southeast Los Angeles. As previously mentioned, Southeast Los Angeles’ has many characteristics that are described as the early stages of displacement in Power, Place, and Public Health, but there are also other demographic indicators that exhibit the existence of housing insecurity especially for vulnerable populations. For one, the Urban Displacement Policy tool provides evidence that there are more renters than homeowners in Southeast Los Angeles. Evidence in A Gender Lens on Affordable Housing, suggests that renters are twice as likely (compared to homeowners) to suffer from cost-burden, with people of color being even more likely. Furthermore, the Urban Displacement tool also provides evidence that places in Southeast Los Angeles, like Bell Gardens, only have two policies that are considered a form of rent control. Thus, USC’s Rent Control: Why It Matters, exposes an important truth: “rent regulation does not target those who need it most.” For that reason, it is crucial that areas like Southeast Los Angeles are paid attention to in a timely manner in order to create efficient and equitable preventive measures for displacement that fit the needs of our unique population.

**Importance:**
The threat of displacement is not only a public policy issue when it impacts individuals in the private sector from finance-induced stress to living in substandard conditions. When women, families, and individuals are burdened by housing costs they are left with no choice but to cut down on necessities which creates a health issue. In Power, Place, and Public Health, research shows that health is negatively affected by rent increases and housing instability. The study elicits that housing instability creates high levels of stress which create a snow-ball effect of health issues ranging from higher levels of cholesterol to increased risk of stroke. As a matter of fact, A Gender Lens on Affordable Housing, describes trade-offs that many families go through in order to meet rent payments. The “trade-offs” are conscious decisions made by families to “trade” buying a necessity or seeking healthcare for other expenses associated with housing. Furthermore, the threat of displacement is even more costly for immigrant families. According to Housing hardship and energy insecurity among native-born and immigrant low-income families with children in the United States, immigrant families not only face a bigger threat, but immigrant families of color, in rural areas are expected to risk cost-burden 211% more than whites. Considering the demographics of Southeast Los Angeles in the US Census, there is a large immigrant population in the area which is very vulnerable to displacement, houselessness, and energy insecurity. The livelihood of people in Southeast Los Angeles is largely affected by the current housing crisis that has worsened over time. Additionally, Hopelessness, Family Stress, and Depression among Mexican-Heritage Mothers in the Southwest, points out that immigrant communities face a different reality with housing, that makes them more prone to cost-burdens and depression. Yet, the study also points out that there is very little research pertaining to Latinx households that face these issues. Therefore, it is important to recognize the unique demographics of Southeast Los Angeles that create a need for an in-depth understanding and analysis of the community.

Research Question(s): Is displacement a growing concern in Southeast Los Angeles? How are residents feeling and dealing with the pressure of housing instability?
Methods:
We have collected data through recorded, and/or hand-written interviews. Our sample size for our desired population was created from outreach efforts by contacting East Yard members and people in zones of displacement. We started our outreach efforts by speaking with organizers to contact members directly. In order to diversify our sample size with non-East Yard members, we also created posts for different social media outlets to have more participants join our study. We have created consent forms and interview questions in Spanish/English as well as verbally discussed terms with community members to establish an understanding of duties. We have had a total of six interviews with folks from the Southeast Los Angeles area, as well as other surrounding cities that have been affected by displacement.
Findings/Discussion-
Through our interviews, we have noticed that residents in Southeast Los Angeles are threatened by gentrification occurring in their communities. Cities in the Southeast Los Angeles area are being gentrified, which residents expressed as a concern due to the inevitable rent increases associated with gentrification. For the most part, all of the residents being interviewed rely on multiple sources of income to pay the rent within a household. In other words, most residents either have multiple people contributing to paying rent or have multiple jobs to afford housing. This indicates that housing in Southeast Los Angeles is almost impossible to afford as a single-headed household. Unfortunately, our study exhibits that rent increases inevitably force families in the community to live in substandard conditions which are overcrowded, small spaces. In this study, we also noticed that the high rent prices not only cause families to depend on each other financially, but also emotionally as they experience cost burdens. Participants also reported extreme levels of stress associated with housing, which only worsen overtime. But, residents also experience high levels of stress that affect their physical, mental and emotional well-being, hindering their overall health. When rent increases, individuals must limit their spending that includes neglecting their health. With this in mind, it is important to note that residents stated they spend between 30%-55% of their income on rent, causing them to compromise their everyday life. However, it is almost impossible to attend to health issues when rent and mortgage prices are increasing drastically in Southeast Los Angeles. Furthermore, residents observed that there are developmental projects in their community, which they fear will cause another increase in rent. Based on residents’ experiences, it is predicted that rent will worsen in the upcoming five years which can lead to further displacing. One resident states he “can’t imagine rent increasing because [he] doesn’t know what would happen to [him] or [his] family.” For that reason, it is crucial that there are resources and active measures to protect vulnerable populations.

