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Environmental Injustice - A Motive for Social Change in the Americas

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Introduction

With the growing emphasis on environmental destruction, solutions, and inequality in the distribution of resources in mainstream media, students are more fascinated by the history of environmental justice now more than ever. The Junior year IB History of the Americas course that I teach focuses on industrialization, social structure and class, and resistance to imperialism and colonization which all lends itself to an underlying theme of environmentalism particularly in relation to environmental justice and civil and social rights movements. Through this unit, students will be able to explore the intersection between environmental policies and social policies, as well as how they have significantly impacted historically marginalized groups like Black, Hispanic, and Indigenous Americans. The vast majority of students who attend San Jose High come from historically marginalized communities and have lived experience in highly segregated regions. Students or their family members have likely experienced the conditions presented in this unit and can not only relate but can also offer insight from their own funds of knowledge.

This unit will explore the connection between racial segregation and the heavily polluted urban communities throughout the United States, Mexico, and Brazil. It will investigate the impact of air pollution on the environments that different groups of people were forced into by economic and political conditions from 1930 to 2000. Students will look specifically into the role of environmental justice as motivation for social movements in these communities across the Americas. This unit will be added to a larger unit on Civil and Social Rights movements in the Americas and will create an additional point of access for the many students who have expressed interest in learning about the environment particularly in regard to topics like pollution, health, and climate change.

School Demographics

San Jose High School is located in an urban setting in northeast San Jose, CA. San Jose is at the heart of Silicon Valley and is home to a racially and ethnically diverse population. SJHS is one of six high schools in the San Jose Unified School District, which is home to 41 schools in total. It is the oldest school in the district and has the second smallest high school student population at 925 students enrolled. At SJHS, 84.9% of students are identified as Hispanic or Latino, 4.6% as Asian, 2.6% as Filipino, 4.5% as White, 1.3% as Black or African American, 1.7% as two or more races, and 0.3% as Native Hawaiian or Pacific Islander. Of these students, 72.4% are socioeconomically disadvantaged, 29.7% are English learners, and 1.4% are unhoused. Many of the other high schools in the district have vastly different student demographics in comparison.

SJHS is an International Baccalaureate world school, and thus, offers both the IB Middle Years Program, IB Diploma Program, and IB Career Program as rigorous pathways for college and career preparedness. Additionally, students have the opportunity to participate in Silicon Valley Career and Technical Education programs for high school credit. The IB program is a magnet for the school within the district, attracting some students from outside of the local neighborhood to attend. However, SJHS is primarily a neighborhood and legacy school with a large number of students who walk to school each morning and families who have attended the school for generations.

In the 2023-24 school year, SJHS will create a new IB course offering within the Social Science department, meaning ALL Juniors will either participate in the existing IB History of the Americas course or the new IB standard level history course. This move is intended to allow all students to experience a rigorous IB course in their time at the school and allows for adjustment in course curriculum within IB History of the America as there is now an increase in student enrollment in this course. Through the IB program, students are expected to think interdisciplinarily and critically as global citizens. The addition of this unit on environmental injustice and social response is inherently interdisciplinary and will be engaging for students as they can all make connections to how urban segregation has affected their own lives.

Unit Content

The background information for this unit will be broken up into 4 main sections. The first will introduce the roots of racial segregation and environmental injustice in communities in the United States, Mexico, and Brazil. The second will discuss the science of air pollution and its impact on the health of these communities. The third will explore pertinent environmental and related legislation in the three focus countries. And finally, the fourth will investigate how affected communities fought against environmental injustice through organized social movements and the success of those movements.

Racial Segregation and Environmental Injustice in the Americas

The content in this unit will discuss the implications of environmental injustice in the Americas, requiring background knowledge on how certain groups came to be more affected than others and what those effects have been. It is important to note that “Environmental justice is defined as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development,

implementation, and enforcement of environmental laws, regulations, and policies."[1] In order to understand how environmental injustice and inequity came to be, it is necessary to explore modern roots of racial segregation in the Americas.

