

Friction in a Warming World: The Challenges of Green Energy in Rural Oaxaca, Mexico

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Abstract

This article examines an emerging wind park controversy in Oaxaca, Mexico. Local opposition to wind parks manifests itself as political and cultural resistance to neoliberalism and Oaxacan state politics; landowners' rejection of unfavorable lease agreements; and fears of local environmental risks. These concerns could conceivably be resolved with functional and accessible dispute resolution mechanisms. The North American Free Trade Agreement introduced important participatory mechanisms with the side accords, which were intended to regulate and contain the non-trade effects of trade interests. The inadequacy of these and similar mechanisms currently put at risk the possibility of wind park construction in Oaxaca. This wind park conflict provides a case study for examining possible emergent challenges to the proliferation and implementation of climate-friendly technologies across a global social terrain littered with persistent inequalities. These challenges could be met and answered with more sophisticated regulatory and participatory mechanisms than those which currently exist.

Keywords: Mexico, dispute resolution, climate change, sustainable development, participation

Introduction

In the past couple of years, "climate change" and "global warming" have taken root in the global social imaginary as facts – and threats – with which the world must grapple. Climate change has become a constant topic of discussion in the media, international conferences, trade negotiations and every day conversations. Indeed, it would seem that since the circulation of Al Gore's popular documentary "*An Inconvenient Truth*" and the less-known, yet more influential, Stern Review¹, the topic of climate change has moved from the margins to center and from the status of an object of speculation to an established social fact.

Concomitant with the increasing global consensus on the factual nature of climate change is a push, by business and government alike, to produce and implement more climate-friendly

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¹ Stern, Nicholas (2006) *Stern Review: The Economics of Climate Change* (Executive Summary). Available at http://www.hm-treasury.gov.uk/independent_reviews/stern_review_economics_climate_change/sternreview_index.cfm [accessed 3 April 2008]. The Review was widely circulated and discussed at the time of its publication, largely for its prediction that global economic collapse could eventually result from uncorrected climate warming. I refer only to the Executive Summary in this article.

technologies. This impulse is consistent with the predictions and recommendations of the Stern Review, which encouraged market actors within industrialised and technologically-advanced nations to be innovative in the creation of new technologies, as well as markets for them.² The case of the making and marketing of wind energy fits well with this earlier recommendation by Lord Nicholas Stern. Wind mills suddenly seem to be popping up everywhere. With their elegant skyward stretch, sleek and futuristic design, and gently twirling blades, wind turbines increasingly seem to represent a dignified and intelligent response to the problem of global warming.

Industrial wind parks might be relatively new, but the international context in which they proliferate is a familiar one of “first” and “third” world hierarchies and persistent inequalities. This article examines some of the challenges to the implementation of climate-friendly technologies that emerge when they are promoted across a fundamentally uneven global social terrain. Although recent years have witnessed the introduction of various civil society oriented petitioning or participatory measures to redress these inequalities, many of these measures, such as the North American Free Trade Agreement (NAFTA) side accord dispute resolution mechanisms, are both relatively novel and woefully underdeveloped. These mechanisms have scarcely developed to the point of handling the burden of existing grievances, never mind new ones.

The argument of this article can be explained briefly. I begin with the oft cited observation that our contemporary global terrain is a fractured and uneven one.³ Although the climate change conversation seems to be eclipsing prior discussions of the glaring inequalities between the global north and south, it has not displaced the inequalities that gave rise to that discussion in the first place. I argue that if cleaner energy initiatives and policies are to be successfully implemented, part of this success hinges on the capacity to address ongoing inequalities and open wounds of the globalisation era. In the case of Latin America and, in particular, Mexico, regulatory regimes, dispute resolution mechanisms, and participatory processes (legacies largely of the NAFTA and proposed Free Trade Area of the Americas [FTAA] era) are inadequate to handle the burden of a new set of challenges posed by more climate-friendly technologies. As such, they pose a host of new scientific, medical, public health and local environmental challenges, alongside familiar ones of power and inequality.

I describe three different types of resistance in Oaxaca, Mexico, all of which fuel social conflicts around a wind park construction in its southernmost Isthmus of Tehuantepec. The first two are currently the most visible and well-articulated in every day practice; the third is more inchoate but will likely grow as the resistance movement gains strength. As in the case of all social movements, the three different levels and motivations for resistance tend to coil around and reinforce one another. The bulk of the article will be devoted to describing each of these tiers of resistance in depth, although I sketch them out briefly here.

First and foremost, the broader political climate of the state of Oaxaca has been one of ongoing political turmoil since the summer of 2006. In the popular imagination, recent events in Oaxaca

² Executive Summary (2006), pp. xvi-xxv.

³ Amin, Samir (2004), *The Liberal Virus: Permanent War and the Americanization of the World*, New York: Monthly Review; Stiglitz, J. E. (2002), *Globalization and its Discontents*, New York: W. W. Norton.

are intertwined with the regional development plan, *Plan Puebla Panama* (of which the wind parks are a part), resulting in a wholesale rejection of the wind parks as part of a perceived “foreign” or “neoliberal” invasion. Second, there is a growing collective landholders’ or “ejidatarios,”⁴ resistance to the wind parks on the Isthmus, where current and projected parks are located. This resistance is articulated through an organisation called the *Comite Quijote*⁵, and is based largely on local small landowners’ experiences of negotiating with the Federal Electricity Commission⁶ (FEC) which organises lease agreements between property owners and wind energy companies. The *Comite Quijote* is becoming increasingly visible in both local and national media as it engages in direct action and attempts to draw attention to allegedly corrupt negotiating practices and exploitative lease arrangements.