Conclusions and Recommendations-
With new projects gentrifying our communities, rent prices continually increase, making it impossible for residents to keep up with housing costs. As a result, residents’ health is declining, while simultaneously being pushed out of their own community, where friends and family reside, and jobs are accessible. In our study, we asked our interviewees what they believed would be beneficial for the community to alleviate the sense of housing insecurity. Most of the participants believed that there should be more accessible resources based on housing, especially for residents who do not have access due to disability, transportation, and/or language barriers. With the internet being a helpful tool to provide resources in regards to housing, some participants believe these resources are not enough. Residents are seeking rent caps, accessible housing, assistance with homeownership, and preventive measures in our communities.

Some residents shared common responses, and solutions for renters and tenants. For example, a married couple who has lived in Commerce for 25 years, suggests that tenants should adjust rent based on renter’s income. Similarly, both Iris Verduzco from South Gate and Alfredo Gonzalez-Ruiz from Commerce, suggested that rent should not be more than 20% of a person’s income. The husband from the married couple believes that the community should organize and allow their voices to be heard. He stated, “I just don’t want what we are saying, to just be written in a notebook and forgotten… we want to be heard.” Thus, with community efforts like MPSJRC that bring more awareness on rent increases, we can demand more preventative measures to stop the rapid increases in housing rents.
Polluting facilities are often placed in areas where companies will receive the least amount of resistance. This means that often times refineries, incinerators, and even major highways are placed adjacent to communities that are predominately made up of working class people of color and those who don’t obtain a legal status. Phillips 66, a refinery where crude oil and other chemicals are processed, is placed near the cities of Wilmington, Carson and West Long Beach; on March 15, 2019, the Phillips 66 refinery caught on fire which resulted in a “shelter in place” message to be sent out to the surrounding neighborhoods. Community members who live in West Long Beach, Wilmington, and Carson reported not getting any sort of warning that there was a fire or even the “shelter in place” alert itself. Events like these are extremely harmful to the nearby communities. Charles Deel, a community member who lives within a three-mile radius of the refinery, said, “About 25 years ago there was an explosion at this refinery that blew out windows for miles.” There are huge physical impacts that incidents like these can have on the communities, from the destruction of property due to an explosion, to the development of health impacts such as asthma and cancer. There are tools such as the CalEnviroScreen that show how poor air quality is in these communities that are largely working class people of color. There are links to the development of cancer in these disadvantaged communities and online tools and databases don’t consider a person commuting from one polluted area to another or more importantly race.

As a result, we ask what factors contribute to the more frequent development of cancer in the communities that are close to polluting sources such as the 710 freeway? This research project highlights the spatial correlations between the incidents of cancer and the location of toxic facilities, specifically along the 710 freeway. Given that tools such as the CalEnviroScreen, a free tool available by the Office of Environmental Health Hazard Assessment (OEHHA), only bases their air quality analysis on stationary census tract data, we hope to bring attention to areas where additional toxic pollutants could possibly increase people’s exposure to carcinogens and harsh chemicals. By conducting interviews and collecting contact information from participants who have or know someone who has cancer, we will ultimately produce a cartographic cluster map which will be a visual representation and translation of the participants experiences and geospatial data.

