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UNIVERSITY OF CALIFORNIA,
IRVINE

Transforming Nature Into Value: A Case-Study of the Palm Oil Commodity Chain in Indonesia

DISSERTATION

submitted in partial satisfaction of the requirements
for the degree of

DOCTOR OF PHILOSOPHY

in Sociology

by

John Kenyon McCollum

Dissertation Committee:
Professor David Smith, Chair
Chancellor's Professor Charles Ragin
Professor Wang Feng
Professor Steven Topik

2018

DEDICATION

To

my wife Johannah, without whose support none of this would be possible

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CURRICULUM VITAE

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FIELD OF STUDY

Commodity Chains, Development, Globalization, Environmental Sociology

ABSTRACT OF THE DISSERTATION

Transforming Nature Into Value: A Case-Study of the Palm Oil Commodity Chain in Indonesia

By

John McCollum

Doctor of Philosophy in Sociology

University of California, Irvine, 2018

Professor David Smith, Chair

This extended case study of palm oil production examines its labor and environmental issues in a global perspective through the commodity chain framework. I give a genealogy of scholarship on commodity chains in Chapter 1. Chapter 2 incorporates Bunker's new historical materialism to explain the global beginnings of local issues. Chapter 3 examines the economic inequalities within palm oil production to answer the empirical problem of whether palm oil is improving the lives of those involved in its production and the theoretical issue of where the bulk of value produced in agricultural commodity chains accumulates. Chapter 4 uses interview data to examine how and where non-governmental organizations target their activism towards the commodity chain and questions their role in commodity production.

INTRODUCTION

If someone were to fly over the Indonesian provinces of Riau and Jambi, both located in the central region of the island of Sumatra, or West Kalimantan in Indonesian Borneo, and they looked out the window, it is likely that they would see a seemingly endless stretch of nearly identical trees below them. At the right (or wrong) time of year, they might also see smoke rising at the edge of this expanse. Someone flying the same route just ten years before would have seen a very different landscape, not nearly as uniform as the one a contemporary flier would see. If they landed in Medan or the city of Jambi and took a ride down the bumpy dirt roads of these regions, they would pass small communities living among the trees. To an observer from the US or Europe, these people would probably strike the observer as poor; even in Indonesia, these rural people would be considered poor. Rarely, they might also pass the ubiquitous signs in Indonesia promoting developmental projects and praising local leaders for their efforts at economic improvement. Even more rare, they might even see a banner from a labor or environmental group decrying the social problems of the area.

The sweeping expanse of trees transforming Indonesia's outer provinces in Sumatra and Kalimantan into vast monocultures belong to the oil palm. The commodity they produce is crude palm oil, a product that is rapidly joining corn, soy, and wheat as a crucial cornerstone of the global food system. This commodity is deepening the ties between rural Indonesia and the vagaries of global agricultural politics, economics, and society.

Palm oil is everywhere; some non-governmental organizations (NGOs) estimate that as many as fifty percent of items in the average US grocery store contain it (Greenpeace 2016). It is in our food, soaps, and cosmetics. Despite palm oil's ubiquity, few consumers take much note of it. Although found in many everyday food items, it goes unnoticed as an additive on long lists of

ingredients in processed foods. However, out of sight from most of us, palm oil affects the lives of billions of people as a food, potential fuel, source of employment, and driver of political and social conflict within the global food system. From this single fruit, we can begin a sociological examination of these interactions and draw new conclusions about the interconnections between environment and economy.

Palm oil begins as the fruit of the palm *Elaeis guineensis*, more commonly known as the oil palm. Indigenous to West Africa, the Portuguese brought the oil palm to their early colonies in Southeast Asia, where it grew well in the climactic conditions found in present-day Malaysia and Indonesia. Mills press the fresh fruit bunches to produce crude palm oil, the most basic form of palm oil. From there, a long series of chemical and physical transformations turn crude palm oil into the useful food additive found in US grocery stores. The final products of palm oil earned their spot in food production for the oil's stability at high temperatures and its lower saturated fat content, which is more popular in an increasingly health-conscious public. As the world consumes more packaged food, palm oil's position is sure to grow even more prominent. About 3.5% of palm oil production ends up as instant noodles (WWF 2013).

Many factors explain palm oil's rise to the world's most commonly consumed seed oil. Most importantly, seed oils are a major component in virtually all local food systems. Burgeoning global populations are driving demand for oil both for direct use in cooking and as an additive in processed food. Another important factor is the land use efficiency of oil palms. A single acre of oil palm produces nearly 4 tons of crude palm oil; about four times the same ratio of canola oil (BPS 2013). This efficiency gives palm oil an advantage in the oilseeds market over its main competitors. Perhaps the greatest factor driving palm oil's growth is surging demand in the Global South, including China and India.

The environmental repercussions of palm oil expansion and the labor issues involved in it, such as unlivable wages, child labor, unpaid labor of women, and land grabbing have spurred a large literature on governance, often through private mechanisms. What concerns me most is the commodity chain, the process by which commodities transform from their most basic raw material forms into finished products for sale. The commodity chain is both a theoretical and empirical concept for understanding how the global economy works. When all the commodity chains comprising all commodities aggregate together, we could, in fact, aggregate the entire global economy. Most sociologists involved in commodity chain research focus on only one or two chains which shed light on the sociological questions they wish to understand. In this case, I choose to highlight the palm oil commodity chain to answer many pressing questions about the relationship between the global economy and the environment. This area of focus brings commodity production out of the policy-orientation (and often pro-capital ideological standpoint) of the governance literature.

One of the ways that palm oil is making an impact among informed consumers is the growing knowledge about the labor and environmental problems related to it. Environmental NGOs like Greenpeace lead a variety of consumer boycotts, online petitions, and other forms of protest against the industry. Their efforts resulted in the suspension of IOI Malaysia, a firm involved in oil palm plantations, from the Roundtable on Sustainable Palm Oil, one of the industry's certification boards for environmental sustainability and fair labor conditions. Many large international non-governmental organizations (INGOs) like Greenpeace, the World Wildlife Fund, Rainforest Action Network, Friends of the Earth, and numerous smaller groups continually gather information on environmental and labor problems stemming from palm oil

production. Moreover, many of these groups are working to implement sustainability policies for major palm oil producers.

I highlight these campaigns for one reason in particular: the tendency towards a cooperative relationship between transnational corporations and opposition groups, rather than a comprehensive vision of the industry as embedded in circuits of global production and a movement against the political, environmental, and social models behind the global economy. As I will discuss later, palm oil is a commodity with a vast range of social relations surrounding the industry, including deep power divides between workers and firms, firms at different ends of the commodity chain, and interstate differentials in economic power. These power differentials circumscribe the possibilities for actors at different stages in palm oil's production and refining to retain value, as either profits for firms or wages for workers, which have non-recursive effects on their development trajectories. Intimately bound up with this is the future of entire societies' wealth, citizen health, and the protection (or lack thereof) of the environment. To better understand palm oil and how to confront issues within it, we need to also see it through a lens of global capitalism.

Environmental sociology, which studies the interactions between society and the environment, analyzes these questions through the examination of many different areas of social life. The field includes the agency versus structure debate that occupied sociology in much of the past few decades. A study of the commodity chain threatens to move towards totalizing structural explanations of development and the environment. However, I hope that this study also highlights where groups and individuals can act as agents towards both economic development and environmental protection. Failure to think about global-level processes of production, trade, and capitalism means moving towards a view that the above-mentioned groups have total

agency. As many world-systems studies emphasize, actors retain some agency in all parts of the world system; however, the structure of the global economy permits only certain possibilities for transformation. In this study, I use the commodity chain concept to explore these possibilities for workers, firms, and states constrained by the unequal structures of the global capitalist world-system.

Within the circumscribed agency offered by the commodity chain, most actors seek most of the time to capture as much of the surplus from the transformation of the raw materials offered by nature into value, typically expressed as profit. Traditionally, many scholars working with commodity chains emphasize industrial products like automobiles, garments and textiles, or computer hardware (Gereffi 1994, 1997, 1999; Bair and Palpacuer 2012). Within this area, most scholars emphasize the complex courses of production from basic industrial commodities into more complete commodities. This study on palm oil offers something slightly different. More of the global food industry is coming closer to resembling manufacturing than to the agricultural production chains of the past (McMichael 2005). Coffee, one of the most studied agricultural commodities, goes through a relatively simple process from its growth to grinding and roasting to consumption either at home or in coffee shops. Its growing sites and nuanced flavors add value to it at the final point of consumption, some of which farmers can capture at the upper end of the commodity chain (Talbot 2004). By contrast, palm oil is unrecognizable by many consumers, despite its ubiquity. It carries little value added from marketing or its location, such as the extra value derived from the *terroir* of high-end wines (Tregear and Gorton 2005). Gereffi (1997) emphasizes the importance of consumer marketing in value-added processes, particularly in garments, though the case is illustrative for food. These two factors, its low value-added and

many transformations, shape the possibilities for actors in its commodity chain to retain value from the final point of sale.

Environmental degradation threatens the long-term viability of the industry. Eighty-five percent of palm oil produced worldwide comes from Indonesia and Malaysia, which are also global leaders in the remaining tracts of tropical rainforest (USDA 2018; World Resources Institute 2016). The land area devoted to palm oil in Indonesia alone grew from a mere 126,000 hectares to 12 million hectares between 1970 and 2017. This total is approximately the size of Ireland, for perspective. Thanks to the expansion of the industry, palm oil production in Indonesia soared from 216,000 tons in 1970 to 31 million tons in 2015, and the Directorate General of Estate Crops predicts that 2017 had a production total of 35 million tons (2018). Associated with the area devoted to oil palm plantations were the large-scale wildfires of the summer of 2015. The combination of a dry year from an El Nino weather cycle and the use of fire to clear land for plantations led to wildfires that temporarily lifted Indonesia to a global leader in CO₂ emissions. Other changes to the local environment include water pollution, erosion, and conflicts with indigenous people over ownership of forest resources (Sawit Watch 2013). Malaysia has already exhausted most of its available land for palm oil expansion, instead focusing on downstream activities or intensification, leaving Indonesia to grab a growing share of the global market for palm oil. The last remaining frontier for palm oil is West Papua, where expansion could also intensify ethnic conflict between settlers, private companies, and the Papuans. Some industry supporters and their environmental groups show that palm oil could expand onto plantations growing less valuable crops or onto grasslands. However, Koh and Wilcove (2008) find that 56% of palm oil's expansion has come at the expense of uncut forests, suggesting that new expansions onto standing forests are more likely than an expansion onto

other agricultural lands. Even if palm oil producers pursued intensification over expansion, other forms of environmental degradation like pesticide and herbicide use would follow.

Given the profit-creating motive of palm oil companies and smallholder farmers incorporated into the commodity chains of large companies, the idea that palm oil production will stagnate to help create a sustainable system of global agriculture is unlikely. Building an environmentally sustainable global economy requires thinking long and hard about the constant expansion of the global economy and what this means for the environmental basis underlying global food production and exchange. Commodity chain research offers a way forward by embedding an analysis of environmental degradation within the strictures and confines of the hierarchical nature of the world system.

We should also understand the labor issues in palm oil production in the same embedded manner. The palm oil commodity chain is unique among agricultural commodity chains in the scale of the industry and its incorporation of small farm ownership. While corn, wheat, and soy favor large scale operations to generate an economy of scale, 40% of palm oil comes from smallholder farmers, defined by the Indonesian state as farmers with less than 25 hectares. This definition is generous since most smallholder farmers only hold 2 hectare plots, widely considered insufficient to support a family. Wage laborers receive much less attention from the NGO sector. Exploring the developmental possibilities for the workers who make this commodity illuminates some of the debates between the development-skeptic branch of world-systems and dependency theory and the pro-development (some might say pro-capital) branch of global commodity chain/global value chain scholarship from Gereffi (Gereffi and Korzeniewicz 1994; Bair 2014).

The commodity chain as a roadmap for thinking about the environment and social class offers an opportunity to meet two of humanity's most pressing needs: ecological sustainability for the long term and the continued need for economic improvement for millions, if not billions, of people living in the Global South. Though environmental sociology includes some perspectives like ecological modernization, the idea that further development curbs environmental destruction as a state attains greater levels of wealth, globally speaking the collective environmental impact of humanity is leading to an ecological crisis. Developmental gains which curbed environmental excesses in the US and Western Europe are predicated on environmental degradation in the Global South as a source of raw materials, cheap labor, and low environmental standards. Similarly, it is unclear if the Global South is developing towards anything other than extreme economic inequality under the present neoliberal ideological and economic models pushed by core states, transnational corporations, and the beneficiaries of these models in Global South states themselves (Yates 2016; Pieterse 2010). Environmental degradation of natural systems continues apace. Nonetheless, there is a continued need for development on the part of millions of people wanting education, decent housing, healthcare, and a higher material standard of living. Attaining these things will entail greater consumption of limited resources. If we cannot create a sustainable economic system, the possibility for further economic gains in the Global South becomes an increasingly remote possibility (Robinson 2014; Timmons and Parks 2007; Patel and Moore 2017).

Enter the commodity chain. Within these chains, commodity production creates a finite amount of surplus as the commodity moves from its extractive origin to its final form which consumers buy. Who receives the bulk of these benefits, how they are created, and what types of damage they do to natural systems over the short and long term inform our practical inquiry into

the potential for environmental sustainability and economic prosperity for the workers involved in the productive process.

In the next chapter, I give a genealogy of commodity chain theories and lay out the major theoretical areas of commodity chain research, paying special attention to agricultural commodities. Agricultural commodities concern many sociologists for the role they play in maintaining and increasing the divides between Global North and Global South, and I place palm oil within this branch of commodity chain theories. In Chapter 2, I use Stephen Bunker's "new historical materialism" to better understand how palm oil's unique biological and chemical characteristics shape the social relations around its production and trade. Chapter 3 examines the creation and distribution of value along the commodity chain, particularly the distribution of benefits to small farmers, workers, firms, and the individual capitalists. I also analyze the Indonesian state's role in promoting and managing palm oil production and how its developmental efforts affect the distribution of surplus through the chain. In Chapter 4, I use in-depth interviews and textual sources from major palm oil activist groups to analyze how various environmental and labor groups intervene in the commodity chain. Like other commodities, private governance of the palm oil commodity chain is growing and understanding this unique aspect of the commodity chain is crucial to understand its current functioning. Finally, I conclude with further directions of inquiry into palm oil commodity chain research and offer some alternatives to the present developmental model based on the previous chapters.

This dissertation seeks to unravel the possibility of balanced development as a necessary part of the debate on agency and structure within the commodity chain framework. Whatever the theoretical stakes here, the stakes for people and the planet far outweigh them.

Chapter 1- Theory and Methods

A case study of palm oil tests the boundaries of many of the dominant theoretical outlooks in environmental sociology, world-systems theory, and its subfield of commodity chain research. In the following section, I outline the major aspects of world-systems theory, commodity chain analysis, and Bunker's historical materialism that help to define and explain palm oil's labor and environmental patterns. I also identify areas that this thesis seeks to clarify, improve upon, and refine in these theoretical areas.

The History of Commodity Chain Research

The predecessor of world-systems theory, dependency theory, emerged from the work of the Economic Commission for Latin America and the Caribbean. Dependency theory noted the tendency of poor countries to orient their infrastructure towards the export of raw materials. These processes included special ports, transportation networks, and dependency on foreign markets for their goods. ECLA noted the tendency for downward fluctuations in basic commodities to seriously disrupt the ability of "developing" states to pay their foreign debts, thus necessitating austerity measures and the inability to diversify the economy. These same dependencies led many states to push for a New International Economic Order in the 1960s and 1970s (United Nations 1974).

World-systems theory takes a historical perspective that sees environmental degradation as part and parcel of an expanding European-centered capitalist economy beginning in the "long sixteenth century" (Wallerstein 1974). After emerging from the labor crisis of the High Middle Ages, European states began to expand outward to find new resource frontiers in Africa, Asia, and the Americas. The newly colonized areas of these continents fed the growth of European industry and established the world-system's global division of labor. In this system, a global

periphery supplies core states with raw materials and labor-intensive goods. Global core states, in turn, supply the periphery with capital-intensive goods commanding higher wages and greater human capital than peripheral states can supply. The result is a gulf of inequality between core and peripheral states, especially in terms of human well-being. Although states may “move up” in this global hierarchy towards higher wage goods or less repressive labor conditions, it is unlikely thanks to inequalities in political power that also result from the structure of the capitalist world-system. The periphery’s dependence on raw materials’ exports tends to lead towards an over-emphasis on the export sector. Over the long term, this hampers development of markets in the periphery, and an over-reliance on global commodities markets, which are subject to devastating boom and bust cycles. This same process also distorts the class structures of peripheral states. The export-oriented raw materials’ industries rely on cheap labor to make exports competitive in the global marketplace. This hampers development, but it also often leads to an overreliance on exploitative non-wage forms of labor in the periphery (Wallerstein 1986; Chase-Dunn 1998: 201-255).

The differentiation of geographic areas into core and peripheral states, as well as several important semi-peripheral states which contain a mix of core and peripheral labor forms and specializations, leads to what is known as the global division of labor. Today the world-economy exists as a single global division of labor encompassing the entire globe; for world-systems theorists, this constitutes the basis of globalization from the long sixteenth century to the present. As the field coalesced, the study of the world-economy became its primary occupation.

World-systems is increasingly looking at the global environment and understanding it from a long-term historical perspective, as well as a more immediate one. Moore’s (2003) work on the unfolding of the world-system sees it primarily as environmental history, with the

expansion of the European-centered world-economy as a function of degrading agricultural productivity and an exhaustion of the Eastern European periphery's timber stocks (Wallerstein 1974: 99). Other work examined the role of the world-economy in deforestation (see Moore 2003, Burns, Kick, and Davis 2003; Jorgensen 2003), hazardous waste transfer across the core/periphery divide (Frey 2003; Frey 2015), and other forms of environmental degradation stemming from global production and trade. In general, core states which exhausted their natural resource stocks increasingly rely on the periphery to subsidize capitalist accumulation for the transnational corporations based within their borders.

However, the study of the world-economy as a unitary whole presents a problem for social scientists. Grasping such a large unit of analysis is difficult, and it may not answer many sociologically relevant questions at the nation-state level. To move past this methodological hurdle, Hopkins and Wallerstein employ the theoretical and methodological tool of the commodity chain, which they describe as “the warp and woof of the global economy.” They define commodity chains as “a network of labor and production processes whose result is a finished commodity” (Hopkins and Wallerstein 1986:59). As commodities move through this labor process, value accrues to the commodity. Much of the work on commodity chains examines the point or points at which the greatest amount of value accrues. Core states and the firms they represent can push the lowest value processes onto peripheral states and derive monopoly rents from their control of certain portions of the commodity chain (Arrighi and Drangel 1998). Typically, a leading state emerges to direct the accumulation regime of the entire system, known as the hegemonic state. The hegemonic state establishes the rules of trade and international law, though hegemonic powers tend to grow and decline as trade centrality and political power fluctuate among rivals to the hegemonic power.

Commodity chain scholarship is also concerned with the power relationships in commodity chains, some of which involve the struggles between workers and capitalists for their share of the surplus created through labor. “Drivenness” is a concept emerging from Gereffi and Korzeniewicz’s (1994) work on the concept of control over the productive process, largely at the firm level. The differentiation between “buyer-driven” and “producer-driven” commodity chains exemplifies these debates (Gereffi 1998). Other work on agricultural commodities places the bulk of political and economic control on the large international trading houses in the middle of the chain (Talbot 2004; Gibbon 2001). The term “value chain” has more recently become prominent to better capture consumers as an important part of directing chains and to better theorize the “chains” that characterize services and information technology (Gereffi, Humphrey, Kaplinski, and Sturgeon 2001).

In theory, the entirety of all commodity chains forms the global economy. Case studies on individual commodity chains, or comparative work on several chains, are the dominant methodological tool for understanding the nature of the world-system. Part of the reason commodity chains are of such great interest to world-systems scholars is the social relations at multiple points in the commodity chain; these social relations play a major role in the stratification across the global division of labor, but also within states as different areas are tied unevenly into the global system of production. In each commodity chain, only so much value can be produced from the point of extraction to the final sale of the commodity. Actors at different points in the commodity chain seek to maximize their share of the created surplus. At these points, class struggles between workers and capitalists, or between different firms, or any number of social struggles take place to maximize the total value put into commodity production. Analyses of commodity chains also differentiate between the social classes involved in the

creation and distribution of surplus value between workers and capital (see Hopkins and Wallerstein 1994) and the states in which they reside (Arrighi and Drangel 1986). Historically, commodity chain scholarship focuses on the social relations of this labor process. In contrast to Marxian theories of production, these class struggles appear differently depending upon the area of the world-system in which they take place, as well as the dominant political form or the labor process. Although production is the focus of commodity chain studies, the role of “space shrinking” technologies like more efficient shipping containers, larger cargo ships, and logistics technology play a major role in uniting the units of complex commodity chains. Bunker and Ciccantell (2005) argue that this constitutes the most important element of globalization, since it facilitates the movement of more raw materials at lower per unit prices worldwide.

The commodity chain framework is a useful tool for understanding palm oil’s environmental and labor regime. Labor is the process by which nature is transformed into value by the meaningful application of human activity to the “free gifts” of nature, including water, soil fertility, and land as a factor of production (Marx 1995 [1867]: 115). Palm oil relies heavily on a combination of unskilled labor and suitable environmental factors at the point of extraction and basic processing into a usable commodity. Many analyses of commodity chains focus on the labor processes involved, or emphasize industrial production over agriculture and food commodities. Palm oil production involves a tight alignment of industrial processes and agrarian, non-wage labor. Furthermore, the sector displays an alignment of class forces and divisions akin to that seen in industrial production. The theoretical interest in palm oil is its place within the global production and trade in food, and the sustainability and poverty alleviation claims made by state and firm leaders. I ask: is palm oil another commodity that reflects global inequalities and the stratifying effects of other commodities? Also, does it generate the kind of international

development that could elevate Indonesia within the world-system? Can it generate both sustainability and economic development, and what ramifications does this have for it and global sustainability and food production?

The rapid rise of newly industrialized countries (NICs) of East Asia, collectively known as the “Four Asian Tigers,” forced a rethinking of the commodity chain idea as limiting the independent development of states within the current order of the world-system. Contrary to simplistic variations of world-systems theory, South Korea, Taiwan, Singapore, and Hong Kong managed to develop their industrial manufacturing bases within a very short time span in the post-WWII era (Gereffi 1989). The general explanation for this rise is the ability of these states to capture some of the production processes at the lower end of the commodity chain, including clothes, shoes, and other consumer products, but culminated in the production of capital-intensive goods like cars, consumer electronics, and computer chips. “Backward engineering” of products manufactured elsewhere allowed large electronics producers to successfully move into the market, while also taking advantage of cheaper wages (Smith 1997). The example of these East Asian states suggested that, perhaps, other states could rise within the existing international economic order by enhancing their human capital and wisely investing state resources in doing so, as well as promoting export-oriented development.

The possible benefits of industrial upgrading built the theoretical underpinnings of the global value chain approach. Investment in human capital and technological upgrades might, under the right circumstances, lead to mass uplifting of entire nation-states, demonstrated by the rapid rise of South Korea. Work on dependent development paved the way for these conclusions (Evans 1979; Cardoso and Faletto 1979; Gold 1981; Lim 1985). Previous views suggested that

dependency on foreign export markets and capital sources led to economic stagnation and possibly revolution (Gereffi 1983: chap. 1).

Some recent scholarship on commodity chains includes a call to return to the original formulation of commodity chains as sites of contention between labor and capital (Bair 2013). There is some debate about whether the GVC approach actively promotes a capitalist agenda while failing to promote the kinds of labor organizations or political programs that prevent firms from seizing all the economic gains made from industrial upgrading (Grinberg 2016; Clelland 2014). For world-systems theorists, the structure of the global economy constrains the developmental programs of peripheral states, limiting their sphere of action and the likelihood of development. Arrighi and Drangel (1986) describe efforts to develop within the neoliberal era of the present world-system as a “developmentalist illusion”. Scholars here point to the “lost decades” of the 1980s and 1990s as proof of the failures of developmentalist states, largely located in the so-called Third World. The NICs are notable exceptions, but they depend heavily on heavy investment in what are relatively small economies. These economies also face the problem of wage increases which rise due to the demand for labor in the export industries. Increases in wages, which stimulate higher gross domestic product per capita (arguably the most common indicator of “development”), threaten the export competitiveness of these states and their firms. GVCs stress the importance of competitiveness in global markets, but not all states can be top producers per their comparative advantage in an open world market.

Though it moved away from some of the original reasoning behind the commodity chain framework, the global value chain system generated new debates on these chains. Much of this deals with the issue of chain governance and directedness (Gereffi and Korzeniewicz 1994; Gereffi, Humphrey and Sturgeon 2005; Gereffi 1994, 2001). Gereffi (1989) originally identified

two major types of commodity chains: buyer- and producer-driven. Buyer-driven chains typically involve a lead firm which licenses and markets products purchased from multiple suppliers. The “ideal type” buyer-driven chain is Wal-Mart, which uses a vast network of supplier firms to produce its goods. Much of this type of production is labor intensive, like the apparel and garment sectors. Manufacturers of capital-intensive products comprise producer-driven chains, in which the manufacturers direct production decisions. In these chains, producers coordinate the sale and marketing of their products. Heavy manufacturing tends to predominate in these chains (Gereffi and Korzeniewicz 1994).

Work on agricultural commodity chains showed that neither of these formulations adequately explained the directedness of fresh or processed foods (Gibbon 2001). This was problematic since agricultural commodities are also classic studies in the relationship between core and periphery, since tropical commodities especially must be produced in the Global South¹ and tend to be sold in consumer markets in the Global North. Therefore, they are fundamental to the core/periphery divide. Talbot (2004) and Gibbon (2001) showed that large trading firms play the primary role in directing agricultural chains. Much of this is thanks to the oligarchy of several large firms with many different product lines in determining quality and price. Palm oil works in much the same fashion as these other chains, with the notable exception that there are many more intermediate players between growers and the consumer market. The palm oil commodity chain exhibits many of the characteristics of a trader-driven chain like coffee (Nikoloyuk, Burns, and De Man 2010). There are only a handful of companies directing much of the trade, including Wilmar International, Archer-Daniels Midland, and Cargill (Agro Indonesia

¹ * “Global South” is a term used as a heuristic for the poor countries of Latin America, Africa, Asia, and Oceania and is often interchangeable with “developing countries”. “Global North” is a term used to refer to the industrialized states of North America, Europe, Australia, and Japan. For a full treatment of the term, see Dados and Connell (2012)

2012). These companies play an intermediary role between milling companies and the food and cosmetic companies that use refined palm oil derivatives. In Chapter 2, I examine their role in greater detail.

Bunker and the New Historical Materialism

The point of extraction is a fundamental basis for the commodity chain. Stephen Bunker's work on the Brazilian Amazon highlighted the role of extractive transnational corporations in opening vast resource frontiers to serve the interests of core states and aspirant hegemonic states and the effects this had on a vast array of ecological and social outcomes (1985). Bunker's work on aluminum and iron showed the crucial basis of the material qualities of commodities in determining the commodity chain (Bunker and Ciccantell 2001; Bunker 1994). Besides this crucial insight, his work on the Brazilian Amazon showed how the orientation of an extractive economy towards global markets led to increased dependency on politically and economically dominant states, causing extractive peripheries extensive ecological damage and setting them on a historical trajectory towards underdevelopment (Bunker 1984, 2003). Building on this work, it is clear that "extending the chain backward" is a necessary exercise in understanding how extractive economic activities lead to articulations between peripheral and core states, but disarticulations between extractive regions and the national economy of a given state and the close relationship between a commodity's chemical and physical traits and the political and economic relations arising from its particular productive process (Ciccantell and Smith 2009; Smith 2005).

For my purposes here, I borrow from Bunker and Bunker and Ciccantell's work on mining to illustrate the importance of material qualities in the social relations surrounding a commodity's transformation from raw materials to finished commodity, including the interstate

relations between producer states and importing states. They label their theoretical approach “new historical materialism” (Ciccantell and Bunker 2002). Their primary theoretical concern is explaining globalization and state hegemony as a function of conquering “space by time,” a process in which leading states obtain cheaper raw materials in greater volumes through technological innovation and political pressure. To do so, states must also master ways of manipulating the natural qualities of raw materials. Their work draws on the hegemonic cycles of the Netherlands, Great Britain, and the United States, which they effectively claim were powered by these states’ ability to obtain the most important raw materials of their time in the greatest volumes. Their later work on Japan incorrectly predicted Japan’s ascent to political and economic hegemony, but their case illustrated the importance of raw materials to an aspiring hegemon.

There is a contradiction in the selection of Bunker and Ciccantell’s body of work and the use of palm oil as a case study. Bunker and Ciccantell focus largely on minerals as the most important raw materials in driving hegemonic power and inequality between states. However, the concept of the food regime developed by Philip McMichael stresses the importance of food as the basis of hegemony, noting the role that US grain exports played in the Cold War and the present food regime, centered not on a single state, but instead on transnational corporations. Similarly, their arguments about the importance of material qualities in overcoming the limits to accumulation through obtaining more raw materials for cheaper per unit prices lend themselves more to a study of minerals than food at first glance. Patel and Moore (2017) examine the importance of “Cheap Food” as a necessary factor in global accumulation and the source of the current ecological crisis. However, other scholars of food commodities note similar phenomena. Thomas (1985) examined how lettuce’s perishability and seasonality established a flexible,

immigrant-dependent labor force to extract profit. Friedland's (1994) work on fresh fruits and vegetables highlighted the role of new technologies in transportation and refrigeration in making fresh produce a global industry that could conquer the biological limits previously preventing the global trade in these commodities. Lastly, DuPuis (2002) used the fluid qualities of milk to explain its regional distribution patterns.

Bunker and Ciccantell's theories of economic hegemony saw raw materials as the basis of a hegemon's dominance in global markets. Obtaining the greatest amount of material for the lowest per unit price is a top economic priority for a hegemonic state or a challenger to that hegemony (2005). Palm oil has the highest per unit area productivity of any of its complementary substitutes (Vermuelen and Goad 2006) and Indonesia has the lowest production costs of any producing country (Indonesia Investments 2018). As the global food systems shifts more towards processed foods, control over global production of seed oils will increase. Palm oil is not a mineral-based commodity, but the changes its production causes in water, soil, and biodiversity are not wholly different from those Bunker attributes to changes in the Brazilian Amazon (1984), suggesting that we can understand in similar ways how capital transforms the environment towards hegemonic states' objectives in obtaining raw materials. Food is the building block of the human beings that perform the labor necessary to accumulate capital. In that light, controlling the global food supply grants hegemonic states (or transnational corporations, in McMichael's view) their power to order the global system. To understand palm oil, it is also critical to understand the role that food plays in global hegemonic cycles and political power. Below, I discuss the role of food in political and economic hegemony.

Food regimes and palm oil

The concept of the “food regime” emerged as an answer to many of the questions on agrarian change and political economy (Friedman 1987; 1982). Food regimes define a capitalist world order defined by stable and predictable rules on the production, distribution, and consumption of food (Friedman 1993: 30-31). Araghi defines food regimes as the “political face of world historical value relations (2003: 51). One of the basic premises of this literature is that global political and economic power is premised on the ability to provide food at such prices as to reduce wage costs and boost profits (Patel and Moore 2017). Legitimizing ideologies like free trade, developmental aid, and free enterprise bolster the political and economic underpinnings of the system. McMichael and Friedman (1989) identified three major food regimes dominated in turn by three different political and economic conjunctures: British (1870-1930s), US (1950-1970), and lastly corporate-financial (1980s-present). Each food regime relies on the power of the hegemonic state and its control of both the food supply and currency to provision a period of capitalist accumulation.

The current iteration of the world-system builds off the second food regime identified by McMichael under the auspices of US hegemony, 1950-1970 (1988). In this cycle, formal decolonization accompanied a “new international division of labor” surrounding transnational flows of agricultural commodities (Raynolds et al. 1993). The US used its political hegemony to build a global project of commodity flows in which its cheap cereals would flow to the Third World under the guise of food aid. For the first time, many states became net importers of cereals, and this pattern extends well into the 1980s (de Janvry 1981: 70, Araghi 1995, Grigg 1993). Alongside this massive dumping of US subsidized grain, the US exported agricultural technology to agrarian capitalists in many of the more populous states of the Third World,

including Indonesia. This “agricultural modernization” tied together both large landowners and national capitalist classes into the same political and economic project of capitalist land relations, while also freeing peasants from feudal-style rent-seeking arrangements with landowners (Araghi 1995). These newly released peasants benefitted from their ability to enter petty commodity markets, but the bulk of land remained in the hands of large landowners (Araghi 2009: 127-8). These new agrarian capitalists led many of the largest agribusiness firms (Cargill and Unilever, for example) to move into the upstream and downstream activities and specialization in using agricultural inputs to produce basic foods (Friedman 1994: 268-269).

US military defeat in Vietnam, the clearance of US grain stocks thanks to détente with the Soviet Union, the oil crisis, devaluation of the US dollar, and the relatively high social wage demands of the social democracies led to a serious profit crisis for capitalism and a breakdown of the US-centered food regime. To resume profit-making, firms and banks internationalized their operations to incorporate cheaper labor in the Third World (O’Connor 1984). The debt crisis throughout the Global South and the end of overt Cold War hostilities opened new opportunities for global capital, which reorganized the global food regime around the creation of new corporate food commodity chains, structural adjustment policies and free trade under the WTO and GATT trade rules. This food regime relies on intellectual property of seed lines, agribusiness centralization and subsidization, and private standards for quality and safety. Also, the pattern of trading Global North grains for Global South tropical products readjusted to a greater connection between South/South exchanges. Farmers in both Global North and South suffered greatly from the removal of farm subsidies, or subsidies which favor agribusiness at their expense. Throughout this period, significant de-peasantization occurred as farmers could not compete in the global marketplace, and many could not survive without significant off-farm income

(Bryceson 2004: 618-619, Bernstein 2005, Bezner Kerr 2005, Kabeer and Tran Thi Van Ahn 2002). The consequence is a growth in world hunger and dispossession, ironically in a world with more food than ever (Patel 2008).