The third reason for resistance is also rooted in the activities of the *Comite Quijote*, but is more embryonic than the first two. The first two represent challenges familiar from the globalisation era, while the last represents challenges more specific to a climate change era. My interest in this third prong stems from the fact that it poses specific challenges to existing dispute resolution mechanisms, and these challenges rest on the presence or absence of scientific knowledge about wind energy. This embryonic concern has to do with the effects of wind mills on both native and migrating birds and *local* environmental effects of wind parks, including human health.

Political Turmoil in Oaxaca and the Plan Puebla Panama

Oaxaca has some of the highest rates of poverty and the highest percentages of indigenous populations in the country. Similar to the neighbouring state of Chiapas, it also experienced a dramatic increase in human rights abuses in the late 1990s⁷ and since has become a hotbed of political, cultural, indigenous, ethnic, gender and economic activism. The area is often viewed as being the most authentic, traditional, and indigenous within Mexico, making it both a popular tourist destination as well as a site of extensive cultural discussions of ethnic identity.⁸ “Isthmus culture” of southern Oaxaca is particularly famous for attitudes of independence and rebellion, a cultural narrative that wind park resisters frequently draw upon.

Since the summer of 2006, the state of Oaxaca experienced a profound and well-publicised political crisis. The PRI (Institutional Revolutionary Party)⁹ governor, Ulisses Ruiz, who came to power in 2004, has been blamed for much of this crisis. In June of 2006, he launched a crackdown on a

⁴ *Ejidatarios* are the farmers or small landholders who live on *ejidos* in Mexico. *Ejidos* are essentially collective landholdings created by the Mexican government in the consolidation phase after the 1910-1920 revolution.. They have been dissolving steadily since former Mexican President Salinas de Gortari’s revision of the Constitution, essentially legalizing the individual sale of personal plots of lands within a larger *ejido*. To avoid confusion, I will simply use the term “landholder” or “small landholder” throughout this essay.

⁵ This is a pseudonym.

⁶ *Comision Federal de Electricidad*.

⁷ Stephen, Lynn (1999), The Construction of Indigenous Suspects: Militarization and the Gendered and Ethnic Dynamics of Human Rights Abuses in Southern Mexico, *American Ethnologist*, Vol.26 No.4, pp. 822-842

⁸ Stephen, Lynn (1996), The Creation and Re-Creation of Ethnicity: Lessons from the Zapotec and Mixtec of Oaxaca, *Latin American Perspectives*, Vol.23 No.2, pp.17-37

⁹ *Partido Revolucionario Institucional*.

"teachers' strike" that takes place ritually every year. The unexpected crackdown causes a maelstrom of anti-Ulisses Ruiz sentiment and has fanned the flames of widespread dissidence. Bringing in the Federal Preventive Police to try and quell the resistance only fueled popular resentment at the federal government for its refusal to remove Ruiz. Perhaps the most important dissidence movement to emerge from the initial "teachers' strike" is the widespread APPO (Popular Assembly of the Peoples of Mexico)¹⁰, a broad-based coalition which has since become a front of resistance against neoliberalism and a radical democratic movement. The APPO's three types of democratic struggle (revealing the depth of the crisis in Oaxaca) have been eloquently described by Esteva:

The first joins together those who wish to strengthen formal democracy, whose weaknesses are well known in Oaxaca. People are tired of fraud and manipulation, and those who wish to rely on the electoral system want it to be clean and efficient. The second consists of those who want a more participatory democracy. Besides transparency and honesty, they want more civil involvement in the workings of government through the use of popular initiatives, referendums, plebiscites, the right to recall elected leaders, participative budgeting, and other such tools. The third includes the surprisingly large number of individuals and groups that desire to extend and deepen autonomous or radical democracy in accordance with political conceptions that have their own unique sources.¹¹

The political crisis continued into the summer of 2007, this time revolving equally around issues of the "Guelaguetza." The Guelaguetza is an annual performance historically put on by indigenous groups and performers. In the past several years, it has been steadily overtaken by the state as an expensive production for tourists. Rejecting the "official Guelaguetza," APPO and other groups sponsored a "popular Guelaguetza," which is viewed as more authentic and accessible than the one sponsored by the state and tourist agencies. In July 2007, the city was once again virtually shut down by police and riots during the period of the Guelaguetza, demonstrating the degree to which the political crisis in Oaxaca has transformed into a cultural and anti-neoliberal struggle.¹²

Resistance against the wind parks is fueled partly by this political crisis in Oaxaca more broadly, but also by the regional development plan, the Plan Puebla Panama (PPP), of which the wind turbines are an integral part. In 2011, the PPP was renamed the "Meso-American Project," although its substance remains the same. The Meso-American Project is a poorly received southern Mexico and Central American regional development project which aims to "develop" Mexico's seven southern states - Puebla, Tabasco, Campeche, Oaxaca, Quintana Roo, Chiapas, Veracruz, Yucatan and Guerrero - and integrate them more closely and economically with Central America. Signed into effect at the Merida Summit in 2002, the project has been funded largely by the Mexican government, the Inter-American Development Bank and World Bank.¹³ The objectives of the Meso-American Project are often cited by its proponents as follows: sustainable development, human development, prevention and

¹⁰ *Asamblea Popular de los Pueblos de Oaxaca*.