Literature Review:
There are multiple factors that play a role in deciding where a toxic facility is built. When we the researchers are talking about toxic facilities we are referring to infrastructures such as refineries, major highways, rail yards, trucking companies, and incinerators. The owners of these facilities and decision makers such as city officials are the ones who make these decisions of where it is okay to build these facilities. There is a very clear pattern of where these facilities are built, although researchers have now pushed race out of the equation in terms of where toxic facilities are built. Often times these facilities are built in communities where they will meet the least “resistance” from communities. For example, West Long Beach is one of these locations because the demographic of residents living in West Long Beach consists of 92% people of color as stated by the 2010 Census Tract. This specific region within the City of Long Beach is barricaded between the 710 freeway, the 405 freeway, a rail yard, a refinery, one of the largest ports in the country, and about 40-60 thousand diesel truck trips every day. Combined, the emissions from all of these toxic facilities are negatively impacting the community and quality of life for the residents of West Long Beach. As a result, residents in this region typically live 5 years less than people who live in any other part of Long Beach. As you move up the 710 freeways a very similar pattern is shown, cities such as commerce, East LA, Lynwood, Bell Garden, and the list goes on. When facilities say they will meet the least “resistance” they mean that the POC working class communities can attend public comment meetings to get community input, they are too busy and afraid because their legal status might be in question so they will never stand up against these billion dollar facilities. These “least resistant personality profiles” which are in reference to POC working class communities have severe health impacts such as high asthma rates or even cancer in some cases.
When determining cancerous rates, a higher CalEnviroSCreen score represents areas where residents in that particular part of the city are more likely to be exposed to higher levels of toxic air pollutants compared to areas with a lower score (1-100). As seen in Figure 1, according to the American Public Health Association (APHA), this score is determined by a total of 17 indicators in relation to population vulnerability of a community or population burden. Essentially this is calculated using the type of exposure, the type of environmental effects, forms of sensitive populations and socioeconomic factors which compose a cumulative impact score. However, Liévanos from the Department of Sociology at the University of Oregon addresses that this issue goes beyond these indicators. He addresses the limitations of the CalEnviroScreen by disregarding “race-based environmental health vulnerabilities.” Through our readings we wanted to start a conversation about creating a link between polluting facilities and cancer rates so we ask the questions: Is there a spatial correlation between the incidents of cancer and the locations of TRI facilities, specifically along the 710 Freeway? How do residents and workers in these areas experience and cope with an increased incidence of cancer?

Methodology:
For our methods we are using qualitative research in the form of conducting interviews with community members from East Yard Communities for Environmental Justice membership bodies. We have also created a survey for members who can't make it out to an interview because of work or other external factors. Once we have collected all this data, we are going to be creating a story map that will demonstrate the cancer incidents in communities along the 710 freeway in order to create a visual and a narrative that these communities are being heavily impacted by the emissions coming from major highways as well as other polluting facilities such as refineries and TRI sights. Furthermore, the use of GIS mapping software and publicly available shapefile data provided by the Los Angeles County GIS Data Portal will further emphasize this research by providing useful city boundary and census tract data. By using median household income data, we plan to determine any correlation between the location of TRI facilities and the 710 Freeway. In addition, the use of the EPA’s Toxic Release Inventory (TRI’s) will allow us to create buffers around these polluting facilities and the 710 Freeway to determine which surrounding communities are most likely exposed to higher risks of chemical exposure emitted into the atmosphere. We will also attempt to find and map geospatial data about cancer hotspots. The targeted area that will be mapped will be the two end points being West Long Beach and East LA then any incident of cancer within 2 miles out of the 710 freeway between West Long Beach and East LA.
Findings/Discussion:
As a result of using 2010 census tract data to map out the median household income of residents living in Los Angeles County and the 2016 TRI facility data to highlight the saturation of known locations, we found that various communities were affected by environmental injustices surrounding people of color. We found that areas with typically lower median household incomes were more likely to be exposed to a TRI facility or major freeway. As seen in Figure 2, in terms of the TRI facilities completely within its corresponding city boundary, Bell Garden has 5, Commerce has 65, Cudahy has 4, East Los Angeles has 6, Long Beach has 39, Lynwood has 15, Maywood has 5, South Gate has 34, Boyle Heights has 31, and Compton has 36. Using the known locations of TRI facilities, we found that out of the 1549 TRI facilities in Los Angeles County, 314 were located completely within a 2-mile buffer zone around the 710 Freeway. As a result, 20% of the total TRI facilities in Los Angeles County intersect at least one of the East Yard Communities for Environmental Justice membership bodies. In the case of a 3-mile buffer zone, 451 TRI facilities were located around the 710 freeway, bringing the total percentile of all TRI facilities found within Los Angeles County to a little over 29% intersecting at least one of the East Yard membership bodies. If we take the example of Exide, a battery recycling TRI facility located in the city of Vernon which authorized the testing of soil contamination for residential properties and other green spaces within a 1.7 mile radius buffer from the TRI location, and apply that same buffer to all TRI facilities, 99% of all facilities intersect at least one other TRI facility within Los Angeles County. Furthermore, in the specific case of Lupe Valdovinos and Ana Aldaco, we learned that the specific location of each individuals commute from home to work intersects a minimum of 66 TRI facilities which are enclosed within the city and 2 mile buffer around the 710 Freeway. Despite not knowing the exact route or commute of each individual, our findings demonstrate that a large amount of cross contamination is present which can lead to various other negative health impacts. This research attempts to fill in gaps which the CalEnviroScreen lacks to present in individuals commute and the multiple exposure to different sources of pollution.
Conclusion and Recommendations:
We believe that there is a correlation between polluting facilities and increased development of cancer in disadvantaged communities. The interviewees also stated that they believe that the development of cancer is directly linked to all to the environment they live, work and play in due to all of the pollution emitted by highways with diesel truck traffic, TRI facilities, refineries etc. As a recommendation we would ask for someone to go in depth and try to find what chemicals are being emitted that are causing cancer and if possible link them to polluting source. Another recommendation If someone were to continue our research we would recommend to keep interviewing the communities that are directly impacted by these facilities because as researchers through these projects we are able to amplify someone’s voice about the injustices that they are facing and hopefully though that able to facilitate change through everyone working together because as interviewee Maria Reyes stated these companies only care about what is going to make them the most money even if it is at the expense of the health of communities and that together we can create change, although it'll be long fight if we are together we can change and better the health of our communities.
The Toxic Lifecycle of Petrochemical Pollution: POC Bearing the Burden of White Consumption

