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THE EFFECTS OF THE WIND FARMS ON THE INDIGENOUS ZAPOTEC COMMUNITY OF THE ISTHMUS OF TEHUANTEPEC, MEXICO

By Nichole Vargas

ABSTRACT

*This qualitative case study examines the effects of private sector-led wind farm development on the Indigenous **Zapotec** community in the Isthmus of Tehuantepec region of Mexico. As a location with one of the highest wind potentials in the world, the Isthmus has, over the past twenty-five years, increasingly attracted the attention of international companies seeking to build and profit from massive wind farm installations. The Zapotecs of the Isthmus have fought back against this private development, claiming that their way of life, land rights, and **sovereignty** are threatened by the physical and ecological effects of the wind farms and by the companies' unjust and often illegal methods of acquiring Indigenous land. Research was conducted through in-person formal and informal interviews with local Indigenous land rights organizers and participant observations from the fishermen of Álvaro Obregón, a Zapotec community on the Eastern coast of the Laguna Superior. The effects were analyzed and divided into five categories based on interview responses: ecological, health, safety, political, and cultural. Partially corroborated by previous literature on the dispute, this analysis suggests that the region's wind energy movement, with its complex and intertwining ecological, social, economic, and political implications, remains a significant contributor to ongoing Indigenous land dispossession and elimination within the **settler-colonial** Mexican state. Conclusions indicate that **neoliberal** solutions to climate change cannot adequately address demands for **decolonial climate justice**.*

INTRODUCTION

Situated where the Sierra Norte and Sierra Sur mountain ranges meet, the Isthmus of Tehuantepec is the narrowest region in Mexico and one of the most fertile lands in the world—perfect for agriculture, trade, and wind energy. Energy scientists have found the Isthmus to possess one of the greatest wind potentials in the world, estimated at being able to support over 44,000 megawatts (MW) of wind capacity (Elliot et al., 2003). This wind potential, and the accompanying profit potential, has caught the attention of international companies, primarily from Spain, who have built an increasing number of wind farms in the Isthmus since the first, La Venta, was constructed in 1994. A prototype, La Venta only consists of seven wind turbines with a 1.6 MW capacity (Hamister, 2012). However, the size of the wind parks has increased over time, with a recent project built by the Mitsubishi Corporation in 2019 containing 132 wind turbines and a capacity of 396 MW (*New 132-Turbine Oaxaca*, 2019).

Globally, the number of wind farms has increased rapidly in recent years, with the newest installations occurring primarily in **developing countries**. This popularity likely stems from the decrease in the marginal cost of wind power, making it one of the most economically viable non-carbon emitting energy generators compared to other generating options like solar energy. Moreover, wind energy gained traction in Mexico when the government made international and national commitments to lowering carbon emissions and meeting energy needs. Starting in 2008, the Mexican government has passed multiple legislative acts to encourage the development of efficient and renewable energy to meet Mexico's energy needs, including the Renewable

ZAPOTEC CIVILIZATION:

In pre-colonial times, the Zapotec people were a large civilization that populated the Valley of Oaxaca. Although Spain's genocidal colonization drastically dwindled their population size, the Zapotec still inhabit their ancestral lands in Oaxaca and maintain their cultural and linguistic practices.

INDIGENOUS SOVEREIGNTY:

Complete self-determination of Indigenous peoples as a sovereign political entity, including full power over their own politics, governance, culture, and territory.

SETTLER COLONIALISM:

A distinct type of colonialism that functions through the replacement of Indigenous populations with an invasive settler society. Settler colonial invasion is a structure, not an event: settler colonialism persists in the ongoing elimination of indigenous populations, and the assertion of state sovereignty and juridical control over their lands.

NEOLIBERALISM:

The twentieth-century resurgence of nineteenth-century ideas associated with laissez-faire economic liberalism and free market capitalism. It is generally associated with policies of economic liberalization including privatization, deregulation, globalization, free trade, and austerity.

DECOLONIAL CLIMATE JUSTICE:

A climate justice movement for climate change mitigation that includes social justice efforts such as seeking to reverse existing structural inequalities and mitigate the disproportional damage of climate change on marginalized peoples. A decolonial climate justice also centers particularly on Indigenous peoples, their leadership, and the just reclamation of Indigenous land and sovereignty.

DEVELOPING COUNTRIES:

A technical term; denotes a country in which a large share of the population cannot meet basic material needs such as housing, food, water, education, electricity, transport, and security.