I lean here on the literature on food regimes for its connection to global capitalism and the importance of food to that system. This literature explains the growth in private systems for ensuring food safety and quality assurances. Also, palm oil spread quickly thanks to the creation and liberal use of chemical inputs resulting from the deepening of input suppliers into food commodity chains. Most importantly, the growth of South-South trade connections facilitated by the few TNCs in agricultural products explains the rise and spread of palm oil to global prominence in seed oil markets. Interestingly, Friedman predicted that soy oil from the Global North and other oil substitutes would replace palm oil under intense substitution programs for tropical crops (Friedman 1991: 75). However, palm oil remains cheap compared to its competitors and the markets opened by transnational corporations into China and India allowed it to reach a global scale.

The food regime literature is not without certain theoretical problems in its scale and the way its theoretical underpinnings draft a solution to the problems of a TNC-directed food regime. Like world-systems theory itself, the perspective prioritizes structural constraint over state agency. Indonesia is an active state in the promotion of palm oil and subsidizing its growth in various ways, especially marketing and previously through direct subsidies to farmers and transmigration programs to create a labor force in remote islands (Pramudya, Hospes, and Termeer 2017). Scholarship in this area focuses on the nation-state level, and considerably less on the internal class structure of major agricultural states. McMichael sees potential in food- and agriculture-based social movements like Via Campesina as a viable challenge to the regime.

These solutions are bottom-up, and preclude the reshuffling of larger powers within the system to allow new challengers to emerge. Slow food movements and their like in the Global North are also praised for their challenge to the food regime, but these systems are unlikely to generate the friction with the system that creates change, instead offering niche foods produced under more favorable conditions to elite consumers preoccupied with buying off their guilt. A case study of the palm oil commodity chain and the movements surrounding it offers a better way to understand the development of an alternative food system with the scale of the current global system. More interestingly, palm oil is growing under the corporate-led trade regime in food, focusing on large markets in China and India. It is quite surprising that Indonesia is attempting a food-based industrialization and trade scheme in this free trade era. It contrasts with the US-led path to industrialization a century ago that lead up to its period of hegemonic dominance through uniting industry and agriculture, then dominance through its food aid and manipulation of the dollar. The historical experiences of the US, Canada, and Australia illustrate that development through a combination of agriculture and industry is possible, but the corporate, not state-centered nature of contemporary global food system and the retreat of the developmentalist state suggest that this developmental path will not create the same developmental outcomes.

The scholarship on food regimes suggests that globalization leads to negative results for peripheral producers. World-systems acknowledges the uneven nature of the spread of globalization, including the creation of “core” spaces within peripheral areas, and the potential for systemic crisis to create political, economic, and social openings for anti-systemic groups to push for reform or even revolution. Indonesia may be part of the changing shift in the global economy towards East and Southeast Asia in this period of the world-system. Concomitant with this is the tremendous growth experienced by the country, but it comes at a steep cost,

environmentally and socially. Different groups are differently able to capitalize on this growth and access to new markets in the Global South. How different groups react to the pressures of globalization will be explored in Chapter 4.

Making the Case for Palm Oil

In this thesis, I make the claim that palm oil constitutes a new case of industrialized food manufacture. Indonesia has a long history of extractive industries, and their role in raising incomes and other developmental “positives” is mixed (Gellert 2003). Rather than develop through industrial upgrading, Indonesia needs to work to ensure equity in the distribution of land and capitalize on the “free gifts” provided by its tropical rain forests, which should assist development through provisions of clean water, sustainable forms of forestry, and a movement away from the vagaries of international markets. Instead, Indonesia should focus on the development of its internal markets, infrastructure (both to develop the internal market of the country and to provide improvements in human health and economic well-being), and to avoid environmental collapse for its vulnerable populations. Furthermore, most of the “sustainability” improvements in Indonesia only subsidize further expansion. Also, much NGO work ignores the serious class divisions in rural areas in Indonesia between workers and owners of land. To develop the country, serious changes need to be made to the class structure of palm oil plantations.

Palm oil represents a unique extractive case which we can use to further our understandings of the interplay between material forces and the social relations surrounding production and consumption of food. Bunker (2003) uses an expansive definition of extractive industries to include the movement of massive amounts of *materiel*, including biological matter, and the associated refinement processes. For palm oil, environmental problems include large

fires, contamination of drinking water, deforestation, and the reduction in the capability of soils to naturally reproduce their fertility. The scale of these issues also suggests that extraction is an appropriate way to think about the issues raised by palm oil. At the other end of the commodity chain, the industrial processes to turn palm oil into usable chemical forms suggests a similar process between palm oil and minerals, though developmental outcomes may differ. Just as Bunker's work with aluminum revealed (1994b), the exact material specificities of the commodity in question have a major influence on the social relations surrounding the commodity chain. Palm oil has a major influence on the infrastructure of the main growing regions of the country, and over the medium term, this led to major distortions in the transportation network of the islands on which it is grown (Gellert 2010).

The site-specific nature of the distribution of mineral and biological raw materials leads to uneven development between areas of the world-system when peripheral areas' industries orient towards a global market where core states extract most of the value from these raw materials (Bunker 2003). Commodity chain research offers an opportunity to connect many of the macro-level processes of the world-system with grounded activities located in geographic areas and commodity chains. Much of the work on global level processes centers on unequal ecological exchange, which is the unequal shift of ecological problems onto the global periphery and an unequal distribution of benefits from extractive industries in the periphery to the core (Clark and Foster 2009; Foster and Holleman 2014). In this relationship, peripheral states serve as sources of cheap raw materials and areas for dumping waste, which furthers the core's developmental lead over the periphery and leaves populations in the periphery to deal with the worst environmental messes (Frey 2003).

Putting aside a direct analysis of unequal ecological exchange, I examine the effects of the palm oil commodity chain in elevating farmers' and plantation workers' incomes considering the connection between palm oil and environmental degradation. Namely, I investigate the value derived from the trade in palm oil which actors retain at the different stages of the production process. While palm oil is a major source of environmental degradation, it is cited as a viable means for smallholder farmers to escape poverty (RSPO 2014). However, if we examine the commodity chain and see that smallholders receive considerably less value from palm oil's expansion than TNCs, we might reasonably say that unequal ecological exchange is occurring as the value from palm oil is exported, while its environmental consequences are forced onto Indonesian farmers and peasants.

When we bring the environment into the commodity chain construction, it is possible to see where the economic benefits of ecological transformation accrue and what this means for future developmental trajectories. This speaks to the tension between the global commodity chain/global value chain and world-systems' debates on the possibility of industrial upgrading within the current world-system. By focusing on palm oil, we examine agricultural commodity chains, rather than an explicit focus on the "traditional" commodities analyzed by GVC models. Gereffi's work emphasizes the need for peripheral states to gain greater shares of the marketing and highest value-added processes in commodity production and trade, but the Indonesian state has plans to further develop its industrial capacity. I examine this further in the next chapter, but for now, it is important to note the continued drive towards industrial upgrading, usually defined in the Indonesian business press movement into downstream processes.

Palm Oil in Indonesia

Palm oil is a fundamental part of the Indonesian economy. It is second only to petroleum in terms of exports (World Bank 2016). Palm oil's history in Indonesia dates to its colonial periods under the Portuguese followed by the Dutch. During this time, small amounts were exported as lubricants in early industrial machinery or consumed locally in Indonesia. In 1964, Indonesia produced only 157,000 tons of crude palm oil; in 2014, that figure rose to 33.5 million (USDA 2016). Per some figures, around 1.5 million of the country's 261 million people work in the palm oil sector of the economy (BPS 2016). Several factors account for this incredible rise in such a short period.

First, palm oil and other oil seeds destined for human consumption are an essential part of most diets anywhere in the world. Demand for these products derives from the increases in global population in the post-WWII era. Another factor is the land use efficiency of palm oil. An acre of oil palm produces more than four times the amount of its nearest competitor, canola oil. With arable land in short supply, palm oil is a rational choice of crop for many farmers. Demand in South Asia and China is particularly high, largely because of high population growth, but also thanks to dietary changes towards processed foods in these countries.

However important these might be, the political and social arenas play a decisive factor in why palm oil is growing so rapidly in Indonesia. The Suharto regime's harsh military rule ended the efforts of the Indonesian Communist Party, the largest in the world outside of China, to institute wide-ranging land reforms in favor of the peasantry, including the breakup of large agricultural enterprises and the redistribution of former Dutch colonial plantations to their workers (Lucas and Warren 2013).

Known as the “Father of Development,” Suharto ran a regime which relied heavily on extractive industries to distribute rents from natural resources among members of his family and the military to retain power. During this period, members of the regime slowly amended Indonesia’s constitution to defang its propositions on the national ownership of forest resources. While it did not scrap these provisions entirely, it established a complex, heavily contradictory set of forest regulations which pitted government agencies against one another, made land tenure difficult to legally establish, and often gave a veneer of legality to land grabs and dispossession of peasants from their land (Gellert 2015). The shadowy nature of Indonesian law during this period enabled many members of the military and local elites to cash in on the opening of forests for exploitation, while arbitrarily using the law to exclude peasants and indigenous people while claiming that doing so was in the national interest.

The Asian Financial Crisis of 1998 finally signaled the end of the Suharto regime. Student protests in major cities were largely responsible for the regime’s ultimate collapse (Horowitz 2013). However, the promise of democracy failed to materialize for many Indonesians. The IMF and World Bank responded to the crisis by imposing austerity on the new democracy. The new development model, like others before and after, boosted exports at the expense of the development of the country’s internal market. Indonesia also sold many state enterprises that, while acting as sources of rent and kickbacks to important figures in the Suharto regime, did maintain many industrial processes in the country. This, in turn, led to some technological developments and wage premiums in these industries, notably in paper and pulpwood production (Gellert 2007; 2003).

The pressure to export to pay down foreign debt and earn foreign currency puts enormous pressure on Indonesia’s environment. The major export industries in the country,

including petroleum first, followed by palm oil, come at tremendous environmental costs. Although the government and the Roundtable on Sustainable Palm Oil (RSPO), the umbrella organization promoting sustainable practices in Indonesia, routinely speak about enhancing output on already established plantations rather than cutting down forests for new plantations, most of the new growth in palm oil comes from newly deforested land (Gellert 2015). The improvements in production mostly come to large landholdings owned by corporations, rather than smallholders who grow oil palms on government-subsidized “nucleus-estate” growing schemes. Labor abuses remain common, and growers of all sizes must contend with the monopsony of large mills on the buying of fresh fruit bunches (FFBs). The sheer size of the primary commodity export sector, including petroleum, makes the entire economy vulnerable to downswings in commodity prices, such as occurred for palm oil starting with the global economic recession in 2008.

Clearly, the global economy puts major constraints on the state, workers, and the environment. On the other hand, large TNCs like Nestle, Cargill, and Unilever benefit greatly from this global market. Palm oil is no exception to this global pattern. These major corporations and their subsidiaries handle major shares of globally produced palm oil in a variety of product lines. The market position of these producers as intermediaries between producers and retailers gives them considerable control over the production process (Hughes 2005; Talbot 2004). Their position allows them to select from a wide variety of producers for the lowest priced inputs which meet minimum standards for health and quality.

This has wide ranging implications for Indonesia’s developmental trajectory. If most of the value produced by palm oil goes to large intermediary companies in the commodity chain, why then should Indonesia prioritize the growth of the palm oil sector of the economy, especially

considering its environmental and labor problems? This also increases the difficulty of governance and control over the commodity chain. If the primary controllers of the chain are board members of large foreign corporations, then control of the commodity chain for local growers and workers becomes difficult.

Commodity Chains, Social Class, and Development

Peripheral states take on a considerably different class structure than core states in three ways that are relevant for palm oil and Indonesia. First, elites in peripheral states share a strong connection to the global economy through the sale of primary commodities on global markets. These elites support policies and governments focused on the extraction of natural resources and agricultural goods. They tend to favor free trade, both as an economic and political priority. In general, these elites tend to be right-wing in their policies, both economic and social. Second, the middle class in peripheral states tends to be smaller than in semi-peripheral and core states. The small middle class exists largely to facilitate accounting and other financial duties necessary for the sale of basic commodities. In contrast to other political systems, the middle class is unlikely to support democratization, often out of anxieties about devolving too much power to the working classes. Third, the working class is disproportionately large in peripheral states compared to the size of the working class in core states. In many cases, this is due to the lack of technical and administrative positions, especially in the state, that opens growth of the middle class from the working classes. The working class is also somewhat of a problematic term for peripheral states; a lack of industry in peripheral states means that the “traditional” urban proletariat of core states is small, if not entirely absent.

Indonesia replicates many of these tenets of world-systems analysis of peripheral states. Indonesia’s elite, both under the New Order and in the post-regime order, tend to cluster around

extractive industry. Suharto's regime bolstered its power within the military through offering members of the military kickbacks from the many state-owned enterprises (SOEs) involved in extractive industries. The sale of many SOEs following the structural adjustment plans handed down by the IMF led to a greater spread of these industries among elites not or only partially aligned with Suharto (IMF 2000). This pattern continues up to the present, but with the added phenomenon of a loss of some of the value-added processing to semi-peripheral or core states (Gellert 2010). A cursory glance at the *Jakarta Post*'s "100 Richest Indonesians" shows the number of Indonesia's wealthiest whose major business holdings are in coal, oil, and agriculture, including palm oil (Jakarta Post 2016).

Indonesia saw tremendous economic growth with the end of the dictatorship and some improvement in per capita incomes. Growing industrial employment is part of the reason for this growth. However, the country's much-touted growth in industry focuses most often on garment production. Given that this production has little value-added, low wages, and few benefits beyond a growth in wage employment, this growth in industry lacks many of the infrastructural and developmental benefits of downstream commodity chain activities. Also, elites captured a tremendous proportion of this growth, leading Indonesia to one of the highest degrees of inequality between different income quintiles (Yates 2016). Indonesia's economy remains vulnerable to outside shocks, especially the status of demand in China and its relationship to the US dollar (Tambunan 2010).

The creation of an industrial proletariat in Indonesia's manufacturing cities brought with it the creation of labor unions that seek to challenge the political and economic system of the country (Silaban 2009). At the national level, their influence remains small, especially given the tendency of Indonesian politics to focus around the personal influence of a charismatic leader.

The Indonesian left never recovered from the large-scale violence of the Communist purge in the 1960s when Suharto rose to power (De Jong 2015). The destruction of PKI (Indonesian Communist Party) unions led to the end of large-scale land redistribution, but smallholding farmers remain common in both Java and the Outer Islands (White 2008). However, large-scale personal landholding and large corporate-owned plantations are common, as well (BPS 2013). The presence of a wide variety of landholding patterns leads to very different political and economic interests among landholders of various kinds, ranging from landless wage laborers up to giant landholdings owned by transnational corporations. Given the importance of social class and its conflict dynamics in commodity chains, any analysis of palm oil needs to seriously consider the implications of this chain's creation, governance structure, and material rewards to its constituent social classes.

The main work is to unite the literatures on commodity chains and the environment into a coherent whole; there needs to be recognition that Indonesia's palm oil sector fits into the current conjuncture in the unfolding of the world-system and that it this system directs much of the depth of the environmental and social problems inherent in palm oil. To do this, I use Bunker's historical materialism to denote how palm oil's material qualities shape the downstream production process and the creation and maintenance of social classes surrounding palm oil growing and processing.

Methods

To unite the insights of world-systems' work on global commodity chains, Bunker's new historical materialism, and the ongoing work on food and its role in global political economy, I use an extended case study. Indonesia is the world's largest producer of palm oil, and is thus the ideal national setting for my purposes. I use a qualitative case study to map out new theoretical

areas of research into the interconnections between the above-mentioned theoretical areas, rather than to make generalized statements based on theory testing.

Commodity chain analysis, which in many ways constitutes its own methodology and area of theoretical emphasis, relies heavily on single case studies to build a case for understanding not only theories of commodity chains themselves, but to build theory on how commodity chains influence stratification within and between areas of the world-system. There is little consensus on the “proper” way to do commodity chain research (Dougherty 2008). Commodity chain studies are a heuristic for exploring global political economy, and, as such, comprise a broad range of areas of inquiry and methods.

To understand how commodity chains function, there are two areas in which I pay close attention to throughout this study. The first is the role of the state in the formation and shape of the commodity chain. World-systems prioritizes the chain formulation over the role of the nation-state (Dougherty 2008). States play a crucial role in the formation of commodity chains, and scholars have criticized world-systems for granting little to no agency to peripheral states in the management of commodity chains and profit creation (Topik et al. 2006). I incorporate an analysis of the state into the commodity chain at multiple points. The Indonesian state, even in a neoliberal era, remains committed to heavy intervention in the chain via various types of legal and extralegal means. Correcting this historic lacuna in commodity chain studies adds more evidence to counter the passing debate on whether the state is disappearing in the neoliberal age of globalization. I charge that it is not, especially in neoliberal programs where the state must intervene to create a supposedly “free” market and repress those social classes left behind or exploited under these economic and political practices. I analyze the role of the state in greater detail in the case study that comprises the next chapter.

Second, I want to not only adjudicate between the difficulty of development, broadly construed as improvement in the material circumstances of palm oil farmers and wage laborers, or the likelihood of widespread development from improving productivity and human capital in the commodity chain *a la* Gereffi and the global commodity chain/global value chain. I also want to bring commodity chain analysis back to an emphasis on social class. I define social class as an empirically identifiable group performing similar tasks in the productive process, leaving open the possibility of other forms of labor besides the wage relation in the creation of profit. Incorporating firm level insights into commodity chains improved our understanding of how these chains operate, but it moved scholarship in this area away from the productive base of the global economy.

Moving back towards social class as both an analytical category and as a framework for commodity chain research is a primary concern of Chapter 3 on the distribution of wages and benefits across the commodity chain. This area uses an in-depth case study of the wage and payment structure of the commodity chain to analyze class creation as a part of the commodity chain and the maintenance or challenge to the distribution of material welfare. Chapter 4 uses these same insights to incorporate the growing number of non-governmental organizations involved in the palm oil commodity chain into a class analysis. NGOs play an outsized role in commodity chain governance through the private regulation schema overseeing many of the functions formerly reserved for the state. These need to be analyzed alongside the class structure of the chain.

Chapter 4 relies on nine in-depth interviews supplemented with textual documents produced by several of these groups during summer 2017. I selected these groups based on their listing as members of the Roundtable on Sustainable Palm Oil and their national presence in

dealing with palm oil issues. I selected others to analyze their strategic choices in intervening in the palm oil commodity chain for their unique leadership structures, funding sources, and connections to the state. These groups are not exhaustive in outlook, strategy, or effect on the commodity chain. I use a non-random selection of groups to better understand processes and contradictions between developmental objectives, ideology, and potential outcomes in their work.

The next chapter incorporates Bunker and Bunker and Ciccantell's new historical materialism in a single case study of the commodity chain.

Chapter 2- Bringing in Bunker

Considerable state activity promotes and encourages palm oil development. Its material qualities also explain its popularity in the global food system at a time of growing ecological problems, both at the national and global levels. There are very particular reasons why palm oil is now emerging as an important commodity in contemporary global markets. Following Bunker and Ciccantell's (1999) new historical materialism and commodity chain analysis, I seek to explain how palm oil as an agricultural commodity chain and its environmental and labor outcomes. One of Bunker's major contributions to the study of resource extraction is the idea that the material qualities of resources are more important than the labor theory of value's explanation of a resource's value deriving from the labor embodied in its extraction and processing. I synthesize Bunker's work with commodity chain analysis to form a theoretical framework to analyze the trade and production of palm oil and its environmental and labor issues that remain unexplained and undertheorized by governance approaches viewing palm oil as a strictly national phenomenon.

Palm oil production and trade

Palm oil is a major fixture in the grocery stores of the US and Europe. By some estimates, as many as 70% of the items in a US grocery store contain palm oil (Greenpeace UK 2007). Palm oil preserves the texture, flavor, and shape of products at room temperature, as well as guaranteeing sufficient shelf life. This includes food (and especially non-perishable food), but also soaps, cosmetics, candles, and detergents. Since so many products contain palm oil, this means the commodity chain has many threads, or individual products as part of the same larger raw material (Gereffi, Humphrey, and Sturgeon 2005). Commodity chains with many threads are difficult to fully encapsulate, so here I do not attempt to tease out every single thread. I focus

mainly on the point of extraction within Indonesia. The many threads serve to demonstrate the ubiquity of palm oil in many products as a low-level additive.

In many global-level studies of the environment, the focus tends to be on global trade dynamics focusing on unequal ecological exchange along the core-periphery structure posited by world-systems theory. Transnational corporations (TNCs) based in core states engage in environmentally-damaging extractive process to obtain cheap raw materials inputs. Peripheral states, for a variety of reasons, open their natural resource supplies to capital from core firms. However, they become saddled with related environmental problems. These problems become so great that the environmental damage outweighs whatever value came from those resources. Global inequalities between core and periphery remain stable or widen (Arrighi, Silver, and Brewer 2003; Amin 1976).

Palm oil from Indonesia and Malaysia appears to confirm this pattern. However, it is important to recognize that the major importers of palm oil are not found in the core, but in the semi-periphery. China and India are two of the largest importers of palm oil (Oil World 2017). In the early 1990s, the flow of palm oil shifted away from Europe and emerging markets in the Global South (Brad et al. 2015). This is important for discussions of world-systems generally and unequal ecological exchange. The basis of the unequal exchange is undergoing a major shift worldwide from being an exclusive phenomenon of core-periphery exchange to a pattern of semi-periphery to periphery exchange. This trend holds true for many commodities, driven largely by the economic growth of China (UNCTAD 2015). However, the explanation for palm oil's expansion into markets both core and periphery also requires an investigation into the Indonesian state's efforts and those of international financial institutions (Gaskell 2015, World Bank and IFC 2011). This recent movement of palm oil consumption and processing to India and

China highlights the semi-peripheral status of these countries. The semi-periphery, the area of the global division of labor where both core and peripheral economic activities are found together, plays a crucial role as both exploiter and exploited within the system. The market demand for palm oil from Indonesia serves to double-down on Indonesia's commitment to peripheral extractive processes. Although China and India have abundant reserves of cheap labor for core states, these two countries' markets are serving to push Indonesia into a further peripheral position. This also positions India and China to ship refined palm oil products back out to core states.

Many of Indonesia's environmental problems are connected to palm oil production. By 2020, the planted area of palm oil is expected to reach 32 million acres (Indonesian Ministry of Agriculture 2017). In 2017, Indonesia produced 38.5 million tons of crude palm oil.

Fig. 2.1- Crude palm oil production- Indonesia

1970	248,000 tons
1980	752,000 tons
1990	2.65 million tons
2000	8.3 million tons
2010	23 million tons
2017	38.5 million tons

Source: BPS 2016

Koh and Wilcove (2008) find that half of palm oil expansion came at the expense of forests, though Mithofer et al. (2017) have difficulty finding a systematic connection. Nevertheless, palm oil expansion and deforestation connect in specific instances. Logging permits are easier to obtain than plantation permits, making logging a first step to establishing a palm oil plantation and obscuring the statistical relationships between palm oil and deforestation (Greenpeace UK

2007). Large scale fires in the summers of 2015 and 2016 led to an estimated 100,000 premature deaths, 90,000 of which occurred in Indonesia itself and the remainder in Malaysia and Singapore (Koplit et al. 2016). Many environmental groups around the world are actively spreading public awareness of palm oil's environmental issues, and often incorporating labor into their critiques of the industry, as well. However, these critiques place Indonesia's national environmental problems within its borders, rather than seeing these issues as connected to global food production. While the Indonesian national context is certainly important, understanding the role of palm oil in Indonesia's economic development requires a global framework. A commodity chain approach using Bunker's new historical materialism allows us to analyze this case in a more fruitful way and to use it as an opportunity to better understand the connection between global and local processes. Before incorporating Bunker's views, I briefly describe the "typical" explanations offered by researchers focusing on legal and technical aspects of palm oil's environmental and labor issues.

Explaining palm oil's labor and environmental issues

In the palm oil literature, there are several explanations that explain the pattern of palm oil's environmental and labor problems. Lack of technical knowledge and clear governance standards is offered as a major explanation of negative environmental and labor impacts (Lee et al. 2011; Shouten and Glasbergen 2011; Von Geibler 2013). The bulk of this literature studies private certification as an object of academic interest, rather than testing labor or environmental outcomes (Nikoloyuk, Bruns, and de Man 2010; Ponte 2014). Some scholars ascribe a power and directionality of flows of information to explain the success or failure of private governance (Oosterveer 2015). Hansen et al. (2015) notes the emphasis in palm oil sustainability research on environmental outcome assessments, rather than developmental or labor outcomes. Often

environmental interests are promoted over labor or developmental interests in governance standards (Hunsberger et al. 2014).

Some critical perspectives analyze the class inequalities among different actors involved in palm oil production. McCarthy (2010, 2012) demonstrates how a process of “adverse incorporation” excludes poor smallholders from accessing the benefits of palm oil. Among these issues are a lack of cheap and reliable credit to bring farmers into production at competitive levels. Because of differential access to land and credit, the class inequalities in rural Indonesia prior to the arrival and coalescence of palm oil reproduce themselves in the introduction of palm oil to its primary growing regions. Li (2015) examines how patriarchal land ownership prevents women from accessing the benefits of palm oil farming and contributes to their impoverishment. This approach neglects the global factors shaping the palm oil commodity chain, a lacuna which a global perspective can fill.

Although these other studies identify many of the potential causes for palm oil’s pattern of environmental and labor issues, they would benefit from inclusion of the material factors of palm oil production embedded in its unique biological and chemical factors in its production. I borrow from Stephen Bunker’s work on extraction in the Amazon Basin to cover this gap in previous palm oil scholarship (Bunker 1984; 1985). Extending Bunker’s new historical materialism forward, I argue that palm oil’s biological and chemical qualities shape much of the class relations and inequalities inherent in its commodity chain. We also need to include the state as a crucial player facilitating extraction of palm oil. Bunker’s theoretical perspective allows for a wider examination of the state’s role in commodity production and trade.

Bringing in Bunker

Bunker's work on extraction in the Amazon provides a useful theoretical and methodological framework for discussing the palm oil commodity chain as a case of site-specific development within a global level process (Bunker and Ciccantell 2005; Bunker 2003; Bunker 1995; Bunker 1985; Bunker 1984). Bunker and Bunker and Ciccantell detail the transformation of the Brazilian Amazon from 1600 to the contemporary period, noting the role the region played in shoring up the raw materials acquisition of hegemonic or aspiring hegemonic power powers. Bunker (1985) developed a new schema for understanding "economies of production" and "economies of extraction," which were interconnected, but left states and regions with economies of production in a position of long-term economic development and political dominance. Extractive regions are left underdeveloped with export-oriented economies and environmental degradation. Later, Bunker and his collaborators developed several important theses for how hegemonic powers and aspiring challengers to existing hegemony guaranteed access to raw materials for their growing industrial sectors. The goal for hegemonic powers (or those attempting to challenge the US's position as the dominant power at the time, like Japan) is to move greater amounts of *materiel* for cheaper per unit prices (Bunker 1995). The ability to move ever-increasing amounts of raw materials supports the expansion of the hegemonic power, both politically and economically. Meanwhile, these processes irrevocably change the natural environment. The country in which this extraction occurs is re-peripheralized as its economy becomes more involved in extracting and processing raw materials at a greater rate for increasingly lower prices per unit.

A further insight from Bunker and his collaborators is that the changes at the macro-level connect to the on-the-ground processes according to the material qualities of the resources

(Barham, Bunker, and O'Hearn 1994). Aluminum, for instance, requires a great deal of water and electricity for its conversion into usable material, notably through the Bessemer process. These demands necessitate vast ecological transformations, such as hydroelectric dams, mines, ports, canals, and other infrastructure to process and deliver raw materials in the amounts required to lower the per unit costs while increasing the amount produced in the quality required. Extending this idea into the social realm, the material qualities of a commodity determine a great deal of the social relations surrounding it. Different extraction, processing, and refinement activities require specialized forms of labor and management tailored to the specific nature of the commodity in question.

Bunker later explained the “fit” between his work on the creation and maintenance and resource peripheries with the larger body of world-systems’ scholarship (2003). I situate this case study of palm oil within the commodity chain literature outlined in the previous chapter while borrowing Bunker’s insights into the world-systemic level processes, global capitalism, and production requirements for local environmental outcomes and development trajectories. Bunker and Ciccantell’s work became the basis for a theoretical perspective which they labeled “new historical materialism” (Ciccantell and Bunker 1999). Their perspective sought to resolve the tension between global and local processes, while also accounting for the material qualities of the commodities which drive the development of global markets and the tension between hegemonic states and their rivals.

There are some crucial distinctions here between Bunker and Ciccantell’s formulation and my analysis of palm oil. Materiality is extremely important for the political, economic, and environmental relations surrounding commodity production and trade; as such, an agricultural commodity will differ from a mineral commodity. Aluminum requires greater capacity in

physical capital than palm oil, though the scale of environmental problems is similar. Palm oil has lower entry barriers as an entire industry, and thus requires less overt state intervention than aluminum. Second, palm oil requires thinking about rivalry between peripheral producers, not just core states. Lastly, the state relationship to extraction is different. Indonesia and Malaysia control 85% of global production, versus the more dispersed nature of aluminum extraction and production. This gives Indonesia and Malaysia more control over the global palm oil market. These formulations help to build a solid foundation for the new historical materialism in other developmental contexts than minerals and logistics industries.

Below, I use the insights of the new historical materialism to explain the rise of palm oil within the last years of the Suharto dictatorship and outline the relevant biological and chemical qualities of palm oil which favor certain forms of labor relations in extraction and processing. These qualities shape the developmental possibilities of palm oil and play a major role in the class differentiation and formation within the palm oil commodity chain.

Palm Oil Development: The Suharto era, extractive industries, and the neoliberal era

Palm oil is now Indonesia's second most valuable export behind petroleum in terms of export earnings (BPS 2016). In the post-Suharto era following his 1998 ouster, Indonesia continues to attract foreign capital, much of it from other Asian states. High income and wealth inequality persists within a neoliberal state that cut much of its social spending because of IMF-imposed austerity (Yates 2016; BPS 2016). For reasons listed below, international financial institutions promoted a development model focused on exports to pay off foreign debt and generate foreign exchange (World Bank 2018). Palm oil plays a valuable role in meeting this structural requirement for an indebted peripheral state.

Bunker's perspective posits a long-term dependency on world market prices and a developmental orientation towards the world market, rather than local priorities. Palm oil brings many benefits to smallholder farmers (McCarthy 2010). It is currently a preferred crop for many, netting them nearly double the income compared to other crops like rubber or rice (World Bank and IFC 2011). Many farmers hold contracts tying them to specific palm oil mills, a crucial part of the production process, which may also help to raise incomes and provide economic stability to rural families (Cahyadi and Waibel 2013). Similarly, proper management techniques can also make palm oil an efficient and even somewhat "green" agricultural product by reducing environmental problems like pesticide and herbicide use, minimizing biodiversity loss, and preventing soil erosion (Barraclough 2000; Sheil et al. 2009; Wilcove and Koh 2010). Given the low incomes of many rural Indonesians, virtually any industry that provides employment and income is a welcome relief from poverty. On the face of it, palm oil is providing a degree of development to rural Indonesia within the present political and economic moment in Indonesia.

However, palm oil-led development in Indonesia generates uneven outcomes. A major consequence of the growth and spread of palm oil is the increasing polarization of incomes in rural Indonesia, where some benefit and others are left out (Cahyadi and Waibel 2013; Kasryno and Haryono 2010; McCarthy et al. 2012; Wilkinson 2007; Li 2012). Growing incomes allow some farmers to increase their landholdings. As detailed below, though palm oil's production per unit of land is higher than competitors and needs fewer chemical inputs, its growth spurs large scale environmental problems (Cattau, Marlier, and De Fries 2016). Similarly, there is little guarantee that farmers see a return on their labor commensurate with either their effort or the environmental destruction wrought by palm oil's spread.

Palm oil is a unique tropical crop for its land ownership structure. Production includes a mixture of small farmers engaged in production on their own land and proletarianized wage earners working on plantations with considerable overlap between the two groups of workers. While it varies according to harvest years, palm oil smallholders, growers defined by the government as owning 25 hectares of land or less, produce about 40% of the crude palm oil in Indonesia (1 hectare = 2.5 acres). State-owned plantations make around 10% of the country's supplies, and the remaining 50% comes from privately owned plantations. The major differences between the groups is the high variation in land productivity. Private plantations in some areas can produce about 4 tons/ha of crude palm oil, while some smallholders are struggling to make 3 tons/ha. The primary difference is the availability of investment in chemical inputs and tools. There are also major overlaps between the groups, since some smallholder farmers will also perform wage labor on large plantations for another source of income. Some smallholders also have supported relationships with large plantations where they receive inputs and credits for their farms, and then they sell their palm oil fruit back to the plantation. The ownership structure reflects a long-standing pattern of land ownership in Indonesia, going as far back as Marx's notes on Java during the Dutch colonial period (Anderson 2016). In Indonesia, many small farmers are the labor source for large plantation-oriented agricultural production. 80% of farms in Indonesia are less than .5 ha in size (BPS 2013). The small size of most landholdings prevents farmers from living exclusively from their own land; to supplement their income, they must work for wages in other areas..

World-systems theorists see the structure of the global economy as a decisive factor in dictating the internal political and economic situations within nation-states, as well as opening or limiting the possibility of ascending the ranks of the global division of labor. Under US political

and economic hegemony, the US promoted and forced neoliberal development plans onto peripheral states (Babb 2012). For raw materials specialists like Indonesia, this meant selling off state assets to increase the size and depth of the private sector. Also, these plans sought to promote export-oriented macroeconomic models to earn foreign exchange for peripheral states. These models were also intended to pay off debts from IMF and World Bank negotiated loans. Structural adjustment programs (SAPs) were attached as conditions for IMF loans in the event of national debt defaults. In 1998, Indonesia's economy faltered due to the Asian financial crisis of that year. Mass protests removed Suharto from power, but the IMF placed a major burden on the new democracy through its SAP. While Suharto dispersed control of state owned enterprises to reward friends, family, and military allies for their loyalty, many of their operations did keep some value-added activities in the country (Gellert 2007; 2010). The IMF opened this sector to privatization and foreign ownership, which meant economic efficiency on the IMF's terms, but losses of employment and social spending.