¹¹ Esteva, Gustavo (2007), *The Asamblea Popular de los Pueblos de Oaxaca: A Chronicle of Radical Democracy*, *Latin American Perspectives*, Vol.34 Issue 152, No.1, pp.129-144

¹² Author's fieldwork observations, July 2007, Oaxaca City

¹³ The PPP has been funded by the Mexican government, with a current commitment of almost two hundred million dollars, and the Inter-American Development Bank, which has approved a four billion dollar line of credit for Central American states. See Hepzibah Muñoz Martínez (2004), *State, Capital and "Second Nature:" Re-Territorialization in the Plan Puebla Panama*, *Capitalism, Nature, Socialism*, Vol.15 No.1, pp.67-81

mitigation of natural disasters, tourism promotion, commercial exchange (free trade), interregional transportation network, energy interconnection, telecommunication interconnection.¹⁴

Ultimately, the Meso-American Project is a regional infrastructure development plan devoted to the creation of a "second nature" by and for capitalism itself. "Second nature" is sometimes used to describe processes that fundamentally transform nature and space for the purpose of accommodating industry, trade and capitalist modes of production.¹⁵ Its foundations were laid in the Mega-project of the Isthmus of Tehuantepec between 1996 and 1998.¹⁶ It consists of a variety of different and seemingly disparate projects, ranging from road, dam and wind park construction to the building of extensive *maquiladora*¹⁷ parks. The plan never received widespread support among indigenous or poor peoples in southern Mexico and, as time went on, resistance mounted. The parts of the plan that I explain here pertain to industry, transportation and electricity, the latter of which is of central importance to the wind parks.

The first has to do with the development of industry in the region. Briefly put, the Project attempts to develop *maquiladora* plants and industrial parks throughout the region. These industrial parks, both existing and planned, are similar to the ones that have existed for thirty plus years on the northern Mexican frontier, and which have been great for international business and the Mexican GDP, but not so great for Mexico's poor. The logic behind the goal of attracting manufacturing plants is that it will improve income earning opportunities for the southern Mexican population and thus their standard of living.¹⁸ The additional aspiration of the Project, as with the NAFTA agreement, is to increase trade and development to provide work opportunities that might discourage immigration¹⁹ although, once again, this logic did not work under NAFTA.²⁰ Oaxaca has been especially hard hit by out-migration in recent decades, as noted by Doane, "More than any other state in Mexico, Oaxaca has witnessed profound transformations at the village level as a result of migration of men to cities in the north, and to the United States."²¹ Indeed, in the town of 3,000 people in which I conducted field research in 2007 and 2008, 10 percent of the population was estimated to be living permanently in the U.S.

A second important infrastructure development goal of the PPP pertains to transportation. There are two primary ways in which the PPP aims to do this. One is through the construction of an extensive grid of highways that connect the North with the South (including completion of the Pan American highway through the infamous Darien rainforest) and East with West, ultimately hooking up all smaller highways with the Pan American Highway. A second transportation project involves the building of one or more "dry canals" to replace or supplement the transportation capacities of the Panama

¹⁴ Pisani, M. and Label, W. (2003), Plan Puebla-Panama: Toward FTA or Regionalism? *Business Horizons* (Sept.-Oct.), pp.33-40

¹⁵ Muñoz Martínez (2004)

¹⁶ Doane, Molly (2005), The Resilience of Nationalism in a Global Era: Megaprojects in Mexico's South. In: Nash, June (ed.) *Social Movements: An Anthropological Reader*, Malden, MA: Blackwell Publishers, p.188

¹⁷ "Maquilas" or "maquiladoras" are multinationally-owned off shore assembly plants, such as those on the Mexican side of the US-Mexico border

¹⁸ "Mexico's Maquiladora's Go Way South of the Border," by I-Chun Chen, *Global Finance*, Fe. 2001, pp. 71-72.

¹⁹ Rosen, F. (2002), Survival and Resistance in Mexico, *NACLA Report on the Americas*, Vol.36, Issue 2, p.7

²⁰ Cornelius, Wayne (2002), Impacts of NAFTA on Mexico-to-U.S. Migration. In: Chambers, E. and Smith, P. (eds) *NAFTA in the New Millennium*, San Diego, CA: Center for U.S.-Mexican Studies and University of California San Diego Press

²¹ Doane (2005), p.191

Canal. Dry canals are essentially railroads that connect with deep sea ports at either the Atlantic or Pacific ends. Potential dry canal sites are being investigated in Nicaragua, Honduras and the narrow Isthmus of Tehuantepec in Oaxaca.

The third major component of infrastructure development involves electricity generating projects, including both dams and wind parks. The Central America Electrical Interconnection System (known by its Spanish acronym as SIEPAC)²² receives funding primarily through the Inter-American Development Bank. Although the IADB has nominal participatory requirements for its funded programmes, there has been little to no public participation for the wind park projects, an issue I return to below.