LOGICS OF ELIMINATION:

Coined by Patrick Wolfe (2006), the logic of elimination refers to the ongoing elimination of Indigenous peoples as a continuous feature of settler colonial societies. Elimination often converges with but is not equivalent to genocide and can include methods such as “the breaking-down of native title into alienable individual freeholds, native citizenship, child abduction, religious conversion, [and] resocialization in total institutions such as missions or boarding schools.”

EJIDO:

In the land distribution following the Mexican Revolution of 1910, land parcels, called ejidos, were given to groups for communal ownership under Article 27 of the Constitution. In 1992, amendments to Article 27 in 1992 made it possible for individuals with communal membership of the ejido to privatize their portion and sell it to another Mexican national. The reforms to Article 27 resulted in the complicated mixed private and communal land system that we see today and has been heavily criticized by Indigenous groups (Hamister, 2012).

Energy Usage and Energy Transition Financing Act, the Public Electricity Service Act, the Energy Regulatory Commission Act, and the Sustainable Usage of Energy Act. While beneficial for guiding Mexico’s energy future towards renewable sources, these laws do not adequately address the socio-political, cultural, and environmental ramifications of energy development for Indigenous communities (Hamister, 2012).

Indigenous regions are not the preferred location for international mega-projects by accident: As settler colonial studies scholars David Lloyd and Patrick Wolfe (2015) describe, ongoing settler-colonial **logics of elimination** place poor, rural, Indigenous land at a higher risk for capitalist exploitation and dispossession worldwide. Despite the partial legal protection in many countries, Indigenous land continues to be treated by settler states and international capitalist actors as *terra nullius* (in Latin: empty land) open to coercive utilization or land grabbing—operations which represent only a few of many “fundamental [continuities] between the historical development of European settler colonialism and the present-day development of the neoliberal world order” (Lloyd & Wolfe, 2015). While Mexican laws such as Article 2 and Article 27 of the Mexican Constitution were passed to protect certain types of Indigenous land rights and culture, create federal responsibility to improve Indigenous standards of living, and grant a degree of Indigenous self-determination, such paternalistic and limited protections still result in subordinating Indigenous sovereignty to the “provincial and federal authorities” of the settler-colonial state (Ramirez-Espinosa, 2015). For example, the 1992 amendments to Article 27 made it possible for individuals with communal membership of the **ejido** to privatize their portion of land and sell it, resulting in the complicated private and communal land system that endangers the survival of communal Indigenous rights—rights which Indigenous groups wish to see legally formalized without exception (Hamister, 2012; Ramirez-Espinosa, 2015). Moreover, Mexican Indigenous law includes goals to promote job creation and the sustainable development of the natural resources in

Indigenous-dominated regions, often through incentivizing private and public investment. As observed in the Isthmus, this policy can lead to private encroachment upon autonomous and communally owned Indigenous land in the name of economic development or improving living conditions for Indigenous peoples (Hamister, 2012).

There are 54 wind farms in all of Mexico, most of which are located in the Isthmus of Tehuantepec, with a total capacity of 4,935 MW in 2018 (“El viento en numeros,” n.d.). However, this green technology comes at the cost of the sovereignty and well-being of the Zapotec community who communally own their ancestral land on the Isthmus. The wind developers have deployed unethical and illegal methods, such as manipulation, bribery, intimidation, and violence to acquire the land needed for the wind farms, often with the support of the government and local stakeholders (Martinez & Llaguno, 2014). As of 2019, four more wind projects have been planned, with seven international companies involved (“El viento en numeros,” n.d.). In response to the dispossession of their land, local community members have organized to demand justice. This situation raises concerns about the ethics of neoliberal climate catastrophe mitigation: Who benefits or profits from the green energy sector, and at whose expense?

INDIGENOUS REGIONS ARE NOT THE PREFERRED LOCATION FOR INTERNATIONAL MEGA-PROJECTS BY ACCIDENT: AS SETTLER COLONIAL STUDIES SCHOLARS DAVID LLOYD AND PATRICK WOLFE (2015) DESCRIBE, ONGOING SETTLER-COLONIAL LOGICS OF ELIMINATION PLACE POOR, RURAL, INDIGENOUS LAND AT A HIGHER RISK FOR CAPITALIST EXPLOITATION AND DISPOSSESSION WORLDWIDE.

LITERATURE REVIEW

Literature written on the Isthmus region of Oaxaca portrays the conflict as a dispute between the Indigenous community—who own, live, and work the communal parts of the land—and the international companies who continue to unjustly acquire land to build the wind farms. Avila-Calero (2017) and Zárate-Toledo et al. (2019) focused specifically on the Zapotec resistance that developed from this conflict, by using San Dionisio del Mar and Álvaro Obregón, respectively, as case studies. Various studies corroborated Indigenous claims on the multitude of environmental and social effects of the wind parks, focusing on select communities.