Under Indonesia's SAP, the overall model of dependency on raw materials deepened. World Bank planners specifically targeted palm oil as a potential growth sector for the country (World Bank and IFC 2011). Plans for promoting palm oil included a variety of forms of technical assistance and loans for new plantations (ibid, 55). One barrier to palm oil's continued expansion was the lack of a large pliable labor force on Indonesia's outer islands, which tend to be lightly populated by peasant farmers or indigenous people. The World Bank extended earmarked loans to the Indonesian government for further transmigration (*transmigrasi*) programs. Dutch plantations used various transmigration schemes to develop their colonial export sector, and the early transmigration programs imitated these programs. The post-independence transmigration programs, which began shortly after Suharto came to power in

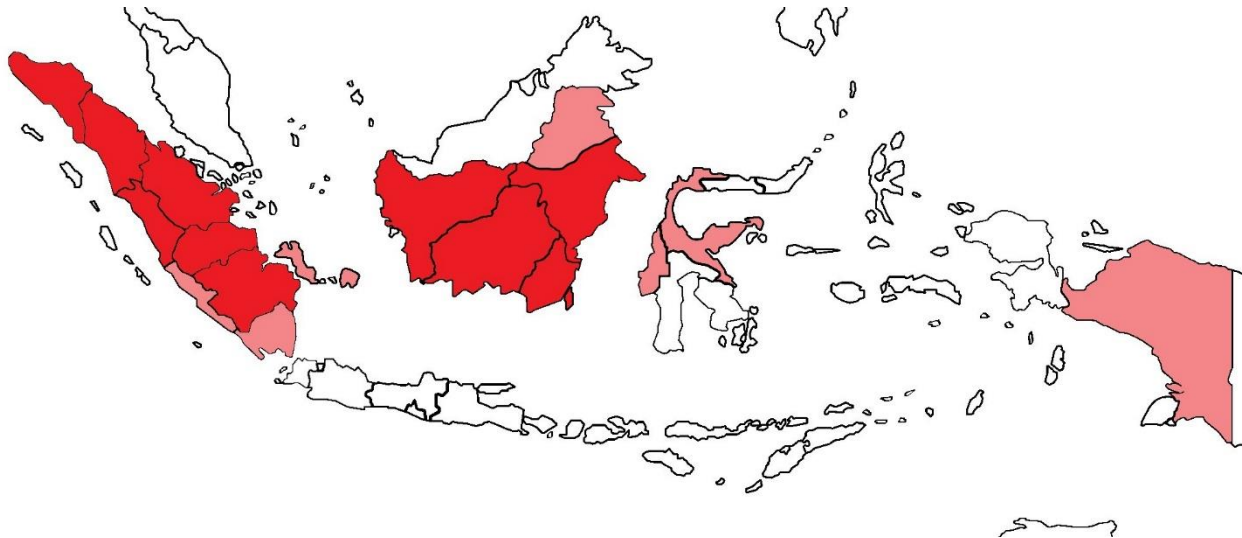
1965, came in several waves. The stated intention of the program was to settle the outer islands of Indonesia with laborers who would develop the mineral, timber, and agricultural resources of these islands. These migrants were often landless Javanese farmers (most farms on Java are only .8 ha, far from the 2 hectares deemed generally sufficient for a family farm to be economically viable [Kasryno and Haryono 2010]) or urban poor which the Suharto regime feared might become a revolutionary force (Lucas and Warren 2013). Many migrants lacked access to capital or skills to farm the nutritionally poor tropical soils of the outer islands. The government intervened with a variety of settlement schemes to assist in palm oil growing. A common example was the nucleus-plasma estate (abbreviated in Indonesian as “PIR”). Land around a central farm, either private or state, was issued to farmers in a 20:80 ratio; the estate owned 20% of the land while migrants were granted 80% of the “plasma” land around the “nucleus” estate (Levang 1997). Agricultural cooperatives known as KKPA (*Koperasi Kredit Primer untuk Anggota* or Primary Cooperative Credit for Members) were also established to provide settler-farmers with capital (McCarthy and Cramb 2009).

However, the transmigration programs and forms of agricultural credit ended with Indonesia’s embracing neoliberalism. A contraction in state spending led to cuts in the KKPA and nucleus-plasma estates. Many transmigrants, estimated as high as 50%, returned to their place of origin. The original ratio of nucleus to plasma landholdings in these landholding schemes turned from a ratio of 20:80 to now as skewed as 70:30 (Kasryno and Haryono 2010). Cuts to agricultural credits were particularly harsh, and many farmers found themselves in dire straits as debtors to local banks. In place of these programs, many farmers now contract to sell their produce to palm oil mills at pre-established prices. Though this stabilizes the relationship between smallholders and mills, it can also trap farmers in unequal power relationships with

mills that manipulate prices to the mills' advantage. The 24 to 48 hours to mill palm fruits into palm guarantees plantations an upper hand in purchasing palm fruits since farmers have a limited number of buyers (Colchester and Jiwan 2006).

Bunker's examination of the aluminum industry in Brazil, Jamaica, and Indonesia demonstrated the asymmetry in political and economic power between core and peripheral states and the environmental consequences of these relationships. Japanese aluminum firms made credible appeals to local and national governments that the infrastructure and technology needed to extract aluminum would benefit the local and national economy. Some benefits came from these programs, but the mass movement of more aluminum at cheaper per unit prices meant the state lost a considerable dividend on each ton of aluminum extracted. In a similar sense, Indonesia continues to lose as development continues apace, though with enough return to farmers and the state to make participation worthwhile. Agriculture, however, does differ from minerals in some important ways. Namely, no single nation appears to have taken the lead in reforming Indonesia's economy. Instead, international financial institutions attached themselves to processes that had occurred in the country before the bailout from the Asian financial crisis. The Indonesian state, prior to the neoliberal *reformasi* era, sought to develop the outer islands of the country and palm oil became a major building block of these efforts. This effectively tied wide swaths of rural Indonesia into global circuits of accumulation and led to the vastly altered landscapes characterizing the primary growing regions of northern and central Sumatra and many areas of Kalimantan (Indonesian Borneo).

Figure 2.2: Major palm oil growing regions of Indonesia in 2016 (last confirmed figures)



-Regions in red indicate regional palm oil production >1 tons crude palm oil per year
-Regions in pink indicate >500,000 tons but <1,000,000 tons crude palm oil per year
Source: Directorate General of Estate Crops

The expansion and contraction of state assistance to palm oil farming moves in tandem with the state of the global economy. The early PIR programs expanded under the New Order after Suharto's seizure of power in 1965, which articulated a state-developmental vision within a harsh military dictatorship, dovetailed with US hegemony and its practices in other national contexts. Later, this model would shift away from a focus on small farmers back towards large plantations, flipping the legal requirements on land distribution between plantations and associated smallholders. Then, when the Asian financial crisis devastated the Indonesian economy, state assistance through these programs collapsed. Currently, the state extends some subsidies to palm oil, especially towards downstream production of value-added commodities. The large-scale developmental plans remain a thing of the past. This course of events replicates many of the same processes occurring simultaneously in Latin America, Africa, and elsewhere in Asia under IMF-World Bank imposed austerity, ironically accompanying democratization and

the end of military regimes (Brown 2009). Within the Indonesian national context, this course of events hastened deforestation and state expansion onto the outer islands of the country. The movement away from farmer-centric state assistance halted the significant developmental progress made even under the Suharto regime. Today, many developmental possibilities are closed to farmers and plantation workers thanks to the neoliberal reforms of the *reformasi* period.

In the case of Brazil's aluminum, firms turn to the state to grant them access to raw materials, suggesting the primacy of the state over the firm in making these decisions. With agricultural commodities, extraction is site-specific, but this extraction occurs over a much wider area. Also, technological barriers are lower than mineral processing. I argue that palm oil production requires less of the state-sponsored marketing campaigns than minerals for this reason. Hence, international financial institutions like the IMF and World Bank are sufficient to open Indonesia's palm oil production for the rest of the world. This is an important distinction between aluminum's extraction and Indonesian palm oil.

The Palm Oil Commodity Chain

In a study focusing on the environmental issues related to commodity chains and the distribution of benefits to the different actors in the chain, we must go to the very beginning of the commodity chain before anything is produced. Here, I lay out the material qualities of palm oil and how these qualities shape social relations. Understanding how palm oil is made is crucial to establishing the class relations surrounding the production of this product. Bunker's analysis of the historical underdevelopment of the Amazon showed how "extractive economies," regional economies in which natural resource extraction is the predominant economic sector, and "productive economies," which use natural resources to produce industrial commodities, differ in

their developmental trajectories (1984). His theoretical contribution is that political-economic theories center on the experience of the US and Western Europe regarding industrial development and are inadequate in explaining the underdevelopment of extractive peripheral states. To explain these differences, social scientists need to move past a focus on production, costs, and value in terms of labor and capital. Instead, peripheral economies operate in distinctly different ways from “fully capitalist” states. Their underdevelopment is not due to unfavorable terms of trade nor their position within the world-system, but to the ecological, demographic, and infrastructural changes due to global demands for specific commodities produced in specific ways. The key to understanding the effects of natural resource development depend on the material qualities of these commodities that suit particular industrial needs. The economy orients towards these priorities, rather than the local market. I borrow on these insights on the Amazon’s extractive economy to explain the developmental patterns of Indonesia’s palm oil growing regions. To do this, I must first explain palm oil’s material qualities, which shape the ecological outcomes in palm oil growing regions and respond to the material needs

Before planting even begins, farmers of any size must clear their land of previously existing vegetation. There is some confusion over the association between social class and the use of fire to start palm oil cultivation. Smallholders use burning to remove unwanted vegetation to prepare a site for planting because they lack the capital and equipment to log their land. Large corporate landholders have the capital to log their landholdings of tropical hardwoods before planting seedlings. Class analysis of the relationship between burning and palm oil plantations is difficult to do because of the relationships between independent smallholders and the plantations to which they sell their produce (World Resources Institute 2016; Greenpeace UK 2007). Logging before planting oil palms offers two chances for accumulation from the land. Many

NGOs are pushing for palm oil growers to select growing sites on defunct rubber or other tree crop plantations, even going so far as to create data tools to identify these sites (SPOTT 2017). However, chemical fertilizers remain a top expense for growers, making it unlikely that they will begin using these sites, so long as other lands retaining their natural fertility remain for putting in new plantations.

On the environmental front, these activities drive deforestation, wildfires, biodiversity losses, and associated effects on human health from exposure to bad air and contamination of drinking water. The material limits on continually expanding the amount of land on which it is possible to grow oil palms necessitates that at some point, palm oil growers need to either increase the production of the lands they already own or they will be unable to meet growing global demand. However, this also has serious environmental and social ramifications. A total loss of biodiversity and natural forests would affect rainfall patterns to the point at which either irrigation would be necessary, or oil palms would decrease in yields. The complexities of tropical environments, again, much like the hydrological and biological conditions that Bunker (1985) describes in the Amazon, prevent capital from completing bending the region into an ideal site of accumulation. Developing Indonesia's palm oil sector requires altering the natural patterns of rural agriculture in favor of ever-increasing amounts of palm oil, despite the contradiction between this drive and the capability of the natural environment to support such unnaturally high levels of production.

After clearing, growers can plant oil palm seedlings. Palm oil seedlings are not genetically modified like annual crops, including corn and soy. While this makes palm oil more acceptable to a European public that is typically skeptical of genetically-modified food, these trees are less amenable to genetic modification. At planting, many farmers take on debt to

purchase the number of seedlings necessary for a viable farm. Once planted, oil palms take approximately 7-13 years to reach their highest yielding period, after which they will continually produce until they reach about 25 years. Oil palms produce no fruit for at least thirty months after planting (FAO 1990). At this point, new seedlings replace the older trees to restart the growth cycle. During this period, the trees need constant applications of fertilizer, pesticide, and herbicide to maximize production (Verheye 2010). This is one of the major points in which class differentiation amongst growers appears. Small farmers typically lack access to the capital necessary to afford these inputs, and their lack seriously affects farmers' ability to reach the accepted threshold of production for a viable palm oil farm, around 143 oil palms per hectare (FAO 1990). Many farmers who move into palm oil cultivation find that their farms are unviable economically (McCarthy 2010). Generally, there is a lack of state support for small farmers in terms of agricultural credits and price supports. I discuss this phenomenon and its developmental consequences in more detail in the next chapter.

Palm oil is unique among the oil seeds for its long biological cycles, in contrast to the annual harvests of corn, canola, or soy. The annual harvest of these competing oils allows farmers to shift their production much faster to adjust to the vagaries of global commodity prices. Also, breeding and agricultural experimentation with annual plants is much easier, as each year produces a major generation of plants, rather than taking years to reach maturity before collecting data on the new generation of plants. So, farmers must accept losses when palm oil prices are low and they cannot shift their production into other commodities without accepting further losses from the destruction and replacement of their trees with other crops. Talbot (2004) reports similar issues with Brazil's coffee crops. Low commodity prices can shift production in

annual crops during down cycles, but palm oil growers cannot easily shift in response to market forces.

After reaching maturity, the trees will begin to produce crops of fresh fruit bunces (FFBs). Growers sell these fruits to nearby mills for pressing into crude palm oil (CPO). A major issue with the production and sale of FFBs is the limited time between harvest and sale before the quality of the FFBs declines. This presents a major barrier for growers to find the best price for their FFBs. Because of Indonesia's poor transportation infrastructure in rural areas, farmers cannot travel far to find ideal prices for their crop. Instead, farmers sell to the nearest mill, which often has a monopsony on the crops of nearby growers. Farmers must accept whatever price these mills offer. These relationships prompt growers to engage in contract planting with mills, which gives farmers at least some protection in the form of more predictable market relations.

At the mill, machines crush the palm fruits to separate the mesocarp from the unusable parts of the fruit. The crushed palm fruits yield the initial oil from the fruit. This oil must then be deodorized, filtered, refined, and later separated into the variety of oleochemical products that become a part of foods, detergents, cosmetics, and industrial products. Palm kernel oil (PKO) is another valuable oil also rendered from the milling process. PKO yields more of the oil not used in food production. These processes guarantee that another middle layer of processors stand between palm oil farmers and their markets. This contrasts with the fewer numbers of producers between coffee growers and their consumer bases. Having more technical processes and layers of management, mills, refiners, and marketers means that less of the total value produced likely ends up with small farmers. As mentioned earlier, the Indonesian state uses its higher export tax on crude palm oil to promote more refinement processes inside the country. To a certain degree,

these measures are successful. The total amount of finished products is going up, and Indonesian ports are handling more refined products (GBG Indonesia 2016).

Many mills run on the burnt shells and fruit leftovers from the milling process which they use to bolster their claims to sustainability. Mills then sell their CPO to further refineries which deodorize the oil and separate it into other chemical compounds, depending on the eventual usage of the oil. While the state and many private companies have plans to increase the country's refining capacity, at this point about 50% of total CPO produced in Indonesia is exported. The additional processes that make edible palm oil found in food occur in refineries closer to the point of consumption. It is important to note that Indonesia remains a top consumer of palm oil and its products, but the state greatly incentivizes exports to generate foreign currency earnings (FAOSTAT 2016). One way the state does this is through taxes on the export of crude palm oil, incentivizing domestic manufacture of more refined palm oil products. However, with the global price collapse of many basic commodities following the 2008 global financial crisis, the state rescinded the tax on CPO exports and, to date, the state is not collecting any taxes on CPO exports until prices rise (Indonesia Investments 2017).

In terms of commodity chain literature and palm oil's place in it, the Indonesian state and both its national capital and capital from Malaysia and China seek to upgrade the country's capacity to perform many of the higher order industrial processes of refining and producing palm oil byproducts. Many business publications tout the country's low wages and "favorable business climate" (GBG Indonesia 2016). However, Indonesia's large foreign debt and a lack of investment in public infrastructure hamper these upgrades. The state is promoting palm oil biodiesel as another growth-generating sector. The examples of other biodiesel commodities suggest that creating greater demand for palm oil will expand productive area at the expense of

forests, and divert palm oil from the food system, raising prices and threatening food security (McMichael 2010a, 2010b, 2009; Hussein 2017).

Biofuels bear some of the responsibility for the food riots and shortages through much of the Global South in 2008. In some Indonesian cities, protests emerged against rising food prices, but the government moved swiftly to undercut the protests through the introduction of new food subsidies and limitations on rice exports (Lacey 2008). President Widodo recently promised to increase food security in Indonesia through various supports for rice farmers, but this project is unlikely to accomplish its goals if Indonesia simultaneously puts more palm oil into biodiesel production. The use of corn ethanol in the United States shrinks the availability of these crops for food. Prices of basic foodstuffs vary according to global fuel prices (Mitchell 2008). A rise in corn prices drives similar rises in rice and other grains. Since Indonesia exports about half of its palm oil production, and the rest is either reserved for the domestic market, or processed in the country, and much of that is consumed domestically. Producing more palm oil biodiesel will damage domestic food affordability.

Biodiesel production is also problematic because the energy put into biodiesel production surpasses the energy released from burning biofuels. Much of this problem stems from the high petroleum-based chemical inputs like fertilizers, pesticides, and herbicides. The production of biofuel itself also requires energy to refine vegetable oils into combustible hydrocarbons. Since workers harvest palm FFBs by hand, it is somewhat less mechanization than in corn, but transportation costs and milling also consume their fair share of energy. Among biofuels, palm oil is also the dirtiest in terms of associated emissions (Mitthofer et al. 2017). The United States' Environmental Protection Agency banned palm oil diesel from the US market for this reason.

These issues demonstrate the tension between development and the environment in Indonesia. The settler colonial states, the United States, Canada, and Australia, are evidence that development through the industrialization of agriculture is possible. The staples theory developed by Canadian economic historian Harold Innis and economist W. A. Mackintosh suggested that Canada's state building project, both politically and culturally, depended upon its exploitation of raw materials like fur, fish, and wheat (Innis 1977 [1930]; Mackintosh 1977 [1923]). Watkins (1967) revived the idea to explain the development of other resource-rich states and improved on its application to Canada's case. This developmental pattern created a political and economic divide between the dominant industrialized "heartland" and the resource-rich "hinterland" that defines Canadian political economy. Their work suggests that Indonesia and other resource-rich states could copy this idea to build up transportation and communication infrastructure, but there are several factors that differ in the Indonesian and Canadian cases. Indonesia's natural environment may not sustain palm oil production for as long as Canada practiced less intensive forms of wheat production. Also, the historical timing of Indonesia's development efforts in the sector take place in a different political and economic environment. The neoliberal policy prescriptions followed by Indonesia and other poor nations do not allow for the same degree of state-led development practiced by Canada, the United States, and Australia. Canada has a well-provisioned welfare state that Indonesia lacks to distribute health and welfare to Canadian workers, so redistribution of the wealth created by palm oil production may not reach all sectors of society in the same manner. The political and social questions of viable development through raw materials exports are moot if Indonesia's environment cannot sustain the industry for very long.

Many companies involved in the palm oil commodity chain often defend the industry by referencing the land use efficiency of palm oil versus other seed oils like canola and soy. Palm oil is at least four times as efficient as canola in its yield per acre, though this figure varies highly between small farmers and large corporate plantations with greater access to fertilizers, pesticides, and herbicides. Defenders of palm oil claim that oil palms' high yields per hectare means that using palm oil over other seed oils means that expansion is not necessary and intensification of existing landholdings can prevent deforestation. This land efficiency, however, appears to only incentivize expansion of oil palm plantations. The timescale at which vast areas of Indonesia's islands, Sumatra and Borneo, are deforested suggest that these efficiency gains are so rapidly consumed by total land area expansion as to negate this support for the industry. Palm oil plantations now cover an estimated 3% of the country's surface area (Brad et al. 2015). The average per hectare land productivity is frozen, and despite agricultural science claims of the possibility of doubling land productivity, the national average is still hovering around 3.6 tons/ha. From this, we see that intensification simply is not happening and increases are coming only from more extensive development.

There are important parallels between the "underdevelopment" of the Amazon basin and Indonesia's palm oil sector. Indonesia's productive forces orient towards foreign export markets, rather than the country's economic and social priorities. Farmers grow their crops for foreign markets and face developmental barriers from the biological boundaries of palm oil production, which they can overcome, at present, with extensive growth of planting areas. The changes of this development leave Indonesia on a path dependent form of development oriented to the world market. Although this involves agriculture, not mining, the changes to landscapes are permanent

in many ways. This includes draining peatlands and impacted soils from logging and agricultural activities.

Another developmental issue with palm oil is the substitutability between palm oil and other related crops. A materialist analysis of palm oil must include this important factor in its potential for development.

Substitutability and Seed Oil Market Rivals

Among the factors limiting the total amount of value available within the palm oil commodity chain is the substitutability of palm oil by other seed oils. Seed oils like canola, sunflower, and soybean oils perform the same role in packaged foods, providing requisite textures and shelf life. Palm oil has the advantage of being used in many other products outside food, but it can easily be substituted since seed oils generally perform the same function in finished products with little flavor difference. Thus, the problem for palm oil growers becomes the problem of needing to be the lowest cost seed oil or face substitution by another competing commodity. However, for the much-touted smallholders, this is also problematic. Low prices on global markets mean low incomes and wage cuts for waged agricultural workers. Additional problems include tariffs and levies against palm oil, making it even less competitive against competing products. This became a major fear of Indonesian and Malaysian palm oil producers in early 2016 when France levied a tax on “unsustainably produced” palm oil, citing concerns that palm oil production threatened tropical forests (De la Hamaide 2016). The tax’s purpose was to incentivize sustainable production of palm oil under the Roundtable on Sustainable Palm Oil’s standards for environmental sustainability. Palm oil producers in Malaysia and Indonesia were quick to respond that this constituted a violation of their sovereignty and economic growth.

All these factors combine to limit the total amount of value created along the entirety of the commodity chain. In other kinds of commodity chains, coffee, for example, a major way to boost the value along the chain is through aggressive marketing of the unique qualities or production methods of the commodity. Considerable controversy exists in the commodity chain literature on whether environmentally sustainable production methods or fair-trade influence social and environmental outcomes, instead of adding value for companies involved in trade and final sale (Jaffee 2012; Cole 2008). These efforts end up as one of many “developmentalist illusions” criticized by world-systems scholars (Arrighi and Drangel 1986). Coffee exemplifies the opportunities and pitfalls of the fair-trade approach to sustainable development. While fair trade coffee has made some inroads in promoting farmer well-being and environmentally sustainable practices, the ability of these schemas to raise farmers’ standard of living is limited by the size of the market and the small economic returns going directly to farmers. On the other hand, large-scale state-led development and the International Coffee Agreement to manage global supply tended to lead national-level development and prevent harmful price wars, but today’s neoliberal economic policies make this less viable (Talbot 2004). Also, once we take the material forces of production into account, such as the inevitable tension between growth and environmental protection, the slightly higher prices that fair trade products fetch on the market fail to adequately compensate the environmental consequences of this transformation.

Free market governance over the palm oil commodity chain deepens farmers’ dependence on market forces rather than the state as in previous periods in Indonesian development. At present, the price premium on a ton of palm oil produced under the Roundtable on Sustainable Palm Oil only guarantees farmers a price premium of about 1% of the previous value. Farmers are also forced to pay the price for training and certification in “greener”

production methods (author interview, see chapter 4). Central to this issue is the lack of marketing at the downstream end to differentiate these products for consumers, unlike the specialty coffees offered by free trade groups working on that commodity. Given that palm oil is an ingredient in snack items, rather than the focus of consumers' purchase, few consumers would pay a premium for fair trade or specialty varieties. Marketing to consumers plays a major role in the total value accruing to producers at the base of a commodity chain (Gereffi 1997; Tregear and Gorton 2005). Coffee and wine are commodities whose end value receives a major boost through the unique properties attributed to specialty varieties or place of origin. Palm oil, by contrast, is indistinct to consumers, many of whom hardly notice its presence and almost never purchase it in the US and Europe. Increasing the price of palm oil threatens producers to move towards substitute products, leaving farmers without a buyer. Much like in other national contexts, state planners claim a lack of land titles prevents farmers from investing in their holdings and prevents communities from protecting their land. The current government's land titling drive for small farmers, in which farmers are issued titles legally recognizing their right to land, will make it easier for capitalist firms to obtain land from poor peasants who fall on hard times, rather than directly helping farmers through price floor guarantees or other forms of direct financial assistance.

Many organizations, both labor and environmental, exclusively focus on the Indonesian state or large transnational corporations. Similarly, many academic studies of palm oil are either interested in the rise of private-led environmental and labor certifications, tracking its environmental problems, or suggesting technocratic solutions to the environmental problems associated with it. The new historical materialism perspective suggests that we must also account for the biological and chemical processes involved in commodity production and manufacture to

understand the connection between local and global conditions. These same factors also play a major role in the developmental outcomes of commodity production. Below, I discuss the role of palm oil in changing class relations in rural Indonesia.

Palm oil and social class in rural Indonesia

The number of peasants working the land is declining as land concentrates in fewer hands (Araghi 1995). In the case of Indonesia, palm oil plantations are expanding and their growth involves privatizing the common lands of farmers and indigenous people (Colchester and Jiwan 2006). In other places, this process has been called either a “land grab” or “accumulation by dispossession” (Gellert 2015; Harvey 2007). The small parcels of land that most palm oil farmers own, the majority being 2 hectares or less, mean that farmers cannot live exclusively from palm oil, and must find other sources of income (McCarthy 2010; Li 2015). Growing financialization of land worldwide prompted the creation of financial instruments for purchasing land and using state power to either legally or illegally remove its previous inhabitants, often with deeply insufficient compensation for their removal, leading to a global expulsion of the poor from an already tenuous existence (Sassen 2014). These same processes are repeating in Indonesia for many peasants in areas speculated on by palm oil companies and their subsidiaries.

The importance of this process for commodity chains is in the beginning of accumulation through the dispossession of relatively self-sufficient peasants from their land. In the last century, global dispossessions resulting from many of the policies pushed by the US and the IMF/WB created a swell of migrants from rural areas to cities. If certain calculations are correct, as many as thirty percent of these migrants may be unabsorbed into the formal labor sector in this movement (Yates 2016), vastly outnumbering the percentage of the unabsorbed European proletariat after the enclosure movements at the start of the Industrial Revolution.

The Indonesian state's census-taking procedures do not tell the full story of social class in rural areas, much less in palm oil production, but some approximations are possible. First, government statistics show that fewer Indonesians are farming than in the last two rounds of the country's agrarian census in 2003 and 2013 and a secular trend towards shrinking landholdings for many small farmers (Rusastra, Lokollo, and Friyatno 2007; Kasryno and Haryono 2010). Southeast Asia is a major "beneficiary" of the new international division of labor (NIDL). Industrial production of textiles boomed following the end of the Suharto regime, though the creation of an urban proletariat began well before then. Agriculture and the primary sector now make up only one-third of Indonesia's economy today. The Indonesian economy posted considerable yearly growth rates, but displacement continued apace and inequality grew to unprecedented levels in the past three decades. Much of this phenomenon emerges from the growth in financialization measures allowing for more foreign ownership of land (Rusastra, Lokollo, and Friyatno 2007). Though this financialization promises poverty alleviation, the opposite often results when peasants have no other form of employment to start working for wages. Palm oil farms are believed to be financially viable when at least 2 hectares (approximately 5 acres) in size, and many farmers with more land than this require outside farm work to support their families. The 40% of Indonesia's total palm oil production grown by small farmers comes from farms of this size. McCarthy (2010) and Li (2015) show that few palm oil farmers rely only on their main crop to earn their living. Li shows that 6 hectares is the bare minimum of land on which a palm oil farming couple can live exclusively from their palm oil production. The average smallholder owns only about 2 hectares, meaning that most farmers have the bare minimum of land to hold onto their farms, and this is much less than the minimum amount of land for living exclusively from palm oil.

The legal roots of dispossession in Indonesia lay in the lack of land tenure for millions of rural farmers. As of this writing, about 20% of Indonesia's land area was legally titled in some form (Kasryno and Haryono 2010, Lucas and Warren 2013). Many people living in the rural hinterlands of the country have no legal tenure to their land, though they may have lived on it for generations. Indigenous people, a loose definition in the Indonesian legal system, hold some tenure through constitutionally protected *adat*, or customary law. However, legal titles obtained from the Ministry of Forest often trump this designation and many indigenous people lack the resources to mount effective challenges to legal losses of their lands. Obtaining a legal land title is a convoluted process, and many land buyers fail to navigate the process. This provides a legal basis for challenges to shady land purchases and the ensuing dispossession. As early as 2008, there were approximately 514 legal actions against companies for not obtaining free, prior, and informed consent from communities (Jiwan 2010). Many Indonesian courts have handed down rulings in favor of communities suing for the return of their land, but the court system remains slow and expensive, and uncertainty at the national level means that the legal ground for unlawful land purchases still exists (Gellert and Andiko 2015).

Illegal dispossession is only part of the story. Indonesian state policy for many decades promoted palm oil at the expense of previously existing crops like coconut (Gaskell 2015). Despite these efforts, many farmers cannot compete in the palm oil markets for a variety of reasons. Smallholders farmers often lack the capital required for the many chemical inputs needed to be competitive with the production levels of large plantations (Vermeulen and Goad 2006). Government statistics show that large plantations outproduce smallholder farmers with production figures between 3.98 t/ha per acre for private estates and 3.2 t/ha for smallholders (BPS 2015). On a large scale, this scenario produces a gulf in income and productivity between

the two groups. Farmers may also become indebted for their rising input costs, particularly as the natural fertility of the soil declines and inputs become a year-to-year necessity (Lee et al. 2014, Wahid and Simeh 2009). Faced with rising debt and income, especially if prices should suddenly fall, many farmers sell their land and become wage laborers on the nucleus-estate model on larger plantations. While this may alleviate their debt, these systems leave them vulnerable to the pricing structure used by large plantations to purchase their fresh fruit bunches (Vermeulen and Goad 2006). The structure established by the Indonesian Ministry of Agriculture to price fresh fruit bunches includes measures for quality and weight, ostensibly to protect farmers (Indonesian Ministry of Agriculture 2013.).

FFB price paid to farmers = Proportion paid to farmers*(Avg. price of CPO*average percent of oil extraction) + (avg. price of palm kernel oil*average percent oil extraction)

In fact, the proportion paid to farmers is decided solely by the plantation companies, giving them incredible power in price setting (Maryadi, Yusuf, and Mulyana 2004). Farmers can try to sell to other mills and plantations if they do not have contractual relationships.

Nevertheless, plantations often have a monopsony on the purchasing of fresh fruit bunches, either by design in the case of the nucleus-estate model or due to the lack of infrastructure and price knowledge on the part of the small farmers producing 40% of the country's palm oil.

Reliable data on how many farmers participate in supported growing schemes, cooperatives, or other forms of collective marketing and production are not available. Still, the original PIR-Trans programs and KKPA credit programs that brought many farmers to the outer islands to jumpstart palm oil production suggests these are popular programs, or that farmers are at least willing to try them. Case study research on the benefits of supported smallholding and cooperatives suggest that these activities can bring substantial benefits to farmers (Jelsma et al. 2017). Independent

smallholding, in which farmers have no relationship to a private plantation or mill, has its own benefits, as well. Gaskell (2015) shows that farmers prefer to grow coconut palm since coconut has a variety of uses for the grower that can be used on the farm if market prices fall. Mixed agricultural production for farmers with the option to do so can insulate against price fluctuations and improve a family's diet.

A major factor driving this movement of peasants out of small farming into nucleus-estate models or wage labor is the economy of scale required for palm oil plantations to be economically viable. Much like sugar, palm oil mills rely on a continuous stream of crops to continue production. Though there is a discernable palm oil season, many plantations can produce throughout the year. Smallholders, on the other hand, cannot continually produce year around, nor produce a continuous stream of high-quality crops. To raise outputs, plantations often have a mill nearby, and it may be vertically integrated into the same company. Smallholders, who are likely to be more widely dispersed, lack this vertically integrated structure. State policies also favor large landholdings (Gaskell 2015, Sheil et al. 2009, Vermeulen and Goad 2006).

This pattern reproduces much of what we already know in other commodities. A drive towards economies of scale through industrial production favors large landowners at the expense of a higher number of small peasant holdings. Large plantations also have the political clout to turn state policies in their favor. A lack of transportation in rural Indonesia bolsters the monopsony of mills over peasant farmers.

The policy change from a developmental state with Indonesian characteristics aligns with global level processes evident under the "Washington Consensus" prescriptions for development from the international financial institutions, also occurring at the same time as the effects of the

Asian financial crisis hit Indonesia's economic productivity and social provisions. In the following section, I give an account of Indonesia's state policies and subsequently Malaysia's reactions to its rival. As noted in this section, these changes do not solely originate within Indonesia, but are themselves brought about by world-systemic forces brought into Indonesia by international financial institutions and the global pressures put on agrarian producers in the Global South. I account for them below as a critical influence on the structure of palm oil production at its spatial points and productive processes. Just as the global structures the national, it also structures much of the opportunities available to Indonesians within their own national sphere to alter the power and material relations within the commodity chain.

Undifferentiation and marketing

Unlike other commodities which emphasize quality, unique flavors or production characteristics, or certain cultural attributes (i.e. coffee, tea, or wine), palm oil has few qualities that distinguish it from other seed oil competitors. On the other hand, palm oil does serve the major requirement of global capital to produce products necessary to subsidize low wages in urban workforces. In both cases of China and India, the rapid growth of cheap instant noodles and vegetable substitutes for more expensive dairy products meets the needs of capital to infuse workers with cheap calories. These cheap calories help to hold wage costs low on a global scale through a reduction in the costs of reproducing labor (Moore 2015). The process resembles the necessity of sugar in the diet of the English working class, given that wages were too low to give workers the calories needed for long factory shifts without sugar (Mintz 1985). Palm oil and its substitute products are a growing proportion of the diet of many populations, especially China and India, even as palm oil already dominates the supermarket shelves in core states.