After completing this unit, students will be able to…

- Identify and explain the inequity of environmental impact on communities in the Americas in regards to historical marginalization and segregation.
- Discuss and evaluate the role of environmental injustice as a significant factor in social movements and the success of those movements.

U.S.

Persistent racial segregation has been a government-supported effort through housing and financial discrimination in connection to post-world war II U.S. Federal government policies related to red-lining, which has affected the ability of historically marginalized communities to generate and maintain generational wealth and power and in turn, avoid exposure to detrimental environments.[2] For the United States, racial segregation was done intentionally as "[i]n 1973, the U.S. Commission on Civil Rights concluded that the 'housing industry, aided and abetted by Government, must bear the primary responsibility for the legacy of segregated housing…Government and private industry came together to create a system of residential segregation.'"[3] For example, it was stated by the Federal Deposit Insurance Corporation chairman "that it was appropriate for banks under his supervision to deny loans to African Americans because whites' property values might fall if they had [B]lack neighbors."[4] However, it was the FHA's own discriminatory policies that led to the fall of white property values in black-white areas by creating opportunities for speculators and real estate agents to overcharge Black families and fearmonger white families into selling their homes below value.[5] In *The Color of Law*, it is argued that "if the agency had not adopted a discriminatory and unconstitutional racial policy, African Americans would have been able, like whites, to locate throughout the metropolitan areas rather than attempting to establish presence in only a few blockbuster communities, and speculators would not have been able to prey on white fears that their neighborhoods would soon turn from all white to all [B]lack."[6] The U.S. has a history of intentionally segregating its people through Federal government policy and systematic racism. Through this division of people, local governments have further perpetuated inequality and injustice by actively choosing to place undesirable developments such as highways and polluting industries in areas designated for the residence of people of color.

In St. Louis, zoning decisions were made on the basis of race (Figures 1,2,3). In 1919, the zoning commission used a survey conducted by H. Bartholomew that listed the race of building occupants and "designated land for future industrial development if it was in or adjacent to neighborhoods with substantial African American populations."[7] Industrial zoning was used as a form of segregation itself as "[i]n 1948, commissioners explained they were designating a U-shaped industrial zone to create a buffer between African Americans inside the U and whites outside."[8] St. Louis city officials made it so "these neighborhoods [were] zoned to permit industry, even polluting industry."[9] This case study reveals the purposeful placement of polluting industries in and around African American communities, which had been segregated due to Federal housing policies. This information reveals the state-manufactured environmental injustice that has led African Americans and other historically marginalized groups to face a far greater impact from polluting industries.

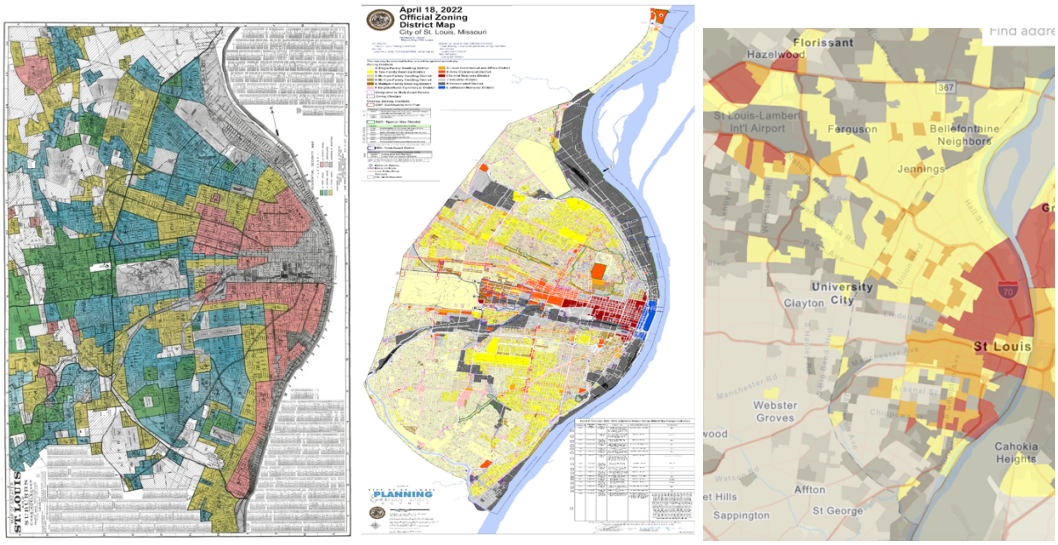

Figure 1: Redlined Map of St. Louis, Missouri[10]