In “Wind Development of Oaxaca, Mexico’s Isthmus of Tehuantepec: Energy Efficient or Human Rights Deficient?” Hamister (2012) examined how the companies installing the wind farms violated the various energy policies and Indigenous protection laws, but added that the wind farms provided benefits, such as the decreased reliance on fossil fuels and increased job opportunities through construction. Overall, such energy developments failed to uniformly improve the living conditions of the Zapotec community; the majority have been excluded from sharing in

company profits, and many were displaced from their ancestral land (Hamister, 2012).

In “Social Perception of Wind Energy in the Isthmus of Tehuantepec,” Mendoza et al. (2015) surveyed locals and found that the majority approved of the wind parks. This finding contradicted the majority of other literature on the topic, which suggested that the wind parks were perceived as harmful, although differing opinions towards the parks continue to exist. This contradiction may be explained by the fact that Mendoza et al. (2015) only surveyed landowners, the only group capable of renting land to wind parks, while other studies focused on the perceptions of fishermen, farmers, and resistance groups, which were significantly more negative.

In “Windmills: The Face of Dispossession,” Martinez and Llaguno (2014) specified two instances of land disputes to demonstrate how international companies have unfairly and illegally taken control of the Zapotec land, identifying acts of bribery, misinformation, and violence. In “The ‘solution’ is now the ‘problem:’ wind energy, colonisation and the ‘genocide-ecocide nexus’ in the Isthmus of Tehuantepec, Oaxaca,” Dunlap (2017) recommended that the planning process of wind projects include the local community to avoid such conflicts, while Hamister (2012) suggested that the conflict might resolve if the community can benefit financially from the wind farms, gaining direct access to a percentage of the profit earned off of their land. Likewise speaking to the socio-political conflict, in “Contesting energy transitions: Wind power and conflicts in the Isthmus of Tehuantepec,” Avila-Caleiro (2012) offered an analysis which situated the struggles of the Indigenous groups within the historical power imbalance of the Mexican economy and settler-colonial state, and, similar to Dunlap (2017), suggested that energy transformations must address and advance climate justice and decolonization, rather than neoliberal economic paradigms, to result in a simultaneously fairer and greener future.

RESEARCH METHODS

INTERVIEW PROCESS

Through a study abroad program with the University of Arizona, I traveled to Oaxaca, Mexico to study the environmental and sociopolitical issues of Oaxaca from June to August of 2019. I was in the city of Juchitán de Zaragoza from July 23rd to July 26th. I did not visit any of the wind farms in these four days, but I had visited a wind farm in La Ventosa during a prior visit to the region a few weeks before my research began.

To conduct research, I interviewed four members of Juchitán de Zaragoza, located in the Isthmus. I took notes during the interviews to record the respondents’ answers and did not record audio. All of the interviews were conducted in Spanish, and I translated the information to English in my notetaking. My interviewees were Carlos, from Radio Totopo; Mario, from the Assembly for Indigenous Towns of the Isthmus of Tehuantepec in Defense of the Land and Territory (APIIDTT); Rosalino, the son of a farmer associated with Radio Totopo; and Nisaguie, from the APIIDTT and the daughter of Bettina Cruz, a well-known activist in Juchitán. Three out of my four interviewees—Carlos, Mario, and Nisaguie—are Indigenous land rights activist leaders. The fourth interviewee, Rosalino, is the son of a rural farmer who moved to the city of Juchitán to find work.

For the purpose of this research, Carlos served as my first point of contact with the local community, aiding me in the search for other relevant interviewees. As a well-known figure and activist, Carlos is knowledgeable about other significant actors in the region. However, it is necessary to acknowledge that Carlos' acquaintances are more likely to share with him similar perspectives on the wind farm issue, a fact which introduces bias in my findings. Furthermore, I recognize that my interviewees cannot serve as accurate representations of the thoughts and ideas of every community member. The diversity of the Isthmus, home to a number of groups, organizations, and individuals, makes it imperative to refrain from generalizing the entire region. Different people and communities do not all share the same goals, perspectives, and livelihoods, and therefore make different choices and interactions with the wind energy companies. In an effort to avoid over-generalization, this study focuses on the specific peoples and community with which my interviewees were most familiar: the Binnizá (Zapotec) Indigenous group in the communities of La Ventosa and Álvaro Obregón.

During my research, I asked my interviewees a series of questions:

RQ 1: What is your perspective on the wind farm conflict?

RQ 2: What effects do the wind parks have on the community, people, and land, if any?

RQ 3: What actions have you or others taken with regard to the wind parks?