The Meso-American Project has faced enormous popular and indigenous opposition in southern Mexico, as well as other parts of Central America. Many local populations maintain that the sole purpose of the Project is to convert the entire region into a free trade corridor that will benefit only the state, national and international elites. Many also view it as simply a southern extension of NAFTA and, based on evidence from northern Mexico and their own out-migrating populations, reject it. As Nash has noted,

Indigenous Peoples are expressing deep concern about losing control over their lands, asserting they will never realize any returns from the abundant energy resources in oil and hydroelectric power, especially in the state of Chiapas. (...) Indigenous settlers in the southern frontier zone of the Lacandon rainforest held a meeting in February 2003 to discuss the PPP. Here they registered their strong objection to the projected maquiladora manufacturing plants and to the projected dams for harnessing hydroelectric power. Chilar Kabo'ob of the indigenous cooperative Society of Beekeepers, envisions PPP as a "second conquest," with tourism and maquiladoras replacing organic agriculture, forestry, beekeeping and sustainable cattle raising.²³

The Society of Beekeepers constitutes one of at least a hundred organisations in southern Mexico and Central America opposed to the Project.²⁴ In short, the turmoil of the Oaxacan state, globalisation, and the well-documented hazards of neoliberalism in Latin America are one prism shaping wind park resistance in southern Oaxaca.

Community Resistance to Wind Parks on the Isthmus de Tehuantepec

We don't want to sell our land, this is our land and this is where we are from. In La Venta, we have always defended ourselves. Sure, there are some people who like money, but they are not everyone and in fact there are few people who really prefer money over having their own land. Most of us would rather have our own land. This is our land!²⁵

Community resistance on the Isthmus of Tehuantepec has been gaining steam within this broader context of Oaxacan state politics and anti-Meso-American Project sentiments. The Isthmus is located in southern Oaxaca, and is an extremely narrow stretch of land with only one hundred and twenty-five

²² *Sistema de Interconnection Electrica Pueblos de America Central*

²³ Nash, June. (2003). "Mexico Turns South for its Future," April 17, 2003. Available at: [Http://www.anthrosource.net](http://www.anthrosource.net) [accessed 18 December 2012]

²⁴ Call, Wendy (2002). Who Owns Knowledge? Biobattles and Technostife in Latin America, *NACLA Report on the Americas*, Vol.35 No.5, pp.24-25

²⁵ Elderly landholder speaking at a community forum on wind parks in La Venta, 17 July 2007

miles between the Atlantic and Pacific seaboard. Existing wind parks are located on a narrow stretch close to the Pacific Ocean, while planned parks are located right on the sand bars of the ocean itself. While in 2008 there were only three parks, there are now almost a dozen under construction.

The first wind park was a pilot project of seven windmills. While it was supposed to be experimental, it was followed almost immediately by plans for *Venta II*. One of the primary reasons for local resistance is the low leasing prices landholders receive. The current rate is the equivalent of US\$125 per turbine (one hectare) per year.²⁶ This is in stark comparison to the US\$500 per turbine per month received by Texas landowners. Wind power is becoming so lucrative in Texas that some have compared it to the next oil boom.²⁷

Before describing local landowners' additional reasons for rejecting the parks, it is important to point out that many were *originally* (in 2001) agreeable to the idea of leasing their lands to the Mexican Federal Electricity Commission (FEC) and foreign companies. As one person reported to me, "We do not live in a bubble here. We have television, read the papers, hear the news. We understand the problems of global warming and would like to be able to help, like any community. Some of us have lands that were not very productive and it made sense to hand that land over under the terms that were originally explained to us."²⁸ An important aspect of the "original terms" was that the pilot programme was to be built and then its effect on the community assessed. To the knowledge of local community members, this assessment was never performed. Instead, the FEC began immediate construction of *Venta II*. For all intents and purposes, it seemed as though community members have not been consulted in any studies to date. When I mentioned to one of my informants the study done by the pro-wind energy Institute for Electricity Research (Primary Document on Wind Turbines of the Isthmus of Tehuantepec Wind Corridor, 2005²⁹), he immediately announced that they had never consulted with any of the local residents in their study.

Equally problematic, from their perspective, is the fact that that FEC promised that parks would bring employment and social development opportunities to the area (education, health care, etc.), none of which has happened. In short, the only "benefit" which the farmers have received is the money paid for the lease of their lands, which they view as a paltry sum.

Additionally, many people feel as though they are harassed by hired thugs posing as FEC representatives. As one person reported, these "representatives" operate out of an office in neighbouring Juchitan under the cover of a speculation company. They go door to door trying to arrange contracts in the name of the Commission, but many believe they worked directly for the foreign-owned wind companies. This assessment of the fraudulent nature of these "representatives" has

²⁶ "Transnationals vs. Birds and Farmers in Mexico's Isthmus of Tehuantepec" 3 March 2007 at <http://kirbymtn.blogspot.com/2007/03/transnationals-vs-birds> [accessed 15 June 07]

²⁷ New York Times, Move Over Oil, There Money in Texas Wind. 23 February 2008.

