

OIL PALM PRODUCTION REGIMES AND RESISTANCE IN MEXICO'S OIL PALM ASSEMBLAGE

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The United Fruit Company brought the oil palm to Latin America in the 1920s, and the crop was commercialized in the 1960s to diversify Mexico's land use. Demand for oil palm is expected to rise as the scale of consumption continues to rise, presenting opportunities for various actors in producing countries. It also has implications for the way relationships between the different human and non-human elements in oil palm production are arranged. This article explores the dynamics of these processes of change. It particularly focuses on potential major non-state actors in oil palm production in Mexico and the degree to which they can create their own rules and push back against the government within this same arrangement. Moreover, we investigate how certain actors have sought to assemble other entities in the governance relationship that currently exists in ways which reflect their strategic interests.

INTRODUCTION

Mexico produces around 140,000 metric tons of oil palm per year across 90 thousand hectares, in only four states—Campeche, Chiapas, Tabasco, and the Veracruz States—making the country the world's 18th-largest producer of oil palm (IndexMundi 2019). Half of Mexico's oil palm production is in the state of Chiapas (Linares-Bravo et al. 2018). Several driving factors have led to an expansion of its production, including for domestic human consumption (e.g., food and cooking oil, soap and cosmetics, and pharmaceutical products); a decrease in oil and gas production and a growth in renewable energy consumption globally; and its potential as a feedstock for biofuels as one method for reducing greenhouse gas emissions (GHGs). This increase in demand creates pressures for expanding the Mexican oil palm sector, which has implications for the way the sector is evolving. This presents us

with an opportunity to analyze oil palm production using assemblage theory.

As with all social processes, government processes and relationships between actors are natural, fluid processes that are less planned than they are managed. Assemblage theory sheds light on how actors, non-human entities, and intangible concepts are brought together in temporary assemblages (Li 2007). One can use the theory to study how the entities have the agency to cohere or resist coherence (Li 2007). The resulting assemblage reflects the interests of and power relations between actors and entities within it (Li 2007). In Mexico, assemblage is used to study how a range of different objects are brought together in ways which are unpredictable and subject to rapid change to reveal how potential major non-state actors in oil palm production in Mexico can create their own rules and push back against the government within this same arrangement.

To understand how certain human and non-human actors managed to assemble others in the governance relationship that currently exists to arrange (assemble) other entities in the governance relationship that currently exists in ways which reflect their strategic interests in Mexico, two research questions will be presented and answered:

1. Who or what are the key human and non-human entities involved in the governance of oil palm production?
2. How have certain actors managed to assemble others in the governance relationship that currently exists as it relates to oil palm production?

This article is structured as follows: The first section reviews Mexico's historical background focusing on the development of the agricultural sector and related governance structures. Next, it presents the major actors, institutions, and non-human entities involved in developing oil palm. The third section looks at the use of domestic power and policies to form the current assemblage around oil palm production. The article will conclude by showing that while past land reforms and the historical corporatist model tend to support the interests in the national government's favor, a range of non-state actors employs practices of assemblage to redefine their relationships with other elements of the oil palm assemblage.

These actors create their own rules and push back against the government's formal control within this same arrangement and fuel local resistance to full governmental control of landscapes and power in the countryside.

HISTORICAL BACKGROUND

Land tenure and reform is an important aspect of Mexican history and land management processes. Twentieth-century Mexico was characterized by low population density in the countryside with an agricultural economy where a large proportion of the rural population practiced shifting slash and burn subsistence agriculture (Tudela 1989). The 1917 agrarian reform in Article 27 of the Mexican Constitution gave ownership of agricultural and forestlands to the rural poor—even in the recent era, approximately 80% of communal lands are owned by *ejidos* (groups of people who received land to cultivate) and *comunidades agrarias*, or agrarian communities (groups of people whose ancestral lands were returned to them) (Klooster 2003, Mexican Constitution Article 27 1917, Ponette González and Fry 2014). This constitutional provision aimed to reduce the concentration of land in the large haciendas that characterized the pre-revolutionary landscape. It instituted a system of communal ownership, resulting in the establishment of 29,000 *ejidos* nationwide (Muñoz-Piña et al. 2003).