ANALYSIS

Working within the constraints of the limited time in the field and a limited sample size, my qualitative research process allowed me to become familiar with the small community and form connections with my interviewees, who gave me in-depth, detailed narratives and explanations. In my analysis of the information, I examined my notes in order to categorize and track common themes. Five themes were identified, although many aspects of them intertwine or overlap: ecological, health, safety, political, and cultural effects. When possible, I corroborated the accounts by cross-referencing the evidence with other interviewees and with the current literature available on this topic.

DISCUSSION OF FINDINGS

The four interviewees each offered a unique perspective into the past and current conflict between the Indigenous communities, the Mexican state, and the international companies. They each played different roles in the conflict and gave a wide range of information. When asked about the effects of the wind parks, the interviewees gave responses about effects they personally experienced, how they perceived the effects on the community, and how they perceived the effects on the farmers and fishermen specifically. This analytic discussion categorizes the information into five sections: ecological, health, safety, political, and cultural effects.

ECOLOGICAL EFFECTS

All the interviewees noted how the “green” technology of wind parks caused ecological damage to the land and water of the surrounding environment. Both Carlos and Rosalino (personal communication, July 24, 2019) explained how oil spills and other contaminants from the wind turbines contribute to soil and water degradation; when it rains, the pollution seeps into the soil and runs off into the water. While each wind power project underwent an Environmental Impact Assessment, conducted by the federal Ministry of Environment and Natural Resources, the assessments were deemed inaccurate when close inspection of them revealed “technical deficiencies and incomplete information” (Zárate-Toledo et al., 2019). Additionally, the tests did not assess the cumulative impact that all of the wind turbines have on the land (Zárate-Toledo et al., 2019).

On my visit to the Laguna, Mario and local fishermen (personal communication, July 25, 2019) pointed out a visible ring of white mud around the shore, which they claimed was the accumulation of run-off pollution, although I have no means to confirm this information. Additionally, one fisherman remarked how the recent lack of rain worsened the mud’s presence, indicating that the visibility of the ring may be weather-dependent. On the truck ride to and from the Laguna, the fishermen spoke about the declining numbers of fish in the Laguna over time which, they said, was caused by the presence of the windmills. Rosalino (personal com-

munication, July 24, 2019) agreed with the fishermen’s claim, adding that, because of the decline in fish, fishermen have had to turn to wage labor within the city. Dunlap’s (2017) interviews with the fishermen of the Southern Isthmus supported these observations: “... [F]ishermen [witnessed] the mass-killing of fish during the construction of a pilot wind turbine on the Barra.” Martinez and Llaguno (2014) likewise referenced the account of fishermen who found thousands of dead fish following the installation of a concrete foundation and turbine tubes for the Mareña Renovables wind park construction in 2011.

Furthermore, all my interviewees described ways in which the ecosystem and land use changed after the appearance of the wind farms. Roads, infrastructure, and turbine construction cut up the landscape that was once used for agriculture and livestock. Wind turbines surrounded the Northern Isthmus, affecting the livestock and wildlife through increased instances of death and illness (Carlos & Rosalino, personal communication, July 24, 2019). Similar ecological damage was studied in Dunlap’s (2017) and Avila-Calero’s (2017) research, wherein they discussed biodiversity loss and ecosystem disruption caused by the noise and vibrations from the turbines.

Rosalino (personal communication, July 24, 2019) mentioned bird loss as a notable problem, given that the Isthmus sits in the migratory path of many bird species. Hamister (2012) cited an estimate from a 2007-2008 study done in Venta II in which “78 bird carcasses” were discovered; however, many experts considered this a conservative and misleading statistic as the actual mortality rate could be almost 50 times higher. Rosalino (personal communication, July 24, 2019) claimed that the bird carcasses often mysteri-

ROADS, INFRASTRUCTURE, AND TURBINE CONSTRUCTION CUT UP THE LANDSCAPE THAT WAS ONCE USED FOR AGRICULTURE AND LIVESTOCK.



ously disappeared in the night, allegedly cleaned up by wind company workers in an effort to hide the harmful ecological effects of the turbines. This assertion has not been corroborated.

In his interview, Carlos (personal communication, July 24, 2019) pointed out the irony in clearing so much flora, which itself takes in carbon dioxide and releases oxygen, to install wind parks that are then hailed for reducing carbon emissions. While drawing a perfect equivalence between flora and energy-producing windmills may be inaccurate, Carlos's statement points to the often-ignored environmental impacts of wind power. For example, following a successful 2007 court battle, a group of farmers were granted repossession of some 7,000 hectares of land, only to discover that the soil was not as productive as it had been prior to park construction—an exhibition of the long-term effects such parks have on the ecosystem (Carlos, personal communication, July 24, 2019). Overall, the literature on this topic supported the interviewees' anecdotes, as windmills' harm to the water quality, wildlife, land, and ecosystem are well-documented. Dunlap (2017) went so far as to compare these environmental impacts to those of fossil fuel production.