[Http://www.nytimes.com/2008/02/23/business/23.wind.html](http://www.nytimes.com/2008/02/23/business/23.wind.html) [accessed 23 February08]

²⁸ Interview with La Venta landowner, 16 July 2007

²⁹ Primer Documento del Proyecto Eoloeléctrico del Corredor Eólico del Istmo de Tehuantepec (2005).

been backed up by Ucizoni³⁰ leader, Carlos Beal, in his article *Los Negocios Sucios de la Energia Limpia (Dirty Negotiations for Clean Energy)*.³¹ Even more ominously, there are widespread reports of threats, harassment and intimidating behaviour when landowners do not readily sign over their lands. This behaviour is not limited to the FEC, its alleged representatives or foreign companies, but includes local people in political office who are perceived to be collaborating with the foreign-owned wind companies.³²

For example, in the summer of 2008, this author observed a meeting in which members of the neighbouring Union Hidalgo community reported that these "representatives" had been coming around house to house trying to get individuals to sign over their lands. As one man put it, "We had no information. They come house by house promising you the stars, and they divide people by trying to get them to sign on one by one." Some of them had agreed to the "pre" contracts, only to find that when the representatives returned with the "official" copies of the contracts, the period for the lease agreements had been changed from twenty to thirty years, and endless and virtually indecipherable clauses had been added. They said that feeling pressured and intimidated, and with Mexico City notaries looking on, many had signed anyway.

After outlining this basic situation, which was all too familiar to the people running the meeting, the leader of the Union Hidalgo community went on to say – with many nods from the men surrounding him – that they were desperate to get the contracts annulled, and were seeking advice from Ucizoni and the *Comite Quijote*. A discussion ensued in which Rafael, the person with the most legal experience, asked a series of questions to try and determine whether or not the law had been violated: Had the farmers signed in the presence of a public notary? Yes. Were their wives required to sign as well? Yes. Was a Zapotec translator present? Yes. No immediate conclusions were reached, and Rafael said that Ucizoni would most likely need to retain a lawyer in order to further investigate the issue.

Other meetings and direct actions followed this summer forum. In September of 2007 a regional forum was held to bring together all communities potentially affected by the wind parks. Later in that year, resistance organisations occupied the local Juchitan offices of the FEC. Then, in February of 2008, they disrupted, for part of one day, the installation of new turbines by the company Union Fenosa. One person justified the disruption this way: "They did not ask us permission, they just arrived and established themselves without worrying about blocking a road that hundreds of us peasants use every day. This demonstrated to us the arrogant attitude of the company to occupy our lands when it wants and

³⁰ *Union de Campesinos y Indigenas de la Zona Norte del Istmo* (Union of Peasants and Indigenous peoples of the Northern Zone of the Isthmus). This is a famous and well respected advocacy organisation working closely with the *Comite Quijote*.

³¹ *El Solidario Antieolico: Mitotero popular e independiente del Frente de pueblos del Istmo en Defensa de la Tierra, Grupo Solidario la Venta, Movimiento Democratico de los Trabajadores de la Educacion, SNTE, CNTE, La Venta Mayo 2007.*

³² As with most controversies in Mexico, the "pro" and "con" groups tend to be articulated through political party affiliation. Pro-wind park constituencies and individuals are typically associated with the PRI (*Partido Revolucionario Institucional*) which governed Mexico for seventy years or the PAN (*Partido de Accion Nacional, or National Action Party*), the more transparent neoliberal party. Wind park opponents align themselves typically with the PRD (*Partido Revolucionario Democratico, or Democratic Revolutionary Party*), Mexico's progressive left party.

however it wants.”³³ In the same confrontation, another person gave eloquent expression to the exploitative contract “negotiation” processes described above:

Many of us don't know how to read or write, we never went to school. We are just humble peasants and, being deceived, we put our fingerprints on the papers, what they call contracts. In the beginning, no one explained anything to us, we didn't have a professional to explain to us that for the papers we signed for 1000 pesos, for this we now receive 150 pesos per hectare per year, [una miseria] for thirty years, and we are not agreeable to give away our heritage.³⁴

In addition to ongoing complaints about how local landowners are poorly treated by both the FEC and foreign owned wind companies, there was another area of concern that was aggressively debated during the July 2007 forum. This was the question of whether the leasing of lands to foreign companies was in violation of the Mexican Constitution. This point was forcefully made by a highly-educated local radio personality, Javier. When Javier took the floor about halfway through the day, he expressed disappointment that most of the conversation thus far had been about *techniques* of negotiation. “At the beginning of the meeting, it seemed as though everyone was prepared to reject any kind of dealings with these companies, but now we are talking about the finer points of contracts.” He pointed out that the selling of one's land to foreign companies was in violation of Articles 27 and 28 of the Constitution, and that the line between selling and leasing for thirty years was a very blurry one, indeed. As he put it, “The more that we learn, the more we understand the illegality of these acts, but if we remain ignorant, of course we will sell the land. Law here adjudicates between the ignorant and the knowledgeable. As Oaxaquenos (and historically, resisters) we know that we cannot sell the land.” Javier's comments brought up questions about what should be the proper mandate and direction of the group: Was the goal to learn to negotiate better with the Commission and multinationals, or should they be working toward getting them out of the country altogether? The issue was not resolved during that meeting.

The community ended the meeting on that day with a set of demands before future construction could take place. These demands included the following: having an established dialogue and conflict resolution process with the companies; becoming beneficiaries of public works; freedom from harassment or intimidation for those who did not wish to lease their lands; community discounts on electricity; and an environmental impact study conducted by legitimate scientific institutions with community input.

Bird Populations, Human Health and the Local Environment

There is a third point of contention that this local movement began to articulate as a concern and possible additional point of resistance. Unlike the aforementioned concerns, which were already well articulated, this third issue had only recently become a focal point.³⁵ There are two prongs within this third point of contention. The first has to do with the question of the potential impact of the wind

³³ Quoted in “Campesinos Interrumpen Trabajos de la Empresa Eolica 'Union Fenosa'” by Roselia Orozco and Faustino Romo Martinez. *El Sur: Diario Independiente del Istmo*, [accessed 08 Feb. 08].