Figure 2: 2022 Zoning Map of St. Louis Missouri[11]

Figure 3: Map of Air Toxics Cancer Risk on EJ Tool[12]

Mexico

While there are instances of explicit racial segregation in Mexico, there is far less intentionality in the creation and maintenance of this system when compared with the United States. For example, environmental racism is present in Mexico, but it is not as pervasive and targeted as the United States. One example of environmental racism in Mexico is Costa Chica. Environmental inequities have impacted all of the Americas including Mexico, where governments have, for example, chosen to focus on tourism and economic growth at the expense of the land that Afro-descendant populations inhabit in the Costa Chica region of Guerrero.[13] Like the U.S., and most of the Americas, modern Mexican society has roots in European colonialism and the enslavement of Afro-indigenous peoples. From this history came resistance and the creation of runaway communities in Mexico.[14] Costa Chica is home to one of the largest Afro-descendant/Afro-indigenous communities that grew out of one of these runaway communities, and while it was mostly ignored by the governments through Mexican independence from Spain, revolution and civil war, its rich forests were later ripe for resource extraction as economic progress became a priority.[15] This region's treatment by the Mexican government can be seen as a result of economic circumstances as "Costa Chica remains socioeconomically the poorest area in the state of Guerrero and one of the poorest in the nation, threatened ever more so by the threat of climate change."[16] Not only is it one of the poorest regions, but it is poor in part because of environmental injustice as noted in a Washington Post article, "the Costa Chica of Guerrero, a predominantly Black region, is one of Mexico's poorest areas because of deforestation, soil erosion and water contamination caused by monoculture, tourism and state neglect."[17] However, unlike the clear Federal discrimination in the United States, there less concrete evidence that Costa Chica has been targeted by policies on the basis of race.

Other than areas like the Costa Chica region, Mexico is mostly racially homogeneous and racial identity cannot as frequently be used as an explanation for environmental injustice and discrimination as readily as in other places in the Americas. Environmental problems also exist in cities where is not a clear link to environmental racism. In Torreón, Coahuila, hundreds of children were poisoned by polluted air to the benefit of

industrialization and economic growth. Torreón, however, is not like Costa Chica or St. Louis, "the establishment of the plant preceded the formation of the neighborhood most affected by the plant's emissions".[18] This community was not actively targeted because of its vulnerability but instead was built around the plant by working-class individuals seeking employment at the plant and is therefore not an example of environmental injustice as a result of racial segregation

Brazil

Having had a significant enslaved African population and being the last to abolish the practice of slavery in the Americas, Brazil has a history rooted in racial hierarchy.[19] Brazil is in many ways an intermediate between the racial circumstances in the United States and Mexico, and thus experiences segregation and environmental injustice similarly to the other two case studies. In Brazil, inter-marriage between different races and skin colors was encouraged "to eventually create a 'whiter' population."[20] In Brazil, there has not been formal state-sponsored racial categorization or segregation and Brazil has described itself as a racial democracy in which people of all races have equal opportunity.[21] However, unlike Mexico, the population in Brazil is much less racially homogenous, and racial segregation is prevalent in residential areas.[22] However, with emphasis on racial intermixing and the understanding of race as a spectrum rather than racial categories as in the US, Afro-Brazilians have not developed a Black consciousness and identity in the same way as African Americans.[23] While there has been no evident government-sponsored efforts of racially segregating Brazil as a country, there have also been very few legislative efforts to ensure racial equality or even to acknowledge that racial inequality even exists there[24] despite clear observations that, "the poorest and most overcrowded areas of the city were inhabited by blacks, dark- skinned mulattoes, and a limited number of light- skinned mulattoes, while whites and occasional light-skinned mulattoes lived in the middle-class sectors of town."[25] The neighborhoods that are predominantly poor and occupied by African-descended peoples are often located near neighborhoods that have historically been home to enslaved peoples, showing the roots of lasting Brazilian segregation in the institution of slavery.[26] The combination of racial prejudice, economic factors, and historical precedent can all be connected to the environmental injustice that impacts Brazil. The construction of neighborhoods within large cities in Brazil that are less supported with adequate infrastructure face inequitable environmental risks.[27]