The 1993 national land reform, with its Program for Certification of Ejido Rights and Titling of Plots (*Programa de Certificación de Derechos Ejidales y Titulación de Solares*, or PROCEDE), enabled *ejidos* to survey and “certify” (read: privatize) their land, granting them a title of ownership and allowing *ejidatarios* to vote whether to divide and privatize their land (Vásquez-León and Liverman 2004). Consistent with neoliberal policies that favored private property rights, unless *ejidatarios* certified their lands under the PROCEDE process, there was no way for them to title their land or access loans and credit from local banks (German et al. 2011, Moser et al. 2014, Vásquez-León and Liverman 2004).

The PROCEDE certification program enabled *ejidos* to measure and certify their land; this was often impossible if the officials never visited an *ejido*. Since not every *ejido* certified their land—or their certification was never made official—communal landowners often

do not have a formal proof of ownership as required by international organizations (Moser et al. 2014); informal land rights are not usually recognized by the federal government (German et al. 2011).

While studies of the agricultural economy and agribusiness policies often focus on supporting specific agricultural sectors or crops, such approaches are often inadequate when it comes to developing an understanding of the economic practices of resource-limited farm households. Numerous studies demonstrate that such households make a living by whatever means necessary, whether by farming (subsistence or commercial), participating in off-farm wage labor, or owning a small business. In another attempt to generate income for the state in rural areas, the national and state governments have subsidized rural smallholder farmers' participation in oil palm production by giving them access to land and, in some cases, other resources for establishing oil palm (Castellanos Navarrete and Jansen 2018); it does the same for international companies that have the technical knowledge and resources to establish large-scale plantations.

The people who have either diversified livelihoods (including farm and non-farm labor) or those who work in non-farm activities like in general stores or as mechanics, may have more stable livelihood strategies than those who depend on one industry; such income-generating activities are dynamic and evolving (Reardon et al. 2001). Over time, certain activities can fade in significance as new ones emerge and are incorporated into livelihood strategies.

Oil palm is a perennial crop that is widely regarded as being highly productive and profitable. It is also seen as being relatively labor-intensive because the fresh fruit bunches (FFB) must be manually harvested and must be processed within a day of being cut (Byerlee et al. 2017). In principle, therefore, oil palm production provides an additional means by which rural dwellers may diversify incomes, gain employment and earn stable wages—either through their own production of oil palm or via employment in others plantations—all of which may help secure families' resilience in the face of economic or ecological changes (Reardon et al. 2001, Urióstegui et al. 2018). Depending on the country where the oil palm is grown, people who participate in oil palm alongside other activities do so because they perceive it as a means of safeguarding their livelihoods.

There are many experiences with oil palm in Latin American countries; people seem to have benefitted based on their socioeconomic status. In Brazil (da Silva César and Batalha 2013), Mexico (Castellanos-Navarrete and Jansen 2015), and Costa Rica (Beggs and Moore 2013), there have been increased economic benefits for poor and middle-income farmers and laborers. However, in Brazil, some small-scale farmers have earned less than expected because of money spent on inputs, labor, and equipment (Glass 2013), while plantation workers receive low wages (Backhouse 2013). It has been found that peasants in Guatemala also receive low wages (Alonso-Fradejas 2015). In Honduras, smallholders have been unable to participate because of the high costs of start-up and lack of capital (Fromm 2007).

The oil palm experience in Southeast Asia is slightly different. The income-generating potential of oil palm varies between households (Budidarsono et al. 2012). Many of the plantation jobs in Indonesia and Malaysia have gone to non-local workers, foreigners, and wealthy locals who have access to financial resources (German et al. 2010) and because plantations are located in sparsely-populated areas (Byerlee et al. 2017). Despite this, Indonesians and legal migrants have reported positive community benefits of oil palm, including higher wages and net employment gains (Byerlee et al. 2017, German et al. 2010). Malaysians have also reported positive employment benefits, including higher incomes, housing, and flexible work schedules (German et al. 2010). People in both countries also reported being paid regularly in both countries (German et al. 2010).

ACTORS WITH AGENCY INVOLVED IN GOVERNING OIL PALM

The governance of oil palm production presents opportunities to a range of actors in producing countries like Mexico. It has implications for the way relationships between the different human and non-human elements in oil palm production are worked out. Actors involved in the governance of the oil palm system were identified primarily through the author's experience interviewing and surveying actors in the field (see Pischke et al. 2018) and a review of the literature about the development of the crop in Mexico.