³⁴ Quoted in “Campesinos Interrumpen Trabajos de la Empresa Eolica 'Union Fenosa'” by Roselia Orozco and Faustino Romo Martinez *El Sur: Diario Independiente del Istmo*, February 8, 2008.

³⁵ Based on fieldwork observations during the summers of 2007 and 2008 and subsequent personal communications

turbines on both migrating and native birds. The second has to do with concerns over local environmental health, including both human health and local ecology. These are discussed in this section because they share the common characteristic of being unanswerable due to lack of scientific information.

An estimated six million birds fly through the Isthmus of Tehuantepec each year. "Migration bottleneck" and "flyway" are commonly used terms that draw attention to the importance of the region to migrating birds. On a single day, 690,000 birds have been counted flying overhead.³⁶ Estimates of the numbers of migrating endangered species run as low as three and as high as thirty-two. There have been many reports of high levels of bird deaths, determined primarily by the discovery of carcasses in and around the wind parks. Groups or organisations opposed to the wind parks frequently draw attention to their impact on bird life in the region³⁷ as is done in other parts of the world. There are only five ecological regions in Mexico that are actively being studied as migratory bird habitats, and the Isthmus is not one of them.³⁸ This only compounds the relative dearth of information on the subject. This area of southern Oaxaca is also home to a rich and diverse group of native birds.

Similar to the issue of wind parks' perceived effects on bird populations, concerns about effects on local environmental health have been voiced. These ecological and human health effects are another area of emerging concern. In a protest in early September of 2005, people living next to Venta I maintained that the pilot park had caused "changes" and "damages" to native flora and fauna, which included endangered plant species that have historically been used for medicinal purposes in the community for generations.³⁹ Gustavo, for example, had lived on this land for generations but had rented out one hectare of land for a turbine. He took me for a drive around the perimeter of the park in his pickup truck and, as we drove, he mused out loud:

Some of the local environmental effects may be the most worrisome. Sure, there are the birds and no one really understands the effects on the birds. But there is also the issue of rain. What kind of climatic effect do the windmills have? There is much less rain now than there was ten years ago before the windmills were built. It could be because of drought or it could be because of the windmills. Again, that is the problem. Nobody knows for sure. But one would think that with those windmills spinning like crazy like that, it would have to have some kind of climatic effect.

Others complained of the horribly loud noise that the generators made when they were going full speed. The wind blows wildly on the Isthmus from roughly October through March, making the parks both the most productive but also the noisiest during this period. Winds in the region are so strong that cars are occasionally blown off the road and, two years ago, one wind turbine was blown over

³⁶ Villegas, R. (2003). *Manifestacion de Impacto Ambiental*, Instituto de Ecologia (Environmental Impact Assessment, Institute of Ecology), p.18

³⁷ Thousands of Wind Turbines to Obstruct No. 1 Migration Route in the World, by Marc Duchamp, Oct. 1, 2005. <http://www.ventadecolere.org/archives/avifaune-chasse/tehuantepec.pdf>, [accessed 28 March 2008]; Farmers and Scientists See Risks in Wind Energy, *Tierramerica*, March 3, 2007. <http://www.windaction.org/news>, [accessed 28 March 2008]; Transnationals vs. Birds and Farmers in Mexico's Isthmus of Tehuantepec, <http://www.kirbymtn.glogspot.com>, [accessed 28 March 2008]. <http://www.20minutos.es/columna/141036/0/cesar-javier/palacios/>

³⁸ Interview conducted with professionals of ProNatura, 12 July 2007, San Cristobal de las Casas, Chiapas, MX.

³⁹ *Transnacionales Especulan con Tierras para Parques Eolicos*, by Israel Rodrigo and Victor Ruiz Arrazola, *La Jornada*. <http://www.jornada.unam.mx/2005/09/07/03> [accessed 27 July 2007].

completely.

As wind parks proliferate across the globe, growing attention is being paid to the possible health effects on people who live nearby or adjacent to the parks. The work of Dr. Nina Piermont on Wind Turbine Syndrome is notable in this regard⁴⁰ She maintains that symptoms of Wind Turbine Syndrome include sleep problems, anxiety, dizziness, unsteadiness and tinnitus. Other studies have drawn attention to noise associated health problems as well.⁴¹ From a different angle, a Texas landowner reflected on the noise this way: "'That's just money you're hearing,' he [Louis Brooks] said as they [wind turbines] hummed in a brisk breeze recently."⁴² Unlike Texas, the wind parks in La Venta are located merely a quarter mile from most people's homes.

In sum, there is a great deal that is unknown about *local* environmental effects of these wind parks – whether on birds, human health, or local ecology – even as the parks are being implemented to preserve the *global* environment. In spite – or perhaps because – of the dearth of reliable scientific information, wind park opponents in Oaxaca will likely continue to migrate in the direction of bird, bat, soil and human health issues. Beyond a doubt, these are concerns of paramount importance. However, it is also important to note that these issues – particularly bird migration – also provide important transnational opportunities for alliance building with non-Mexican civil society groups or NGOs. Such cross-border networking has become one of the hallmarks of the NAFTA era, as well as of "global civil society" more generally. It is possible that the effects of Isthmus wind parks on local and migrating bird populations could become a flashpoint for discussions of the advantages and disadvantages of wind parks more broadly.