HEALTH EFFECTS

Though perhaps less obvious than the environmental effects, locals have asserted that living and working near the parks jeopardizes their own physical and mental health. Rosalino (personal communication, July 24, 2019) spoke the most in-depth on this topic, reporting that farmers and fishermen suffered a variety of ailments such as hearing loss, headaches, body aches, and insomnia. A plethora of studies, including the following by Nissenbaum et al. (2012), Schmidt and Klokker (2014), and Knopper and Ollson (2011), found correlations between windmills and health effects. Although a correlation between turbine proximity and worsened sleep has been identified, direct causality has not been empirically confirmed (Nissenbaum et al., 2012; Schmidt & Klokker, 2014). Others have agreed, however, that windmill proximity resulted in stress, which can lead to indirect health effects (Knop-

per & Ollson, 2011). Whether these effects are directly, indirectly, or psychosomatically caused by the windmills remains unclear, though it is undeniable that locals suffer from the presence of the windmills.

Rosalino (personal communication, July 24, 2019) asserted that soil and water pollution also led to contamination in local food sources. Participants in Dunlap's (2017) research also claimed that decreased quality and diversity of food, along with increased reliance and consumption of processed and canned foods, resulted in shorter life expectancy and increased cancer rates. In the Isthmus, farmers are not allowed to work or to trespass on the parcels of land rented by companies without permission. Moreover, fishermen are often restricted from accessing the Laguna, which means that some locals can no longer grow or catch their own food—acts of sustenance not only central to their health and economic livelihoods but to the healthy maintenance of their ancestral practices and to their way of life.

FISHERMEN ARE OFTEN RESTRICTED FROM ACCESSING THE LAGUNA, WHICH MEANS THAT SOME LOCALS CAN NO LONGER GROW OR CATCH THEIR OWN FOOD—ACTS OF SUSTENANCE NOT ONLY CENTRAL TO THEIR HEALTH AND ECONOMIC LIVELIHOODS BUT TO THE HEALTHY MAINTENANCE OF THEIR ANCESTRAL PRACTICES AND TO THEIR WAY OF LIFE.



SAFETY EFFECTS

Differing from the health category, concerns for the safety of those who live in Juchitán and the general region arose in the interview process. Mario, Carlos, and Nisaguie (personal communication, July 24, 2019) recounted a history of threats issued against local activists who spoke out against the wind companies. Indigenous activists have also suspiciously disappeared or died in what the Assembly for Indigenous Towns of the Isthmus of Tehuantepec in Defense of the Land and Territory (APIIDTT) speculated were political assassinations. The APIIDTT website (Asamblea de Pueblos Indígenas, 2019) included blog posts that demand justice for Beto Toledo and Rolando Crispín Lopez, two outspoken Indigenous land activists murdered within the last two years. The posts reported that Toledo was murdered by unknown men alleged to be hired hitmen while Lopez died in an altercation with municipal police (Asamblea de Pueblos Indígenas, 2019). In anecdotal testimony, Carlos and Mario (personal communication, July 24, 2019) claimed they have been targets of such threats and therefore have to practice caution in their own city.

As the wind projects, which first began in the North Isthmus, spread south towards the Laguna, the southern communities learned of their northern neighbors' losses and proactively mobilized. Community groups organized to resist the construction of windmills near the Laguna through blockades and marches. The local governments and the security hired by the wind companies responded to these defensive acts of Indigenous resistance by increasing military presence, direct conflict, and overall violence (Mario & Rosalino, personal communication, July 24, 2019). Rosalino (personal communication, July 24,

2019) believed the arrival of the wind companies in the area was partly to blame for the notorious violence in Juchitán. Martínez and Llaguno (2014) cited multiple incidents of violence perpetrated by paramilitary groups and governmental authorities onto resistance groups, in the form of direct clashes, threats, and persecution. In Álvaro Obregón, community guards, some of whom were fishermen I met, were formed to protect their land and ensure that the wind companies do not attempt to infiltrate their land again. This action and reaction cycle, initiated by the encroachment of wind companies, decreased local levels of safety over time.

