Mega-Plantations in Southeast Asia

Landscapes of Displacement

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ABSTRACT: This article reviews a wide body of literature on the emergence and expansion of agro-industrial, monoculture plantations across Southeast Asia through the lens of megaprojects. Following the characterization of megaprojects as displacement, we define mega-plantations as plantation development that rapidly and radically transforms landscapes in ways that displace and replace preexisting human and nonhuman communities. Mega-plantations require the application of large amounts of capital and political power and the transnational organization of labor, capital, and material. They emerged in Southeast Asia under European colonialism in the nineteenth century and have expanded again since the 1980s at an unprecedented scale and scope to feed global appetites for agro-industrial commodities such as palm oil and rubber. While they have been contested by customary land users, smallholders, civil society organizations, and even government regulators, their displacement and transformation of Southeast Asia's rural landscapes will likely endure for quite some time.

KEYWORDS: comparative regional studies, displacement, landscape, megaprojects, plantations, Southeast Asia

Southeast Asia has become one of the world's hot spots for industrial agriculture and tree plantation development. The region is the source of 76 percent of the world's natural rubber, 86 percent of the world's palm oil, and 59 percent of the world's coconuts. Agricultural crop production covers more than 122 million hectares (ha) of land (FAO 2016), established in a diverse range of environments including tropical rainforests, peatlands, and lowland agricultural zones. In Malaysia and Indonesia, more than 16 million ha of oil palm plantations have been established (Cramb and McCarthy 2016b; Hawkins et al. 2016), while 1 million ha of rubber plantations have been planted in areas of China, Laos, Thailand, Vietnam, Cambodia, and Myanmar where rubber was not traditionally grown (Li and Fox 2012). Cash crop plantations were first established across the region by colonial powers for purposes of expanding and solidifying territorial control, pacifying civil unrest in rural areas, and creating new sources of capital accumulation, via natural rubber, coffee, sugarcane, and coconut plantations (Byerlee 2014; De Koninck 2011; Ishikawa 2010; Moore 2000; Murray 1992; Stoler 1995; Wolf 1982). Yet, their rapid expansion in the past few decades represents a new era in plantation development across Southeast Asia in scale and scope.

Plantation development in Southeast Asia has led to dramatic transformations of the countryside. The region has become one of the epicenters of the contemporary "Plantationocene," a

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term coined by Donna Haraway and fellow anthropologists including Noboru Ishikawa (Haraway 2015; Haraway et al. 2016; Ishikawa and Soda 2019). The Plantationocene builds on ideas of the Anthropocene and Capitalocene to demonstrate how one of the primary ways in which human societies are driving transformations of the earth is through extractive and enclosed plantations. Plantations, or "factories in the fields" (McWilliams 2000) that originated in the colonial period, have been an integral element to the expansion of capitalism and transformed rural areas and modern life, whether in the case of coffee (Paige 1997), sugar (Mintz 1985; Moore 2000), or rubber (Bunker 1985, Ishikawa 2010; Weinstein 1983).

In Southeast Asia, millions of hectares of land have been granted and developed into plantations (Bissonnette and De Koninck 2017; Byerlee 2014; Ingalls et al. 2019), dispossessing peasants of their land and generating widespread deforestation (Schoenberger et al. 2017). Social dynamics of the countryside have been radically transformed as some households have become landless (Hall et al. 2011), others have made money from their own investments in plantation crops (Feintrenie et al. 2010; Fox and Castella 2013), and migrant workers have arrived in the countryside from other regions and countries (Baird et al. 2019; Pye et al. 2012). Complex systems of agricultural processing, manufacturing, and trade have been established, built on new forms of rural and national infrastructure. The outcomes for rural peoples and economies are contradictory. On the one hand, those who have invested in their own plantations or have found gainful employment have seen their incomes rise and benefited from the new waves of plantations (Rist et al. 2010). On the other hand, those who have been displaced from their land have lost access to common forest and grazing lands, while those who have been heavily exploited by unfair contracting and employment schemes are much worse off (Fox and Castella 2013; Lee et al. 2014). Similarly, the biodiverse environments of Southeast Asia have been subject to untold destruction with global implications due to the massive amounts of carbon emitted (Ahrends et al. 2015; Carlson et al. 2013; Fox et al. 2014).

The development of plantations in the region is characterized by both large-scale land concessions or estates and the conversion of land by millions of smallholders. For rubber, a crop that is more conducive to small-scale cultivation, 83 percent of the area cultivated in Thailand, Indonesia, Malaysia, and India (which comprise 78 percent of world production) was in the hands of smallholders in 2005 (Byerlee 2014). Oil palm is a more difficult crop for smallholders to grow because of expensive agricultural inputs and rapid processing demands, yet, as of 2015, 42 percent of the 11 million hectares planted with oil palm in Indonesia was grown by smallholders (Bissonnette and De Koninck 2017). When it comes to estate plantations, astonishingly large-scale projects have been developed. For example, the Malaysian conglomerate Sime Darby Berhad owns more than 620,000 ha of land dedicated for oil palm development in Malaysia and Indonesia (Byerlee 2014). In 1996, the Suharto regime initiated the Mega Rice Project, which planned to transform one million hectares of peat swamp forest into rice paddy land, which eventually failed in part because of its considerable environmental impacts (Riely 2001). Echoing such projects, in 2010 the Indonesian government announced the Merauke Integrated Food and Energy Estate in Papua, to develop an expected 1.2 million ha of food crop and biofuel plantations through large-scale corporate investments (Ito et al. 2014). On the other hand, smaller- and medium-scale farmers and operators have developed plantations that individually cover relatively limited amounts of land but in the aggregate have transformed and completely altered landscapes (Bissonnette and De Koninck 2017; Byerlee 2014; Koizumi 2016).