Wind Energy: Challenges to Regulation and Conflict Resolution

This paper has described three different reasons for resistance to the wind parks in southern Oaxaca: the current political climate within the state; local landowners' complaints of corrupt negotiation tactics; and fears of the effects of turbines on bird, environmental and human health. Each poses specific challenges to dispute resolution. Yet these communities in Oaxaca seem largely unaware of some of the dispute resolution mechanisms theoretically at their disposal.

The wind parks of Oaxaca are located in both a geographic and legal region⁴³ shaped by the

⁴⁰ See, for example, her testimony on Wind Turbine Syndrome before the New York State Legislature Energy Committee, March 7, 2006. Available at http://www.savewesternny.org/docs/pierpont_testimony [accessed 18 December 2012]. See also www.ninapierpont.com.

⁴¹ Rogers, Anthony, James F. Manwell and Sally Wright, "Wind Turbine Acoustic Noise," White Paper prepared by the Renewable Energy Research Laboratory, Dept of Mechanical and Industrial Engineering, UMASS Amherst. 2002 (Amended 2006). "French Academy of Medicine Warns of Wind Turbine Noise," March 25, 2006. Available at <http://www.kirbymtn.blogspot.com>. [accessed 18 December 2012].

⁴² New York Times, Move Over Oil, There Money in Texas Wind , 23 February 2008. <http://www.nytimes.com/2008/02/23/business/23.wind.html>. [accessed 23 February 2008]

⁴³ The topic of "legal boundaries" has been amply explored in the anthropological and culture and law literature. See, for example, Dudziak, Mary & Volpp, L. (2006). *Legal Borderlands: Law and the Construction of American Borders*. Baltimore, MD: Johns Hopkins University Press. Ford, R. (ed.) (2001). *The Legal Geographies Reader*. Malden, MA: Blackwell Publishers. Merry, Sally Engle (1992), *Anthropology, Law, and Transnational Processes Annual Review of Anthropology* Vol. 21, No. 2, pp. 357-359.

environmental and labour-side agreements of the North American Free Trade Agreement. The "side accords" or "side agreements," as they are commonly called, were created to offset the perceived environmental, human rights and labour damages created by free trade policies in Mexico.⁴⁴ The side accords of NAFTA were proposed and institutionalised as a way of harmonising social or non-trade interests with trade interests. They also discursively and ideologically linked Mexico's ongoing democratisation with both free trade and the new dispute resolution possibilities of the agreements, with the suggestion that successful dispute resolution "from below" would encourage democratic consolidation at the popular level and rid the country of corruption at governmental levels.⁴⁵ With its emphasis on "participation," NAFTA fits squarely within the sustainable development discourse on participation prominent since the 1990s⁴⁶, and with their focus on legality and dispute resolution within state-sanctioned and international regulatory regimes, they fit squarely within the ongoing "legalization of politics."⁴⁷ As such, they were also part of the integrationist trend in the Western Hemisphere, initiated with NAFTA and continued with FTAA negotiations, to include protections for "non-trade" issues, and to develop mechanisms that would allow civil society actors to dispute, petition or dialogue about trade-related issues.⁴⁸

Although some of the actors and actions currently taking place in Oaxaca fall outside (or hover in the periphery) of the legal sphere created by the NAFTA side accords, as North American companies nudge their way into the wind energy market, they may establish a presence in Oaxaca, making the wind parks more vulnerable to legal action under the side accords. Lease contracts are sometimes only available in English, such as one for Noble Energy that this author translated to Spanish for the *Comite*. Even barring a more overt inclusion of North American corporate actors, there already seem to be ample opportunities to investigate other violations of Mexico's environmental laws, which have been quite sophisticated and extensive since the early 1980s.

The Oaxaca wind park controversy draws important attention to some of the deficiencies that have existed within the NAFTA side accord dispute resolution processes since their inception. These types of deficiencies are presumably present in other government regulated conflict resolution procedures in which the burden of proof rests with the plaintiff, and sufficient proof contains scientific evidence. These mechanisms were intended to obviate the need for civil legal actions, such as class action lawsuits or mass toxic torts. In the process, the burden of proof was shifted from the shoulders of lawyers to the shoulders of plaintiff populations allied with sympathetic NGOs or other professionals. When the evidence in question is scientific evidence, this is a particularly heavy load to bear. Lawyers typically shell out the money necessary to have scientific, toxicological or epidemiological studies done in order to mount evidence for their case (e.g. *Aguinda v. Texaco*), expecting compensation upon

⁴⁴ Although NAFTA encompasses Mexico, the US and Canada, the side agreements were created primarily to address perceived and anticipated labor and environmental abuses in Mexico.

⁴⁵ Simon, Suzanne (2007), Framing the Nation: Law and the Cultivation of National Character Stereotypes in the NAFTA Debate and Beyond, *Political and Legal Anthropology Review*, Vol. 30, No. 1, pp. 22-45.

⁴⁶ Cooke, B. and Kothari, U. (eds.) (2001), *Participation: The New Tyranny?* London: Zed Books.

⁴⁷ Abbott, Frederick (2001), NAFTA and the Legalization of World Politics: A Case Study, In: Goldstein, J. et al. (eds.) *Legalization and World Politics*, Cambridge, MA: MIT Press, pp.135-163.