In the Santa Cruz neighborhood of Rio de Janeiro, Brazil, which has a population that is 64.7% Black, there is a clear and present case for environmental racism and injustice.[28] This historically Black neighborhood has been impacted by specific events leading to environmental inequity including the area being zoned for an industry and the installation of a steel plant which shows "the tendency to locate the 'dirty work' of the city in zones considered 'empty' or distant that coincide, not coincidentally, with regions inhabited by the poorest classes who, in the majority, are black."[29] This evokes the concept of a sacrificial zone. This neighborhood uncoincidentally experienced significant and disproportionate noise and air pollution.[30] Brazil's racial history and ideology plays into the construction of informal systems that promote and sustain segregation and environmental inequity throughout the country.

Air Pollution and Health

Air, particularly ambient or outdoor air, is a worldwide public resource and its quality has been shown to have significant impact on public health.[31] According to the World Health Organization (WHO), "99% of the world's population was living in places where one or more of the WHO air quality guidelines levels were not met" and "Ambient (outdoor) air pollution is estimated to have caused 4.2 million premature deaths worldwide in

2019."[32] In the Six Cities study conducted across the US in 1993, the connection between air quality and mortality was made evident.[33] In this longitudinal epidemiology study, it was shown that cities, like St. Louis, Missouri for example, with higher levels of fine particulate matter in the air had higher levels of mortality attributed to lower air quality than cities with lower levels of fine particulate matter like Portage, Michigan.[34] The mortality rates were adjusted for other health risk factors and have a clear association with discrepancies in outdoor air pollution in these cities.[35] It was found that "air pollution was positively associated with mortality due to lung cancer and cardiopulmonary disease."[36] Air pollution can be measured through the measurement of a variety of different pollutants but typically includes EPA priority contaminants: Particulate Matter (PM), Carbon Monoxide (CO), Ozone (O_3), Nitrogen dioxide (NO_2), and Sulfur dioxide (SO_2).[37] As a common and effective measurement of air pollution used in scientific studies, it is important to specifically understand the definition of Particulate Matter in which "[t]here is strong evidence for the negative health impacts associated with exposure to this pollutant" and "[t]he major components […] are sulfates, nitrates, ammonia, sodium chloride, black carbon, mineral dust and water."[38] Often data in air quality studies specifically references $PM_{2.5}$ or PM_{10} as the measurement for levels of pollution. The numbers following "PM" in these instances refers to the ranges of aerodynamic diameters of these particulates, with $PM_{2.5}$ representing the smaller of the two and one half. micrometers.[39] To provide further context, the WHO provided an updated recommendation of an annual average concentration of 5 mg/m^3 of $PM_{2.5}$.[40] This number is far less than what is recorded in the case studies of air pollution in St. Louis, Torreón, and Santa Cruz.

The effects of segregation on the air quality and environmental well-being of groups are variable in different areas. The impact of air quality is often dictated by segregated regions of the U.S. and Brazil mainly in connection to the presence of heavy industry and land development as it pertains to the creation and maintenance of different neighborhoods. There is an impact on the daily lives and health of people living in these segregated communities. Higher levels of air pollution have been connected to heavy industry in redlined areas in the U.S. and have had harmful effects on the cardio-vascular and pulmonary systems of people living in these communities.[41] Similarly, higher levels of air pollution from particulate matter laden with heavy metals both neighborhoods in Mexico and Brazil, having a significant impact on quality of life and the health of families.[42][43]

Legislation

Legislation regarding environmental protection and air quality varies by country in the Americas. However, the US, Mexico, and Brazil all have general legislation that acknowledges the negative health impact of air pollution and the need for limiting ambient air pollution. The US Clean Air Act of 1970 states:

"(2) that the growth in the amount and complexity of air pollution brought about by urbanization, industrial development, and the increasing use of motor vehicles, has resulted in mounting dangers to the public health and welfare, including injury to agricultural crops and livestock, damage to and the deterioration of property, and hazards to air and ground transportation;

(3) that air pollution prevention (that is, the reduction or elimination, through any measures, of the amount of pollutants produced or created at the source) and air pollution control at its source is the primary responsibility of States and local governments […]"[44]

One of the main goals of this act is "to protect and enhance the quality of the Nation's air resources so as to

promote the public health and welfare and the productive capacity of its population."[45]

In Mexico, the environmental legislation is broad in its anti-pollution goals. A summary of this legislation states that "[t]he regulation implementing the air pollution provisions set out under the Ecology Law is the Regulation under the General Law of Ecological Balance and Environmental Protection for the Prevention and Control of Pollution Generated by Automotive Vehicles Circulating in the Federal District and Outlying Municipalities", essentially saying that there is government regulation of air pollution within these specific agencies.[46] According to the United Nations Environment Program, Mexico is in the process of designing an air quality strategy and program including air quality monitoring in addition to existing regulations, standards, and air quality improvement plans.[47] In comparison with the United States, Mexico does not have as clear of expectations or understanding of the effect of air pollution on its country or people.

In Brazil, the dangers of air pollution are addressed in legislation and there are clear consequences listed for those who fail to follow the guidelines set by the government. The regulatory body responsible for air quality in Brazil is CONAMA, and as defined by "CONAMA Resolution No. 491/2018. Air quality standards are concentrations of atmospheric pollutants, which, if exceeded, could affect the health, safety and well-being of the population, as well as damage flora and fauna, materials and the environment in general." Additionally, according to "Federal Law No. 9,605/1998, the act of causing atmospheric pollution at levels that result or may result in damage to human health, or that cause the death of animals or significant destruction of flora, may result in imprisonment from one to four years and a fine."[48] Furthermore, the same Federal law states "[i]f air pollution causes the reallocation, even momentary, of inhabitants of an affected area, penalty is imprisonment from one to five years and a fine."[49] In Brazil, there are serious penalties for environmental pollution but, these penalties "may be applied regardless of the obligation to repair any environmental damage in the civil sphere."[50] Brazil has strong general environmental legislation in place to deter contribution to air pollution, however, it is unknown how this legislation is enforced in reality.

While it is necessary to understand the environmental legislation that exists in specific reference to air pollution in these case study locations, it is also important to consider other related legislation such as Executive Order 12898 titled "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations."[51] For example, "Executive Order 12898 reinforces the 35-year-old Civil Rights Act of 1964, Title VI, which prohibits discriminatory practices in programs receiving federal funds."[52] This Executive Order implemented by Bill Clinton in 1994 also draws on the National Environmental Policy Act (NEPA) that has a "goal [...] to ensure for all Americans a safe, healthful, productive, and aesthetically and culturally pleasing environment."[53] It is important to note that the Civil Rights Act of 1964 is legislation that was created in response to demands for racial equality by African Americans in the US, and this emphasis on anti-discrimination is much of what has allowed the creation of environmental protection for people of color in this country (at least on paper).

Social Response to Environmental Injustice

Communities have not only rejected environmental injustice but they have responded to it in the form of protest. In Mexico, local community movements have had some success in achieving acknowledgment and action in response to negative environmental impacts created by industry.[54] In Brazil, the social responses have been larger and more disorganized as environmentalism is much more intertwined with politics and less with grassroots movements there.[55] In the U.S. there are countless case studies to explore and evaluate for effectiveness in creating change in the name of environmental justice particularly in connection to African

American Civil Rights.