Introduction:

Many Long Beach and Carson residents associate the Marathon Refinery while on the 405 freeway with almost being home; yet, the common use of the word home does not align with what residents near this refinery and complexes like it should feel. “Home” is one’s safe space where they can get away from the problems of the world, but residents who live near these petrochemical industries must deal with the impacts of capitalism and racism every day. Frontline communities consist of predominantly minority groups that range from citizenship status, economic status, race, etc. which suffer the burden of pollution from industries such as ports, refineries, and incinerators. This infrastructure takes advantage of these residents health and environment by leaving a trail of chemicals and pollutants known to cause harm. When asked what they would like to see removed from their homes at East Yard meetings, residents highlighted these three polluting facilities as huge detriments to having a safe and green environment for their community.

Petrochemicals are one of the products of the petroleum industry, in the U.S. alone there are 300 ports that import different items. One of the main imports being petroleum that are then transported to the 149 different refineries across the U.S. The chemicals go through multiple heating processes known as cracking until petroleum is broken down into smaller molecules known as monomers. These monomers are then transformed into polymers through a process known as polymerization. During the refining process, many of these refineries release chemicals that are harmful to the environment and human health. There have been different accidents such as the Phillips 66 refinery fire in Carson and Texas City refinery explosion that lead to workers getting injured or killed. The harm of these chemicals doesn’t end there, after different plastics are made with different polymers waste management remains an issue, one that persists globally even today. Incineration has become the answer for many industries, along with landfills which both have lasting negative impacts on the environment as a way to get rid of the waste produced by the petrochemical industry despite the known harmful effects the burning and landfilling of plastic has on the environment and of residents who live near these facilities. The purpose of this study is to show how the petrochemical industry extracts from frontline communities by answering three specific research questions.
Research Questions:
How does the Petro-chemical industry relate to the toxic life-cycle of plastic production?
How are refineries, ports, and incinerators linked in the life cycle of plastic?
What are the effects of plastic burning in incinerators and how do they affect human health and the environment?

Literature Review:
A key part of our study was understanding the global reaction of residents who live in communities where the petrochemical industry extracts from globally. This was to compare what is happening in our own communities in which East Yard organizes in to other communities around the world. Scholars Imperiale and Pian Pian claim that China’s Environmental Justice movements are not as effective as those in the U.S.. Carrol argues that industries extract from these communities because: “(1) relative lack of political power; (2) economics; (3) lack of participation in the environmental movement; (4) racism; (5) NIMBY; [and] (6) segregated housing and immobility”. These six components for the extraction of communities globally align with what is taught in East Yard’s reasons for companies targeting our communities, meaning our problems are the same as other frontline communities.
The research article by Brooks, Wang and Jambeck, plastic consumption has been on the rise for years, seemingly meeting no end in sight to the toxic environmental and health impacts its production has. This waste impacts everyday life, most of it being disposed of recklessly. As shown in Figures 1 & 2 from this research article, China has received almost half of plastic waste, but new regulations placed on plastic has resulted in a huge displacement of plastic waste. The ceaseament of plastic production is nowhere near, yet with new regulations, we are left to wonder where this toxic material will go. This visual aid, Figure 3, shows the previous and future estimated increase of plastic waste displacement. The solution for these industries will be to continue burning waste in our local communities, spreading even more toxins into the air, such as the Long Beach Incinerator. The article estimates that by 2030, “111 million metric tons of plastic waste will be displaced with the new Chinese policy.” Prior to new restrictions, China ranked in the top 3 in both importers and exporters of plastic waste, in both cases followed by the United States. Since the United States follows China in imports and exports the possibility of the U.S. taking in material waste is greatly increased. Figure 3 highlights the, “Sources of plastic waste imports into China in 2016 and cumulative plastic waste export tonnage (in million MT) in 1988–2016.” From this we see the exports of plastic waste into China before the new ban implementations. The U.S. is highlighted by an orange-red line, indicating disposal of this waste may include landfills and incineration in frontline communities of color, like ours, most vulnerable.