China and India are semi-peripheral challengers to the hegemony of the US and its Western European allies. If we accept Bunker's thesis that hegemony, political and economic, rests on a basis of cheap material inputs, China and India will also need to supply their populations with cheap food as a raw material for "building laborers." In this sense, they repeat a common pattern of semi-peripheral states. These states are both oppressor and oppressed- their market demands for palm oil imports fuel a system of environmental degradation and labor exploitation in any even more peripheral country. China and India's growth depends on obtaining cheaply available food and raw materials to sustain this growth. The long-term consequences are unknown, but at this current juncture China is increasing its share of exports of Indonesia's basic commodities and Indonesia is left with the environmental consequences (International Monetary Fund 2018).

The global value chain perspective theorizes marketing as an area of additional value in commodity production that a commodity chain analysis should consider, though buyer-driven commodity chains like apparel are usually the emphasized sector (Gereffi and Korzeniewicz 1994). Gibbon (2001) claims that producers of agricultural staples can also effectively add value to their commodities through marketing and differentiation. Both Indonesia and Malaysia maintain their own marketing and promotional groups of industry insiders, while also supporting their own types of sustainability criteria. Marketing adds another form of value capture by differentiating products for consumers, who not only buy greater amounts of the promoted commodity, but are also willing to pay more for unique qualities and points of origin. Palm oil's marketing in Europe and North America relies on a unique strategy of managing criticism of the industry's practices through sustainability certification. These certification schemes, best exemplified by the RSPO and its global reach, also promise benefits for farmers and the

environment. Marketing is a way for developing states to capture more value along the chain, if done correctly. Efforts at marketing sustainable palm oil show how unlikely marketing strategies are for earning higher prices at market. As mentioned above, one true disadvantage of this undifferentiated product is that it is virtually impossible to create “brands” of this oil, develop consumer loyalty, or mobilize end buyers to demand better environmental or labor conditions for Indonesia producers; indeed, in the cases of most mass marketed goods containing palm oil, consumers often are largely unaware of its presence. Some activist groups have attempted to link PepsiCo products to “conflict palm oil” produced in an unsustainable manner, despite company promises to abide by the voluntary standards set by the Roundtable on Sustainable Palm Oil (RAN 2017). Because palm oil appears low on the list of ingredients in many products, it goes unrecognized in consumer campaigns. Arguably, in this case, marketing based on ethical standards can have a perverse effect; it may add too much to the price of palm oil commodities at the point of sale. RSPO certification for sustainable palm oil adds between an estimated 8-15% to the price of palm oil (Oil World 2017). Since palm oil is relatively unnoticed in many products, producers are unwilling to purchase it, according to critics of the RSPO (Friends of the Earth International 2009). In 2012, half of certified palm oil stocks remained unsold (Bissonnette 2016), demonstrating how little demand certification of sustainability meant for marketing.

While some policy prescriptions can mitigate the labor and environmental problems associated with palm oil, there are systemic issues here that require inclusion in the analysis. The material requirements of palm oil production will generate environmental externalities. The RSPO’s sustainability certification cannot account for the original conversion of forest into plantation agriculture, no matter how “green” the production methods are. In terms of class, the

calculation of the price of fresh fruit bunches ultimately rests on the buyer, not the seller. Also, the retreat of the developmental state is turning more land over to plantations and reducing direct aid to farmers. Moreover, the structural problem of the world-system for peripheral states is still present: peripheral states depend on global prices over which they have little control, leaving farmers ultimately exposed to the vagaries of global markets. Couple this with the environmental consequences of palm oil for Indonesia's long-term sustainability, and the systemic problems of palm oil production become apparent. It is not clear how domestic policy prescriptions could overcome these barriers.

There are also the global political relations among palm oil producers to consider when evaluating the palm oil industry in a global economic perspective. Indonesia's main rival for global market share in palm oil, Malaysia, influences the profits that Indonesia can produce, and it has implications for future development.

Talking about the State(s): Interstate Rivalry, Regional Ties, and Constrained Profits

One major issue facing Indonesia is its rivalry with Malaysia for their palm oil market shares. With global palm oil prices bottoming out in 2008, both countries made slow progress on eliminating export taxes on crude palm oil and many palm oil refined products like biodiesel and palm oil byproducts olein and stearin (Wong 2016). This resulted in an export tax war between the two countries that virtually eliminated any tax collection on exports. Additionally, the elimination of export tax led to a brief increase in demand, but the flooding of the global market with cheap palm oil served only to keep prices low, similar to the efforts of Japanese firms to deliberately induce a global oversupply of aluminum (Barham, Bunker, and O'Hearn 1994). Much to the displeasure of Malaysia's economic planners, Indonesia's tax elimination, coupled with its lower wages in the industry, severely undercut Malaysia's market share, resulting in a

13% loss of the Chinese market, and a 39% loss of the US market. Malaysia's attempts to recapture its market share through cutting export taxes only reinforce the two countries' rivalry, including a struggle to preserve their market shares of refined products. Similar political moves after the elimination of the International Coffee Agreement led to a crash in coffee prices as states sought to defeat their rivals in the global market (Talbot 2004). With global prices still low compared to their heights before the 2008 recession, both states continue to experience lower export revenues than before the crisis.

The rivalry between the two main producers highlights some of the difficulties of development based on raw materials production and export. Malaysia succeeded early in the race to develop many different oleochemical products, including food, but in other products as well. Malaysia now produces around 120 palm oil-derived chemicals and further specialization is likely to continue (GBG Indonesia 2016). By contrast, Indonesia produces only around 20 oleochemical products. In terms of agricultural productivity, Malaysian plantations net higher yields of palm oil fruit per hectare, 4.0 per hectare to Indonesia's general average of around 3.6 tons/hectare (FAOSTAT 2017). Malaysia's successes in boosting yields depends its higher investments in fertilizers, pesticides, and herbicides. However, Malaysia lacks the vast tracts of land available in Indonesia to continue expanding. Agricultural scientists managed to raise yields up to almost 8 tons/ha, but these conditions are unlikely to be achieved under the less than ideal conditions found on plantations. Thus, Malaysia's production is likely to hit its maximum long before Indonesia, though it is already losing market share (BPS 2016). Indonesian state planners are intensifying support for the oleochemical sector, including upgrading refining capacity (GBG Indonesia 2016). The current export tax on palm oil seeks to increase the amount of agricultural

value added within Indonesia. Refined products, on the other hand, face lower export taxes, incentivizing firms to move into downstream industrial processes.

However, the competition between Indonesia and Malaysia cost both states dearly in terms of lost export tax revenue from a brief trade war, and specializing in raw or slightly processed chemical products puts both countries at considerable macroeconomic risk from swings in prices. To manage these issues, both countries recently announced the formation of the Council of Palm Oil Producing Countries (CPOPC), which would stabilize global prices and certification schemes between the two countries. Announced in November of 2015, the council appears to still exist only on paper, ironically a result of the ongoing export tax war that prompted the need for such a body in the first place. One of the stated goals of the council would be to coordinate the national certification schemes used by both countries, the Indonesian Sustainable Palm Oil and Malaysian Sustainable Palm Oil systems. Perhaps the most intriguing aspect of the change comes from the stated claim that the CPOPC would resemble OPEC in its attempt to stabilize prices and guarantee some level of returns to member states, their firms, and, reportedly, smallholder farmers. Though Malaysia and Indonesia dominate the global palm oil market with an 85% combined share, other countries, including up-and-coming producers like Colombia, Thailand, and Nigeria, expressed willingness to participate in the plan according to Arief Havas Oegrosono, Indonesia's Deputy Coordinating Minister of Maritime Affairs and Resources (Indonesia Investments 2016).

One of the greatest problems which the CPOPC seeks to resolve is the massive public backlash against palm oil for its links to deforestation and labor abuses. Recently, France announced a tariff on palm oil imports as a retaliation against these abuses (De La Hamaide 2016). The new levy, on top of a pre-existing 104 euro/ton levy, adds another 30 euros/ton, set to

rise to 90 euros/ton by 2020. The Indonesian and Malaysian governments pledged to fight the tax as discriminatory at the World Trade Organization, though France added the caveat to the tax that it only applies to imports that are not certified as sustainable. This caveat came with the additional statement that the national certification schemes set up by both countries amounted to nothing due to a lack of independent certification. Without additional commentary, members of the Assembly cited an action plan to certify palm oil as sustainable for the French market. France only imports around 100,000 tons of palm oil a year, making it a very small market, but Indonesian and Malaysian officials fear that this tax could spur other countries to attempt a similar measure.

The tax wars and the simultaneous desire to stabilize global prices is similar in some crucial ways to the efforts of the International Coffee Agreement to stabilize coffee prices. The ICA set national quotas for coffee production to guarantee a price floor for farmers. This international effort dovetailed with many states' efforts to establish national coffee exchanges which could withhold green coffee beans from the world market until global prices stabilized. The ICA foundered for two reasons: it could not effectively punish defectors and US opposition to the idea (Talbot 2004). The CPOPC remains in such an embryonic stage that it is difficult to compare it to other forms of governance. However, CPOPC and the conflict between France and Indonesia and Malaysia illustrates the difficulty of peripheral producing states in guaranteeing a price floor for basic commodities.

Although the two states are rivals for market share, a crisp differentiation into two rival camps is difficult to establish. In certain ways, Malaysia peripheralizes Indonesia. Malaysian capital, perhaps best exemplified by Sime Darby's considerable investments in Indonesia, is a major backer of palm oil expansion in Indonesia (Varkkey 2013). Malaysian companies also

buy Indonesian palm oil to refine into higher value-added products in Malaysia (Gustafsson 2005). Indonesian companies sometimes outsource management to Malaysian companies, further tying the two states' economic management of the palm oil sector together (Bissonnette 2016).

The simultaneous rivalry and regional ties between Malaysia and Indonesia further supports the need to understand palm oil through a commodity chain lens, rather than state model that treats the two as discreet economic entities. This forces us to go back to some of the tenets of the new historical materialism. Bunker's work looks at the site-specific nature of mineral extraction in explaining developmental outcomes and the main competition in his work is between core states for access to raw materials. However, Bunker puts more emphasis on the relationship between an aspiring hegemon and peripheral states, rather than between the peripheral states. I am agnostic on whether something is missing from Bunker's work in this area, but in the case of palm oil, it is worth considering. Mainly, I highlight it here for the general squeezing of profits along the chain when the two states engage in a trade war to control palm oil markets.

Chain Governance: The Retreat of the State and Private Governance

Although the state's role as the provider of citizen welfare and organizer of developmental programs has fallen considerably since the end of the Suharto regime, the state still plays a major role in directing palm oil extraction and manufacturing. Managing competition with Malaysia, as well as any new players in the palm oil market, takes serious coordination both within the state and between states. The state also plays a major role in marketing palm oil on the world stage. The Roundtable on Sustainable Palm Oil (RSPO) is the leading standard in labor and environmental certification, but GAPKI, the Indonesian Palm Oil Growers Association, is

pursuing its own certification standard, ISPO (Indonesian Ministry of Agriculture 2012). This differentiates Indonesian palm oil from Malaysia palm oil, though both certifications have their own sets of problems. The state also incentivizes industrialization through export tax structures promoting exports of downstream CPO products (Indonesian Ministry of Agriculture 2017). The state also created the formula used to calculate the value of fresh fruit bunches of palm oil fruits (Indonesian Ministry of Agriculture 2013). Following a visit from leading neoliberal policymaker Hernando de Soto, the state also began major plans to dole out legal titles to many farmers' landholdings. Ostensibly, these policies would protect small farmers' land tenure, but this also enabled the creation of a free market in land (Fauzi 2009). Although the Indonesian state receded from direct involvement in the economy in certain ways, the creation of neoliberal policies and their enforcement requires an activist state of another kind which continues the historical process of creating free markets in land, labor, and capital (Polanyi 2001). These reforms enabled capital from Malaysia and Singapore (some capital comes from other producers, but this is a negligible amount) to invest in palm oil production. A cursory glance at the business literature on palm oil's future shows that many investor groups are anxious about a moratorium on the expansion of new plantations, as well as the environmental sustainability of palm oil. If current trends continue, the state is likely to respond accordingly with new reforms to quiet these anxieties and attract foreign capital.

A major area of the global value chain/global commodity chain approaches is chain governance. Under neoliberal trade regimes, private governance schemes are replacing schemes traditional designed by state agencies (Daviron and Vagneron 2016, Vermeulen 2010). These governance structures are important components of development since they shift the priorities for states and firms for various social ends. The palm oil commodity chain is notable for its private

regulation of environmental and labor standards (Mithofer et al. 2017). Many agricultural commodities have experienced similar growth in private certification standards (Henson and Humphrey 2010). This offers the opportunity to add value through corporate social responsibility-style voluntary governance bodies. The major body for this type of certification is the Roundtable on Sustainable Palm Oil. The RSPO maintains a list of standards for producers, refiners, and users of palm oil through the entirety of the commodity chain. Various NGOs are also members, including WALHI, the Indonesian acronym for Friends of the Earth Indonesia, and Sawit Watch, an Indonesian NGO committed to monitoring labor and environmental abuses associated with palm oil. The RSPO is currently the largest sustainability certifying organization involved in palm oil by both membership numbers and the amount of palm oil certified, currently sitting at about 20% of total global production. Other national bodies exist, such as the Indonesian government's effort to designate palm oil as sustainable, the Indonesian Sustainable Palm Oil certification. However, none have the global reach of the RSPO.

One of the key sources of conflicts within the RSPO is the power structure of the organization. Political maneuvering in the early stages of its establishment resulted in dominance of the organization by corporate interests with no veto power from NGO members (Nikoloyuk, Burns, and de Mann 2010). Some NGOs were completely excluded from the RSPO for taking positions considered “too critical” of members, especially Greenpeace. Many RSPO NGO members report dissatisfaction with the grievance process for environmental or labor violations of its principles. Furthermore, Malaysian and Indonesian state actors influence the RSPO towards state policies favoring large TNCs and their suppliers. Criticisms of the RSPO include a lack of evidence that it does anything to prevent the widescale forest fires connected to land clearance for more palm oil plantations (Cattau, Marlier, and De Fries 2016). Also,

investigations into the effectiveness of palm oil sustainability and labor certifications lacked enough independence for researchers to include them in a meta-study on these impacts (De Fries et al. 2017). The RSPO has a major backlog of complaints stretching back several years, both for labor and environmental problems (RSPO 2017).

Some of the key grievance cases highlight the dynamics of the RSPO regarding the state and private governance. One recent dramatic case involved the Malaysian palm oil growing company, IOI. Following investigations into IOI's environmental practices, a decision was made by the secretariat of the RSPO to remove IOI from the Roundtable. However, the suspension was quickly lifted. Environmental groups criticized this move, saying it prematurely reinstated IOI with no evidence that it changed its practices. This suggests that the RSPO has little influence over members' production practices, even if the organization were legitimately concerned with environmental and labor issues. The main thrust of the RSPO's activities centers on deflecting NGO criticism of palm oil, a process known as "greenwashing" (Kahle and Gurel-Atay 2014).

Corporate-led certification of commodity chains is a relatively new phenomenon. As mentioned above, the case of IOI shows how little the RSPO seems to do for environmental and labor issues. The RSPO acts more like a vehicle for promoting sustainable palm oil to deliver a premium on the price of crude palm oil and palm oil derivatives (Nikoloyuk, Burns, and de Mann 2010). Certified sustainable palm oil adds a boost of about \$20 to every ton of palm oil. But there remains the issue of lack of branding: given that palm oil is seldom recognized by consumers as an additive in packaged food, demand remains low for certified palm oil, and it is uncompetitive in seed oil markets. Another problem with certification for sustainable palm oil is that smallholder farmers are often left out since they cannot afford to implement the upgrades required for the certification (Vermeulen and Goad 2006). Also, these schemas will only work if

the apply to the whole industry; otherwise, they merely create a segmented market with little change on the ground (Kaplinsky et al. 2001). Though the RSPO has some measures in place to correct this, the process illustrates the difficulty in incorporating the poorest of rural Indonesians into the industry to capitalize on its widely touted poverty fighting benefits (Cahyadi 2013).

Many of the problems of independent private certification in this case illustrate the failure of such programs in the face of the difficulties for peripheral states in a system of unequal economic and political power. The spread of the Washington Consensus and neoliberal economic restructuring led to a decline in the international regulation of global trade exemplified by cartel-style interstate management like OPEC and the ICA. The movement towards private certification standards with minor and ineffective input by NGOs only continues the unequal relationships embodied in the production of commodities under free market capitalism. While an alternative is difficult to envision, the end of such unequal relations is not likely to emerge from this or similar programs. Opposition to the unequal relations both in terms of environment and labor will likely require heavy state involvement or struggles on the part of palm oil farmers and workers. Below I detail some of the issues going on within rural Indonesia in the current period of globalization.

The other side of the legal creation of a palm oil regime is the potential for extralegal violence against palm oil protests. Some land disputes with large plantations ended in violence between protestors and either state forces, or suspected hired paramilitaries (Fauzi 2009). The NGO Down to Earth (2002) reports that the years 1998-2001 saw 800 arrests, 400 cases of torture and 12 deaths related to palm oil plantations. Many of the current protests on palm oil center around the illegal purchase of land from local communities. Communities attempted to gain restitution through the court system, but this process is slow and land changes are often

irreversible (Gellert and Andiko 2015). Unionization efforts on plantations are also fraught with the use of extralegal violence (author interviews), discussed further in Chapter 4. Sawit Watch reports that several hundred incidents between local communities and companies are active at any given time (2015). President Widodo made some commitments and took limited action to ensure food sovereignty in recent years (Mourney 2016), but such a policy contrasts with the country's commitment to export agriculture of non-food items like palm oil. Implementing this policy would go against many of the free market reforms which his administration supports. Time will tell if this does indicate a response to the needs of the country's rural poor.

Discussion

Producing palm oil requires working within the constraints imposed at the state level in Indonesia's neoliberal *reformasi* framework. This places developmental priorities below the need to generate foreign exchange for debt payments and economic growth. Much of this is part and parcel of our present period of neoliberal globalization. Palm oil development is merely another chapter in Indonesia's long history as a site of extractive economies. While agricultural commodities may or may not be considered "extractive" industries, the effects on human health and ecological stability are as devastating as any form of mining.

Besides the state's influence on the commodity chain, the material qualities of palm oil shape a considerable portion of its developmental outcomes. Because palm oil is a tree crop, unlike its annual plant competitors on global seed oil markets, it grows in much longer cycles. This effectively locks palm oil farmers into this crop and prevents them from changing crops as a response to fluctuations in global markets. This phenomenon is akin to development issues in coffee, where global price swings leave farmers with serious debts in years following global oversupply (Talbot 2004).

Besides these developmental issues, the competition with Malaysia for global market share threatens palm oil development through losses in a trade war. Palm oil's lack of any type of product differentiation reduces the price markup that might come through effective marketing schemes. Since palm oil appears to most consumers, when they bother to find it, as a mere food additive, price premiums for marketing and specialization are low compared to other products like coffee and wine. When combined with interstate rivalry, rents that could accrue to farmers are even further reduced. However, there are certain types of rents that accrue to Malaysia and Indonesia from the virtue of having the climactic conditions to grow oil palms in the first place.

Barham, Bunker, and O'Hearn (1994) make a distinction between resource and strategic rents in natural resource endowments. Resource rents derive from the different endowments which states have in natural resources. Strategic rents accrue to states with the effective ability to intervene in resource markets to expand their market share and manage or defeat competition. Palm oil requires a set of biological conditions to grow profitably. It grows best in tropical latitudes with suitably drained soil. Similarly, it also needs protection from a variety of agricultural pests and diseases. Indonesia derives a resource rent thanks to its suitable climactic conditions and vast land area. However, the strategic rents that Indonesia can accumulate from this resource are considerably lower. Palm oil is easily substituted for any of the other major global seed oils, such as soy or canola, in finished products. Similarly, it has a lower marketability potential thanks to its low profile as a minor (if not ubiquitous) input food and cosmetic products. For Barham, Bunker, and O'Hearn, "Strategic rents can accrue if, and only if, the resource holder or some other economic agent, is able to push the competitive price above the competitive price" (1994, 18-20).

Indonesia's problem comes from its promotion of palm oil, a commodity in which it has major resource rent, but in which it cannot derive suitable strategic rents. As much as the Indonesian state promotes palm oil through subsidization, some forms of loans to farmers, and an attempt to both manage and weaken competition with Malaysia, it cannot overcome the material boundaries imposed by the biological and chemical conditions inherent in the commodity itself. Developmental gains in other forms of natural resource extraction in Indonesia have the unfortunate tendency to be captured by ruling elites (Gellert 2007). Although the literature on sustainability and economic well-being in the palm oil industry is well-intentioned towards creating both a healthy environment and improving the economic well-being of many Indonesians, the severe constraints imposed on the industry by unavoidable material barriers and low rents suggests that palm oil-centric development is a problematic route for Indonesian development.

The state and private corporations are building Indonesia's industrial capacity to process fresh fruit bunches into more refined palm oil products, thus capturing a greater share of the value added along the commodity chain. Yet again, the "developmental illusion" undermines this project. Even in the refined product sector, Malaysia is a current leader, cutting into Indonesia's market shares. At this present juncture, the Global South appears to be rising still, led mostly by China, but a system that continues to wear down the regenerative capacity of the totality of the Earth's ecosystems is bringing about its own demise. States like Indonesia, experiencing its "moment in the sun" of dominance in palm oil markets, could have a very brief window of global political clout before environmental degradation ends these efforts.

The Race for Food Resources

Bunker and Ciccantell's (2005) work on global aluminum production highlighted core states' ability to obtain higher quantities of industrial material at lower prices per unit. To do so, core states appealed to aluminum-rich peripheral states' political and economic interests in developing their countries' mineral resources. Thanks to strategic marketing campaigns and the promises of development through technology transfers and increased exports, the governments of aluminum-rich states complied with the requests of core firms. True to their word, these firms began investing in large-scale projects to facilitate aluminum smelting and then the transportation infrastructure to move this aluminum out of the country.

Unfortunately for the peripheral states, the massive volumes of aluminum moving to core states lowered the per unit costs of aluminum (Barham, Bunker, and O'Hearn 1994). The overproduction of aluminum led to more foreign exchange for peripheral states, led to a reduction in per unit price, which meant that the country was losing receipts per ton of aluminum. Coupled with the ecological changes through deforestation, loss of biodiversity, and the infrastructure costs, the bulk of the dividends from the partnership went mostly to aluminum firms.

The parallel with Indonesian palm oil is uncanny. Palm oil is the most efficient seed oil in per hectare productivity. Indonesia is now the world's leading producer of this commodity. However, for all the state supports, infrastructure, and benefit to the Indonesian populace in terms of wages and employment, the returns scarcely seem to pay for the environmental damage, abandonment of food crops, and the loss of per unit income, despite high volumes of palm oil leaving the country.

There are, however, crucial differences between aluminum extraction and palm oil. First, aluminum is a mineral with a finite amount which needs to be extracted through surface or subsurface mining. Both mining and the process to refine aluminum requires much greater input of energy and technological proficiency than the processes required to minimally turn fresh fruit bunches into crude palm oil. Also, an ecologically balanced agricultural system could continue virtually infinitely using organic fertilizers and an appropriate time scale to allow the soil to regenerate. However, such a system is impossible under the current demands for palm oil.

Palm oil's power and water demands differ from those required for aluminum. Aluminum smelting and refining in the Amazon required building massive facilities for these processes and diverting water both for industrial uses and to access minerals (Bunker 1985). Similarly, new fixed capital investments in ports, rails, and roads to move the aluminum out of the country created large environmental changes. Palm oil's fixed capital requirements include roads and ports to move palm oil out of the country. Unlike the case of Brazil and other aluminum producers, these capital investments have not been forthcoming from any source, much less the Indonesian government. The port of Dumai, in Northern Sumatra, as well as smaller ports in Kalimantan, have grown with the expansion of palm oil, but the environmental impacts from these expansions have not appeared in the literature. Much like Brazilian aluminum, palm oil creates serious problems for water use and distribution. Oil palms require soil to be adequately drained, which is difficult in much of Indonesia. The draining of peatlands for cultivating oil palms is a serious and growing environmental issue. Also, palm oil mills produce an oily effluent which damages local water supplies (Bissonnette 2015). Arguably the greatest effect on water in both cases is deforestation. Forests create their own hydrological conditions and the removal of millions of trees affects rainfall patterns in major ways. Both forms of extraction engender

massive environmental changes to fulfill a global capitalist imperative of providing greater amounts of material at a lower price per unit. While this brings in more foreign currency for paying debts and buying capital goods abroad, the loss in earnings per unit of resources leads to a longer-term cycle of dependency and stagnation.

As Barham, Bunker, and O'Hearn observed in tropical bauxite mining, the local economy's long-term orientation tended toward the developmental priorities of the Japanese aluminum companies, not the local people or environment. In some ways, the developmental trajectory of palm oil is parallel. In Northern Sumatra, one of the leading palm oil growing areas, many farmers are switching from rice production to oil palm cultivation. Some small rice farmers are giving up farming entirely and selling their land for oil palm cultivation (Vel, McCarthy, and Zen 2016). Indonesian law, as in so many areas, is contradictory on this movement; Law 12/1992 allows farmers to grow whatever they want on their land, putting it in direct opposition to Law 41/2009, which prevents farmers from growing non-food crops and fines them for land conversion. Vel, McCarthy, and Zen suggest that Law 41/2009 is weak and unable to constrain farmers' choices. This movement makes farmers more dependent on the market for their food, rather than their home supplies, and ties the region more generally into global food prices. Moreover, this region has seen declining terms of trade for food crops, but better terms for palm oil (BPS Northern Sumatra 2014: 48). This incentivizes farmers to move into oil palm cultivation where possible.

Conclusion

The new historical materialism perspective explains some of the lacunae from the governance school which sees law and policy as the fix for the environment and poverty that characterizes palm oil's commodity chain. This also suggests that raising production levels alone

will not be enough to create long-lasting economic development that affects a wide swath of poor Indonesians. Also, these benefits may not appear before Indonesia runs out of land to grow more, or the country experiences environmental problems to such a degree that widespread palm cultivation is impossible or not worth the capital invested. Similarly, the number of layers between palm oil farmers and the major returns to the production and sale of palm oil suggests that farmers will not receive the bulk of the benefits, barring major state intervention in favor of these poor farmers. Also, the rivalry with Malaysia threatens Indonesia's position in the global market. The two states are likely to emulate one another's technology and management, bringing labor into the equation as the only flexible area to cut costs, squeezing the potential for workers and smallholders to make economic and social advances. The CPOPC has the potential to reduce this conflict, but such agreements have their own contradictions and problems, as well as pressure from outside states, like that faced by the International Coffee Agreement. This shows the difficulty faced by environmental and labor organizations in their efforts to "green" the commodity chain or guarantee a decent livelihood for poor workers and their families. At the same time, it shows the need for anti-systemic movements that can alter the national and potentially international shape of the global division of labor away from anonymous economic forces at the global level. Further studies should analyze the effects for particular social classes from these processes, and suggests what form different developmental trajectories might take for the variety of actors in commodity production. My research also further tests many of the claims made between the global commodity chain and global value chain perspectives. Later, I also analyze the strategies of different labor and environmental groups to shape these commodity chains.

Chapter 3- Calculating the Cost of Palm Oil

This chapter concerns the role of commodity chains in narrowing or extending inequalities between different groups of workers within those chains. The central question is: what is the role of the palm oil commodity chain in inequalities within Indonesia? The likelihood of states to move up or down within the stratified economic and political order of the world-system depends heavily on the capacity of states to capture the highest value portions of the production process as commodities move from the extractive beginnings of commodity chains to the finished commodity sold to consumers (Ciccantell and Smith 2009). Less understood is how commodity chains affect workers and capitalists' distribution of surplus within the commodity chain. In this chapter, I use the distribution of profits and wages within the palm oil commodity chain to understand the type and degree of inequalities within the commodity chain. My results show that labor exploitation through both wage labor and household farm production generate the bulk of profits for investors and corporate entities closer to the point of sale. I also include a brief discussion of the role of environmental externalities in generating profits. This chapter forms a bridge towards the localized context of the interview data that make up Chapter Four.

Before proceeding further, I must conceptualize the term “development” which I use extensively. Development has many meanings for sociologists, policymakers, NGOs, and others using the term. “Development” could include social development towards greater measures of social equality, political development towards democratic structures, or economic development of productive technologies (Portes 1976). It can also include economic development meant to uplift individuals from poverty. I use this definition which allows me to test specific theoretical implications for global theories of development. I will empirically assess if palm oil production improves the economic well-being of farmers and wage workers. Technical development in the

sector is important for state actors looking to improve downstream production or raise profits, but I place my focus on the potential for raising incomes for farmers and wage workers in the sector.

Commodity chain studies interrogate the creation of profit through the system of global capitalism that divides core and peripheral processes of production in various regions of the world-system. I differentiate Hopkins and Wallerstein's (1994) emphasis on social class divisions along the commodity chain from Arrighi and Drangel's (1986) state-oriented analysis of profit accumulation and the consequences this has for the reproduction of core and periphery divides. In a commodity chain, each "node" of production encapsulates a labor process in which value is added to the commodity in question by the application of labor to raw materials or unfinished commodities. The sale price of the commodity also includes the costs of direct production, overhead, management, and profit. Arrighi and Drangel (1986) emphasize that national competition is what drives the control over the various "boxes" of the productive process. The authors do not say that class struggle within each box determines world-systemic position, but rather that actors at those points try to gain monopoly rents from foisting competition onto other states. For Hopkins and Wallerstein, the type of labor control determines the benefits accruing to actors in that part of the commodity chain. Workers have greater or lesser advantage over capital based on the type of industry in which they work. Thus, workers in more peripheral industries derive lower wages from their work and experience more fierce repression than workers in less peripheral industries. The hierarchical structure of the world-system inhibits major shifts in a state's position within this hierarchy, but systemic shifts like great power wars allow workers to better their standing *vis-a-vis* capital or core states. Subsequent studies of commodity chains debate the possibility of "development" within this

rigid structure. I situate my study at a grounded level within Indonesia's national borders, incorporating the hierarchical global economic order which bounds the possibility of development for the workers involved in palm oil production. The literature varies in its assessment of the possibility of development, but there is a general alignment along more optimistic and skeptical branches. Two broad areas in which I situate my study are Gereffi's global commodity chain and theories remaining closer to the world-systems' original formulations which are skeptical of development.

Within the tradition of world systems analysis, Gereffi's global commodity chain (GCC) approach emphasizes the developmental strides made through industrial upgrading by firms within peripheral states towards greater value-added processes (1994; 1999). Gereffi's emphasis on firm-level factors in developmental outcomes downplays social class as a determining factor in the returns to labor realized by real human beings at the individual and household level. Gereffi's analytic approach added important insights into the command-and-control functions of how commodity chains organize across state boundaries. His work also highlighted the role that marketing and consumer preference plays in commodity chains. Gereffi's empirical evidence for the potential of states to attract capital and grow through export-oriented development relies on the successes of the "Four Asian Tigers," whose successes in education, health, and material standards of living are evident in the statistics (World Bank 2018). I use Gereffi's work to show that many contexts allow for marked improvement at the nation-state level, and potentially for individual workers.

For my questions, we must examine how these firms' interactions with labor create and sustain *within* country inequalities, taking note of the relative position of Indonesia as a peripheral state (Babones 2005). Selwyn (2012; 2014) demonstrates the use of commodity chain

analysis to understand local level class dynamics as a way of understanding how commodity chains reproduce class inequalities. In recent decades, the GCC/GVC formulation received some criticism for its growing distance from social class, replacing this with an interest in firm behavior. This prompted some to call for a return to the class-driven origins of commodity chain studies (Bair 2005).

At the methodological level, this means either using national-level or individual-level data. National studies of income hide the effects of commodity chains on individuals, and *vice versa*. For this study, I focus on the individual level for the theoretical and practical interest in how palm oil production affects individuals' incomes. Another reason to focus on this level is the tendency in other Indonesian industries for elites to capitalize on most of the gains from industrial upgrading and extractive industries, generally (Gellert 2010). Focusing at the individual-level gives a clearer sense of the social dynamics underlying palm oil's commodity chain. Per capita incomes are a widely available, but can conceal as much as they reveal. Thus, I find individual incomes along the commodity chain to be suitable data for this study following the tradition established in other word-systems' analyses. The difficulty, then, is counting incomes accurately along the commodity chains as the transactions multiply and the numbers of actors becomes more complex.

These transactions are sometimes transparent and all inputs have a known price for all inputs, wages, and overhead costs. However, the creation of profits for capitalists often occur through non-market transactions and the externalization of environmental and labor costs, which are difficult to track and estimate by the nature of their unmeasured value. Clelland (2014) calls these externalized labor and environmental costs "dark value," drawing on the analogy that most of the material in the known universe is dark matter, invisible to the astronomer's eye. Dark

value is a concept for measuring the amount of externalized value that capitalists can externalize onto workers, their households, and the environment. If the cost of production included these values in the production costs, then profits for capitalists would be very difficult to capture.

Using the example of Apple's iPad commodity chain, Clelland demonstrates that the externalized costs of production often out-value the commodity itself. Creating profit from palm oil also relies heavily on household reproduction and environmental externalities not incorporated into production costs to maximize profit.