US Environmental Justice Movement

In the United States, environmental justice movements have grown directly out of larger Civil Rights movements. Much of this is because "[o]ne of the central tenets of environmental justice movements in the United States has been that the siting of industrial hazards has disproportionately taken place in poor communities, which in the United States tend to be Hispanic, Afro-American, or Native Americans."[56] Part of what makes these movements so powerful is the fact that the burdens of environmental pollution and health impacts are felt by communities or color and "largely the result of the rather prominent racial divisions that are salient features of contemporary US society."[57] Some examples of key moments for the US environmental justice movement include, but are not limited to, the sanitation workers strike in Memphis, Tennessee in 1968, the Bean v Southwestern Waste Management Corp. court case, the sit-ins against Warren County, NC PCB Landfill, the founding of West Harlem Environmental Action, and the First People of Color Environmental Leadership Summit which led to the creation of the 17 principles of environmental justice in 1991.[58] It is clear that some of the tactics used in these efforts are the same as those used during the civil rights movements of the 1960s. The environmental justice movement in the US was undoubtedly born out of the larger and intertwined civil rights efforts of people all across the country who have been organizing their communities for decades in the name of equal opportunity and justice.[59] Environmental justice relies on the consciousness and legislative successes created by this earlier movement, particularly as it relates to communities' ability to point to legal justification for government protection in the instance of racially biased environmental discrimination.

One specific example of successful resistance in the US was the prevention of the construction of a nuclear plant in a predominantly Black area in Louisiana. In the case of *CANT v. LES,* two communities near the proposed uranium enrichment site banded together to form Citizens Against Nuclear Trash (CANT), hired the Sierra Club Defense Fund to sue the Louisiana Energy Services (LES) on the basis of environmental racism.[60] The judges in the case found in favor of CANT based on clear evidence that the Nuclear Regulatory Commission (NRC) along with LES was discriminatory in its site search as "progressive narrowing of the site selection process to areas of increasingly high poverty and African American representation" was found throughout the screening stages.[61] African Americans make up 13% of the population in the US.[62] However, when looking at the "Population by Race Living Within One-Mile Radius of LES Candidate Sites [...]", 97.1% of the people living within one-mile of the final selection were identified as Black.[63] Due to community collaboration and action, including CANT member election to local government positions, these people were able to advocate for themselves and prevent the construction of a nuclear plant that was found to have insufficient environmental impact information and which disproportionately affected them on the basis of race.[64] Not only is this an example of community action, it is also an example of the potential effectiveness of US environmental justice actions as "the CANT legal victory points to the utility of combining the environmental civil rights laws and requirement of governmental agencies to consider Executive Order 12898 in their assessments."[65] This is becoming a larger trend in the US particularly "[i]n combination with other social movements- perhaps epitomized and including, but not limited to, the Black Lives Matter movement- many experts see climate justice becoming an increasingly significant component of overall concerns raised by climate change."[66]

For cities like St. Louis, Missouri there is still a lot of work to be done to address the systemic environmental injustice that exists in its communities. In St. Louis, like many cities throughout the US, communities of color

continue to carry more of the pollution burden than those of their white counterparts and in less acute ways.[67] For St. Louis, the environmental problems are vast and cannot be solved by preventing the construction of one factory or relocating the entire community. However, the communities affected by environmental justice have not given up and have instead founded and joined different groups advocating for Black political power, Civil Rights, community empowerment, and environmental health.[68] Overall, there have been significant strides made towards environmental justice and awareness in the US.

Mexico Environmental Justice Movement

Different techniques have been used by communities facing environmental discrimination across Mexico. For example, communities in the Oaxaca region of Mexico use their proximity to dumps to create garbage crises by preventing waste-management from disposing of city garbage, and thus forcing the city into environmental justice discussions.[69] In regards to Torreón, Mexico where hundreds of children experienced lead poisoning as a result of air pollution from the Peñoles plant emissions, mothers of these children held demonstrations and protests both in front of the plant itself and at local government buildings to demand a response to help their community.[70] Mothers demanded a decrease in lead pollution, medical care for children provided by Peñoles, restoration of the environment, truth, and justice, all in the defense of their children.[71] However, there was no official legal basis for these demands or later demands for monetary compensation because there were no laws in Mexico "controlling the release of lead particles" at that time.[72] This movement became centered on this idea of justice and gained the support of the human rights group, Citizens of the Lagoon Region in Defense of Human Rights, which argued that the children of Torreón had experienced a human rights violation.[73] The efforts of the movement were successful in prompting action from the government both at the Federal and state level to put responsibility on Peñoles to relocate affected families and establish a health fund for the children.[74] In this particular case study, families whose health was deeply impacted received support as a result of protest and local demonstration, but it was not seen as a catalyst for or even a component of a larger environmental justice movement.[75] Instead, the Peñoles case in Torreón was viewed as a limited and localized human rights issue that was not part of a larger social mobilization, partially due to the lack of a racial or legal component to the case.[76]