Human Entities

Human entities with agency in Mexican oil palm production include: farmers and laborers, representatives of domestic and international companies, local and national governments and politicians, sustainability standards organizations, and consumers of oil palm products (domestic, international). Each of these types of actors is reviewed in this section.

Farmers and laborers: There are two types of people directly involved in growing oil palm production in Mexico: smallholders who grow several plants independently or cooperatively with others and laborers who work on others' land. Laborers include people who do not own land who work in various roles on larger plantations that are often foreign owned. Some laborers are also farmers who might otherwise tend to their own plots or ranches if the opportunity to work a steady job on a plantation were not there.

Farmers with small- and medium-sized acreage might have their own plots of land on which they grow the crop or work on somewhat larger, cooperatively owned *ejidal* plots. There are smallholders in both Chiapas (Linares-Bravo et al. 2018) and Tabasco (Abrams et al. 2019) States in Mexico. Cooperative growers form the following farmers' cooperatives:

- El Malayo (Abrams et al. 2019)
- Asociación de Tenosique (Femexpalma 2017)
- Las Asociaciones de Reforma y Juárez (Femexpalma 2017)
- Rural Association of Collective Interest (ARIC) (Castellanos Navarrete and Jansen 2017).

Representatives of domestic and international companies: The following companies support the oil palm industry in Mexico because they use the product in their manufactured goods: PepsiCo, Oleofinos, Oleopalma, and the *Federación Mexicana de Palmicultores y Extractores de Palma de Aceite AC* (Femexpalma 2017). The Costa Rican company Palma Tica owns the oil palm plantations in Campeche and Tabasco (Pischke et al. 2018, Soberanes 2019). PepsiCo is a large buyer of the refined palm oil in the country (Femexpalma 2017).

The international companies that grow and/or process oil palm are interested in gaining access to suitable land in regions with the

proper climatic conditions. Likely, these companies are also interested in taking advantage of cheap labor and cheap land available in countries like Mexico. Since the Mexican government incentivized the establishment of processing mills, for example, in Chiapas, the companies that build them had a win-win situation, as they have access to land and labor (Castellanos Navarrete and Jansen 2018).

Other international actors that have an interest in oil palm development in the Mexican countryside include the High Conservation Value Resource Network (*Red de Recursos de Alto Valor de Conservación*, or HCVRN) (Femexpalma 2017) and the non-profit Proforest, which promotes “responsible production and sourcing of palm oil” from the smallholders that grow oil palm (Proforest, no date). In Chiapas, the European Union has promoted converting—through “policies of productive reconversion”—the land from cattle ranching to oil palm (Linares-Bravo et al. 2018). There are also rumors that “armed narcotrafficking groups [are] in the region, and that they have witnessed incidents in which these groups have defended the interests of palm oil companies” (Soberanes 2019).

Local and national governments and politicians: The Mexican government’s interests are two-fold: 1) it wants to be somewhat independent of other counties, and 2) it wants a way to control the rural populace. Independence from other counties would come from energy independence (through oil and gas or producing bioenergy) (Creutzig et al. 2013, Radics 2015, Rodríguez et al. 2014, Skutsch et al. 2011) or through growing crops for domestic consumption and, if possible, for export (Eastmond et al. 2014, Rodríguez et al. 2014). Control of rural land would occur by enclosing the commons and make it dependent on—and loyal to—the government (Linares-Bravo et al. 2018, Shipley 2016).

The Mexican government has a central role in planning and managing the oil palm industry in the country (Linares-Bravo et al. 2018). The Mexican government relies on formal rules created by the executive branch of government and gives the power to carry out policies to sectors within the federal government. Technical, financial, and infrastructural aspects of oil palm production on reconverted land in Chiapas, Mexico, have been supported at the state and national levels (Linares-Bravo et al. 2018).