Clelland's formulation takes place under a system of formal sector labor, but wage labor is only a part of capitalist production. Orthodox Marxism's definition of capitalism as a system of wage labor differs from the world-systems' assumption of capitalism as production for the market, rather than a particular form of class relations. However, proletarianization is an uneven and contradictory process. Marxist political economy holds that wage labor is the fundamental characteristic of the capitalist system, but world-systems incorporates the empirical fact that forms of unwaged or semi-waged labor are an essential element to the subsidization of capitalist profits throughout the world-system (Wallerstein 1983: 23). The lower wages and fewer social protections in informal labor subsidize the realization of profits in the "main" industrial segments of global commodity chains. Systematic exclusion from the protections and advantages of wage labor often characterize other inequalities along racial, ethnic, and gendered dimensions. Women's gendered experiences in the export-oriented economies of the Global South illustrate the importance of women's subordination in the household or the workplace in the creation of surplus value for capital (Dunaway 2014). Estimates suggest that wage labor is not the most common form of income worldwide. This is one of the methodological and theoretical reasons why world-systems scholars focus on the household as the most localized unit of analysis.

Although these extra revenue streams may provide a useful income to the household, they also allow capitalists to pay lower wages to workers, who can use these other revenues and unpaid labor to survive.

Outside of the household labor necessary to the reproduction of labor, global capitalism receives massive subsidization from other non-wage forms of labor. In core states, the political power afforded to workers enabled them to unionize and gain a greater share of surplus produced by labor, though migrant labor in core states shows that some forms of coerced and criminally low wage labor still exist even there. Wage labor in the core is also crucial to creating a global corps of consumers who can buy the produced in other parts of the world-system. While lower wages in the periphery enable capitalists to overcome crises of accumulation in the core due to high labor costs and keep their profits high through overseas production, weak labor laws and the recourse to legal and extralegal violence in peripheral states enable forms of labor control and wage scales which are largely absent in core states. Wages can thus be lowered to a point at which workers are “super-exploited” in peripheral states.

Peasant producers worldwide exemplify global capitalism’s usage of non-wage labor to create and sustain profit. The persistence of the peasantry into the twentieth century defied Marx’s predictions that political and economic modernization and the advance of capitalism would erase peasant agriculture (Marx [1859] 1997). Instead, semi-proletarianized labor comprised of either non-wage labor as the sole means of income or a combination of wage and non-wage labor to compensate for low wages is the norm. Even today, peasant farmers persist though their numbers are declining as they move to cities for work (Araghi 1995). Indonesian palm oil smallholders are semi-proletarians that subsidize their farming activities with multiple sources of income, including wage labor on large plantations, petty commodity production, and

state agricultural subsidies. At the level of the entire world-system, these non-farming activities subsidize low wages throughout peripheral states and transfer value to capitalists in core states and their firms. To understand palm oil and its social outcomes, we need to understand it in the context of the global economy, rather than as a phenomenon endogenous to Indonesia's political economy.

Although the “agrarian question” of the disappearance or continuation of peasant agriculture is well-studied in various other contexts (Moore 2008; McMichael 1997; Araghi 1995; Banaji 1990; Kautsky [1899] 1988), I situate my discussion of these processes within the palm oil commodity chain. Workers in agricultural commodity chains vary in their level of compensation (wages or sales of their goods), the degree to which they own their own land, and the form of labor control. Much of this hinges on whether workers in agricultural commodity chains own their own land or work on another's land as either wage laborers or in some type of rentier system. Landowners may see few economic benefits above their renter neighbors, but these relations have major political, economic, and social consequences. Eric Wolf's (1984) work demonstrated the importance of the differentiation among peasants during the peasant wars of the twentieth century. The narrowest differences in land ownership and tenure largely determined peasants' political preferences and the direction of anti-systemic resistance of these groups. The typical land-owning pattern in Indonesia is a proliferation of farms which are too small to be economically viable, forcing peasants to work on others' land for wages (White 2018). Palm oil's distribution of land shares some characteristics of this pattern.

As mentioned before, palm oil production takes place under a mix of schemes, which I center around the relationship between wages or earnings, land ownership, and access to capital. These three factors determine the value retained by different types of growers from the entirety

of the chain itself, represented in dollars as income. I contend that the palm oil commodity chain reproduces class inequalities for workers involved in the production process. While a longitudinal analysis eludes the scope of this study, we can see from cross-sectional data what inequality looks like through this chain between firms, farmers, workers at the national and global levels.

A systematic study of the reproduction of inequality through the commodity chain lens opens new paths for activists to more effectively reach their social and economic targets. Developmental NGOs are incorporating commodity chain analyses into their developmental plans (Ponte 2009). I hope this study may point towards a path forward for NGOs and Indonesian labor in poverty alleviation for the most oppressed workers in the palm oil commodity chain.

Indonesia remains an unequal society, politically, economically, and socially. Commodity chain analyses of its political economy can inform debates on how to reduce these inequalities. There is a great deal of discussion within Indonesia today on agrarian reform (Rachman, Savitri, and Shohibuddin 2009) and its role in poverty alleviation in rural Indonesia. A study of Indonesia's rural inequalities must incorporate the global nature of the productive process to understand the dynamics that reproduce within country inequalities. Other scholars notice the gap between industry and agriculture and how research needs to better integrate these disparate sectors to understand global agrarian change (Oya 2009).

Indonesia and the Palm Oil Commodity Chain

Tracking the role of the commodity chain in reproducing inequality requires finding a suitable case, and Indonesia fits this requirement for several reasons. Indonesia is a growing economy, but wages remain low and, relatively speaking, workers' incomes are lagging (Allen

2016). Inflation and rising prices have hit workers particularly hard. Secondly, the primary sector is a major portion of the Indonesian economy, but the economy is diversifying into services and manufacturing. The primary sector now composes one-third of the economy, a serious decline over the last few decades (World Bank 2017). Palm oil is the third largest export in 2018, behind petroleum and coal. Indonesia's transition to a manufacturing and service-based economy continues alongside palm oil's expansion, which is suggestive of other studies showing that semi-peripheral industrializing states experience the greatest environmental degradation, even as they move away from the extractive sector (Burns et al. 1994; Kick et al. 1996; Roberts and Grimes 1997). The recent downswing in global commodity prices lowered Indonesia's income from its export sector (BPS 2018). Third, the palm oil commodity chain has a wide dispersal of land ownership, though these farms are often too small to provide farmers with sufficient incomes from their own crops. Small farmers production 40 percent of Indonesia's palm oil. Many peasant movements worldwide demand, or demanded, land redistribution. Analyzing the palm oil commodity chain's developmental consequences sheds some light on the effects of land redistribution for farm households.

Much of the research on palm oil's role in national development and inequality comes in the form of case studies, rather than nationally comprehensive examinations. Researchers find heavily mixed results from palm oil for smallholder farmers, and even less on the role of wage earners working on state and private plantations. In several studies, researchers find a prominent role for palm oil in bringing employment and income to rural Indonesians (Zen et al. 2005; Susila 2004, 2002; Rist et al. 2010; World Bank and IFC 2011). However, these studies do not track the exit of smaller farmers from palm oil, nor do they examine global inequalities between Indonesian palm oil farmers and other parts of the world or even other industries in Indonesia.

Other researchers find a different story in their case studies. McCarthy (2010) describes palm oil as a rich farmer's crop, which few people can access due to the high costs of inputs. Fortin (2005) sees too many barriers to entry for farmers wanting to enter palm oil markets. Li (2015) not only finds palm oil failing to raise incomes, she believes it creates poverty and subordination for women's gendered labor. The patriarchal nature of land ownership and titling keeps women from obtaining the benefits of participation in palm oil growing.

It bears mentioning here that the complexity of Indonesia's legal terrain for land use permits and tenure encourages extralegal purchases and forced removals from forest land. Under Indonesia's Basic Agrarian Law, the country's land belongs to the people for their collective good, broadly and vaguely defined for the deliberate reason of appealing to landless masses without inciting political resistance from traditional landowners (Lucas and Warren 2013: 2). After Sukarno's forced removal from the presidency in 1967, the Suharto government altered the interpretation of the law from its socialist interpretation as democratic collective ownership towards a neoliberal development path based on private ownership with state support. This drastic re-interpretation led the powerful Ministry of Forests (*Kementarian Kehutanan*) towards a shaky system of land-use permitting which historically benefitted wealthy individuals and corporations with the resources to navigate the contradictory and incoherent laws surrounding forest conversion permits. Currently, around 20% of Indonesia's land area is legally titled to its owners (Lucas and Warren 2013). Many peasants use forest resources with no legal title, though customary laws and usage establish historic collective ownership. When called on to produce documentation that they own their land, many peasant farmers find their documentation to be legally inadequate. Confusion can result for several reasons, including conflicts between the Ministry of Forests and the Ministry of Agriculture, permits may only be temporary, or

overlapping authority with district and village governments involved in the permit process (Gellert and Andiko 2015). Peasants can be evicted without adequate legal title. Indigenous people, who have some protection afforded under national laws to their traditional lands and land use practices, also suffer expulsions with limited compensation or without it entirely (Afrizal 2013).

The original nucleus-plasma estate plans for supported smallholder schemes sought a 70:30 ownership ratio, with the settlers in the plasma area owning 70% of the allocated land and the plantation owning the rest directly. The surrounding community would sell fresh fruit bunches, the unprocessed tree fruits of the oil palm, to the “nucleus” plantation. The ratio eventually flipped in favor of a 20:80 ratio, where smallholders own a mere 20% of the land around the nucleus estate. These smallholders remain tied to the local mill through the monopsony relationship between the company and its plasma.

World-systems theorists’ concern with development attempts to illustrate the difficulty of industrial upgrading to drive widespread development (Arrighi and Drangel 1986). Bair (2005: 157) paraphrases Wallerstein (1974) in saying that “there is no such thing as national development.” The national unit, in Wallerstein’s theoretical formulation, is the wrong unit; improving small farmers and wage laborers’ incomes through labor organizing within the chain could bring substantial material improvement in people’s lives without large shifts in the world system that Arrighi claims are necessary for changing the fortunes of peripheral states. I seek to bring commodity chains back to the question of class struggle within the “boxes” of each stage of the productive process.

Methods

BPS (*Badan Pusat Statistik*), Indonesia's national statistical agency, conducts a decennial agricultural census (*Sensus Pertanian*), and I use their figures from the 2013 census to understand the class structure of Indonesian palm oil farmers. The methodology accounts for four general types of farmers, including farmers with and without a contractual relationship with nearby mills and plantations. The data track the number of households involved in palm oil production, so extrapolating these data to the productive working members of the household loses some exactness; where this is missing, I use the household composition averages for palm oil growing regions, also taken from BPS data.

I use 2013 as the base year for adjusting the wage and profit figures listed in Indonesian rupiah using price indices available from BPS (2018). For this data, I focus largely on the waged and salaried workers involved in palm oil harvest and production. I recognize that positions like foremen, engineers, and other technical/professional staff may be missed by this method. The palm oil industry varies widely in types of labor practices and management styles, so I attempt to draw an average annual income from the various types of workers covered in the studies listed above. Pye et al. (2016) establish figures for the wages paid by plantation companies to a variety of positions in palm oil growing and management, which I employ to estimate the wages paid out to workers. I also assume a household composition for most workers based on the Indonesian national average or what was covered in the meta-study. The figure of the numbers of workers involved in palm oil is an Indonesian government estimate derived from the Directorate General of Estate Crops (2013). I focus on the workers involved in palm oil growth and harvest, neglecting the workers involved in refinement and processing. The first reason is lack of data. The second is that this level of analysis reflects the inequality between the lowest producers and

the final capture of profit at the top of the chain. It is an interesting irony that poverty-alleviation NGOs and companies committed to transparency do not have readily available statistics on the wage scales for workers or prices paid to small farmers for their crops.

The commodity chain framework has some unresolved issues, most notably where to begin and end the chain. For palm oil, the large number of inputs and the high number of final derivatives make this an especially difficult challenge. I bracket my study within Indonesia's national borders, since this remains close to the point of extraction and my primary concern is with the economic benefits to the farmers and workers at the bottom of the chain. This also avoids the thorny question of the final value of products including palm oil. Similarly, I do not delve deeply into the "threads" extending from the palm oil commodity chain, such as chemical inputs, tree seedlings, or other related industries. The complexity is beyond the scope of this study, and is unnecessary for answering the questions of class and development involved in this chapter. The attempt by the Indonesian state to keep more value-added processes within the country is a major test of the capacity, and I attempt to chart where this process is heading.

I seek to demonstrate three things:

1. There is high inequality in the palm oil commodity chain, both among workers and between workers and firms.
2. TNCs maintain the bulk of the value from the production of palm oil, calling into question whether palm oil development is sustainable in the long-term for closing global inequalities.
3. Palm oil production contains a great deal of subsidized labor that enables workers to participate in the chain.

Smallholder farmers

Measuring the size of the value that smallholder farmers accrue from palm oil presents some unique difficulties. First, the size of their landholdings varies considerably, though most of their holdings come close to the size expected of most other forms of landholdings throughout Indonesia (McCarthy 2010). Smallholder can own parcels of land up to 25 hectares, which is

considerably larger than the average landholding size of a mere 2 hectares. Also, evidence exists that smallholders divide their large landholdings into small pieces below the state-established 25 ha threshold, enabling them to avoid certain tax penalties and to qualify for certain forms of agricultural assistance for small farmers (Daemeter Consulting 2015). The following chart estimates the revenues of private companies, state-owned enterprises, and smallholder farmers in 2012, using the yearly average price of \$856.90 USD/ton CPO and \$897.17 USD/ton PKO (Index Mundi 2017).

Table 1. Returns of palm oil production to private companies, state-owned enterprises, and smallholder farmers

	Private companies	State-Owned Enterprises	Smallholder Farmers
Planted area (in ha)	5,366,854	803,817	4,415,796
CPO production (in tons)	15,012,254	2,378,214	9,504,982
PKO production (in tons)	3,170,671	522,516	1,886,280
Number of actors	1,442	15	1,458,319
Estimated revenue			
<i>CPO</i>	\$12,864,000,452	\$2,037,891,576	\$8,144,819,075
<i>PKO</i>	\$2,844,630,901	\$468,785,679	\$1,692,313,827
<i>Total (in \$US)</i>	\$15,708,631,353	\$2,506,677,255	\$9,837,132,902
Estimated revenue (per company/household)			
<i>CPO</i>	\$8,920,943	\$135,859,438	\$5,585
<i>PKO</i>	\$1,972,698	\$31,252,378	\$1,160
<i>Total (in \$US)</i>	\$10,893,641	\$167,111,816	\$6,745

Note: Valued amounts presented in current \$US.

Source: BPS 2013 (Annual and agricultural census)

Based on these estimates, we see that the returns to small farmers are quite low as far as global inequalities are concerned. Although this is conjecture, these “revenues” do not account

for farmers' costs after they harvest their crops. Using Li's (2015) figures, most farmers only take home a third of their revenues after costs. In this case, farmers likely only make around \$2000 per year. I obtained this figure through calculating the total value of crude palm oil and palm kernel oil produced by farmers, then divided by the estimate of the total number of farming households, assuming most households have two adults. In 2012, this would have been around 26 million Indonesian rupiah. This is double the amount earned by most Indonesian laborers on private plantations when divided between the two adults in the household.

This estimation strategy ignores the inequalities between farmers. According to McCarthy (2010), the highest earning smallholders may earn as much as \$22,000 USD per year from their holdings, though this is clearly an exception to national averages for land ownership. The average return estimate of \$6745 comes close to Grieg-Gran's (2008) estimate of \$6680 for large-scale supported palm oil growers, who likely receive a great deal of technical assistance from contracted palm oil plantations. By contrast, Grieg-Gran offers only around \$1800 for an estimated low-productivity grower's 2 ha plot. My figure listed above could hide a great deal of inequality among farmers when considered against low productivity plots at the low end of the income spectrum and highly productive farmers with the capital to develop their plots.

Colchester and Chao (2013) and Li (2015) estimate that 6 ha is considered the minimum necessary to sustain a family at an adequate living standard using only their palm oil earnings. If this is the case, then very few palm oil farmers are living only from their farming operations. To supplement their incomes, many farmers resort to off-farm labor on other plantations or through gathering edible plants or hunting in nearby forests. Off-farm sources of income may account for nearly 50% of total household income (BPS 2018). While many workers find this necessary to support their families, in a commodity chain perspective, this represents a wage subsidy to palm

oil companies. Supplementing their income in this fashion allows workers and their families to reproduce their labor for lower cost than what palm oil companies could pay for a sufficient living standard. The importance of semi-proletarianized work for the creation of profit for global capitalism is evident in palm oil production. Other income sources include gathering food in the forest, raising livestock and poultry, and maintaining garden plots. If plantations expand further into forest areas, some of these outside income sources could disappear.

The smallholder sector is a common focus of NGOs and the Indonesian state, likely because it avoids the thorny problem of raising workers' wages without cutting into private companies' profits. What makes this more difficult is the biological, chemical, and ecological barriers posed by raising palm oil yields. Current production levels net about 3.3 tons of PO/ha/year, although agronomists claim 18.5 tons/ha/year are possible (Woittiez et al. 2017). To do this, farmers would need to have their land on ecologically ideal plots of land with good drainage and already fertile soil, and have access to cheap capital to buy fertilizers, pesticides, and herbicides. Given the already high barriers to entry for palm oil farmers, it is unlikely that anything near these numbers could be achieved by many palm oil smallholders. The Indonesian state has slowly rescinded programs intended to assist farmers in obtaining affordable agricultural credit, though some programs continue to support obtaining Indonesian Sustainable Palm Oil (ISPO) certification and replanting credit as many of the first generation of trees planted in the post-Asian Financial Crisis era are declining in productivity (Pramudya, Hospes, and Termeer 2017).

If these estimates are correct, most palm oil farmers (again, assuming households are two parents) make close to Indonesia's present GDP per capita of \$3570 USD per year (World Bank 2017). To double farmer's incomes, farmers would need to either double the productivity of their

land, or double the amount of land. Given that farmers are, on average, not improving the productivity of their land, the amount of land they would need to do this would add an additional 4.5 million ha to the 4.5 million ha available in 2013. However, between the 2013 agricultural census and the latest figures from the Directorate General of Estate Crops, smallholders only added 340,476 ha of new land. Even if an “extensive” strategy of growth was a good idea, there is a limit to suitable land in Indonesia for palm oil growing, aside from environmental concerns. It is likely, too, that remaining lands are marginal from a productivity viewpoint and are unlikely to make a major contribution to elevating palm oil farmers’ incomes. For Indonesian farmers to move significantly *en masse* towards more sustainable development, there need to be programs and practices in place to help them increase yields while defraying these costs.

Wage labor

In palm oil’s dual labor regime, wage labor on private and state plantations constitutes the other leg of the regime. The need for labor on palm oil plantations varies seasonally according to harvest needs. Sawit Watch estimates that there are 10 million plantation workers in the country (Sawit Watch 2016). Li (2015) uses a general figure of 1 worker for every 4 ha of plantation. This figure obscures the uncounted numbers of women and children hired alongside male heads of households. When calculating wages, it is common for women and children to receive no payment at all. In this sense, women’s work both on large private plantations and in smallholder growing schemes subsidizes the overall production of oil palms. However, accurately measuring this at the present would be mere conjecture, and therefore I omit it.

Within these structures, it is necessary to divide the permanent from the temporary workers. Permanent workers, labelled SKU (*Syarat Kerja Umum*) workers, make up a small portion of the total employed workforce. Their work is secure, but workers with this status may lack wage pay,

instead being paid in script. Temporary workers have BHL status (*Buruh Harian Lepas*), a casual status governed by short-term contracts. The ILRF reports that Indofood has nearly 50% of its employees hired on temporary BHL status, though other companies report rates between 10 and 20% (ILRF 2017). Flexible workforces enable companies to shed workers during slow seasons or use their labor to establish plantations, then release workers they no longer need. Companies only need full staffing during peak harvest periods, and workers spend much of the year eking out an existence performing labor reproduction activities, like growing some food on the plots provided in various supported grower schemes, or survival activities like hunting. Because of their rural isolation, workers find healthcare and education difficult to access. Workers' isolation compounds the difficulty to coordinate a workers' movement in touch with organizing efforts amongst Indonesian workers. The lowest status in palm oil work is "*kernet*," or assistant. Many assistants are the wives and children of workers. They perform tasks like gathering fallen fruits or spraying fertilizers and pesticides. Their work is typically either piece rate, perhaps for collecting a certain weight of palm fruits, or unpaid. The justification given is that assistants supplement the work of the adult male head-of-household, and thus their work is considered a supplement to the main income of the household (Susila 2004)

The relative numbers of SKU, BHL, and *kernet* workers is difficult to know exactly. However, Pye et al. (2016) investigated of the palm oil commodity chain and offered the following data from its investigations into palm oil companies' wage structure. The methodology of the investigation broke down the wages paid for a ton of palm oil produced.

In a ton of PO at global price \$700 USD for various work:

Table 3.2- Wage estimates of private plantation workers

Harvester	\$20
Field Worker	\$5
Mill Worker	\$1.0
Truck driver	\$.5
Office worker	\$2
Workers' total	\$28.5
Price CPO 700	\$700
Company	\$671.5

Source: Pye et al. 2016

Given that state and private companies produced 17.4 million tons of palm oil in 2013, we can surmise the following wage total for the workers listed above:

Table 3.3- Wage estimates for private plantation sector

Harvesters	\$348 million
Field Workers	\$87 million
Mill Workers	\$17 million
Truck drivers	\$8.7 million
Office workers	\$34 million
Workers' totals	\$494.7 million in wages

In a single year, using Pye's estimates, \$494.7 million dollars in wages were paid to plantation workers. Many case studies offer monthly wages of around 1.3 million rupiah for a plantation worker (Li 2015; Susila 2004), or around \$97 a month and therefore \$1164 per year, using 2013 exchange rates. This figure is nearly half the \$3375 I estimate for individual smallholders. For a sense of perspective, this calculated wage is very close to the minimum wages offered in Riau and Jambi provinces, 1.4 and 1.3 million rupiah monthly. The casualization of these labor forces suggests that workers may be making less even than these numbers, especially factoring in the higher wages paid to skilled workers in these calculations.

In 2012, Indonesia's GDP per capita stood at \$3687 USD, according to the World Bank. The figures for smallholder farmers and wage workers were barely even half this number, according to the estimates offered above. While a longitudinal model would better demonstrate

palm oil's effect on inequality within Indonesia and between Indonesia and other states, these numbers alone suggest that palm oil is doing little to alleviate poverty among wage earners.

Perhaps unsurprisingly, the wage worker sector attracts much less attention than the smallholder sector for developmental possibilities. I venture that this is because raising the wages of plantation workers would directly hurt company profits, something that the Indonesian state and capital would be reticent to do. There is some hope that unionization might raise their wages, though even this would have its limits. Pushing wages up to the point that the final sale price of palm oil would also go up could cause other seed oils to take its place in global markets.

Rural Indonesians multiple income streams subsidize the low wages of plantation work. The agricultural census reveals that rural Indonesians derive as much as 50% of their income from off-farm sources (BPS 2013). Some of these activities include paid work on other farmers' or plantations' land. Others include hunting, fishing, and subsistence farming alongside the "main" crop produced by the farm. At the base of this commodity chain, these activities subsidize the profits created along the rest of the chain, running through plantation companies and the final users of refined palm oil products. These activities may also partially account for the unusual phenomenon of the endurance of widespread farm ownership in Indonesia, rather than the global trend towards land concentration. White (2008) makes a similar speculation, though he focuses on rice production in Java.

Plantation and CPO milling firms

The array of palm oil plantations and their vertical integration with mills and refineries spread throughout Indonesia makes it difficult to track and assess the exact number of firms involved in the plantation and CPO milling sectors. Many companies also have integrated operations comprised of some portions of plantations, mills, and refineries, making a

comprehensive and clean picture of the commodity chain unclear. As discussed later in Chapter 4, many activist groups are attempting to map the concessions of these companies, which the government claims to know but refuses to give to activists. This lack of information prevents activists from accurately targeting their activities at egregious violations of environmental laws by companies. This increases the difficulty in understanding what companies are involved at the milling and plantation phases of the commodity chain, making it difficult to estimate the sources of their capital and the relative number of workers involved in various firms' production activities. Many of these firms are vertically integrated with other mills and traders. Again, this can make it more difficult to fully grasp the revenues and profits accruing to this area of the commodity chain. Nevertheless, these estimates can tell us something about the distribution of power and benefits along the chain.

NGOs investigations and voluntary disclosures of data give some impression of how many firms are involved at this level, their revenue and profits, and the sources of their capital. In comparison with traders, the plantation and mill sector is much more likely to include capital from Indonesian, Malay, and Singaporean firms (SPOTT 2017). This results from firm specialization in these sectors, but Indonesian state policy under the Suharto regime included provisions that capital invested in land must include a certain percentage of Indonesian ownership. Subsequent presidents continued these policies, creating and maintaining a negative investment list to guarantee a certain percentage of Indonesian ownership over various national resources (Presidential Regulation 36 2010). At this level, the five largest palm oil companies in the global economy include Archer Daniels Midland Company, Wilmar International, Sime Darby Plantations, Bunge, and IOI Corporation. These five companies have a value of \$68.5 billion USD (SPOTT 2017). Wilmar, the largest palm oil company in Indonesia, pulled in an

estimated \$269 million USD in profits in 2013 from its milling and plantation operations (Wilmar International 2013). Wilmar alone netted profits equivalent to half the wage total paid to all Indonesian workers involved in the sector.

These companies represent the stratification within the palm oil commodity chain. Palm oil is a valuable business, based on the amount of assets owned by these corporations. However, the surplus value produced by workers and farmers ends up in the pockets of these corporations, rather than in the hands of the workers at the extractive base of this commodity chain. Moving value from these corporations to workers and farmers would represent a major change for these groups. Exactly how this could or should be done is outside the scope of this study, but any intervention in the environmental and labor practices of palm oil production should include an analysis of the imbalance in incomes and assets between large producers and traders and the farmers and workers performing the labor they require to make their profits.

Many of these companies are vertically integrated with their trading operations, and their importance in the commodity chains of other agricultural staples is important to analyze, as well.

Traders

As with many other basic agricultural commodities like corn, there are relatively few firms that control most of the global trade in palm oil. Many of the same companies that are major players in other basic commodities are also involved in palm oil. Archer Daniels Midland (ADM), Bunge, Wilmar International, and Cargill are among the top five palm oil refiners and traders worldwide, and tracking their exact size and role in these integrated sectors is a challenge (Murphy, Burch, and Clapp 2012). Within Indonesia, the five largest companies involved in the production, processing, and trade of palm oil are Wilmar International, Musim Mas, Golden Agri Resources, Cargill, and Asian Agri (Pachuco et al. 2016). These five companies control an

estimated 60% of national palm oil production and 90% of total palm oil supply (AgroIndonesia 2015). Once again, there is some difficulty here in identifying these companies' profits exclusively from palm oil, since their relative amounts of palm oil traded and sourcing are not readily available. The sheer size of these companies compared to the plantation sector suggests their economic clout in international trade. For a sense of scale at the personal level, Golden Agri Resources' Director Franky Widjaja made an estimated \$2.8 million USD in compensation for his efforts (Golden Agri Resources 2013). This is equal to the incomes of 415 palm oil-producing households.

Palm oil trading reflects the outsize roles of these corporations in controlling and directing the global food regime (McMichael 2009). Private firms were the major beneficiaries of economic restructuring that removed states from their involvement in national grain and essential food markets. As states liberalized their grain and food markets, private firms could access markets to buy and sell goods. Similarly, their importance in trading palm oil reflects the breakdown of the historical trade between the Global North and South in foodstuffs and the rise of a more prominent South-South trade system.

A major piece of understanding commodity chains is how the centers of command and control influence the flow of profits and power. It is worth noting that of the main palm oil producing companies in Indonesia- Wilmar International, Cargill, Musim Mas, Asian Agri, Golden Agri Resources- three are headquartered in Singapore (Wilmar, Musim Mas, Golden Agri Resources), one is headed in Indonesia (Asian Agri), and one is headquartered in the US (Cargill). Cargill represents an important aberration from the general trend of little Global North investment or direct activity in the primary extraction and refinement sectors. The World Wildlife Fund's (2012) palm oil investor survey found that 68 palm oil companies worldwide

had a market capitalization of \$152 billion USD. The geographic representation of the investment sources showed that Indonesia, Singapore, and Malaysia alone accounted for 89.6% of all capital invested in these companies.

This demonstrates that palm oil is another case of the growing number of South-South exchanges in the global food system. It is also a change from the usual pattern of Global North grains exchanging for fresh fruits and vegetables from the Global South. Instead, palm oil is flowing back to the Global North in greater amounts, even as its consumption increases in areas where it is produced.

Furthermore, these figures show a similarity between the command and control functions of other basic food commodities like corn and soy. In these commodity chains, scholars note an “hourglass” figure for the commodity chain: many producers at the farming/extraction level, a few traders and, in this case, a few refiners, and many end users selling these commodities and their derivatives to consumers.

Top earners from palm oil

Returning to the question of personal compensation for actors within the commodity chain, the top end of the palm oil commodity chain includes some of Indonesia’s wealthiest citizens. Fourteen of the thirty-two billionaires in Indonesia identified by Forbes (2017) had at least some holdings in palm oil. Virtually every individual identified on this list began their own personal accumulation under the Suharto regime, often as insiders in the regime. The fourteen individuals on the list have holdings in plantations and land ownership, refinement, and the sale of final goods containing palm oil on international and domestic markets. Many of these individuals also have extensive holdings in other extractive industries, including minerals and other agricultural goods. Their position as the wealthiest individuals in Indonesian society

underscores the place given to extractive industries in Indonesia. Similarly, the failure of the 1998 uprising that overthrew the Suharto regime to alter Indonesian society's elite domination of the economy and redistribute the country's natural resources to its poorest members is also evident here.

Analyses of coffee's commodity chain are popular for understanding the portion of the final sale that goes to farmers, traders, roasters, and marketers because of the relatively small number of actors involved in its production and trade (Talbot 2004). Though palm oil is not as easily traceable into its many component parts, we can get a glimpse of the value produced at the ultimate downstream point through its inclusion as a critical part of many things in the final products found in a grocery store. Clearly, those who own vast tracts of land, mills, and the trading and food firms using palm oil in Indonesia are benefitting much more than the smallholders and wage earners at the bottom of the scale. Indeed, even the wage total for 2013, \$494 million USD, does not even equal half of the known wealth held by any of Indonesia's palm oil billionaires.

At the firm level, global food, cosmetic, and home care giant Unilever is the world's single largest purchaser of palm oil, using about 3% of global supplies alone (Greenpeace 2008). Unilever had 49 billion Euro in sales with net profits of 5.2 billion Euro after taxes in 2013 (Unilever 2013). Greenpeace's (2013) estimates claim that 50% of items in a US grocery store contain palm oil, making it crucial to their profits. One of the ironic aspects of the palm oil commodity chain is its status as a contributor to many of the chemical compounds used in food, cosmetics, and household cleaners. Given this ubiquity, it is difficult to know just how much palm oil was truly purchased by Unilever or how much palm oil is used in any given product. Nevertheless, what is clear is that palm oil has become a major raw material for a vast system of

production. Worth noting too is that 2013 saw Unilever make 40% of its sales outside North America and Western/Central Europe, a growth of 7.8% from 2012 (Unilever 2013). In this large corporation, profits are growing in Asia as they stagnate elsewhere.

Limitations

The figures used to show profits, wages, and earnings come from a wide variety of sources, including the Directorate General of Estate Crops, publicly available corporate reports, and the Agricultural Census for 2013. Scholars admit that Indonesia's statistical agencies can give inaccurate data, and the plethora of case studies on many issues in palm oil production carefully avoid the pitfalls of relying on these figures. While I am conscious of these drawbacks, these figures illustrate some of the dynamics underlying the class formation of the palm oil commodity chain. At another level, the numbers here hide potential inequalities among palm oil farmers. Given that incomes and land redistribution are based on averages, we cannot know from this data what the inequalities between farmers look like, or the changes in these trends over time.

The numbers above are also intended to illustrate inequalities at the individual level, rather than the nation-state level. This misses some of the dynamics of interest to world-systems scholars, such as the likelihood of peripheral states moving up in the global stratification scheme of the world-system. However, we experience globalization and development through our individual experiences and whether farmers improve economically is an indicator of Indonesia's movement up or down in the global division of labor.

Theoretical conclusions

First, this analysis demonstrates the low likelihood of mass material improvement for the millions of people working in the palm oil commodity chain. Nowhere is this starker than for the

palm oil workers at the bottom of the chain and the women and children whose work is critical to the function of this system. Their wages and benefits are very low compared to the environmental losses of deforestation, damage to clean water supplies, and the wildfires associated with palm oil expansion. For a sense of scale, the 2015 wildfires cost Indonesia an estimated \$16 billion USD in terms of environmental damage and the cost to human health, a figure equal to the amount of foreign exchange earned that year from palm oil exports and 1.8% of GDP (World Bank 2015). Fully incorporating these costs into the production process would make palm oil uncompetitive in comparison with other seed oils on global markets. Palm oil continues to have the lowest startup costs of any other oilseed product. If labor costs should rise, even to a living wage for Indonesian workers, this threatens the viability of the industry, as well. While stopping palm oil production entirely seems like a positive step for environmental preservation, it would leave the question of how to repurpose old plantations or if forests could recolonize old plantations at all.

Furthermore, the class structure of rural Indonesia needs to be seen in a global context in which Indonesia's export-oriented development model leads to reproduction of Indonesia's unequal rural areas. The barriers to entry and the unpredictability of global palm oil prices make it difficult for many farmers to maintain a steadily improving trajectory in their incomes. The poverty-alleviating effects of palm oil seem small compared to the inequality among palm oil farmers, the profits made higher up the chain, and low wages offered to palm oil workers. Because of this, the general conclusion from this study of palm oil development is that Indonesia does not benefit from either the expansion or entrenchment of palm oil in its developmental strategy.

Development is a term with many potential meanings for sociologists. I used it to include material improvements in the lives of poor Indonesians, rather than simply economic growth or development of material forces of production. Palm oil production maintains structural inequalities between the owners of large mills and plantations and the farmers and wage workers that work the land. Palm oil earns billions yearly in foreign exchange for Indonesia, but an export-oriented model is tenuous in the long-term. Fluctuations in commodity prices at the global level are a continual problem. Many of the development problems seen in other peripheral sectors of other economies happen in the palm oil commodity chain, as well. It is not clear that expansion of palm oil production will mean any further developmental improvements.