POLITICAL/LEGAL EFFECTS

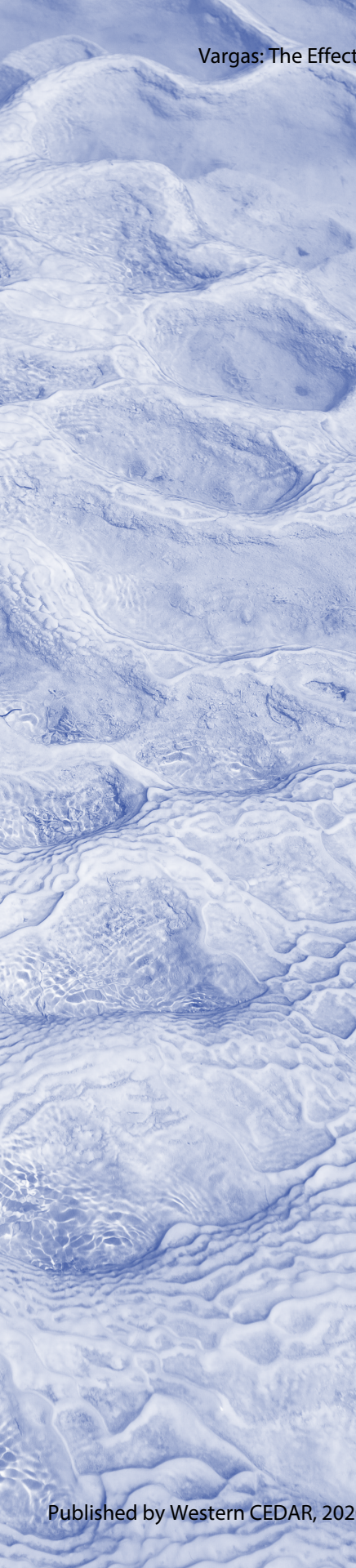
Once one company acquired property, like a domino effect, the land gradually shifted from being under the control of the Indigenous groups to being under the control of multinational actors. Starting in 1994, multinational companies created contracts and began renting parcels of land that individual farmers owned within the communal land, creating a checkerboard of land caught between privatization and communal ownership (Hamister, 2012). Once one company acquired property, like a domino effect, the land gradually shifted from under the control of the Indigenous groups to that of multinational actors. In a “top-down planning logic,” the state was able to go over the heads of the local Zapotec land practices to divide and sell land to multinational companies, in the name of reducing carbon emissions, to meet international agreements and to earn profits for wealthy developers (Zárate-Toledo et al., 2019). Unscrupulous tactics were deployed, such as “fake consultation processes, manipulation of information, illegal land titles and false land leases, bribery and corruption, bullying and violence” (Martínez & Llaguno, 2014). All four of my interviewees (personal communication, July 24, 2019) described these same unjust methods utilized by the wind companies to acquire land—land which they all claimed rightfully belongs to the Indigenous people of Oaxaca.

ONCE ONE COMPANY ACQUIRED PROPERTY, LIKE A DOMINO EFFECT, THE LAND GRADUALLY SHIFTED FROM BEING UNDER THE CONTROL OF THE INDIGENOUS GROUPS TO BEING UNDER THE CONTROL OF MULTINATIONAL ACTORS



While they did not have issues with wind turbine technology itself, they opposed the encroachment onto their land and destruction of their way of life—all done for the profit of foreign companies. The APIIDTT (2019) proudly displayed, “The sea, the land, the wind, is not to be sold, it’s to be loved and defended!” on banners and on their website, a sentiment that is echoed throughout the region. Carlos (personal communication, July 24, 2019) carefully clarified that they were not against technology or infrastructure, and Bettina Cruz agreed: “[T]hey are not against wind power, but against land grabbing and its impacts over local communities” (as cited in Avila-Calero, 2017).

Brought about by Article 27 of the Mexican Consultations, this gray-area of land ownership partially allowed for the initial land dispossession process to begin and has been used to the resistant groups’ advantage in court. “It is in this heterogeneous and rather unclear context that 126 legal demands of communal landowners were registered to nul-



lify land lease contracts made with foreign companies” (Avila-Calero, 2017). However, there have been mixed results, as Carlos and Mario (personal communication, July 24, 2019) claimed that the judges were corrupt and sided with the wind companies.

Despite some success gained in court, the 20 years of land dispossession minimized the established Indigenous protections and communal land laws. Hamister (2012) emphasized the various levels of legal protections that these wind parks violated, such as the Mexican Constitution, energy policy, agrarian laws, international agreements, and laws that protect Indigenous rights and the environment. Carlos (personal communication, July 24, 2019) summed it best when he said these wind parks were “illegal.”