The state has adopted several measures to support the development of a mixed oil palm industry. On the one hand, international commercial oil palm companies have gotten access to land with help from the government through incentivizing the international companies to plant oil palm (Soberanes 2019). The government also subsidizes smallholders' oil palm plantings through the National Institute for Forestry, Agriculture, and Fisheries Research (*Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias*, INIFAP), which is tasked with directing "technology packages" nationwide where possible. Similarly, the ministry charged with agriculture, cattle, rural development, fisheries, and food (*Secretaría de Agricultura, Ganadería, Desarrollo Rural, Pesca y Alimentación*, SAGARPA) is charged with "the strategic economic revival" of certain regions in the country by establishing large oil palm plantations in the countryside (Maganda 2008). Despite many threats to the environment and its biodiversity, there are few governmental environmental regulations (Soberanes 2019); where such regulations exist, the state often lacks the ability or resources to enforce compliance with them (Bryant and Bailey 1997). On the other hand, the Federal Attorney for Environmental Protection (*Procuraduría Federal de Protección al Ambiente*, PROFEPA) took pro-environment action against Palma Tica and held the company responsible for failing to notify the local communities and stakeholders about their development plans (they fined the company \$100,000) (Soberanes 2019).

Consumers of oil palm products: Consumers of Mexican oil palm include people residing inside and outside the country. Since the North American Free Trade Agreement (NAFTA) was signed in the early 1990s, palm oil consumption in Mexico has increased at least four times over (grain.org 2014). While much of the oil palm that is grown to meet this demand is produced in other Latin American countries, Mexican oil palm production also contributes (grain.org 2014). Companies such as PepsiCo, Oleofinos, and Oleopalma buy the refined palm oil for use in their products, mainly for domestic consumers (RSPO.org 2018).

Unlike other countries, such as Iceland or Norway, where there have been countrywide boycotts of palm oil as a food additive or ingredient in cosmetics, there does not seem to be the same type of reaction in Mexico. One reason may be that consumers are unaware

of the prevalence of the health impacts of palm oil or the potential environmental threats that oil palm plantations pose to the environment. In places where the crop is grown, employment opportunities and increased wages resulting from its production could outweigh any negative perceptions people may have (Pischke et al. 2018). International consumers may not specifically target Mexican oil palm for boycotts because the country is not one of the largest producers in the world. Since their production has largely occurred on cattle ranches and other available lands and not on land where there had been virgin forest or highly biodiverse rainforest, as is the case in Brazil, Mexican oil palm may not seem as destructive as it could be.

Sustainability standards organizations: Sustainability standards organizations would have an important role in managing or mitigating the impacts of oil palm production on workers, communities, and the environment. In other oil palm-producing countries, third-party certification bodies, like the Roundtable on Sustainable Palm Oil, are key actors concerning questions of sustainability, including environmental protection and workers' rights (Byerlee et al. 2017). Furthermore, such organizations can act as a liaison between the government and oil palm-producing companies on behalf of workers.

Mexico currently does not have any agreements with any third-party certification bodies. There are no certified Roundtable on Sustainable Palm Oil (RSPO) growers in Mexico at this time. However, in 2018, RSPO held a two-day meeting and granted funds to companies PepsiCo, Oleofinos, and Oleopalma (the latter is working toward their RSPO certification, but is otherwise not certified; see <http://oleopalma.com.mx/certificaciones/>), Femexpalma (*Federación Mexicana de Palmicultores y Extractores de Palma de Aceite AC*) and Proforest to support 157 smallholders that grow oil palm (RSPO.org 2018). There are no other active Mexican oil palm sustainability certifications at this time.

Non-Human Entities

Non-human entities most relevant to Mexican oil palm production include oil palm plants, animals, insects and biodiversity, and water availability, all of which will be covered in this section.

Oil palm plants Oil palm grows best in lowland humid tropics

(Byerlee et al. 2017), but can grow in a wide range of soil types once irrigation and nutritional needs are met. Flooding or steep, hilly terrain prevents oil palm from being viable in locations that otherwise have ideal conditions to grow the crop (Pischke et al. 2018). For example, in Tabasco and Chiapas States, Mexico, the region is hot and muggy most of the year and is semi-mountainous with large rivers running through it. Despite the environmental qualities that would be ideal for oil palm to grow, the geography—which varies from flat pasture to hilly ranch lands with high sierras (high-altitude mountains) and rocky, tree-covered outcroppings—can be a detriment to planting the crop. Inaccessible terrain that is sparsely populated makes it difficult to plan crops and find enough labor to tend to it.