World-systems studies of development often claim that the structure of the world economy forces development in reverse on peripheral states. Environmentally, there is no question that palm oil is destroying vast swaths of Indonesia's forests, polluting crucial supplies of water, and generating massive fires which threaten many people's lives and well-being. In terms of development, this suggests that the palm oil sector is also not reducing the material inputs into Indonesia's developmental path. Even with a movement towards intensification, rather than extensive growth over a larger geographic area, the exhaustion of the soil will mean that the need for chemical fertilizer will increase. Stagnation means that future upgrades and benefits from palm oil development must come from further development in the upstream activities of processing and refinement.

However, alternatives are under construction. In the following chapter, I examine the current state of palm oil activism at the national level in Indonesia. In a variety of ways, many different groups are seeking alternatives to the distribution of material goods and environmental degradation from palm oil. The exact trajectories are difficult to pinpoint, but the example of

these groups shows that many Indonesians are aware of the labor and environmental issues related to palm oil and are actively trying to construct something better.

Chapter 4- Chain Interventions

This chapter answers some of the gaps left by the preceding chapters; namely, what “links” in the commodity chain are targeted by NGOs, labor groups, and environmental groups as part of their campaigns to alter the productive processes involved in palm oil production? What role do they play in facilitating accumulation in a neoliberal era? I conducted a series of interviews with activists from 6 organizations, and supplemented these interviews with textual sources from their online materials to better understand their efforts to improve the labor and environmental outcomes from palm oil production. While their efforts might pay off in small ways, there are limits to their activities circumscribing their agency and the effectiveness of their work.

The palm oil commodity chain is a complex one, as outlined in Chapter 2. By comparison, the commodity chains of coffee and tea have fewer actors between production and consumption. Consequently, these commodities became popular targets for NGO activity centered on raising farmer incomes through various “fair trade” schemas. These schemas sought to guarantee a higher standard of living for their producers (Walton 2010). For many, fair trade promised immediate and durable relief for impoverished workers and farmers in the Global South. Coffee and tea continue to be popular choices for fair trade products because of the relative lack of processing and manufacturing between producers and consumers and the high potential for price premiums through effective marketing of unique flavors and reassurances of environmental sustainability. Fair trade certification groups attempt to negotiate better prices for farmers with distributors, roasters, or importers into the United States. In exchange, consumers could trust that their purchases were supporting a decent livelihood for farmers in a coffee-producing country. Such social guarantees often included guarantees of sustainable farming

practices, such as shade-grown coffee that would protect habitat for wild birds (Rice and Ward 1996). Consumers also enjoyed specialized marketing emphasizing the unique qualities of specialty coffees with unique flavors and points of origin. The international nongovernmental organizations involved in this process cut out the middle-men involved in the transport, shipping, and marketing of coffee; the value that would have normally gone to these groups instead went into farmers' pockets. However, this governance model had some substantial problems. Enforcement was a major issue; states often refused to support the schemes, farmers often received very little for their efforts, and many standards are simply unclear (Giovannucci and Ponte 2005). Lastly, the size of the market for these types of fair trade coffees was and remains quite small, compared to the market for non-fair-trade coffees. In the long run, it is not clear that certification standards do much good for the participating farmers (Neilson and Pritchard 2007; Muriadin and Pelupessy 2005).

At the global level, the rise of such NGO governance mechanisms coincided with the end of state-led development policies in the Global South. One of the greater problems of this era was the increased mobility of capital in finding pliable states to facilitate accumulation. States obliged capital by opening their markets to trade and investment. Politically and economically, free market ideology reigned supreme; to paraphrase Thatcher, there was no alternative to the free market in terms of development through attracting foreign capital and reducing the role of the state in the economy. Public investment in infrastructure and human capital declined worldwide. Moreover, states also lost a considerable share of their powers to regulate what crossed their borders. This placed the direction for commodity chains squarely onto transnational corporations. De-unionization, most starkly seen in the manufacturing heartland regions of the Global North, increased. The debt crisis of the 1980s ended many development programs, and

the boom years of petrodollars in some states quickly led to a bust. Instead, free market economists like Milton Friedman's "Chicago Boys" advocated for neoliberal reforms aimed at economic liberalization. Attracting foreign investment became a high economic and political priority for states in the Global South. In terms of commodity chains, this largely meant a shift away from state involvement in regulation of commodity chains. A single global market, particularly in financial instruments, replaced the protected markets which previously allowed many states to reach higher levels of industrialization (Chang 2007; Harvey 2007).

Concerned activists adapted their strategies to the new neoliberal policies. States took a less active role in the maintenance of living standards and work protections for farmers and working, allowing private certification schemes to fill this gap. Private certification standards are predicated on the idea that market incentives and corporate self-regulation can bring about adequate labor protections and sustainability without punitive measures from the state for lack of compliance (McCarthy and Zahari 2010:154). This led to a massive sociological interest in this new phenomenon, both in evaluation and exploratory research (Jordan, Wurzel, and Zito 2003; Eden 2011; Pichler 2013). The effect of these certification programs on end results remains hotly debated (Gereffi et al. 2009; Cole and Brown 2014). Gereffi et al. (2009) saw a simultaneous promotion of certain outcomes like improved treatment and wages for local workers, or some environmental improvements, alongside disempowering local governments and efforts, while boosting corporate profits. A major problem in the literature is collusion between companies and the certification programs themselves, which Pichler (2013) attributes to a hegemonic project of the state to incorporate some of the interests of civil society. This shift away from state to private governance represents a major shift in state policy from the previous role of the state in

managing trade across its borders, as well as the state's social role as guarantor of economic and social well-being for its citizens.

A discussion of private governance must also include an analysis of NGOs, broadly. "Corporate social responsibility," "greenwashing," and consumer-oriented campaigns also grew with the entrenchment of neoliberal ideology in state policy. The results of these campaigns are mixed (Gereffi et al. 2009). As these campaigns empowered concerned citizens, they also disempowered local actors or governments. Many of the corporate entities engaging in corporate social responsibility practices also attracted scandals for their labor practices, like Nike or fast-fashion brand Zara. As states roll back their regulations for labor and the environment in the global "race to the bottom," private regulation provides both ideological cover and a bare minimum of regulation to stop the most egregious problems. International non-governmental organizations, or INGOs, implement these standards instead of the state. Ideologically, INGOs reflect the neoliberal emphasis on individual choice and action over collective action. Their donor dependence dictates which courses of action are available to them, as well, further weakening their action against systemic problems. In many places, NGOs, both international and domestic, are now subcontractors of state functions and are incorporated into state planners' developmental programs (Clark, 1991; Gardner and Lewis, 1996; Chambers, 1997). Critics of NGOs argue that they also aid an ideological shift away from broader democratic structures and political programs towards narrower social goals (Kamat 2010).

INGOs are not monolithic, however. There is also opportunity for them to act within forums or to pressure states. Even if their efforts do not challenge the structural issues underlying global capitalism, their campaigns could create some change for workers and the environment. The activism around ending sweatshop labor made some important improvements

for garment workers (Bair and Palpacuer 2012). Subsequent campaigns to pressure companies focus on consumers, and though there is reason to doubt their effectiveness, collective action is occurring here on issues states seem incapable or unwilling to do anything about. In the face of corporate globalization, having a neoliberal INGO campaign advocate for change may be better than no one pushing for change.

In my research, I want to know how NGOs, some domestic, others international, target their campaigns and what their campaigns are doing “on the ground.” Some campaigns continue to unfold, so some conjecture is necessary for what “success” would look like and how this would affect palm oil production. I do not abandon the materialist focus that motivates the earlier chapters’ investigation of value creation and distribution; instead, I acknowledge the major role that NGOs are playing in palm oil’s regulatory framework. I also situate my critical discussion of NGOs alongside the literature on the political opportunities open to workers in other analyses of the conflicts occurring within the productive processes that make up commodity chains. First, I give a background on the shift in Indonesia away from a developmentalist state to an export-oriented development model through the country’s transition to a more open political system. Then, I situate my discussion of NGO activity within the literature on political opportunities afforded to different groups of workers’ strategic positions within commodity chains. My contribution to theory is to develop a better insight on the political opportunities available to NGOs at this contemporary juncture and to incorporate environmental activism into the discussion.

Indonesia’s Developmental Path

In Indonesia, IMF restructuring moved the state’s role away from a developmentalist state towards an export-oriented neoliberal regime. Although the Suharto regime siphoned a

tremendous amount of state funding and revenues into the private hands of a small cadre personally close the president, the state did drive development through its state-owned enterprises and attempts at scaling up the production process, particularly for forest products like timber and pulpwood (Aditjondro 1993; Gellert 2010). Opening the country to more economic liberalization often meant specializing in exports of raw materials to the detriment of value-added within Indonesian manufacturing processes. The connection between value-added and Indonesian workers' wages is tenuous at best, given the tendency of such industries to be sites of graft by regime insiders. The *reformasi* period following 1998 saw the opening of some political freedoms, but a sustained organized effort against neoliberalism in the country failed to take shape. *Reformasi* political devolution to greater powers for district governments often meant adding an additional layer of graft to export industries, rather than local or democratic control of natural resources. Indonesia continues its commitment to a neoliberal development model, albeit while mobilizing developmental state discourses (Warburton 2016; Gellert 2015). The absence of a strong political left likely plays a role in the lack of a national-level political force to rebuild the post-independence era's commitment to state-led development.

The *reformasi* period did achieve some gains in terms of political openings for social movement organizations. Environmental groups organized throughout the Suharto era and were often co-opted into the state (Peluso, Afif and Rachman 2008). Labor groups also experienced a resurgence in activity as they were faced with less state repression (Silaban 2009). The political landscape in the post-Suharto era saw some openings for social movement groups, though most of this consisted of mild reform, rather than deep-seated change. Old groups became re-energized by these efforts, and new groups emerged from a variety of social strata, including students, environmentalists, indigenous movements, and workers. Independent unions not

connected to the state or to management became more common. Also, human rights laws became easier to defend and promote, thanks to KOMHAMNAS, the national human rights commission. Many of the groups that would later become involved in palm oil emerged in this period, and a few represent groups that were founded even before the *reformasi* period. Still, a lack of mobilization and activity characterizes the landscape of social movement organizations in Indonesia (Iskandar 2016; Aspinall 2013). Laws forcing groups to register with the state as NGOs, coupled with remaining repression and a lack of institutional history for many groups continues to limit social movements before many can create successful mobilizations (Silaban 2009).

Palm oil's governance structure, one of Gereffi and Korzeniewicz's (1994) three areas of commodity chain analysis, incorporates private governance mechanisms as a crucial portion of the chain's directedness. Although the Indonesian state plays a major role in subsidizing palm oil production, facilitating trade, and building some infrastructure, the task of providing some labor and environmental protections falls onto the RSPO's social and environmental NGOs. While marginalized in the structures of the RSPO (Pichler 2013), these NGOs may have several roles which I hope to uncover including providing a minor corrective to the worst production practices or an ideological rubber stamp for palm oil production. To answer this, we must turn to the literature on the productive process and the opportunities available for collective action on the part of workers and activists.

Commodity chains and political opportunities for workers

The commodity chain formulation suggests that each stage in the production process contains its own set of political, economic, and social relations. Some links in the commodity chain are more vulnerable to shifts in the distribution of economic returns and political power for

different groups involved in the production of these commodities. Historically, workers have been most powerful at the points of extraction and distribution of commodities (Sowers, Ciccantell, and Smith 2014). The productive processes at hand give workers a degree of leverage, depending on the distribution of resources and goods, and the ways in which these commodities flow through society. The lengthening of global commodity chains multiplied the number of vulnerable points for labor to assert its ability to raise wages and to exert greater control over the productive process. Areas with a high density of capital investment, such as ports and other transportation infrastructure that are difficult to relocate, are particularly vulnerable. Although containerization has set back many labor standards and led to a general deskilling of labor for many workers, the narrow spatial distribution of large ports and the importance of trade to global capitalism are a site for future organizing (Bonacich and Wilson 2008). Australian coal miners, port workers, and railroad workers leveraged their power at the point of production to gain large labor gains in the 1970s (Bunker and Ciccantell 2007), and the 1934 West Coast Longshoremen's Strike in the US led to a major victory for labor (Selvin 1996).

On the other hand, farmers and farm workers worldwide have struggled to achieve an organized movement to rival that of industrial workers. Unfair trade rules from the World Trade Organization led to a burgeoning worldwide movement of farmers, and one of the largest is Via Campesina. Via Campesina recognizes in many national contexts the difficulty of life for farmers at the base of agricultural production (Desmarais 2012). McMichael (2007) shows that global capital relies on a base of small farmers as producers of food commodities, even as they are selectively included and excluded from these circuits of accumulation. Echoing Harvey (2003), many of the world's farmers are subject to dispossession of their land to further capital

accumulation, even as they are incorporated into agricultural production (McMichael 2007:407). Globally, farmers are abandoning their land to seek work in cities, a process already thoroughly completed in the Global North (Araghi 1995). Near total liberalization of food markets has exposed farmers to dumping practices from the US and European wheat and corn (McMichael 1998). Despite these difficulties, farmers continue to resist the WTO, IMF, and national governments' free trade commitments.

To better understand the palm oil commodity chain, we should incorporate these insights on workers' structural power to redistribute economic gains through the commodity chain, but add in some crucial elements. First, agricultural chains are qualitatively different from industrial chains. Industrial chains include wage labor as the primary form of labor control, and the industrial sector holds a strategic position in the economy as a development priority. Second, the palm oil commodity chain has several kinds of workers producing palm oil at the same stage of production. Independent farmers working their own land produce palm oil alongside waged laborers on large corporate plantations. These two forms of production have different levels of strategic power and political differences in how they capture value from palm oil production. The difference is mainly in the relationship to employers; wage workers depend on wages for their income, while small farmers receive their income from the sale of their crops to buyers. Third, environmental groups also need to be brought into this field of analysis. Labor groups use the commodity chain to target areas where they can succeed tactically and strategically. Similarly, I venture that environmental groups perform a similar process of determining where their efforts can make the most impact on companies' practices. Palm oil production involves turning natural resources into value. For environmental groups seeking to preserve nature, in both economic, political, and social forms, intervening in the process of commodity production is

like the same interventions made by labor groups, though this may be a process fraught with tension between environmental and labor groups.

The consequences of the smaller struggles at the different points in the commodity chain have major consequences for the developmental trajectories of states within the global division of labor. Those states which depend on low wage manufacturing or raw materials exports tend to either stagnate developmentally, or move to lower rungs within the global division of labor. Workers in these peripheral and semi-peripheral regions tend to live a quantitatively lower quality of life than workers in core regions or core industries. The crux of the debate between world-systems' understanding of commodity chains and Gereffi's potential path to development by upgrading within the world-system, rather than challenging global capitalism through alternative relations of production, hinges on whether peripheral regions can develop through upgrading their industries into more core-level processes commanding high wage premiums and worker productivity. At another level, there is also a class struggle between workers in peripheral and core regions, as peripheral workers struggle to improve their material quality of life and core workers try to prevent industry from moving to the periphery for lower wages. Palm oil, like other tropical agricultural commodities, must be grown in suitable climactic conditions only found in the Global South. It also resists mechanization, as do many tree crops. Because of this, palm oil remains a Global South and labor-intensive crop.

However, Indonesia has major plans for palm oil to drive national development. Like the other "flex" crops, especially corn and soy, palm oil can be made into a component of a dizzying variety of products. These inputs require substantial processing, outlined in greater detail previously in Chapter 2. These chemical industries command a higher premium for their products on global marketplaces and the wages of factory workers outweigh those of palm oil

farmers alone. The associated industries require trained technicians, generating more human capital through training skilled workers. Already, the Indonesian government is planning to increase its production of biodiesel derived from palm oil (Permen ESDM 32/2008). The chemical industries required to build Indonesia's biodiesel capacity will require substantial inputs of human capital and increases in wages for those associated workers. However, biodiesel comes with its own environmental and economic issues, especially substantial increases in food prices and major ecological consequences.

Environmental change is less understood in these contexts. Just as labor has varying opportunities for bargaining with capital according to economic sector, I explore the idea that environmental groups have varying levels of opportunity for action against corporate actors, depending on their structural position. We should understand environmental groups in the same manner.

So how do Indonesian NGOs and labor groups target their interventions into the commodity chain? Groups vary in their orientation to Indonesia or global markets, but also according to their capabilities to affect change. Groups must target organizations, companies, or groups that they feel will respond to their messages. Uniquely, the Roundtable on Sustainable Palm Oil, a consortium of private companies along the commodity chain and environmental and labor NGOs, governs a great deal of the commodity chain. Worldwide, private governance, rather than state oversight, is increasing as the primary means for directing commodity chains. The RSPO acts in much the same way as other types of certification like the Forest Stewardship Council; consumers are encouraged to buy products meeting ethical guidelines for labor and sustainability practices.

To understand how palm oil-focused NGOs target their campaigns, I conducted a series of interviews with activists from 6 organizations, and supplemented these interviews with textual sources from their online materials. In these semi-structured interviews, I sought to understand how these groups devised their campaigns, what goals they sought to accomplish, and the present state of these campaigns. I supplemented these interviews with textual sources from these group's online materials. Some commonalities emerged from the groups, though their differences are also telling. I found these organizations by searching for nationally representative palm oil organizations in Indonesia through the RSPO's member database and through searches for organizations through the environmental news website Mongabay and Indonesian national media.

The table below summarizes the groups which agreed to an interview for this study:

Table 4.1- Nationally representative palm oil organizations

Organization Name	Area of activism	Member RSPO?	International organization?	State ties?
BIJAK	Smallholder farmer technical development	No	No	Yes, funded by Indonesian state, also USAID
SPKS	Smallholder farmer technical development	No	No	Yes, receives some USAID funding
WALHI	Environment	No	Yes, Indonesian branch of Friends of the Earth	No
Rainforest Action Network	Environment, ties to labor	No	Yes	No
Greenpeace Indonesia	Environment	No	Yes	No
Sawit Watch	Environment and labor	Yes	No	No
OPPUK	Labor	No	No	No

Upgrading within the chain

A common theme emerging from interviews and textual evidence from each group involved a commitment to assisting farmers within the palm oil commodity chain. This was

especially prominent for activists working with SPKS (*Serikat Petani Kelapa Sawit*, or Palm Oil Farmers' Union). Contrary to the direct translation of its name, SPKS is an organization which assists small farmers in obtaining RSPO certification for their products. RSPO certification means that consumers can expect that the palm oil in the products they purchase comes from farms that do not exploit child labor and that pledge not to deforest land or drain peat wetlands. This certification brings a price premium at the farm gate for farmers, which varies with the going commodity prices for palm oil. To obtain certification, SPKS assists farmers with learning and using best agricultural practices, abbreviated GAP in Indonesian. These techniques involve assisting with targeted spraying of pesticides, herbicides, and fertilizer, as well as with various intercropping methods for wildlife and biodiversity preservation. Sustainability certification comes with training costs to participate in these programs, and farmers have difficulty paying for the training. Program managers promise farmers a price premium for their sustainability-certified crops. According to the activists I interviewed, the premium for pursuing the certification is a mere 1% boost in the sale price of their crops. This price premium means that certification is not a large payoff, though the cost to participate is high. Hence, an NGO like SPKS can defray the cost of certification.

A few things can be deduced from this. First, the cost of certifying palm oil as “green” and “socially responsible” under the RSPO has largely fallen onto farmers, rather than palm oil-using firms. This is regardless of whether such certification achieves its stated goals. Secondly, the premium for pursuing this certification is now so low that farmers have little incentive to pursue it. While the future is uncertain, this demonstrates some evidence that the program is likely to fail if farmers have little incentive to pursue it. Lastly, the “outsourcing” of certification to NGOs like SPKS guarantees their cooperation with these programs. SPKS's continued

existence is predicated on its continuing agreement to assist farmers in pursuing certification. Challenging palm oil companies' practices directly is not part of SPKS's present activities.

Another interesting aspect of working within the commodity chain in its present distribution of power is what sorts of farmers take part in the pursuit of certification; other work on palm oil growing schemes shows that farmers who tend to already be well-off tend to participate in these programs because they have additional information and capital to access these programs (McCarthy 2010). Also, the work of SPKS fails to account for agricultural workers who own no land. Similarly, a palm oil farmer owning as much as 25 hectares (approximately 61 acres) of land stills counts for SPKS assistance. Because the average palm oil farmer only owns 2 hectares (approximately 5 acres), there is a considerable difference in the kinds of palm oil farmers participating in palm oil production. Lastly, there is the inherent contradiction in using best agricultural practices to increase farmers' production of fresh fruit bunches. It is ironic that an improvement in palm oil production would be in the interest of each farmer, however, collectively this might mean a further glut of supply, thus lowering the sale price at the farm gate and leaving farmers worse off collectively.

At present, SPKS remains small, both as an organization and in numbers of participating farmers. This will likely continue, but its practices may spread considerably beyond participating farmers. The organization also maintains numerous ties to international NGOs, including Solidaridad and major donors in the US, including USAID. However, the organization remains committed to "on-the-ground" efforts to assist farmers in the intensification of their landholdings, which the activists I spoke to say will lessen the need for clearing land to plant oil palm. Much like the claim that increasing productivity will not increase supply and decrease

prices, this claim is dubious without a credible commitment that the wealth coming from intensification would not also spur further spatial expansion.

SPKS maintained good relations with the RSPO, according to the activists with whom I spoke, largely because of their nature as a non-confrontational organization operating within the political and economic limitations of the present structure of the commodity chain. It was the largest organization to have little to say or critique about the RSPO. Similarly, it had little to say about the Indonesian state, other than that it would like to see the state assist farmers more directly through price supports and agricultural credits. Nonetheless, this organization and its ties to foreign donors and other NGOs exemplifies a GVC approach to agricultural commodities with all the attendant pitfalls of this style of development. Even if their developmental plans were to be successful, it is likely that already advantaged farmers will take advantage of these opportunities, wage laborers on large plantations will see virtually no benefits, and any gains may be simply absorbed by Indonesian elites, as has often been the case with similar attempts in other Indonesian industries (Gellert 2003).

“Trying it out”

One of the theoretically rich areas of this inquiry concerns the RSPO and its private certification scheme. Elsewhere, considerable controversy surrounds the RSPO as it tends to silence or set aside criticism from its included social NGOs (Pichler 2013). Private certification schemes face two main criticisms: the first is their general ineffectiveness, and the second is that they merely deal with consumers’ guilt at purchasing products with oppressive labor regimes and environmental problems. The activists with which I spoke also conveyed that they had serious misgivings about its ability to adequately address labor and environmental problems.

The activist with whom I spoke at Sawit Watch described a recent RSPO annual meeting in which one of their other activists delivered a speech laying out the problems they encountered with the RSPO. These issues included the slowness of its responses to environmental and labor problems, as well as its failure to bring suitable sanctions against violators. The speaker was then threatened with suspension from the event and future meetings, possibly including suspension of the organization itself. The activist highlighted the fraught relationship that Sawit Watch had with the RSPO. Similar sentiments were echoed by the activists at Rainforest Action Network and OPPUK, both of which had partnered around labor issues in palm oil. RAN and OPPUK activists highlighted the difficulty of using the RSPO's grievance mechanisms to rectify problems with arbitrary firings and worker intimidation, as well as deforestation and other environmental issues. The activists, however, still optimistically sought to use the RSPO's grievance mechanisms to rectify small issues, like reinstating single workers who were dismissed without due process during union negotiations. One activist referred to this as "trying it out"; while expressing skepticism about the RSPO's willingness and ability to cooperate with NGOs, it did offer some platform for these groups. One group often strategically threatened to leave the RSPO if its issues were not addressed, thus depriving the RSPO of any semblance of social inclusion.

These activists generally believed that the RSPO was ineffective at stopping the worst abuses of palm oil companies in labor and environment. Sawit Watch, RAN, and OPPUK activists reported feeling frustrated with the slowness of the grievance system, and the outcomes of the system. However, the threat to leave the organization and deprive the RSPO of its legitimacy appeared to be a method of gaining some leverage over the organization, a unique political strategy for these private-led groups. When asked if they thought of leaving the

organization, all activists at the above organizations reported that they would consider doing so in the future. RAN tested the grievance mechanism of the RSPO several times, and found that it could correct minor issues like firing workers who participated in unionization drives. The mere hope of turning the RSPO to their advantage convinced many groups to continue pressuring the organization, rather than seeking alternate forms for presenting their grievances like mass protests or moving through the state's legal system. This arrangement may not last if the RSPO continues to marginalize groups by failing to address their legitimate concerns. However, its present form gives them just enough leverage to continue the relationship.

The emphasis RAN and other organizations showed toward the RSPO is interesting for the corresponding lack of interest in pressuring the state or companies to meet the organizations' demands. In a neoliberal context, the strategy is to influence the efforts of a private governance organization, rather than these groups that hold the most direct decision-making power over palm oil production. Although RAN found it could correct small injustices with the RSPO's grievance mechanism, the important work of embedding its efforts in state activity eluded its reach. This limits its ability, or any other interested organization's ability, to deeply influence the labor and environmental outcomes of the productive process. In this way, the RSPO can effectively deflect a demand that in another era would be directed at the state onto itself, creating another barrier to affecting substantial change in corporate business practices.

Labor: Working Within, Working Without

OPPUK, the labor organization specifically working on wage labor issues in the palm oil sector, is promoting unionization as its means of protecting workers from the vicissitudes of management on palm oil plantations. The activists with whom I spoke painted a picture not unlike many union movements in the United States or Europe. Workers are legally allowed to

unionize under current Indonesian law emerging from the *reformasi* period, though Indonesia's union density remains low and confined to higher skilled sectors. In the palm oil sector, many present unions are "yellow" unions provided by companies and used by management to stall and defeat workers' demands. OPPUK, by contrast, is seeking to build independent palm oil organizations into a cohesive union in many palm oil growing regions. This organization has been frequently frustrated by management in many ways. Before management can intervene, organizing rural workers runs into the problem of their spatial organization. It is difficult for OPPUK to reach workers in far-flung parts of the country thanks to Indonesia's lack of adequate infrastructure. Past that, many companies prevent unknown outsiders from entering their property, thus keeping outside organizers from getting close to workers who live on company property, often in company housing. Secondly, organizers face intimidation from company security; many of the individuals doing security duty moonlight from their other positions as police or military, which often blurs the legal line between private and public functions. Workers have also faced intimidation and arbitrary firing from management when attempting to organize.

The difficulties in labor organizing in palm oil offer one explanation for the rise in the consumer-orientation of these groups: it represents one of the more open avenues for activism. Gereffi (2001) shows that growing information and discernment among consumers makes them more selective in their consumption choices. Producers adapt to these preferences to attract and retain consumers. However, there are some limitations to this approach. An undifferentiated and hidden commodity in the long list of ingredients in packaged food like palm oil limits the potential for these campaigns to achieve their goals. Also, the specific production companies are unknown in many palm oil products. This prevents consumers from picking among a variety of options to discriminate against egregious labor violators.

Name and shame: The International NGOs

Both international environmental NGOs with whom I spoke, Greenpeace and RAN, focused many of their efforts on consumers in Europe and the United States. RAN had recently conducted a report on palm oil practices within PepsiCo's supply chain alongside OPPUK, the labor union mentioned above. The report detailed numerous abuses within the palm oil supply chain, including child labor, wage theft, and lack of protective equipment for workers spraying pesticides, herbicides, and fertilizer, many of whom are women, a finding back up in the literature (Li 2015). Greenpeace Indonesia has a much longer residence in Indonesia than RAN, which had only recently sent a small team of activists to the country. Both wrote, and continue to write, numerous data-driven reports on the speed and scale of land conversion to oil palm throughout the country (Greenpeace 2017a, Greenpeace UK 2017; RAN 2013). These efforts, however, only tangentially focus on the polity within Indonesia.

Instead, RAN and Greenpeace Indonesia focus much of their efforts on consumers, who they seek to move towards more sustainable palm oil products, often bearing the seal of the RSPO, or to boycott products from companies with known egregious labor and environmental problems in their supply chain. RAN's PepsiCo campaign focused on a "name and shame" campaign for the company to drop its present suppliers in favor of suppliers with better labor and environmental practices.

Greenpeace recently focused a great deal of effort on naming and shaming large banks for the financing they provided to palm oil companies, including HSBC (Rahmawaiti 2017). To target these companies, Greenpeace's international branches staged demonstrations outside the administrative headquarters in the United States and Europe to protest large financial firms' capitalization of palm oil expansion (Greenpeace 2017b).

Both groups have also leveraged their reports on company practices to demand accountability from companies. Activists at both organizations reported a mix of companies ignoring or condemning their reports, companies calling to conduct their own audits, and, lastly, long delays in the supposed change in on-the-ground practices. Activists were frustrated with the progress of their activities, but emphasized the need to act at the international level to pressure the financial firms funding palm oil expansion. One problem of these groups' approach is the hidden presence of palm oil in so many products. Since it goes unrecognized, few consumers may be able to boycott the product. Pinning these issues on a single company is hard to do, but the issue is further multiplied by the number of companies using palm oil. Unilever, the global leader in palm oil use, only uses about 2% of global production. Targeting any single company using palm oil in consumer products misses at least 98% of all other users of palm oil.

Because of their international branches, these organizations had much greater opportunities for international outreach in their campaigns related to palm oil. The choice of international outreach also played into the groups' organizational capabilities; RAN's Indonesia staff only totaled three individuals, while Greenpeace's larger staff had few field offices and few dues-paying members in Indonesia relative to the country's size. The strategic choice is a notable parallel to the traditional labor organizing approach or to mobilizing citizen constituencies. When asked why they did not take their campaigns through the Indonesian polity in political campaigning, both groups replied that they had a lack of capability in bringing these issues to Indonesia at large, but they also complained about the general lack of environmental consciousness among Indonesian citizens. To be effective, the "name and shame" approach relies on large corporations eventually seeing the benefits of altering their supply chain against the profits coming from the physical expansion of palm oil and the exploitative labor aspects at the

bottom of the commodity chain. US and European consumers have a strong enough desire to consume ethical products that their pressure matters a great deal. The RAN activist with whom I spoke said that Indofood, arguably Indonesia's largest food company, remained completely immune from public pressure to change its practices. A great deal of their immunity to pressure came from their control of a high proportion of Indonesia's packaged foods, which are becoming more common in the Indonesian diet and contain a high proportion of palm oil. Given Indonesia's high domestic consumption of palm oil, the immunity of a large corporation to public pressure creates major barriers to the name and shame strategy.

A focus on consumers has many issues. The "everyday exploitation" of wage labor is unchallenged, and an actual shift in labor relations at the point of production is highly unlikely. Even if issues like child labor or land grabbing ended, palm oil would likely continue to fail on its promise to generate sustainable development in the country. The further concentration of global food under the control of fewer corporations means that consumers will have few options available if consumer boycotts are directed at individual bad actors, rather than whole industries or, even more unlikely, at solidarity campaigns with Indonesian workers. However, focusing on finance carries the benefit of using already established consumer awareness (rather than attempting to build consumer awareness from scratch in Indonesia, though there is evidence that consumers in Asia are more inclined to consume ethically than my informants claim (Lewis 2017). Protests and other collective action to leverage financial firms to end the physical expansion of palm oil, or cut off financing for firms that violate certain labor standards is workable, though stopping all sources of finance is doubtful, too.

NGOs focus on a liberal ideology of choice and citizen advocacy over organizing at the site of extraction or challenging the structures of capitalism. Barring serious changes to the

relations of production at the point of extraction, it remains unlikely that economic benefits will “trickle down” to the lowest palm oil producers. Similarly, political corruption among Indonesian elites derailed previous national development plans, and the pattern could repeat for palm oil, if it is not already doing so (Gellert 2010).

However, the political system in Indonesia may be vulnerable at the point of finance capital, and the NGOs’ campaigns to target finance and international pressure can avoid some of the pitfalls of participation in Indonesian politics. International finance and trade are crucial to the success of palm oil in Indonesia’s development plans and potential food substitution for canola or other seed oils if the necessary capital for expansion stops flowing, this could alter some on-the-ground processes. Though present theorization suggests skepticism, other international finance campaigns like Boycott, Divestment, and Sanctions against Israel’s occupation of the West Bank are attempting similar tactics, and the reaction these campaigns have created suggest that elites worry about their potential for success (Barghouti 2011). Nevertheless, these campaigns do not alter the relations of production at the root of palm oil extraction and should be treated with some skepticism.

State ties: BIJAK and US aid

Public-private partnerships (PPPs) are a growing form of commodity chain governance. Though the schema varies, state agencies partner with NGOs to achieve certain developmental goals. Much like the controversy surrounding private governance, PPPs are criticized for the opportunities for graft from state funds for private purposes, as well as their dependence on foreign or domestic aid with non-democratic forms of governance. If one takes this point of view, the criticisms of private forms of governance overlap with those of PPPs. Palm oil is not exception to the presence of PPPs.

BIJAK, an Indonesian acronym meaning, “wisdom,” is a PPP working with the Indonesian government and Chemonics, a private sector management firm for developmental projects in developing countries. BIJAK also receives funds from USAID for its work. My informant told me that BIJAK operates in much the same way as SPKS, and, in fact, I met my informant through contacts at SPKS. Their work illustrates the service that such an organization can perform for capital accumulation and dispelling criticism for environmental and labor problems highlighted by other NGOs’ activities.

My informant told me that their small office coordinated efforts between the US and Indonesian governments and operations on the ground in palm oil growing areas. My informant, speaking on condition of anonymity, proceeded to tell me that most of BIJAK’s operations were focused on enhancing profitability in the palm oil sector, rather than assisting farmers or developmental projects. According to this informant, powerful individuals in the Indonesian government had invested considerable capital into the plantation sector, palm oil. Foreign criticism of palm oil threatened the profitability of these enterprises, and thus BIJAK’s work was necessary to ensure that foreign donors and NGO criticism would not threaten profits. Thus, BIJAK fits the profile of a problematic PPP, where state funds, in this case from both the US and Indonesia, are funneled into projects designed to enhance profits, rather than achieve economic or social goals. Also, this one aspect of the case highlights a common trend in Indonesia’s political economy. The state remains a site of accumulation for those elites with political connections. BIJAK and its partner, SPKS, must also be scrutinized for raising the profit margins of elites, rather than the farmers and smallholders their programs are intended to assist.