Even with these protections in place, the wind companies succeeded. “The current law that is in place to protect the Indigenous communities of Mexico may appear powerful but in reality, poses little obstacle to those who require its protection” (Hamister, 2012). My interviewees (personal communications, July 24, 2019) agreed with this conclusion; even following some of the Indigenous legal successes, the companies still managed to construct more projects. Although the companies have been legally required to give free, accessible, and culturally appropriate consultations prior to wind park construction since 2014, Carlos (personal communication, July 24, 2019) emphasized that companies do the bare minimum or less. Consultations have been provided in confusing Spanish and sometimes only in written form, a significant observation given that many fishermen and farmers cannot read or write in Spanish (Carlos, personal communication, July 24, 2019). Furthermore, even if a consultation took place, the locals were often not given adequate time to prepare for construction, or construction had secretly already started (Carlos, personal communication, July 24, 2019).

This information indicates that the unjust actions of the wind companies perpetuate the settler-colonial elimination of Indigenous peoples and their sovereignty, setting some legal precedents and practices that only make it easier to continue land dispossession in the future.

CULTURAL EFFECTS

Concurrent with the other effects, the wind parks have also devastated the local community and Indigenous Zapotec culture. The Zapotec interviewees emphasized the importance of a close, interconnected community. When asked if the wind parks provided any community benefits, all said that benefits only went to the foreign companies and certain individuals (personal communications, July 24, 2019). Even the individuals who rented their parcel of land to wind companies, whether they did so intentionally or through coercion, received little money in comparison to the companies; while unconfirmed, Carlos (personal communication, July 24, 2019) speculated that the farmers are paid only 0.1% of the total profit. Moreover, he mentioned that the farmers could make more money by working, as opposed to renting, their land for a year. Hamister (2012) supported this statement: While rent can be as low as \$50, “a single cow can produce \$90 worth of milk each month.”

Along with the lack of community benefit, the wind parks have caused and exacerbated divisions in the community. Santa Maria del Mar, a neighboring community to the southeast, rented their land to the wind companies, increasing the difficulty for fishermen in Álvaro Obregón to defend their land (Mario, personal communication, July 25, 2019). As some communities conceded, solidarity and collective action grew more difficult. Mario (personal communication, July 25, 2019) described how the various groups and organizations that formed to resist the intrusions offered differing ideas on how to reach their common goal. Rosalino (personal communication, July 24, 2019) also explained that, although the groups wanted and tried to show solidarity and help one another, they were

WHEN THE ZAPOTEC ARE FORCED OFF THEIR LAND, THE EFFECTS ARE DEEPER THAN ECONOMIC: THEIR INTEGRAL AND EMBODIED CULTURAL PRACTICES, WHICH INCLUDE FARMING AND FISHING, ARE DEVASTATED.

constrained by time and money. People had day jobs and daily chores that they could not suddenly neglect, and transportation costs came out of their own pockets.

Overall, the wind companies deployed a “divide and conquer” strategy. Carlos (personal communication, July 24, 2019) recounted how the companies went door-to-door to coerce people into signing contracts by lying, saying that their neighbor had already signed a contract. The companies also deployed propaganda-like tactics and hired people to spread social acceptance of the wind projects, a tactic that “[intensified the] social schism between landowners and other locals” (Zárate-Toledo et al., 2019). In the Mareña Renovables wind project of 2011, the Spanish company created a puppet civic organization led by corrupt local authorities in order to lobby for increased acceptance of the project (Martinez & Llaguno, 2014). During the interview with Carlos, a car drove by announcing through a speaker a summer-school program funded by the wind companies.

However, even as the resistance continues, the residents of the region have not been and are not universally against the wind projects. Though it remains unverified, Carlos (personal communication, July 24, 2019) cited statistics from a 2013 survey that reported 36% of locals to be in favor of the wind companies, explaining that those people who do not rely on the land for food and work made up the majority of those in favor. The companies arrived with promises that they

would bring economic prosperity and development to the community, which many initially believed. The promise of “gains on land rent, access to jobs during the construction and operation of parks, and public works for the community” was enough for many to sway towards the wind companies (Zárate-Toledo et al., 2019). On the other hand, primarily Zapotec farmers, fishermen, students, and those who “recognize the intrusive colonial behavior, unequal benefit sharing, disregard for public consultation as well as the cultural and ecological impacts of wind parks” made up the resistant populace (Dunlap, 2017). The community was thus divided into those who benefited or wished to benefit from the privatization of land and those who detected the empty promises and wished to maintain their ancestral community life (Zárate-Toledo et al., 2019).