In 2011 there was a ranking of polymers and their hazard level from 1-5 (I-V) based on Annex VI in EU classification and the European chemical substance Information System as seen in table 2. The polymer was also given a hazardous rank based on the hazard level given and the monomers it was composed of. These classifications are strictly based on the chemical composition and not human exposure, therefore some of the effects may be underestimated. A study was done on participants that lived near a MSW incinerator in Taiwan to study the health defects of for at least 5 years. The participants never had direct exposure to PCDD/Fs and lived 5km from an incinerator. There was a total of 1034 participants that were later divided into 3 groups based on age (18-35, 36-55, 56-65)After samples were collected they were cleaned and analyzed, as well as the body mass index (BMI kg/m^2) based on weight and height of the participants.

Methods:
This is a multi-method research study. One method consisted of interviews which were conducted on experts fighting refinery, port, and incinerator facilities in communities of color to gain their insight on how these industries have negatively impacted their community, in terms of both the environment and the health of residents. This qualitative approach allowed us to gather information by 3 experts in the environmental justice movement, each covering one of the three major industries linked in plastic production. They all echoed the same concerns and responses to the seven questions we asked about the exploitation of communities globally. Additionally, we created a visual aid, infographic/map, to show the petrochemical industries'. This visual aid is used as a tool to inform communities about the plastic making process, thus helping solve one of the issues highlighted in our study, lack of knowledge residents have as a result of knowledge barriers. Hard-science data was captured through readings from the elsevier.com that was found using google scholar. In order to learn what to learn what plastic is made of, we decided to search for patents of plastic that showed the process and the compounds used. This then created a path to research the process in polymers and monomers. After identifying polymers and monomers used by the petrochemical industry, their negative effects were researched using scholarly articles. We established their negative effects and then focused on what chemicals are released during the incineration process which we learned from case studies conducted globally and here in the U.S.
Results:
Experts interviewed on the refinery, port, and incinerator complexes echoed the topics addressed and findings of other scholars used for our lit review. Their reasons for petrochemical industries’ abusive treatment of POC communities reinforced our understanding from our readings and expanded our knowledge through personal stories. Interviewing expert organizers who work and are residents of targeted communities is valuable since it allows an important viewpoint that outside researchers who just study an area they are not from for science do not have. Our infographic serves as a visual aid for future community member meetings that organizers can use to explain the petrochemical industry. From our readings and interviews, the need for an infographic was needed due to the lack of availability to knowledge to residents of disadvantaged communities due to educational, language and cultural barriers.

After reading the different studies it can be seen that there is a negative impact from incinerators. The research in Taiwan showed proof of PCDDs/PBDDs, PCDFs/PBDFs, PCBs/PBBs, and PBDEs near incinators. Another study in China shows the result of brominated flame retardants (BRFs) emissions in 5 of the most used plastics: polyethylene (PE), polystyrene (PS), acrylonitrile butadiene styrene (ABS), polypropylene (PP) polyvinyl chloride (PVC). There are some plastics that are composed of different polymers or chemicals such as kids toys that have polyvinyl acetate homopolymer emulsion, glycerol triacetate, silicon, epoxidized oil, talc, fumed silica and dextrin, each with a different purpose, these were not considered. With the increase of plastic production increasing every year, the plastic waste that comes with it also increases. Approximately 15 million tons of used plastic waste was generated in the US. The emissions that were found in the China study can be seen in Figure 5 and the mass of the compounds in Table 1. The study done in China and Taiwan show the dangers of plastic burning, while the study done to rank the polymers shows the dangers of making and decomposing plastic as seen in Table 2.
Conclusion:
Our interviewed experts all concluded the only way to create change is to hurt these industries where it hurts, their pockets. This is done by continued community backlash to expansion project which can be done by multiple ways which includes organizing, attending meetings, door knocking, sharing events, and even just showing up. Knowledge is a powerful tool that can be used to combat so involvement must happen openly and willingly. Also, just transitioning into better ways of creating energy, such as home and community solar. This includes starting at home by switching to reusables to help stop consumption and hurt company wallets. We must also stop the common practice of POC bearing the burden of white consumption. This means holding these industries accountable for the products they create by making sure that they are still responsible for the product for its entire life cycle, not having it thrown into our communities.
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