Accepting liberal capitalism

The “productivist” mentality exemplified by BIJAK and SPKS is the tip of the iceberg for the general agreement held by virtually all organizations I interviewed; no group articulated a vision meant to challenge the export-oriented, primary sector-led development model currently used by Indonesia. Although groups like RAN, Greenpeace, and WALHI often employ collective action to halt the flow of investment capital, they do not mobilize Indonesians to accomplish their organizational goals. In the current political climate, mass mobilization is unlikely, but such a focus might create deeper, longer-lasting effects on Indonesia’s democracy. Even OPPUK, the only labor union in this study, only seeks to bargain with palm oil companies, rather than to build an alternative to Indonesia’s present economic model.

The groups discussed here, or groups taking more extreme measures, face a harsh degree of repression in their attempts to secure land rights or their rights as workers. Any attempt to alter Indonesia’s nationalist ideology, *Pancasila*, is met with state repression (Iskandar 2016). Pancasila is the five-point state ideology encompassing the unifying principles of the state, including belief in one God, promotion of a just and civilized humanity, a unified Indonesia, democracy (led by the wisdom of the representatives of the people), and social justice (Republic of Indonesia 2002). Its principles of unity are interpreted legally to undermine ideological and political challenges to the nature of the state. Extralegal challenges to activism also occur. Some agrarian conflicts related to palm oil have ended in violence (Saragih and Afrida 2011), emphasizing the potential consequences of pushing an activist agenda too far. At a more mundane level, INGOs can lose their registration in Indonesia and then have their staff removed from the country, among a variety of escalating legal penalties (Ministry of Foreign Affairs 2009). Groups also remain trapped within the issues specifically related to the material realities

of palm oil production. Higher wages or practices which affect the profitability of the industry could raise the price of palm oil, presently the lowest cost seed oil in the world, and a major reason for the industry's massive and rapid growth. Thus, activists are constrained from above by the state and from below by global markets. Playing by "the rules of game" carries a high cost, as well. Nevertheless, there are a handful of groups which are rejecting Indonesia's liberal capitalist model for palm oil.

Outright rejection

Indonesia maintains few anti-systemic options, as noted in labor research on Indonesia (Silaban 2009). Indonesian law expressly criminalizes any attempt to alter the national *Pancasila* ideology, emphasizing the state's unity and nationalist principles, and the country's political elites leverage this law into stifling threatening forms of dissent. Nevertheless, organization against neoliberalization of Indonesia's economy, land grabbing, and environmental devastation is ongoing, although these movements may not coalesce into a broad front to change the country's distribution of wealth and political power. Palm oil is no exception to some forms of anti-systemic organization or alternatives to liberal capitalism.

One of the leading peasant organizations in Indonesia, AGRA (*Aliansi Gerakan Reforma Agraria*, the Movement Alliance for Agrarian Reform) is seeking drastic land reform for Indonesia's peasants, agricultural workers, and fishermen. The group has criticized President Joko Widodo's land reform as a liberal reform that will likely open land to free market purchases, thus legalizing land grabs and eliminating communal ownership of land. While not explicitly focused on palm oil, the group assists many communities in pressing their demands on palm oil companies and the state. AGRA also maintains partnerships with similar groups in the Philippines. Without saying so explicitly, the group's ideology challenges the country's present

distribution of power by building solidarity across social sectors to defend peasants' cultivation rights and communal ownership of land. The group also explicitly seeks to empower women and indigenous people, as well.

AGRA most accurately resembles a peasant organization seeking an alternative to capitalist land relations in Indonesia. The group seeks to de-commodify the landholdings of smallholder peasants, and to regain lands lost to large transnational corporations. The group also has ongoing efforts against the mass development projects favored by President Widodo's government. If AGRA should continue to grow, especially into other sectors of rural and urban society, it could provide a major challenge to Indonesia's extractive developmental model. It lacks many of the contradictions inherent in the developmental work of groups that do not challenge the state or the class structure of Indonesia.

Indigenous people remain a barrier to palm oil expansion, as well. The Dayak people of Borneo have mounted a strong defense against palm oil expansion on their land (Marti 2008). In favor of the indigenous peoples of Indonesia, Indonesian law recognizes *hak adat*, or traditional law, as superior to national law in many cases (Li 2001). Many indigenous people ally with other environmental groups in Indonesia to protect their legal land rights. However, their cases are difficult to win in Indonesian courts, if cases ever reach court at all (Gellert and Andiko 2015). While palm oil remains a small enterprise, many land issues continue to stir conflict among indigenous people in West Papua and expansion of palm oil plantations there will likely exacerbate an already tense political situation. Nevertheless, their political situation remains fragmented. Also, the lines are often blurred between indigenous identity, *adat* law, and difficulty in discerning exactly who is indigenous after many Javanese and Madurese settlers

agreed to live by the *adat* laws of their neighbors, and presenting legal challenges becomes even more difficult.

Conclusion

NGOs have taken up some of the roles traditionally reserved for the state in governing commodity chains, especially the state's role in preventing egregious violations of labor and environmental laws and regulations. Their role as NGOs offers them some openings for activism even as it closes others. Evidence here supports Gereffi et al.'s (2009) assertion of some successes with some longer-term failures in this institutional arrangement between NGOs and corporations.

SPKS and BIJAK are enforcing an ideal-typical neoliberal version of NGO incorporation into commodity production. Their ties to the state provide direct evidence of NGO's potential function as a conduit for state and firm developmental plans. The other organizations' campaigns to curb environmental and labor problems may sometimes run into confrontations with palm oil producers and the state, but their role in monitoring these issues aligns with the absence of the state from this role.

My interview work suggests that labor and environmental groups strategically use these private governance forums in many ways to advance their own goals. These groups, at least in the Indonesian case, occupy an interesting political space outside the state and the typical efforts of left groups to reign in capitalist exploitation of labor and the environment. As their continuing efforts unfold, a central issue they will face is how to confront either continuing with private certification schemes or to enter political movements, which could also fail or endanger the organization through alienation from donors or state repression. In the Indonesian context, there is no politically impactful left to support their demands through state structures.

These groups' efforts are constrained by the low consumer knowledge that customers have and the dispersed nature of palm oil production and trade. The growing markets in China and India hold some promise for this type of activism if consumers there become mobilized around similar campaigns. This contrasts with the marginally successful efforts of fair trade coffee activism to improve the economic well-being of coffee farmers and their environmental practices. The low consumer knowledge about palm oil prevents a true test of the effectiveness of these campaigns, but at the moment, the state of activism around these campaigns shows their current weakness.

For the moment, the constellation of nationally active palm oil groups demonstrates the effectiveness of neoliberalism as an effective tactic to divert energy into private governance and consumer-oriented campaigns, rather than other forms of anti-systemic activism that challenge corporate hegemony over the food system.

Conclusion

I attempted to demonstrate in the previous chapters how small farmers, wage laborers, and the firms along the palm oil commodity chain manufacture this ubiquitous commodity, and its role in Indonesia's political economy and the global food system. Along the way, I examined the productive process itself, especially how palm oil's qualities structure the possibility for development, or lack thereof, and the present state of the distribution of benefits and harms along the chain. I also sought to create a typology of nationally-active NGO and social movement groups seeking to shift the commodity chain to achieve the twin goals of environmental sustainability and a piece of the prosperity generated from the sale of palm oil on global markets for those who produce it.

The possibility for palm oil to generate environmentally sustainable national development looks remote. State planners in Indonesia want to keep more value-added processes within the country's boundaries. The stated plan is that this will bring well-paying jobs to Indonesian workers, strengthen the country's human capital, and insulate it from the shocks of global commodities' markets. However, these plans will face serious challenges from Indonesia's precarious environmental state. Per hectare yields are flattening, suggesting that either environmental degradation is to blame, or that the investment in intensifying production is failing at the task. If present investment cannot raise per hectare yields in a meaningful way, there is little point in discussing whether raising yields will limit expansion, as some activists promise. Climate change could also affect the viability of the industry. The El Nino year that heightened forest fires to such devastating levels shows what lower rainfall patterns could do to both the environment and human health. Turning more forest into plantations would worsen this effect. Also, the economic downturn in 2008 and the lower commodity prices available at that time

could threaten developmental plans, as well. The long production cycles of oil palms could leave farmers shackled with debt and trees producing cheap fruits if the global economy should enter a long-term depression. The historical dependence of Indonesia on basic commodities shows no sign of abating.

Nevertheless, palm oil is the best option for many farmers compared to other land uses. These economic conditions continue to draw small farmers into the sector, despite the many issues this might cause. Palm oil plantation workers might otherwise have joined the exodus of rural people to Indonesia's burgeoning cities, which would turn rural problems into urban ones. The unionization efforts discussed in Chapter Four could make substantial improvements in the lives of wage laborers. Removing palm oil from the global food system is not a goal of any known group, either. The task going forward is to make palm oil a source for equitable growth for small farmers and workers. However, the impossibility of long-term, sustainable growth towards this end under the current free trade system in agricultural commodities undermines this project. The hierarchical nature of the world-system rears its head again.

Commodity chains are places of contention, and the victory of free market capitalism and the corporations embodying it on-the-ground is not a foregone conclusion. The environmental and labor NGOs in Chapter Four are laying the groundwork for activism that might help palm oil become an engine of equitable growth. Organizing palm oil workers to demand higher wages and better benefits will likely improve their material quality of life. Given capital's need for constant growth and profit, these groups may come into increasingly direct conflict with the state and private companies. While a truly left politics that could challenge corporate and elite power in Indonesia may be many years away, these groups are signaling that alternatives do exist and their organizational learning could help them build a more just and equitable society. The current

Jokowi government pays lip service to popular desires for food sovereignty and the old nationalist vision of an independent Indonesia striving towards a future of its own making. The growing popular forces pushing the Jokowi towards action on these issues might also push future administrations towards even greater reforms and redistribution in Indonesian society. Suharto's ouster in 1998 showed the potential of the Indonesian people to control their own destinies. Uniting "town and country" in Indonesia across rural/urban divides and on major issues like the environment and workers' rights holds major potential for the future. Similarly, the groups discussed in Chapter Four are well-networked with groups outside the country. Widening the scope of these groups' struggles could create a sea change in the economic benefits from palm oil and thus poverty alleviation.

What, then, should be done instead? World-systems' skepticism of raw material-based development finds support through these investigations. If a massive land distribution campaign put more of the land held by plantation companies into the hands of rural farmers, it is not clear that they would substantially benefit, given the long commodity chain with many points of control for both domestic and international capital in the form of mills, refineries, and final points of sale to consumers, both in Indonesia and abroad. The ecological consequences of backing farmers with state funds could also be severe if the export-oriented development model prevailing in Indonesia only acted to put a larger chunk of surplus into farmers' and workers' hands.

Two major moves in Indonesia could affect palm oil production in a major way towards breaking the impasse between environment and development. First, a deepening of Indonesian democracy towards a greater popular push against the country's neoliberal development. This would need to involve workers and environmental groups in gaining a foothold in the country's

decision-making processes against the prevailing dominance of cults of personality around which most parties form and the endemic corruption plaguing the country's major political parties. The Indonesian state has long played a role in facilitating the outflow of basic commodities to serve foreign political and economic interests, rather than meeting the needs and aspirations of the Indonesian people. Similarly, a more open and democratic political system could hold private companies and individuals accountable for the environmental and labor problems discussed in Chapter Two. The current system of environmental and labor laws, policies, and enforcement of these laws favor companies and the wealthy, both *de jure* and *de facto*. If, at the very least, Indonesian civil society coalesced around a system of democratic accountability and could force capital and its representatives to the negotiating table, the laws currently on the books could have enough force behind them to bind companies' practices, and legal protections for workers and the environment could increase.

A second major opening would be an ecological one. Models for ecological sustainability, at least in the US, point to Northern Europe as a model for sustainability and the "green state," in which norms of environmental protection direct state activity. However, Indonesia is not a Northern European state and could not attain that level of development in a reasonable period before the collapse of its environment. On the other hand, a growing body of agricultural science suggests that intercropping, or the growth of multiple kinds of crops next to one another, can slow agricultural pests, prevent excessive growth of weeds, and produce more food per unit of area than a monoculture. The crucial difference here is the lack of an economy of scale in this type of growing scheme. Such an agricultural system would focus on meeting human nutritional needs and help create a balanced ecology. Cuba's advances in agro-ecology, the study of ecological principles applied to agriculture, show that a peripheral state can

successfully adopt these principles even under a restrictive economic embargo (Rosset et al. 2011). Cuba is one of the few, if only, states in the world which is reforesting. Indonesia's ecology will probably never return to its pre-palm oil state, but a balanced system of agroecology combined with reforestation projects could initiate a process of conversion back to ecological balance. The US Department of Agriculture uses a wide variety of incentives to encourage more sustainable farming practices such planting trees along streams to reduce erosion and improve water quality (USDA 2018). The combined impact of similar programs could make a large impact on Indonesia's long-term sustainability, though the key is effective state capacity, currently lacking in Indonesian environmental law (Gellert and Andiko 2015).

A more likely scenario is that Indonesian state planners will advance plans to industrially upgrade to downstream processes. Granted, their plans have a chance of uplifting some individuals into middle class technical and managerial positions. Some of my interviewees in Chapter Three report that mill and refinery workers have high wages for Indonesian workers, suggesting some positions may open for even low skilled workers. However, wages could stagnate or decline from their present position, or public pressure against palm oil could lead to profitability problems in this sector. Also, more palm oil plantations in Latin America and Africa could increase supplies, dragging down prices. As this process advances, another opportunity will open up to test the theoretical predictions of the traditional world-systems' stance on the impossibility of development and the GCC/GVC possibility of industrial upgrading to economic development.

While I have answered some of my original questions about the palm oil commodity chain, the actors involved, and what they are doing about the present environmental and labor

issues in the chain, only time will tell if this industry can make a change for Indonesia's millions of people on whom we depend for this crucial commodity in our global food system.

References

- Aditjondro, George. 1993. 'The Media as Development "Textbook": A Study on Information Distortion in the Debate about the Social Impact of an Indonesian Dam (Kedung Ombo Dam)'. PhD Dissertation, Cornell University.
- Afrizal. 2013. "Oil Palm Plantations, Customary Rights, and Local Protests: A West Sumatran Case Study". *Land for the People: The State and Agrarian Conflict in Indonesia*. Eds. Lucas and Warren. Athens, OH: Ohio University Press.
- AgroIndonesia. 2015. IPOP langgar kedaulatan RI. Jakarta, Indonesia: AgroIndonesia.
- Akram-Lodhi, Haroon. 2008. "(Re)imagining agrarian relations? The World Development Report 2008: Agriculture for Development". *Development and Change*, 39(6), 1145–61.
- Allen, E. R. 2016. "Analysis of trends and challenges in the Indonesian labor market". (ADB Papers on Indonesia No. 16). Manila: Asian Development Bank.
- Anderson, Kevin. 2016. *Marx at the Margins: On Nationalism, Ethnicity, and Non-Western Societies*. Chicago: University of Chicago Press.
- Araghi, Farshad A. 1995. "Global De-peasantization: 1945-1900." *The Sociological Quarterly*, Vol. 36, No. 2 (Spring, 1995), pp. 337-368.
- Araghi, Farshad. 1995. "Global De-peasantization: 1945-1990". *The Sociological Quarterly* 36(2): 337-368.
- Arrighi, G., Silver, B. J., and Brewer, B. D. 2003. "Industrial convergence, globalization, and the persistence of the North-South divide". *Studies in Comparative International Development* (SCID), 38(1), 3-31.
- Arrighi, Giovanni. and Drangel, Jessica. 1986. "The Stratification of the World-Economy: An Exploration of the Semi-Peripheral Zone", *Review* 10(1): 9-74.
- Arrighi, Giovanni. and Jessica Drangel. 1986. "The Stratification of the World-Economy: An Exploration of the Semiperipheral Zone", *Review* 10(1): 9-74.
- Aspinall, Edward. .2013. "A Nation in Fragments", *Critical Asian Studies*. 45:1, 27-54
- Babb, Sarah. 2012. "The Washington Consensus as Transnational Policy Paradigm: Its Origins, Trajectory, and Likely Successor". *Review of International Political Economy* 20(2): 268-297.
- Babones, Salvatore. 2005. The Country-Level Income Structure of the World-Economy. *Journal of World-Systems Research*, 11(1), 29-55.

- Badan Pusat Statistik (BPS). 2015. "Indonesia Palm Oil Statistics". ["Statistik Kelapa Sawit Indonesia"]. Accessed online April 29, 2017.
- Bair, Jennifer and Florence Palpacuer. 2012. "From Varieties of Capitalism to Varieties of Activism: The Anti-sweatshop Movement in Comparative Perspective." *Social Problems* 59, 4: 522-543.
- Bair, Jennifer. 2005. "Global Capitalism and Commodity Chains: Looking Back, Going Forward". *Competition and Change* 9:153-180.
- Bair, Jennifer. 2013. Editor's Introduction: Commodity Chains in and of the World System. *Journal of World-Systems Research*, 20(1), 1-10.
- Banaji, Jairus. 1990. "Illusions about the peasantry: Karl Kautsky and the agrarian question". *The Journal of Peasant Studies* 17(2), 288-307.
- Barghouti, Omar. 2011. *BDS: Boycott, Divestment, Sanctions: The Global Struggle for Palestinian Rights*. Chicago: Haymarket Books.
- Barham, Bradford, Stephen Bunker, and Denis O'Hearn, eds. 1994. *States, Firms, and Raw Materials: The World Economy and Ecology of Aluminum*. Madison: University of Wisconsin Press.
- Barraclough SL. 2000. *Agricultural expansion and tropical deforestation: international trade, poverty and land use*. Abingdon (UK): Routledge
- Bissonnette, Jean Francois. 2016. "Is oil palm agribusiness a sustainable development option for Indonesia? A review of issues and options". *Canadian Journal of Development Studies / Revue canadienne d'études du développement*, 37:4, 446-465.
- Bonacich, Edna and Jake Wilson. 2008. *Getting the Goods: Ports, Labor, and the Logistics Revolution*. Ithaca, NY: Cornell University Press.
- BPS North Sumatra. 2014. *Indikator Pertanian Sumatera Utara Tahun 2014* (Agricultural Indicators of North Sumatra 2014). Medan: BPS.
- BPS Statistik. 2016. *Census of Agriculture: 2013*. Accessed online.
- BPS. 2015. "Statistik Kelapa Sawit Indonesia 2015." BPS-Statistik. Accessed online, April 2017.
- Brad, Alina, Anke Schaffartzik, Melanie Pichler, and Christina Plank. 2015. "Contested Territorialization and Biophysical Expansion of Palm Oil in Indonesia". *Geoforum* 64: 100-111.
- Brown, Chelsea. 2009. "Democracy's Friend or Foe? The Effects of Recent IMF Conditional Lending in Latin America." *International Political Science Review / Revue Internationale De Science Politique*, 30(4): 431-457.

Bungo BPS. 2007. "Bungo dalam angka 2006". Badan Pusat Statistik Kabupaten Bungo, Muara Bungo, Indonesia.

Bunker, Stephen and Paul Ciccantell. 2001. "International Inequality in the Age of Globalization. Japanese Economic Ascent and the Restructuring of the Capitalist World-Economy;' Paper presented at the ISA meetings, Chicago.

Bunker, Stephen and Paul Ciccantell. 2003. "Generative Sectors and the New Historical Materialism: Economic Ascent and the Cumulatively Sequential Restructuring of the Global Economy". *Studies in Comparative International Development* 37(4): 3-30.

Bunker, Stephen and Paul Ciccantell. 2003. "Generative Sectors and the New historical materialism: Economic Ascent and the Cumulatively Sequential Restructuring of the World Economy". *Studies in Comparative International Development* 37(4): 3-30.

Bunker, Stephen and Paul Ciccantell. 2005. *Globalization and the Race for Resources*. Baltimore: Johns Hopkins University Press.

Bunker, Stephen and Paul Ciccantell. 2007. *An East Asian World Economy: Japan's Ascent with Implications for China*. Baltimore, Maryland: Johns Hopkins University Press.

Bunker, Stephen G. and Paul Ciccantell. 1995a. "A Rising Hegemon and Raw Materials Access: Japan in the Post-World War II Era." *Journal of World-Systems Research* 1, 10: 1-31.

Bunker, Stephen. 1984. "Modes of Extraction, Unequal Exchange, and the Progressive Underdevelopment of an Extreme Periphery: The Brazilian Amazon, 1600-1980." *American Journal of Sociology* 89(5): 1017-1064.

Bunker, Stephen. 1985. *Underdeveloping the Amazon: Extraction, Unequal Exchange, and the Failure of the Modern State*. Chicago, IL: University of Chicago Press.

Bunker, Stephen. 1994a. "The Political Economy of Raw Materials Extraction and Trade;" Pp. 437-450 in R. Socolow, C. Andrews, F. Berkhout, and V. Thomas (eds.) *Industrial Ecology and Global Change*. Cambridge: Cambridge University Press.

Bunker, Stephen. 1994b. "Flimsy Joint Ventures in Fragile Environments," Pp. 261-296 in B. Barham, S. Bunker, and D. O'Hearn. *States, Firms, and Raw Materials; The World Economy and Ecology of Aluminum*. Madison, WI: University of Wisconsin Press.

Bunker, Stephen. 2003. Matter, Space, Energy, and Political Economy: The Amazon in the World-System. *Journal of World-Systems Research*, 9(2), 219-258.

Burns, Thomas., Kick, Edward, and Davis, Byron. 2003. Theorizing and Rethinking Linkages Between the Natural Environment and the Modern World-System: Deforestation in the Late 20th Century. *Journal of World-Systems Research*, 9(2), 357-390.

- Burns, Thomas, Edward Kick, David Murray, and Dixie Murray. 1994. "Demography, Development and Deforestation in a World-System Perspective." *International Journal of Comparative Sociology*, 3 5(3-4): 221-239.
- Cahyadi, Eko and Hermann Waibel. 2013. "Is Contract Farming in the Indonesian Oil Palm Industry Pro-poor?" *Journal of Southeast Asian Economics* 30(1): 62-76.
- Cahyadi, Eko Ruddy. 2013. "Contract Farming and Risks for Smallholders in the Oil-Palm Industry in Indonesia", *Bulletin of Indonesian Economic Studies*, 49:3, 381-382.
- Cattau, Megan, Miriam Marlier, and Ruth de Fries. 2016. "Effectiveness of Roundtable on Sustainable Palm Oil (RSPO) for reducing fires on Oil Palm Concessions in Indonesia from 2012 to 2015." *Environmental Research Letters* 11:1-11.
- Chambers, Robert. 1997. *Whose Reality Counts? Putting the Last First*. London: Intermediate Technology.
- Chang, Ha Joon. 2007. *Bad Samaritans: The Myth of Free Trade and the Secret History of Capitalism*. New York: Bloomsbury.
- Chase-Dunn, Christopher. 1998. *Global Formation*. Oxford: Rowman and Littlefield Publishers.
- Ciccantell, Paul and David Smith. 2009. "Rethinking Global Commodity Chains: Integrating Extraction, Transportation, and Manufacturing". *International Journal of Comparative Sociology* 50(3-4): 361-384
- Ciccantell, Paul and David Smith. 2009. "Rethinking Global Commodity Chains: Integrating Extraction, Transport, and Manufacturing." *International Journal of Comparative Sociology* 50(3-4): 361-384.
- Ciccantell, Paul and Stephen Bunker. 2002. "International Inequality in the Age of Globalization: Japanese Economic Ascent and the Restructuring of the Capitalist World-Economy". *Journal of World Systems Research* 8(1): 62-98.
- Ciccantell, Paul and Stephen G. Bunker. 1999. "Economic Ascent and the Global Environment: World-Systems Theory and the New Historical Materialism." Pp. 107–122 in *Ecology and World-Systems Theory*, eds. W. Goldfrank et al. Westport, CT: Greenwood Press.
- Clark, Brett and John Bellamy Foster. 2009. "Ecological Imperialism and the Global Metabolic Rift: Unequal Exchange and the Guano/Nitrates Trade." *International Journal of Comparative Sociology* 50(3-4): 311-334.
- Clark, John. 1991. *Democraticizing Development: The Role of Voluntary Organizations*, West Hartford, CT: Kumarian Press.

- Clelland, Donald. 2014. "The Core of the Apple: Degrees of Monopoly and Dark Value in Global Commodity Chains". *Journal of World-Systems Research* 20(1):82-111.
- Colchester, M and Chao, S. 2013. *Conflict or Consent? The Oil Palm Sector at a Crossroads*. Moreton-in-Marsh: Forest Peoples Program and Sawit Watch.
- Colchester, Marcus and Norman Jiwan. 2006. *Ghosts on Our Own Land: Indonesian Oil Palm Smallholders and the Roundtable on Sustainable Palm Oil*. Bogor, Indonesia: Forest Peoples Program and Sawit Watch.
- Cole, Nicki Lisa and Kevin Brown. 2014. "The Problem with Fair Trade Coffee". *Contexts* 13(1):50-55.
- Cole, Nicki. 2008. "Global Capitalism Organizing Knowledge of Race, Gender and Class: The Case of Socially Responsible Coffee". *Race, Gender & Class*, 15(1/2), 170-187. Accessed online April 29, 2017. <<http://www.jstor.org/stable/41675364>>
- Cover and Soil Sciences. *Encyclopedia of Life Support Systems (EOLSS)*, UNESCO-EOLSS Publishers, Oxford, UK. <<http://www.eolss.net>>
- Dados, Nour and Raewyn Connell. 2012. "The Global South". *Contexts* 11(1): 12-13.
- Daemeter Consulting. 2015. "Indonesian Oil Palm Smallholder Farmers: A Typology of Organizational Models, Needs, and Investment Opportunities". Daemeter Consulting, Bogor, Indonesia
- Daviron, B. and I. Vagneron, 2011. "From commoditization to de-commoditization... and back again. Discussing the role of sustainability standards for agricultural products", *Development Policy Review*, 29(1):91-113. <<http://onlinelibrary.wiley.com/doi/10.1111/j.1467-7679.2011.00515.x/pdf>>.
- De Fries, Ruth and Jessica Fanzo, Pinki Mondal, Roseline Remans, and Stephen Wood. 2017. "Is Voluntary Certification of Tropical Agricultural Commodities Achieving Sustainability Goals for Small-scale Producers? A Review of the Evidence". *Environmental Research Letters* 12:1-11.
- De Jong, Alex. 2015. "The Forgotten Massacres". *Jacobin*. Accessed online Jan. 28, 2018. <<https://www.jacobinmag.com/2015/06/indonesian-communist-party-suharto-massacre-purge/>>.
- De La Hamaide, Sybille. 2016. "French Assembly Adopts Softer Tax Plan on Palm Oil Used in Food." *Reuters*. Accessed online, December 1, 2016. <<http://www.reuters.com/article/us-france-palmoil-idUSKCN0WK09T>>.
- Dougherty, Michael. 2008. "Theorizing Theory: Origins and Orientations of Commodity Chain Analysis". *The Global Studies Journal* 1(3): 29-38.

Down to Earth. 2002. "Stop human rights violations against peasant farmers!". Accessed online December 1, 2016. <<http://dte.gn.apc.org/52lan.htm>>.

DuPuis, Melanie. 2002. *Nature's Perfect Food: How Milk Became America's Drink*. New York University Press: New York.

FAOSTAT. 2017. "Food and Agriculture Data". Accessed online, April 29, 2017. <<http://www.fao.org/faostat/en/#home>>.

Fauzi, Noer. 2009. "Land Titles Do Not Equal Agrarian Reform." *Inside Indonesia* 98 Oct.-Dec. <<http://www.insideindonesia.org/edition-98-oct-dec-2009>>. Accessed Online April 6, 2017.

Food and Agriculture Organization. 1990. "The Oil Palm". *FAO Economic and Social Development Series* 3(24). Accessed online April 12, 2018. <<http://www.fao.org/docrep/006/t0309e/T0309E03.htm>>.

Forbes. 2017. "Indonesia's Fifty Richest". <<https://www.forbes.com/indonesia-billionaires/>>.

Fortin, Elizabeth. 2005. "Reforming land rights: The World Bank and the globalization of agriculture". *Social & Legal Studies*, 14(2), 147-77.

Foster, John Bellamy and Hannah Holleman. 2014. "The Theory of Unequal Ecological Exchange: A Marx-Odum Dialectic." *The Journal of Peasant Studies* 41(2): 199-233.

Foster, John Bellamy. 2005. "The Treadmill of Accumulation: Schnaiberg's Environment and Marxian Political Economy," *Organization and Environment*, 18(1): 7-18.

Frey, R. 2003. The Transfer of Core-Based Hazardous Production Processes to the Export Processing Zones of the Periphery: The Maquiladora Centers of Northern Mexico. *Journal of World-Systems Research*, 9(2), 317-354.

Frey, R. 2015. Breaking Ships in the World-System: An Analysis of Two Ship Breaking Capitals, Alang-Sosiya, India and Chittagong, Bangladesh. *Journal of World-Systems Research*, 21(1), 25-49.

Friedland, William. 2002. "Reprise on Commodity Systems Methodology" *International Journal of the Sociology of Agriculture and Food*; 9:1.

Friedman, Harriet. 1982. "The Political Economy of Food: The Rise and Fall of the Postwar International Food Order." *American Journal of Sociology* 88: 248-86.

Friedmann, Harriet. 1987. "International Regimes of Food and Agriculture since 1870." In T. Shahin (ed.) *Peasants and Peasant Societies*. Oxford: Basil Blackwell.

Friends of the Earth International. 2009. “‘Certified’ Palm Oil is not a Solution”. Accessed online April 9, 2018. <<https://www.foei.org/press/archive-by-subject/food-sovereignty-press/certified-palm-oil-not-a-solution>>.

Gardner, Katy and Lewis, David. 1996. *Anthropology, Development and the Postmodern Challenge*. London: Pluto Press.

Gaskell, Joanne. 2015. “The Role of Markets, Technology, and Policy in Generating Palm Oil Demand in Indonesia.” *Bulletin of Indonesian Economic Studies* 51(1): 29-45.

Gellert, Paul and Andiko. 2015. “The Quest for Legal Certainty and the Reorganization of Power: Struggles over Forest Law, Permits, and Rights in Indonesia”. *The Journal of Asian Studies*, 74(3), 639-666.

Gellert, Paul. 2003. “Renegotiating a Timber Commodity Chain: Lessons from Indonesia on the Political Construction of Global Commodity Chains.” *Sociological Forum* 18(1): 53-84.

Gellert, Paul. 2007. “From Managed to Free(r) Markets: Transnational and Regional Governance of Asian Timber.” *The Annals of the American Academy of Political and Social Science*, vol. 610, NAFTA and Beyond: Alternative Perspectives in the Study of Global Trade and Development (March 2007), pp. 246-259.

Gellert, Paul. 2010. “Extractive Regimes: Towards a Better Understanding of Indonesian Development.” *Rural Sociology* 75(1): 28-57.

Gellert, Paul. 2015. “Optimism and Education: The New Ideology of Development in Indonesia”, *Journal of Contemporary Asia* 45(3): 371-393.

Gellert, Paul. 2007. “From Managed to Free(r) Markets: Transnational and Regional Governance of Asian Timber,” *ANNALS: The Annals of The American Academy of Political and Social Science* 610 (March): 246-259.

Gellert, Paul. 2010. “Extractive Regimes: Toward a Better Understanding of Indonesian Development.” *Rural Sociology* 75(1): 28-57.

Gellert, Paul. 2015. “Palm Oil Expansion in Indonesia: Land Grabbing as Accumulation by Dispossession”, in Jon Shefner (ed.) *States and Citizens: Accommodation, Facilitation and Resistance to Globalization. Current perspectives in social theory* 34: 65-99.

Gereffi, Gary. 2001. “Beyond the Producer-driven/Buyer-driven Dichotomy: The Evolution of Global Value Chains in the Internet Era.” In Gary Gereffi and Rafael Kaplinski (Eds.) *The Value of Value Chains: Spreading the Gains from Globalization*. Institute of Development Studies Bulletin, Warwick 32:3.

Gereffi, Gary and Miguel Korzeniewicz, eds. 1994. *Commodity Chains and Global Capitalism*. Westport, CT: Praeger.

Gereffi, Gary, John Humphrey, and Timothy Sturgeon. 2005. "The Governance of Global Value Chains." *Review of International Political Economy* 12(1): 78-104.

Gereffi, Gary, Ronie Garcia-Johnson, and Erika Sassen. 2009. "The NGO-industrial complex". *Foreign Policy*, 125, 56–65.

Gereffi, Gary. 1983. *The Pharmaceutical Industry and Dependency in the Third World*. Princeton, NJ: Princeton University Press.

Gereffi, Gary. 1989. "Rethinking Development Theory: Insights from East Asia and Latin America." *Sociological Forum* 4(4): 505-33.

Gereffi, Gary. 1994. "The Organization of Buyer-Driven Commodity Chains: How US Retailers Shape Overseas Production Networks". In Gereffi, Gary and Miguel Korzeniewicz, eds. 1994. *Commodity Chains and Global Capitalism*. Westport, CT: Praeger.

Gereffi, Gary. 1999. "International Trade and Industrial Upgrading in the Apparel Commodity Chain". *Journal of International Economics* 48(1): 37-70.

Gereffi, Gary. 2001. "Beyond the Producer-Driven/Buyer-Driven Dichotomy: The Evolution of Global Value Chains in the Internet Era". *International Developmental Studies Bulletin* 32(3): 30-40.

Gereffi, Gary., Humphrey, J., Sturgeon, T., 2005. The governance of global value chains. Gibbon, Peter. 2001. "Upgrading Primary Production: A Global Commodity Chain Approach". *World Development* 29(2): 345-363.