Early oil palm development in most countries has been particularly concentrated on well-drained lower-lying mineral soil areas in the tropics. In many cases, this has involved the conversion of existing agricultural holdings into oil palm cultivation. However, as demand for the crop has increased, production has expanded into a range of often less suitable areas that have not been previously used for large-scale agriculture. In the case of existing agricultural areas and areas that have been newly brought into production for oil palm, the process has involved very significant landscape modification. Alongside the crop itself, this includes the construction of forest clearing, road infrastructure, drainage, and earth movement.

Hanging over the actors' relationships with each other and the power they exert is the reality that the oil palm plants themselves exert much control over where plantations are established, where government resources flow, and where human bodies must move in order to harvest, ship, and process the FFBs and the refined oil. Oil palm plants can only grow in certain locations, resulting in changed landscapes in certain locations. The way the plants produce FFBs dictates the method for harvesting them (by hand, not machine), requiring laborers to live near or travel to work to access plantations; there is evidence that migrant laborers from neighboring Guatemala have moved into areas with plantations in order to take advantage of the employment opportunities (Abrams et al. 2019).

The time-sensitive nature of the FFBs also necessitates their

processing within 24 hours of being harvested; this means that processing mills need to be close to plantations and accessible along paved roads so FFBs can be reliably delivered. The smallholder farmers who want to participate in the production of oil palm by growing the crop on their own land can only do so if they are part of a cooperative that collectively sells members' FFBs to a local mill (Pischke et al. 2018) or otherwise can scale up to supply enough FFBs to a mill for processing and an individual arrangement set up with a processor so that their produce is not wasted.

Furthermore, the lure of participating in a commodity crop market may be strong enough to shift the pattern of land sales and land use in the countryside. In Chiapas, people who want to plant and benefit from the sale of oil palm must own the land (Linares-Bravo et al. 2018). The *ejido* system limits the ownership rights of the land, while Mexican culture almost guarantees that men and their sons are typically the only people who own land (Assies 2008). In some parts of Chiapas State, the land availability (land that had been cattle ranches before the establishment of oil palm) allowed some farmers to shift from cattle to oil palm production because they had space and capital to do it (they could sell cattle to make money needed for up-front oil palm costs) (Castellanos Navarrete and Jansen 2018). There have been similar outcomes in Tabasco as well (Abrams et al. 2019). By pushing oil palm production in Chiapas, land that is otherwise used as farmland is converted into oil palm production, which changes the landscape from polyculture to a monoculture one; it also changes the dynamics of who used the land and how—small producers stop growing subsistence agriculture or, if they cannot participate in the oil palm business, they have to often pay higher prices for local goods (Linares-Bravo et al. 2018).

Animals, insects and biodiversity: In creating oil palm plantations, biodiversity is often lost or threatened, and deforestation may occur to make way for new plots, which also leads to changes in water quantity and quality, as well as a loss of carbon stocks (Fargione et al. 2010; German et al. 2011, Rodríguez et al. 2014, Solomon et al. 2015). Deforestation by biofuel companies to create monoculture plantations has been linked to loss of wildflowers and insect populations, including important pollinator bees (Selfa et al. 2015). Even on converted farmlands, where deforestation is not an issue,

the intensive use of pesticides, herbicides, and other chemical inputs linked to intensive oil palm cultivation put people and animals at risk (Fargione et al. 2010); wastewater and other effluents associated with oil palm production are also a concern (Alemán Nava et al. 2015).

Water: There has been a change in the availability of local water resources in parts of Mexico due to dropping water tables due to drought, climate change, and oil palm plantations sucking up the available ground and river water (Soberanes 2019). Oil palm plantations' acreage "decreased to just over 3000 ha by 2007 due to hurricanes and inadequate management" (Urióstegui et al. 2018). Climatic changes can also lead to changes in the amount of water available in bodies of water, movement of species across landscapes as temperatures rise, and phenology (timing of seasonal variations in species), which will further impact how people cope with or adapt to their environments (Lawler 2009).

The weather can impact the people who rely on agriculture for their livelihoods, including those who plant or work in oil palm; extreme weather like floods and drought can lead to lost crops (Urióstegui et al. 2018). Besides having an adequate climate, Mexico's oil palm-growing regions have available land that can be converted to the crop. However, only government subsidies allow growers to profit off the crop (Linares-Bravo et al. 2018). Therefore, the availability of land is not a threat to the oil palm industry; other governmentally subsidized crops that would be ideally grown in the same area—and their related industries—would lose out when oil palm is chosen as the export crop of choice by the government. In this way, the government needs to fully plan where and how to manage growing all of the crops and commodities that it plans to promote, making sure to coordinate its various agencies that are tasked with planning rural projects such as oil palm plantations, cattle ranches or reforestation efforts.