Increasingly, many community members have lost their livelihoods and had to turn to wage labor; Rosalino (personal communication, July 24, 2019), at the time he was interviewed, had turned to operating a moto-taxi. People who have lived communally as farmers and fishermen since time immemorial were forced towards wage labor or to migrate elsewhere to sustain their families. Land contracts can last for 25–50 years and have automatic renewal, so a family could be forced out of the land for generations (Carlos, personal communication, July 24, 2019). A 2016 report from the Independent Consultation and Investigation Mechanism of the Inter-American Development Bank said, “the intense and rapid wind development in the Isthmus region’ provokes that ‘the Indigenous communities of the Isthmus do in fact face the risk of losing their identity and customs’” (as cited in Zárate-Toledo et al., 2019).

Carlos (personal communication, July 24, 2019) stressed that the wind parks were an attack on their Zapotec sovereignty and way of life, which are tied to their land and to the sea. When the Zapotec are forced off their land, the effects are deeper than economic: Their integral and embodied cultural practices, which include farming and fishing, are devastated. In his research on sustaining Zapotec culture, Zapotec scholar Jushua Schwab-Cartaas (2018) describes such “Indigenous, Oaxacan methodology” or practices by the cultural term “communalidad”—an engagement of “cultural praxis” rooted in the “commitment to strengthening the future of communal lifeways” through doing and passing on embodied ancestral Zapotec practices such as “making gueta bizaá (black bean tamales)” or “planting corn crops.”

CONCLUSION

Mediated by the settler-colonial Mexican state, the situation in the Isthmus of Tehuantepec is a complex land-based conflict between the Indigenous Zapotec community, who have communal ownership of most local land, and the international companies seeking to profit from the production of clean wind energy. While certain aspects of my four interviewees’ claims about the wind farms’ effects on health or safety, such as cases of windmill-caused body aches or political assassinations of Indigenous activists, have not been externally verified, the literature available on this discourse supports the majority of their assertions around ecological, political, and cultural harm caused by the wind farms and the exploitative methods of international wind energy companies. Overall, the mutual corroboration of multiple Zapotec testimonial reports on the topic of their own land and

circumstances should be treated as significant evidence, although the small sample size of this particular study remains a limitation. In studying these effects, it is evident that the Zapotec peoples of the Isthmus have legitimate grievances against the wind projects due to the threat they pose to Zapotec land rights, sovereignty, and culture. Because of this ongoing damage, the green energy movement in the Isthmus contributes to the continued Indigenous land dispossession and elimination of Indigeneity within the boundaries of the Mexican state.

Since the different communities in the Isthmus vary, more research on individuals and communities' relations to the wind parks remains necessary. This study's small sample size cannot account for the variety of perspectives in the region. Research that reports directly, rather than indirectly, on the testimony of Zapotec farmers and fishermen would be valuable. Potential research questions include: What factors cause a community or individual to favor or resist the wind parks? Are there class or cultural tensions that arise as a result of some community members privatizing and renting their land?

Furthermore, the Isthmus of Tehuantepec offers a compelling perspective on the complex relationships between the Indigenous people, the Mexican state, the environment, and the international market. As part of a global trend of economic exploitation and land dispossession which is occurring under the structure of globalized capitalism, more research needs to be done in comparing the effects of the growing green energy sector on different Indigenous peoples in regions across the world. Have other peoples experienced similar effects to their health, community, and environment? What forms of resistance

have been occurring in other regions, and have they experienced similar successes or losses? What significance does Indigeneity play in this type of conflict?

Significant change to energy production needs to occur, sooner rather than later, to help avoid climate catastrophe. However, the situation in the Isthmus of Tehuantepec suggests that the strict reliance on neoliberal capitalist structures and marketplace to provide climate mitigation will only exacerbate existing socio-economic inequality and colonization. In accordance with the principles of decolonial climate justice, the climate change response must attend to previous structural issues and inequalities in capitalism, take into account the disproportionate impact of climate disaster on marginalized peoples and the Global South, and center decolonial effects such as the reclamation of land and sovereignty by Indigenous peoples. The private expansion of renewable energy might seem like a benefit to all, but, once the local effects are examined, one must ask, "Is it really about saving the planet, or is a different green being prioritized?"

**"IS IT REALLY ABOUT SAVING
THE PLANET, OR IS A DIFFERENT
GREEN BEING PRIORITIZED?"**



Vargas: The Effects of the Wind Farms on the Indigenous Zapotec Community

APPENDIX



Maps locating Juchitán de Zaragoza, Oaxaca, México.



Map of the southern Isthmus region, showing the capital city of Juchitán, the Laguna Superior, and Álvaro Obregón.



Photo of the turbines next to a farmers' field in La Ventosa, taken in July of 2019.

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