In contrast to the Oaxaca and Torreón examples, there is no clear record of organized resistance on the basis of environmental injustice in Costa Chica despite significant environmental impacts affecting the community in regards to water contamination, soil degradation, and general pollution resulting from tourism and general state neglect.[77] In Costa Chica, the environmental inequities are more general and less acute compared to places like Torreón, where there was one clear, specific polluting body for the community to focus its energy on. Mexico's more racially homogenous population has resulted in a history with less overt racial struggle compared to the US and is therefore lacking a significant social justice component to unify their environmental struggles.[78] Indigenous movements have had some success in achieving environmental and social justice goals throughout Latin America,[79] though there is yet to be a consistent and organized movement connecting environmental injustice and racial discrimination in Mexico.

Brazil Environmental Justice Movement

While Brazil has had a history of environmentalism through protest, public awareness, and later, public policy,[80] it was not until later that these efforts were placed into the context of social and racial justice. In general, environmentalism in connection to social issues has increased in popularity following the end of

dictatorship in the 1980s in Brazil.[81] This connection was further encouraged by interactions with "representatives from a number of US Environmental Justice Movement networks [who] visited Brazil in 1998 to disseminate their experience and establish relationships with local organizations willing to form alliances."[82] Quickly, non-governmental organizations (NGOs), universities and research groups, and unions started to get involved in this larger movement and an International Conference on Environmental Justice and Citizenship was held in Brazil in 2001.[83] This conference not only included parties from multiple social movements in Brazil but Robert Bullard and other prominent members of the US movement attended.[84] The conference was a success in that it created the Brazilian Environmental Justice Network which was largely modeled off of the values expressed in the US, emphasizing the connection between Civil rights, racial equality, and environmental equity.[85]

However, foreign industries like Thyssenkrupp Compania Siderúrgica do Atlântico have outsourced polluting industries to Brazil, creating more environmental problems for local communities.[86] The key to potential success in response to air pollution from the Thyssenkrupp Compania Siderúrgica do Atlântico (TKSCA), industrial plant for the Santa Cruz neighborhood of Rio de Janeiro has been the "will of the local population to resist."[87] The community has, like in areas of the US and Mexico, come together to make their voices heard particularly through "[o]pposition to the installation of the plant in the area by fishermen, local inhabitants, teachers and other social movements in solidarity [which] has led to six civil lawsuits currently in state court against the TKCSA"[88] Local communities' continued pressure on big foreign industry like German owned TKCSA is, although slowly, advocating for environmental justice and forcing industries and governments to face the serious impact that their actions have on the people who occupy these spaces. Overall, the use of grassroots protest and litigation have been successful in part in the US, Mexico, and Brazil.

While there are success stories across the Americas, Brazil (like many other countries) continues to grapple with the challenge between development and the environment, as well as creating effective policies with political weight.[89] The Brazilian Environmental Justice Network provided a space for members "to exchange experiences and report problems" as it pertains to environmental justice concerns."[90] However, these exchanges and reports have not necessarily resulted in applicable protections for vulnerable communities.[91] Communities in Brazil and across the globe continue to have to fight in grassroots campaigns against consistently overbearing governments and industries to protect themselves and their families. How can we begin to better connect the efforts of those directly affected by environmental injustice to those with the power and willingness to create lasting and effective policies rooted in justice?

Teaching Strategies

Gradual Release of Responsibility Model (GRRM)

I plan to use the gradual release of responsibility model to guide students in their reading comprehension skills and the analysis of different case studies by modeling the activity first, then practicing the activity as a whole class, in small groups, and finally individually. This teaching strategy will benefit students as they are able to continuously and progressively practice the target skill of reading comprehension in an increasingly independent way as they engage with the target area content.