ASSEMBLAGE PRACTICES AND OIL PALM IN POLICY IN MEXICO

The second research question addressed in this paper asks, "How have certain actors managed to assemble others in the governance relationship that currently exists as it relates to oil palm production?" The government of Mexico drives the oil palm

assemblage to further its key objectives of becoming more self-sustaining and developing a strategy for controlling the activities occurring in the rural countryside. Two factors ensure the viability of large-scale plantations:

1. Government control of resources (funding, equipment, technology) to strongly influence what is grown, where it is grown, and who harvests and processes it.
2. Past land reforms and the historical corporatist model, where the government gives rural farmers gifts in exchange for political support (a system which will self-perpetuate), works in the national government's favor.

This section will review these two driving factors and show not only how the government can steer others within the current oil palm assemblage, but also how other actors can create their own rules and push back against the government within this same arrangement.

Government Control of Resources

The truly powerless actors within the oil palm industry in the Mexican countryside are the laborers who do not directly participate in oil palm production on their own farms, either because they do not own land or have the resources and equipment necessary to take advantage of government-subsidized seedlings or fertilizer—yet they may still benefit from employment and earning a regular wage (Byerlee et al. 2017, Pischke et al. 2018). The oil palm assemblage may be detrimental to those livelihoods if the structure of labor (growing or working long hours on oil palm plantations) is inflexible and does not allow extra time to work other jobs or grow other crops. The people who did *not* plant oil palm, even when they lived in an area otherwise suitable for it—as in San Pablo Tamborel, Tabasco—often did not own their own land and only had access to communal land (Abrams et al. 2019). Furthermore, *ejido* members who did not want to plant the crop or did not have an existing relationship with the government to lure resources to their town (Abrams et al. 2019). Households that can diversify their incomes by growing their own food or having other off-farm work have more power over whether they want to work on large plantations, which dictate wages and other benefits

(Byerlee et al. 2017).

In Chiapas, oil palm was first suggested, promoted, and grown by farmers when the state did not have the resources to subsidize oil palm (Castellanos Navarrete and Jansen 2017). Various crops, including oil palm and teak, have provided income for certain villages in Tabasco since the *La Alianza Para El Campo* subsidies were established in 1998 (Diario Oficial de la Federación 1998). The experience and familiarity with the crop on large-scale plantations that were able to receive the government's oil palm subsidies enabled small-scale farmers to use their acquired knowledge to establish their own small household oil palm plants and participate in the commodity trade (Dauvergne and Neville 2010). Structuring oil palm production on farmers' plots allows them the flexibility to grow other subsistence crops or cash crops like coffee as a supplemental income if the price of palm oil on the international market drops (Dauvergne and Neville 2010). With small- and medium-sized farmers, domestic subsidies for crops like oil palm were not available to them, so they were more likely to work as laborers on the large-scale plantations that the government, large landholders, and industry created (Diario Oficial de la Federación 1998).

Rural communities not only have come to rely on employment opportunities with large, often international, companies, but are at their mercy because of the difficulty rural laborers have in finding stable employment that does not fluctuate with international market prices (Selfa et al. 2015). As has been common since free trade proliferated in North America with NAFTA, these companies offer Mexico and other countries in the Global South the chance to enter the global market while nominally improving worker and environmental conditions (Klooster 2006). Anticipated government subsidies in the form of oil palm or other crops should be considered as one option of many for adapting to evolving institutional and social systems. This will be a double-edged sword, contributing to continued dependence on the government to provide employment and resources locally and change the local landscape. As with other commodity crop production, farmers typically do not have the luxury of choosing what they grow: "the 'social sector' made up of *ejidos* and agrarian communities largely remained caught in the production of staples under increasingly adverse terms of trade—

the 'urban bias'" (Assies 2008: 44). However, the power of the state does not mean much if it is not capable of supporting the oil palm industry or making it profitable or beneficial to the farmers growing it. As Abrams et al. (2019) note, state governments must be competent in orchestrating the actors in the industry, including "supportive intermediary organizations, direct community ownership, or the participation of competent state authorities" (552).