Giovannucci, D., & Ponte, S. 2005. Standards as a new form of social contract? Sustainability initiatives in the coffee industry. *Food Policy*, 30(3), 284–301.

Global Business Guide Indonesia. 2016. "Opportunities in Palm Oil Derivatives". Accessed online April 10, 2017. <http://www.gbgingonesia.com/en/agriculture/article/2011/opportunities_in_palm_oil_derivatives.php>

Greenpeace UK. 2007. "Cooking the Climate". <<http://greenpeace.org.uk/media/reports/cooking-the-climate>>. Accessed April 6, 2017.

Greenpeace UK. 2017. "Cutting Deforestation out of the Palm Oil Supply Chain: Company Scorecard". Accessed online Jan. 28, 2018. <<https://www.greenpeace.org.uk/wp-content/uploads/2017/05/9fb0ba4a-palm-oil-scorecard-final.pdf>>

Greenpeace. 2008. "How Unilever Suppliers Are Burning Up Borneo". <https://www.greenpeace.org/archive-international/PageFiles/24549/how-unilever-palm-oil-supplier.pdf>

Greenpeace. 2017a. "Still Cooking the Climate". Accessed online Jan. 28, 2018.
<www.greenpeace.org/stillcooking>.

Greenpeace. 2017b. "Dirty Bankers: How HSBC is Financing Forest Destruction for Palm Oil". Accessed online Jan. 28, 2018.
<https://www.greenpeace.org/archiveinternational/Global/international/publications/forests/2017/Greenpeace_DirtyBankers_final.pdf>

Grieg-Gran Maryanne. 2008. "The Cost of Avoiding Deforestation: Update of the Report Prepared for the Stern Review of the Economics of Climate Change". International Institute for Environment and Development.

Grinberg, N. 2016. Global Commodity Chains and the Production of Surplus-value on a Global Scale: Bringing Back the New International Division of Labour Theory. *Journal of World-Systems Research*, 22(1), 247-278.

Gustafsson, F. 2005. *The Visible Palm. Market Failures, Industrial Policy and the Malaysian Palm Oil Industry*. Lund Studies in Economic History 44. Lund: Lund University

Hansen, Sune Balle, Rory Padfield, Khadijah Syayuti, Stephanie Evers, Zuriati Zakariah, and Sharifa Mastura. 2015. "Trends in Global Palm Oil Sustainability Research". *Journal of Cleaner Production* 100:140-149.

Harvey, David. 2007. *A Brief History of Neoliberalism*. Oxford: Oxford University Press.

Henson S, Humphrey J. 2010. "Understanding the complexities of private standards in global agri-food chains as they impact developing countries". *Journal of Development Studies* 46:1628–1646.

Hickey, Sam. and Andries. du Toit. 2007. "Adverse incorporation, social exclusion and chronic poverty".

Hidayat, Nur. 2009. *The Role of Minimum Holding Regulations in Agrarian Reform: A Case Study of Indonesia. Rural Livelihoods and Global Change (RLGC)*. Retrieved from <http://hdl.handle.net/2105/8803>

Hopkins, Terence and Immanuel Wallerstein. 1986. "Commodity Chains in the World Economy Prior to 1800". *Review Journal of the Fernand Braudel Center* 10(1):157-170.

Hopkins, Terence and Immanuel Wallerstein. 1994. "Commodity chains: construct and research." Pp. 17- 20 and 48-50 in *Commodity Chains and Global Capitalism*, G. Gereffi and M. Korzeniewicz, eds. Westport, CT: Praeger

Horowitz, Donald. 2013. *Constitutional Change and Democracy in Indonesia*. Cambridge, UK: Cambridge University Press.

Hughes A. 2005. "Responsible retailers? ethical trade and the strategic re-regulation of cross continental food supply chains. In: Fold N, Pritchard B, eds. *Cross-continental food chains*. Abingdon (UK): Routledge.

Hunsberger, Carol, Simon Bolwig, Esteve Corbera, Felix Creutzig. "Livelihood Impacts of Biofuel Crop Production: Implications for Governance". *Geoforum* 54:248-260

Hussein, Mohamad Zaki. 2017. "Biofuel Business, Palm Oil Plantation, and Land Confiscation." ["Bisnis Biofuel, Perkebunan Sawit dan Perampasan Tanah"]. *Indoprogess* March 2017. Accessed online April 10, 2017.

<<https://indoprogess.com/2017/03/bisnisbiofuelperkebunansawitdanperampasantanah/>>.

Index Mundi. 2017. "Palm Oil Monthly Price- US Dollars per Metric Ton". Accessed online Jan. 20, 2018. <<https://www.indexmundi.com/commodities/?commodity=palm-oil&months=120>>.

Indonesia Investments. 2016. "Indonesia and Malaysia Set Criteria for the Council of Palm Oil Producing Countries." Accessed online, December 1, 2016. <<http://www.indonesia-investments.com/news/todays-headlines/indonesia-malaysia-set-criteria-for-the-council-of-palm-oil-producer-countries/item6697>>.

Indonesia Investments. 2018. "Palm Oil". Accessed online April 4, 2018. <<https://www.indonesia-investments.com/business/commodities/palm-oil/item166?>>.

Indonesian Ministry of Agriculture (Kementerian Pertanian RI). 2017. "Outlook: Palm Oil" ("Outlook Kelapa Sawit"). <<http://epublikasi.setjen.pertanian.go.id/arsip-outlook/75-outlook-perkebunan/421-outlook-kelapa-sawit-2016>>. Accessed online, April 6, 2017.

Indonesian Ministry of Agriculture (Kementerian Pertanian RI). 2013. "Guidelines for Purchasing Fresh Fruit Bunches of Oil Palm Fruit." ["PEDOMAN PENETAPAN HARGA PEMBELIAN TANDAN BUAH SEGAR KELAPA SAWIT PRODUKSI PEKEBUN"]. <http://ditjenbun.pertanian.go.id/tinymcpuk/gambar/file/Permentan_14_tahun_2013_ttg_pembelian_TBS_Pekebun.pdf> Accessed online April 6, 2017.

Indonesian Ministry of Agriculture. 2012. "Indonesian Sustainable Palm Oil". Circular Letter 092. [SURAT EDARAN NO. 092/TU.200/E-ISPO/9/2012]. <http://www.ispo-org.or.id/index.php?option=com_content&view=article&id=8:surat-edaran-no-092-tu-200-e-ispo-9-2012&catid=11&Itemid=257&lang=ina> Accessed online April 6, 2017.

Innis, Harold. 1977 [1930]. *The Fur Trade in Canada: An Introduction to Canadian Economic History*. Revised and reprinted. Toronto: University of Toronto Press.

International Labor Rights Forum. 2013. "Empty Assurances: RSPO Labor Case Studies". Washington, DC. Accessed online Jan. 21, 2018.

International Labor Rights Forum. 2017. "The Human Cost of Conflict Palm Oil Revisited: How PepsiCo, Banks, and the Roundtable on Sustainable Palm Oil Perpetuate Indofood's Worker Exploitation". Accessed online Jan. 20, 2018.

<https://www.laborrights.org/sites/default/files/publications/Human_Cost_Revisited_0.pdf>.

International Monetary Fund. 2000. "Recovery from the Asian Financial Crisis and the Role of the IMF". IMF issue briefs. Accessed online Jan. 28, 2018.

<<https://www.imf.org/external/np/exr/ib/2000/062300.htm>>

International Monetary Fund. 2018. "Indonesia: Selected Issues". IMF Country Report 18/33.

Iskandar, Pranoto. 2016. "The Pancasila Delusion". *Journal of Contemporary Asia* 46(4): 723-735.

Jaffee, Daniel. 2012. "Weak Coffee: Certification and Co-Optation in the Fair-Trade Movement". *Social Problems*, 59(1), 94-116.

Jelsma, Idsert, G. Schonefeld, Annelies Zoomers, and A. C. M. van Westen. 2017. "Unpacking Indonesia's Independent Oil Palm Smallholders: An Actor Disaggregated Approach to Identifying Environmental and Social Performance Challenges". *Land Use Policy* 69: 281-297.

Jiwan, Norman. 2010. "Sustainable Palm Oil."

<[http://www.sawitwatch.or.id/images/Publikasi/Land%20Acquisition%20\(English\).pdf](http://www.sawitwatch.or.id/images/Publikasi/Land%20Acquisition%20(English).pdf)>

Accessed online April 23, 2017.

Jordan, A., Wurzel, R. K. W., & Zito, A. R. 2003. "Comparative conclusions – 'New' environmental policy instruments: An evolution or a revolution in environmental policy?" *Environmental Politics*, 12(1), 201–224.

Jorgenson, A. 2003. "Lateral Pressure and Deforestation: A Review Essay of Environmental Impacts of Globalization and Trade: A Systems Study." *Journal of World-Systems Research*, 9(2), 393-402.

Kahle, Lynn R and Gurel-Atay, Eda, eds. 2014. *Communicating Sustainability for the Green Economy*. M.E. Sharpe.

Kamat, Sangeeta. 2010. "The privatization of public interest: theorizing NGO discourse in a neoliberal era", *Review of International Political Economy*, 11:1, 155-176.

Kaplinsky R, Terheggen A, Tijaja J. 2011. "China as a final market: the Gabon timber and Thai cassava value chains". *World Dev.* 39:1177–1190.

Kasryno, Faisal and Haryono. 2010. "Learning from Management Policy and Agricultural Land." ["BELAJAR DARI KEBIJAKAN PENGELOLAAN LAHAN PERTANIAN"].

Reversing the Degradation Trends of Land and Water Resources [Membalik Kecenderungan Degradasi Sumber Daya Lahan dan Air], eds. Kedi Suradisastra and Sahat Pasaribu. Indonesian

Ministry of Agriculture. Accessed online <<http://www.litbang.pertanian.go.id/buku/membalik-kecenderungan-degrad/>>

Kautsky, Karl. [1899]1988. *The Agrarian Question*. Winchester, MA: Zwan Publications.

Kick, Edward L., Thomas J. Burns, Byron L. Davis, David A. Murray, and Dixie A. Murray. 1996. "Impacts of Domestic Population Dynamics and Foreign Wood Trade on Deforestation: A World-System Perspective." *Journal of Developing Societies*, 12(1):68-87.

Koh, L.P., Wilcove, D.S., 2008. "Is oil palm agriculture really destroying tropical biodiversity?" *Conservation Letters* 1, 60–64.

Koplitz, Shannon, and Loretta J Mickley, Miriam E Marlier, Jonathan J Buonocore, Patrick S Kim, Tianjia Liu, Melissa P Sulprizio, Ruth S De Fries, Daniel J Jacob, Joel Schwartz, Montira Pongsiri and Samuel S Myers. 2016. "Public health impacts of the severe haze in Equatorial Asia in September–October 2015: demonstration of a new framework for informing fire management strategies to reduce downwind smoke exposure." *Environmental Research Letters* 11(9): 094023. Accessed online April 11, 2017, <<http://iopscience.iop.org/article/10.1088/1748-9326/11/9/094023>>.

Lacey, Marc. 2008. "Across Globe, Hunger Brings Rising Anger." *New York Times*. Accessed online April 29, 2017. < <http://www.nytimes.com/2008/04/18/world/americas/18iht-18food.12122763.html>>.

Lee, Janice Ser Huay, Jaboury Ghazoul, Krystof Obidzinski, and Lian Pin Koh. 2014. "Oil Palm Smallholder Yields and Incomes Constrained by Harvesting Practices and Type of Smallholder Management in Indonesia." *Agronomy of Sustainable Development* 34:501–513.

Lee, Janice Ser Huay, Lucy Rist, Kristoff Obidzinski, Jaboury Ghazoul, and Lian Pin Koh. 2011. "No Farmer Left Behind in Sustainable Biofuel Production". *Biological Conservation* 144:2512-2516.

Levang, P. 1997. "La terre d'en face". *La transmigration en Indonésie*. ORSTOM, Montpellier.
Lewis, Tania. 2017. *Green Asia: Ecocultures, Sustainable Lifestyles, and Ethical Consumption*. London: Routledge.

Li, Tania. 2001. "Masyarakat adat, difference, and the limits of recognition in Indonesia's forest zone". *Modern Asian Studies*, 35, 645–676.

Li, Tania. 2015. "Social Impacts of Oil Palm in Indonesia: A Gendered Perspective from West Kalimantan". Occasional Paper 124. Bogor, Indonesia: CIFOR.

Lucas, Anton and Carol Warren. 2013. "The Land, the Law, and the People". *Land for the People: The State and Agrarian Conflict in Indonesia*. Eds. Lucas and Warren. Athens, OH: Ohio University Press.

- Mackintosh, W. A. 1967 [1923]. "Economic Factors in Canadian Economic History." In: W. T. Easterbrook, and M. H. Watkins, eds. *Approaches to Canadian Economic History* Toronto: McClelland and Stewart.
- Marti, S. 2008. Losing ground. The human rights impacts of oil palm plantation expansion in Indonesia. Bogor, Indonesia: Friend of the Earth, Life Mosaic, & Sawit Watch.
- Marx, Karl. (1997) [1859]. *A Contribution to the Critique of Political Economy*. London: Lawrence and Wishart.
- Marx, Karl. 1995 [1867]. *Capital: An Abridged Edition*. Ed. David McLellan. p. 115. Oxford: Oxford University Press.
- Maryadi, Abdul Karim Yusuf, and Andy Mulyana. 2004. "Pricing of Palm Oil Fresh Fruit Bunches for Smallholders in South Sumatra". Stanford Indonesian Food Policy Program. <<https://web.stanford.edu/group/FRI/indonesia/>>. Accessed online Dec. 1, 2016.
- McCarthy John and Zen Zahari. 2010. "Regulating the oil palm boom: assessing the effectiveness of environmental governance approaches to agro-industrial pollution in Indonesia". *Law and Policy* 32(1):153–179.
- McCarthy John, Gillespie P, Zen Z. 2012. "Swimming upstream: local Indonesian production networks in 'globalized' palm oil production". *World Development*. 40:555–569.
- McCarthy, John and Rob Cramb. 2009. "Policy narratives, landholder engagement, and oil palm expansion on the Malaysian and Indonesian frontiers". *The Geographical Journal* 175(2):112-113.
- McCarthy, John and Zahari Z. 2010. "Regulating the Effectiveness of Environmental Governance: Approaches to Agro-Industrial Pollution in Indonesia". *Law and Policy* 32:153-179.
- McCarthy, John. 2010. "Processes of inclusion and adverse incorporation: Oil Palm and Agrarian Change in Sumatra, Indonesia". *Journal of Peasant Studies* 37:821-850.
- McMichael, Philip and Harriet Friedman. 1989. 'Agriculture and the state system: The rise and decline of national agricultures, 1870 to the present,' with Harriet Friedmann, *Sociologia Ruralis* 19(2): 93-117
- McMichael, Philip. 1984. *Settlers and the Agrarian Question. Foundations of Capitalism in Colonial Australia*. Cambridge: Cambridge University Press.
- McMichael, Philip. 1997. "Rethinking globalization: The agrarian question revisited". *Review of International Political Economy* 4(4), 630-662.
- McMichael, Philip. 1998. "Global Food Politics". *Monthly Review* 50(3):97-111.

McMichael, Philip. 2005. "Global development and the corporate food regime". In: F.H. Buttel and P. McMichael, eds. *New directions in the sociology of global development*. Oxford: Elsevier Press.

McMichael, Philip. 2009. "Banking on agriculture: a review of the World Development Report 2008". *Journal of Agrarian Change*, 9(2): 235–46.

McMichael, Philip. 2009. "The agro-fuels project at large." *Critical Sociology*, 35(6): 825-840.

McMichael, Philip. 2010a. "The politics of biofuels, land and agrarian change: editors' introduction," with Saturnino M. Borras and Ian Scoones, *The Journal of Peasant Studies*, 37(4): 575-592.

McMichael, Philip. 2010b. "Agrofuels in the food regime," *The Journal of Peasant Studies*, 37(4):609-629.

Ministry of Foreign Affairs, Republic of Indonesia. 2009. "Registration Guidelines for International Non-Governmental Organizations. <<https://www.kemlu.go.id/en/berita/informasi-penting/Pages/Registration-Guidelines-for-International-Non-Governmental-Organizations-in-Indonesia.aspx>>.

Mintz, Sidney. 1985. *Sweetness and Power: The Place of Sugar in Modern History*. New York: Viking-Penguin.

Mitchell, Donald. 2008. "A Note on Rising Food Prices." *Policy Research Working Paper* 4682. The World Bank.

Mithöfer, Dagmar and Meine van Noordwijk, Beria Leimona & Paolo Omar Cerutti. 2017. "Certify and shift blame, or resolve issues? Environmentally and socially responsible global trade and production of timber and tree crops". *International Journal of Biodiversity Science, Ecosystem Services & Management*, 13:1, 72-85, <10.1080/21513732.2016.1238848>

Moore, Jason W. 2003. "The Modern World-System as Environmental History? Ecology and the rise of Capitalism," *Theory & Society* 32(3), 307–377.

Moore, Jason W. 2015. *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. New York: Verso.

Moore, Jason. 2008. "Ecological Crises and the Agrarian Question in World Historical Perspective". *Monthly Review* 60(6).

Moore, Jason. 2016. "The Rise of Cheap Nature". *Anthropocene or Capitalocene?* Ch. 3. Oakland: PM Press.

- Mourney, Sarah. 2016. "Food Sovereignty and Peasant Activism." *Inside Indonesia* 126 (Oct-Dec). <<http://www.insideindonesia.org/food-sovereignty-and-peasant-activism>>. Accessed Online April 23, 2017.
- Muradian, R., and Pelupessy, W. 2005. "Governing the coffee chain: The role of voluntary regulatory systems". *World Development*, 33(12), 2029–2044.
- Murphy, Sophia, David Burch, and Jennifer Clapp. 2012 "Cereal Secrets: The World's Largest Grain Traders and Global Agriculture". *Oxfam Research Reports*. Accessed online Jan. 22, 2018. <<https://www.oxfam.org/en/research/cereal-secrets-worlds-largest-grain-traders-and-global-agriculture>>.
- Musim Mas. 2016. "Annual Report". Accessed online Jan. 28, 2018.
- Neilson, J., and Pritchard, B. 2007. "Green coffee: The contradictions of global sustainability initiatives from the Indian perspective". *Development Policy Review*, 25(3), 311–331.
- Nikoloyuk, J., Burns, T.R., de Man, R., 2010. "The promise and limitations of partnered governance: the case of sustainable palm oil". *Corporate Governance* 10, 59-72.
- Nikoloyuk, J., 2009. *Sustainability Partnerships in Agro-commodity Chains. A Model of Partnership Development in the Tea, Palm Oil and Soy Sectors*. Copernicus Institute for Sustainable Development and Innovation, Utrecht.
- Nikoloyuk, J., Burns, T.R., de Man, R., 2010. "The promise and limitations of partnered No. 111. <https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1538946> Accessed online May 14, 2017.
- Oil World. 2017. Statistics database. <<https://www.oilworld.biz/t/statistics/commodities>>. Accessed April 6, 2017.
- Oosterveer, Peter. 2015. "Promoting Sustainable Palm Oil: Viewed from a Global Networks and Flows Perspective". *Journal of Cleaner Production* 107: 146-153.
- Oya, Carlos. 2009. "The World Development Report 2008: inconsistencies, silences and the myth of 'win-win' scenarios". *Journal of Peasant Studies*, 36(3), 593–601.
- Patel, Raj. 2008. *Stuffed and Starved: Markets, Power, and the Hidden Battle for the World Food System*. Brooklyn, NY: Melville House.
- Peluso, Nancy, Suraya Afiff, and Noer Fauzi Rachman. 2008. "Claiming the Grounds for Reform: Agrarian and Environmental Movements in Indonesia". *Journal of Agrarian Change* 8(2):377-407.

- Pichler, Melanie. 2013. "People, Planet, and Profit: Consumer-oriented Hegemony and Power Relations in Palm Oil and Agrofuel Certification". *Journal of Environment and Development* 22(4): 370-390.
- Pieterse, Jan. 2010. "Global Inequality: Bringing Politics Back In." *Third World Quarterly* 23(6), 1023-1046.
- Polanyi, Karl. 2001. *The Great Transformation: The Political and Economic Origins of Our Time*, 2nd ed. Boston: Beacon Press.
- Ponte, Stefano. 2008. "Developing a 'vertical' dimension to chronic poverty research: Some lessons
- Ponte, Stefano. 2014. "'Round tabling' Sustainability: Lessons from the Biofuel Industry". *Geoforum* 54:261-271.
- Pramudya, Eusebius Pantja, Otto Hospes, and J.A.M. Termeer. 2017. "Governing the Palm Oil Sector Through Finance: The Changing Roles of the Indonesian State". *The Bulletin of Indonesian Economic Studies* 53(1):57-82.
- Presidential Regulation of the Republic of Indonesia. 2010. "List of Business Fields Closed to Investment and Business Fields Open, with Conditions, to Investment". No. 36.
- Pye, Oliver, Ramlah Daud, Kartika Manurung, and Saurin Siagan. 2016. "Workers in the Palm Oil Industry: Exploitation, Resistance, and Transnational Solidarity". Cologne, Germany: Stiftung Asienhaus. Accessed online Jan. 21, 2018. <https://www.asienhaus.de/archiv/user_upload/Palm_Oil_Workers_Exploitation__Resistance_and_Transnational_Solidarity.pdf>
- Rachman, Noer Fauzi, Laksmi A. Savitri and Mohamad Shohibuddin. 2009. "Questioning Pathways out of Poverty: Indonesia as an Illustrative Case for the World Bank's Transforming Countries." *The Journal of Peasant Studies* 36(3), 621-627.
- Rahmawati, Annisa. 2017. "HSBC promises to cut ties with forest-trashing palm oil companies". Greenpeace International. Accessed online Jan. 28, 2018. <<https://www.greenpeace.org/archive-international/en/news/Blogs/makingwaves/hsbc-palm-oil-deforestation-indonesia-new-policy/blog/58787/>>rahma.
- Rainforest Action Network. 2013. "Conflict Palm Oil: How US Snack Brands are Contributing to Orangutan Extinction, Climate Change, and Human Rights Violations". Accessed online Jan. 28, 2018. <conflictpalmoil.org>.
- Rainforest Action Network. 2017. "Profits Over People and Planet: Exposing PepsiCo's Real Agenda." Accessed online May 30, 2018. <https://www.ran.org/rainforest_action_network_responds_to_pepsico_s_release_of_palm_oil_action_plan_progress_report>

Raynolds, L. T., D. Myhre, V. Carro-Figueroa, F. H. Buttel, and P. McMichael. 1993. "The 'New' Internationalization of Agriculture: A Reformulation." *World Development* 21: 7:1101-121.

Reardon, T. and C. Timmer. 2005. "Transformation of Markets for Agricultural Output in Developing Countries since 1950: How Has Thinking Changed?" In R. Evenson, P. Pingali, and T. Schulz (eds.), *Handbook of Agricultural Economics- Agricultural Development: Farmers, Farm Production and Farm Markets*. Oxford: Elsevier Press.

Republic of Indonesia. 2002. "Constitution of the Republic of Indonesia". Government of Indonesia.

Rice, R. A., & Ward, J. R. 1996. "Coffee, conservation, and commerce in the Western Hemisphere: How individuals and institutions can promote ecologically sound farming and forest management in Northern Latin America" Smithsonian Migratory Bird Center and Natural Resources Defense Council, Washington, DC.

Rist, Lucy, Laurene Feintrenie. and Patrice Levang. 2010. "The livelihood impacts of oil palm: smallholders in Indonesia". *Biodiversity and Conservation*, 19(4), 1572–9710.

Roberts, J. Timmons and Bradley Parks. 2007. *A Climate of Injustice: Global Inequality, North-South Politics, and Climate Change*. Cambridge, MA: MIT Press.

Roberts, J. Timmons, and Peter Grimes. 1997. "Carbon Intensity and Economic Development 1962-91:" *World Development*, 25:191-198.

Robinson, William. 2014. *Global Capitalism and the Crisis of Humanity*. Cambridge, UK: Cambridge University Press.

Rosset, Peter Michael, Braulio Machín Sosa, Adilén María Roque Jaime and Dana Rocío Ávila Lozano. 2011. "The Campesino-to-Campesino agroecology movement of ANAP in Cuba: social process methodology in the construction of sustainable peasant agriculture and food sovereignty", *The Journal of Peasant Studies*, 38:1, 161-191.

RSPO. 2017. "Status of Complaints." < <http://www.rspo.org/members/status-of-complaints/>>.

Rusastra, I Wayan, Erna M. Lokollo, and Supena Friyatno. 2007. "Land and Household Economy: Analysis of Agricultural Economy 1983-2003". Indonesian Center for Agriculture Socio-economic and policy studies. Accessed online.
<http://pse.litbang.pertanian.go.id/ind/pdf/files/PROS_ESCAP_PSEKP_IWR.pdf>

Saragih, Bagus and Nani Afrida. 2011. "SBY Orders Probe into alleged 'mass killing' in Lampung". *Jakarta Post*. <<http://www.thejakartapost.com/news/2011/12/16/sby-orders-probe-alleged-mass-killing-lampung.html>>

Sassen, Saskia. 2014. *Expulsions: Brutality and Complexity in the Global Economy*. Cambridge, MA: Harvard University Press.

Schnaiberg, Alan. 1980. *The Environment: From Surplus to Scarcity*. New York: Oxford University Press.

Schurman, Rachel. 1993. "Economic development and class formation in an extractive economy: The fragile nature of the Chilean fishing industry, 1973–1990". Unpublished Ph.D. diss. Department of Sociology, University of Wisconsin.

Selvin, David. 1996. *A Terrible Anger: The 1934 Waterfront and General Strikes in San Francisco*. Detroit, MI: Wayne State University Press.

Selwyn, Benjamin. 2012. "Beyond firm-centrism: re-integrating labour and capitalism into global commodity chain analysis". *Journal of Economic Geography*, 12: 205–226.

Sheil D, Casson A, Meijaard E, van Noordwijk M, Gaskell J, Sunderland-Groves J, Kanninen M. 2009. *The impacts and opportunities of oil palm in Southeast Asia*. Bogor: Center for International Forestry Research (CIFOR).

Shouten, Greetje, and Pieter Glasbergen. 2011. "Creating Legitimacy in Global Private Governance: The Case of the Roundtable on Sustainable Palm Oil". *Ecological Economics* 70(11):1891-1899.

Silaban, Rekson. 2009. *Repositioning the Labor Movement: Road Map for the Indonesian Labor Movement After Reformasi*. Jakarta: Friedrich Ebert Stiftung .

Smith, David. 1997. "Technology, Commodity Chains and Global Inequality: The South Korean Case in the 1990s." *Review of International Political Economy* 4(4): 734-762.

Smith, David. 2005. "Starting at the Beginning: Extractive Economies as the Unexamined Origins of Global Commodity Chains." Pp. 141-157 in P. Ciccantell, G. Seidman, and D. Smith (eds), *Nature, Raw Materials, and Political Economy*. Research in Rural Sociology and Development: Volume 10. Elsevier.

Sowers, Elizabeth, Paul Ciccantell, and David Smith. 2014. "Comparing Critical Capitalist Commodity Chains in the Early Twenty-First Century: Opportunities for and Constraints on Labor and Political Movements". *Journal of World-Systems Research* 20(1):112-139.

SPOTT. 2017. "Palm Oil: ESG Policy Transparency Assessments". Accessed online, Jan. 22, 2018. <<https://www.spott.org/palm-oil/>>

Susila, W.R. 2002. "The role of smallholder tree crops in the economy and in poverty alleviation in Kabupaten Kampar". Paper presented in seminar on the role of tree crop smallholder in the economy and poverty alleviation, Pekanbaru, February 2002.

- Susila, W.R. 2004. "Contribution of oil palm industry to economic growth and poverty alleviation in Indonesia". *Jurnal Litbang Pertanian*, 23(3), 107–14.
- Talbot, John. 2004. *Grounds for Agreement: The Political Economy of the Coffee Commodity Chain*. New York: Rowman & Littlefield Publishers.
- Tambunan, Tulus. 2010. "The Indonesian Experience with Two Big Economic Crises". *Modern Economy* 1:156-167.
- Thomas, Robert. 1985. *Citizenship, Gender and Work: Social Organization of Industrial Agriculture*. University of California Press, Berkeley.
- Topik, Steven, Carlos Marichal and Zephyr Frank (2006) "Introduction: Commodity Chains in Theory and in Latin American History." In Topik, Steven, Carlos Marichal and Zephyr Frank (eds.) *From Silver to Cocaine: Latin American Commodity Chains and the Building of the World Economy, 1500-2000*. Duke University Press: Durham, NC.
- Topik, Steven. *Trade and Gunboats: The United States and Brazil in the Age of Empire*. Stanford, CA: Stanford University Press.
- Tregear, Angela and Matthew Gorton. 2005. "Geographic Origin as a Branding Tool for Agri-food Producers." *Society and Economy* 27(3): 399-414.
- United Nations Commission on Trade and Development (UNCTAD). 2015. "Global Value Chains and South-South Trade: Economic Cooperation and Integration among Developing Countries". <http://unctad.org/en/PublicationsLibrary/gdsecidc2015d1_en.pdf>.
- United Nations. 1974. "Declaration on the Establishment of a New International Economic Order". UN Documents. Accessed online April 2, 2018. <<http://www.un-documents.net/s6r3201.htm>>.
- United States Department of Agriculture. 2018. "Natural Resources Conservation Service." Accessed online May 30, 2018. <<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/>>
- Varkkey, H. 2013. "Oil Palm Plantations and Transboundary Haze: Patronage Networks and Land Licensing in Indonesia's Peatlands." *Wetlands* 33 (4): 679–690.
- Vel, Jacqueline A. C., John F. McCarthy and Zahari Zen. 2016. "The Conflicted Nature of Food Security Policy: Balancing Rice, Sugar and Palm Oil in Indonesia". *Anthropological Forum*, 26:3, 233-247.
- Verheye, W. 2010. "Growth and Production of Oil Palm". In: Verheye, W. (ed.), *Land Use, Land Cover and Soil Sciences. Encyclopedia of Life Support Systems (EOLSS)*, UNESCO-EOLSS Publishers, Oxford, UK. <<http://www.eolss.net>>

- Vermeulen W. 2010. "Sustainable supply chain governance systems: conditions for effective market based governance in global trade". *Prog Ind Ecol Int J* 7:138–162.
- Vermeulen, S., Goad, N. 2006. *Towards better practice in smallholder palm oil production*. International Institute for Environment and Development Natural Resource Issues Series. London, UK, pp. 10-11.
- Von Braun J, and Meinzen-Dick RS. 2009. *Land grabbing by foreign investors in developing countries: risks and opportunities*. Washington (DC): International Food Policy Research Institute.
- Von Geibler, Justus. 2013. "Market-based Governance for Sustainability in Value Chains: Conditions for Successful Standard Setting in the Palm Oil Sector". *Journal of Cleaner Production* 56: 39-53
- Wahid, Mohd Basri and Mohd Arif Simeh. 2009. "Issues Related to Production Cost of Palm Oil in Malaysia." *Oil Palm Industry Economic Journal* 9(2): 1-12.
- Wallerstein, Immanuel. 1974. *The Modern World-System I: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century*. New York: Academic Press.
- Wallerstein, Immanuel. 1983. *Historical Capitalism*. London: Verso Books.
- Walton, Andrew. 2010. "What is Fair Trade?" *Third World Quarterly* 31(3):431-447.
- Warburton, Eve. 2016. "Jokowi and the New Developmentalism". *Bulletin of Indonesian Economic Studies* 52(3): 297-320.
- Watkins, Mel. 1967. "A Staples Theory of Economic Growth," In Easterbrook and Watkins (Eds.), *Approaches to Canadian Economic History*. Toronto: McClelland and Stewart.
- Wilcove DS, Koh L. 2010. Addressing the threats to biodiversity from oil-palm agriculture. *Biodiversity Conservation*. 19:999–1007.
- Wilkinson J. 2007. Fair trade: dynamic and dilemmas of a market oriented global social movement. *Journal of Consumer Policy*. 30:219–239.
- Wilmar International. 2018. "Sustainability". Accessed online, Jan. 21, 2018. <<http://www.wilmar-international.com/sustainability/>>.
- Woittiez, Lotte, Mark van Wijk, Maja Slingerland, Meine van Noordwijk and Ken Giller. 2017. "Yield Gaps in Oil Palm: A Quantitative Review of Limiting Factors". *European Journal of Agronomy* 83: 57-77.
- Wong, Jack. 2016. "Call to End Palm Oil Price War between Malaysia, Indonesia." Asia News Network, accessed online December 1, 2016. <<http://www.asianews.network/content/call-end-palm-oil-price-war-between-malaysia-indonesia-9094>>.

World Bank and IFC, 2011. *The World Bank Group and IFC Strategy for Engagement in the Palm Oil Sector*. The World Bank and IFC, Washington.

World Bank. 2015. "Indonesia's Fire and Haze Crisis". Accessed online March 3, 2018.
<<http://www.worldbank.org/en/news/feature/2015/12/01/indonesias-fire-and-haze-crisis>>.

World Bank. 2016. International Development Indicators. Accessed online.

World Bank. 2017. Data Bank. Accessed online Jan. 28, 2018.
<<https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>>.

World Resources Institute. 2016. "Forest Cover Analyzer". Accessed online April 29, 2017.
<<http://www.wri.org/applications/maps/forest-cover-analyzer/index.html>>.

World Wildlife Fund. 2012. "Palm Oil Investor Review: Investor Guidance on Palm Oil". Accessed online, March 10, 2018.

Yates, Michael. 2016. *The Great Inequality*. London: Routledge.

Yustika, Ahmad. 2015. "Structure of National Economic Inequality." [Struktur Ketimpangan Ekonomi Nasional]. International NGO Forum on Indonesian Development. Accessed online.
<<http://infid.org/pdfdo/1425391234.pdf>>