Gallery Walk

The gallery walk is a strategy in which students will stand up and walk around the classroom to view and analyze different images relating to environmental injustice. This will benefit student learning as they will be collecting evidence through what they see and providing interpretation by identifying what this evidence makes them think.

Jigsaw

Students will work in small groups where each individual student is responsible for reading about a given social response to an air pollution event and then present it to the rest of their group so all students in the group have information on each response.

Socratic Seminar

I plan to use the Socratic seminar strategy to allow students to engage with an overarching question connecting to the unit. Students will be able to reference ideas and materials from the unit to support ideas they present in the seminar.

Classroom Activities

Background Information: Reading Comprehension (1-2 class period)

In this activity, I will first present a reading about one of these case studies and implement an "I do" approach where I model for students how I would read through the first half of the text, breaking it down into chunks, and making intentional annotations as it relates to the guiding question for the activity. The "I do" part of this model is entirely direct instruction with students watching carefully. In the next step, the whole class will read through the second half of the first text together and go through the same order of operations. However, this time, volunteer students will read the text out loud, help identify how the text should be broken up into chunks and what parts of the text should be annotated in a student driven but teacher assisted setting. In the third step, students will break into small groups to read a second text. This time, students will work with each other to read, chunk, and annotate based on the guiding question without direct teacher assistance. In the final step, students will read a third text and go through the same order of operations individually.

Image Analysis (1-2 class periods)

This activity allows students to think critically as they will be asked to identify what they see, think, and wonder about each image. Students will view redlining maps, Environmental Justice Index maps, industrial plants, protests, and more. A gallery walk also provides the opportunity for critical thinking by asking students to wonder how this image connects with the larger context of this unit. Furthermore, this activity provides multiple points of access into the content and provides a variety of perspectives for students to consider and compare.

Resistance Movements: Compare and Contrast (1-2 class periods)

I plan on using the jigsaw strategy as a way for students to become experts on the connection between one

social movement and environmental injustice while also having the opportunity to look at and compare multiple different examples of these social responses. This activity will allow students to practice reading comprehension, identify important facts or pieces of evidence, and provide interpretation that can be shared with their group. An added layer to this jigsaw is that students will need to find similarities and differences within the examples that they look at in their groups. This activity makes it so each student has an important role in establishing where there are points of comparison or contrast because they will individually be responsible for providing information about their given social response.

Socratic Seminar (1 period)

I plan to conclude the unit with a Socratic seminar in which students will apply what they have learned about environmental injustice and its connection to social and civil rights movements to the greater concern of global environmental justice. Students will use evidence they have collected throughout the unit and critical thinking skills to answer the following questions: To what extent were environmental injustices faced by historically marginalized groups a significant factor in social and civil rights movements in the Americas? How do we solve and address environmental problems? This strategy allows students to compile information, process it, and then discuss it in a productive way with their peers.

Appendix on Implementing District Standards

San Jose Unified School District uses the California Common Core State Standards. The CA CCSS standards that will be covered in this unit are:

CCSS RH 11-12 1 Cite specific textual evidence to support analysis of primary and secondary sources, connecting insights gained from specific details to an understanding of the text as a whole.

CCSS RH 11-12 7 Integrate and evaluate multiple sources of information presenting in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem.

CCSS RH 11-12 9 Integrate information from diverse sources, both primary and secondary, into a coherent understanding of an idea or event, noting discrepancies among source.

Throughout this unit, students will be collecting and analyzing specific evidence from a variety of sources to gain a holistic understanding of the connections between racial segregation, environmental injustice, and social movements. At the end of this unit, students will put this evidence and their own evaluations together to discuss the Socratic seminar question: To what extent were environmental injustices faced by historically marginalized groups a significant factor in social and civil rights movements in the Americas? Additionally, students will look at and consider different perspectives and discrepancies amongst different sources as they will be expected to address the values and limitations of their evidence and conclusions throughout the entirety of the unit.

Annotated Bibliography

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