Past Land Reforms And The Historic Corporatist Model

One way that Mexico's oil palm assemblage is different from other countries' is the unique characteristics that land "ownership" takes in the country, namely through its *ejidos*, or commonly held land arrangements. Past land reforms, which wrested land from large landowners and some state land and created *ejidos*, spurred agricultural production in the countryside, including in the states where oil palm is now being grown. The Mexican government still gives resources to rural farmers because of the long history of "buying" political support in that way and through land redistribution (Castellanos Navarrete and Jansen 2018). However, since there have been neoliberal policies in place since the 1990s (in part through the privatization of the countryside via the PROCEDE process), conditions have changed somewhat. While appealing to state interests and playing to local leaders' egos (i.e., by naming *ejidos* or projects after politicians) can help an organization gain state resources, it also could backfire and contribute to local corruption if leaders profit personally from commonly gained resources and funding (Castellanos Navarrete and Jansen 2017).

Oil palm processing mill operators have the power to direct where the assemblage occurs in the establishment of the crop; plantations pop up in proximity to mills, and laborers travel to work in both the plantations and mills (Abrams et al. 2019). Even in this case, however, the Mexican government incentivized the mill operators' participation in oil palm production by awarding them land and resources to set up their mills in locations of the government's choosing (Castellanos Navarrete and Jansen 2018). Because of competition for smallholders' FFB between the various mills that the government established in Chiapas, the smallholders

had some power over where they would sell their produce (they could earn more money this way) (Castellanos Navarrete and Jansen 2018). All of these actors were still dependent on the ideal growing conditions for the crop, something that is likely to change in the future as the climate changes.

It seems to be the case that the Mexican government has the power to choose winners—foreign companies—to reward with land and infrastructure and practically hand them day laborers to do the work of planting and harvesting the oil palm (Castellanos Navarrete and Jansen 2018). Had the government not intervened in the past with land reforms, it would not have the ability today to do with land and labor as it chooses. Large landholders in Chiapas have less power than the state because they would not be able to grow oil palm if the government did not subsidize mills that they access; furthermore, the government would not subsidize the oil palm sector if there were no peasant farmers to give subsidies to (in exchange for political support) (Castellanos Navarrete and Jansen 2018).

CONCLUSION

Given the importance of agriculture in developing economies and the centrality of food security and rural development goals, it is unsurprising that national governments have a significant interest in directing the assemblage of human and non-human actors on the landscape. As the Mexican government plans new, large-scale oil palm plantations, local communities are often not consulted (Soberanes 2019). The indigenous *ejido* communities that have been involved in oil palm in Chiapas are marginalized; so long as they want to earn money selling export crops or to companies outside of their region, they have little say in what is planted (Linares-Bravo et al. 2018). This forces certain populations to be dependent on crops that grow well in rainforest conditions and on the government to provide them with subsidies (e.g., single-time supports, which included the allotment of plants, fertilizers, and, in some cases, economic resources for the expenses of establishing the crop) (Linares-Bravo et al. 2018).

While it might seem that farmers and laborers are in a weak position concerning oil palm production unless they are growing the crop on their own land and working with a cooperative, they

are not powerless agents. Farmers have taken advantage of the corporatist model of governance and benefitted from oil palm development. Castellanos Navarrete and Jansen (2017) argue that smallholders have the agency to dictate their own relationship with nature and have the power to resist the government's attempts at governing them. The national and state governments in Mexico have incentivized oil palm production. However, smallholder farmers also used their power to take advantage of the situation for their own benefits, gaining resources, and potential income from the crop (Castellanos Navarrete and Jansen 2017). Moreover, rural farmers were already part of the market economy before participating in oil palm production (Abrams et al. 2019). They were willing participants, both in oil palm and in other commodity crop production, because they could earn more money to provide for their families compared to other low-wage or subsistence means (Pischke et al. 2018).

This paper has focused on questions of resistance and the difference between formal ideas of control as expressed by the state and the capacity of other actors in the process to subvert these via assemblage practices. Entities with the most agency in Mexican oil palm production include farmers and laborers, oil palm plants, local and national governments, and representatives of international companies. Past land reforms and the historical corporatist model have worked in the national government's favor; however, actors can create their own rules and push back against the government within this same arrangement. Local resistance to full governmental control of landscapes and power is occurring within Mexico's oil palm assemblage.

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