⁴⁸ Deere, C. and Esty, D. (eds.) (2002), *Greening the Americas NAFTA's Lessons for Hemispheric Trade*, Cambridge, Mass: MIT Press; Estevadeordal, A. et al (eds.) (2004), *Integrating the Americas: FTAA and Beyond*. Cambridge, MA: Harvard University and David Rockefeller Center for Latin American Studies Press.

success of the legal action. In the case of NGOs, private parties or local populations seeking to operationalize dispute resolution mechanisms such as those of NAFTA, those resources typically are unavailable. Jasanoff succinctly describes the seemingly unbearable burden of proof that can accompany legal actions of a scientific or medical nature:

To make a persuasive case for compensation, the plaintiff in toxic tort litigation must identify the harmful substance, trace the pathway of exposure, demonstrate that exposure occurred at levels at which harm can result, establish that the identified agent can cause injuries of the kind complained of, and rule out other possible causes. In most toxic tort cases, one or more of these elements is contested, that is, beset by disagreements among relevant communities of experts. The state of knowledge with respect to many toxic agents is extremely imperfect; to satisfy the civil law's "preponderance of the evidence" (or more likely than not) test, what is "known" about a chemical from the general scientific literature almost always has to be supplemented by knowledge acquired about particular individuals and communities of claimants.⁴⁹

What might this mean for the wind farm controversy in southern Oaxaca? There is an understandable lacuna of scientific knowledge about the environmental and health effects of wind parks at this time, but even if such knowledge did exist it would be underutilised because existing dispute resolution mechanisms cannot accommodate petitions that require substantial amounts of scientific, medical or epidemiological evidence. If existing mechanisms are to become more useful – and thus to accomplish what they were ostensibly intended to do (encourage participation, "democratise development" and strengthen civil society) – they must accommodate the complex scientific, environmental and public health-related concerns that industrial processes present.

More specifically, it suggests a situation in which resisters or plaintiffs will not be able to advance specific claims because of an absence of scientific study. Health concerns cannot be addressed prior to the erection of additional wind mills because scientific knowledge production cannot keep pace with the heated pace of wind farms world wide. In effect, the possible public health effects of wind farms may escape the capture of regulatory regimes that are in place simply because there is insufficient scientific evidence to allow local populations or their advocates to advance public health claims within the existing legal infrastructure.

Dispute resolution mechanisms, such as those of NAFTA, are severely hampered in their effectiveness when they are not financially supported in such a way that they can generate the scientific knowledge necessary to address and resolve environmental health disputes. One of the challenges likely to emerge in the Oaxaca wind park controversy is a continued and strengthened resistance to wind parks because of the lack of information about the possible effects of wind parks on bird populations, the local environment, and human health. An informed and rational public dialogue about the pros and cons of wind parks would require that this information be readily available.

⁴⁹ Jasanoff, S. (1995), *Science at the Bar: Law, Science, and Technology in America*, Cambridge, MA: Harvard University Press

Conclusion

In the time that has lapsed since fieldwork for this article was conducted, the wind park controversy in Oaxaca has grown dramatically. It now gets regular coverage through various news outlets, including one of Mexico's leading dailies, *La Jornada*. Since fall of 2011, in particular, protestors have begun receiving regular and more aggressive forms of harassment, and lawyers and activists have been arrested. The issue that seems to have launched the wind park conflict from a local or national issue to one that now gets increasing international attention focused on the Huave. The Huave are an indigenous group located principally in San Dionisio del Mar and San Mateo. They make their living primarily off fishing in the Laguna Superior on the Pacific side of the Isthmus. Laguna waters are brackish and have a very delicate ecosystem. Attempts to construct wind turbines along the very narrow sandbar that divides the lagoon from the larger Pacific have produced increasingly violent clashes, as well as international support for the Huaves' indigenous rights to territory and livelihood. One can expect this and other Isthmus wind park conflicts to continue to escalate in the near future, not least for the outpouring of international support that resisters are receiving. Many local community concerns are the same as those discussed in this article.

This paper has argued here that wind parks, similar to other new efforts to combat climate warming, take root in fractured and uneven political terrains created by development and globalisation. In Oaxaca, political turmoil and increasing cultural resistance to neoliberalism and the Plan Puebla Panama/Meso-American Project pose significant challenges to the implementation of new climate friendly technologies, and it is possible that similar circumstances might occur elsewhere. Although various participatory measures have been introduced in recent years (especially in Mexico) to offset some of the persistent inequalities of globalisation and development, these measures remain partial and imperfect. The wind parks of Oaxaca take root in a social terrain also littered with broken, underdeveloped and inadequate participatory mechanisms. These mechanisms are especially weak at capturing and addressing concerns of a scientific, environmental or public health nature – precisely the kind that the new wind parks of Oaxaca pose.

Finally, there is some irony to be noted here on the relationship between democracy, free trade and challenges to the implementation of such climate-friendly technologies as wind parks in Oaxaca. NAFTA and its side-agreements were supposed to usher in an era of an even more liberalised economy and a deepening of democracy⁵⁰, yet Oaxaca seems to be experiencing a crisis of democracy. Participatory mechanisms, which were the saving grace of NAFTA, seem to be the Achilles heel in the Oaxaca wind park controversy. Were the side accords robust enough to handle the participatory and scientific challenges posed by the wind parks, they might represent a legitimate opportunity for democratic consolidation, sustainable development and even clean energy.

⁵⁰ Simon (2007).