A long-standing and prominent debate within agrarian studies, particularly regarding Southeast Asia, concerns whether smallholder versus large-holder estate plantations will dominate the cash crop sector and what are the relative merits and faults of each in terms of efficiency,

livelihood development, and environmental impact (Bissonnette and De Koninck 2017; Byerlee 2014). Known as the "agrarian question," originally formulated by Karl Kautsky ([1899] 19988) and advanced by contemporary scholars of agrarian change (Akram-Lodhi and Kay 2010; Goodman and Watts 1997; McMichael 1997), the debate is concerned with the degree to which capitalist social relations have and will continue to penetrate the agricultural sector and transform farming into a corporate-led form of production. Recent scholarship on global land grabbing (Borras and Franco 2012; De Schutter 2011; White et al. 2012; Zoomers 2010) has reignited concern for the loss of the smallholder form in favor of large-scale estate plantations.

In this article, we contend that the distinction between large and small plantations, while useful for disaggregating certain social-economic dynamics of cash crop production, can also obscure similarities across these forms of plantation development. This is particularly the case when smallholder plantations developed contiguously across a landscape reproduce the same social and environmental impacts of the large-scale estate. Furthermore, there is a much greater diversity of arrangements of plantation development across the region, such as managed smallholder schemes, joint ventures between communities and investors, contract farming, nucleus estate, and smallholder arrangements, all of which can involve widespread displacement of prior landscapes and replacement with monoculture plantations. Thus, in this article, we choose to instead focus on the development of "mega-plantations" to capture the landscape-scale transformation of social and environmental landscapes by plantations. Terms such as large-scale, estate, monoculture, and mono-crop fail to capture the broader dynamic of change that is underway across the region. "Large-scale" and "estate" reference single-owner plantations of a large size at the scale of the project or plot but miss the aggregate impacts of medium- and small-scale plantations. "Monoculture" and "mono-crop" denote that a single crop is planted in an area or on the same land each year, respectively, but do not address the size or political, social, and economic dynamics of the plantation.

"Mega-plantations," we contend, captures these dynamics and more that are critical to the transformation of rural landscapes—large-scale and small-scale, single crops that are combined with complex transnational commodity chains, and various forms of ownership that in combination to lead to a mega-transformation of the countryside. We use the term mega-plantations to capture the ideologies, politics, and economies of large-scale and complex forms of plantation development that are inscribed upon rural environments at the landscape level. We develop this concept with reference to the literature on megaprojects. This literature has largely focused on large construction projects that involve the creation of significant infrastructures, such as ports, railways, hydropower dams, mines, special economic zones, real estate developments, tourist attractions, and sporting stadiums, among others.

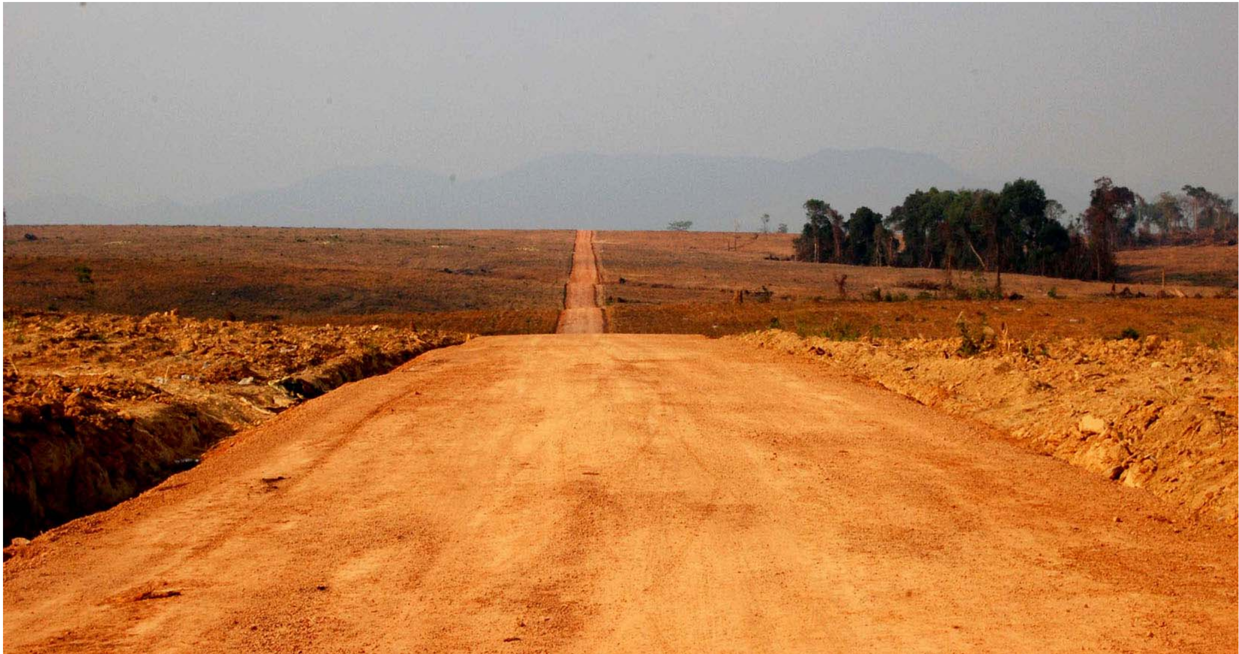
Although industrial plantations are sometimes listed as a type of megaproject (e.g., Gellert and Lynch 2003), there has yet to be an exploration of what it would mean to rigorously apply the idea of megaprojects to plantations. Some have sought to develop a specific definition of megaprojects as in the recently released *Oxford Handbook of Megaproject Management* (Flyvbjerg 2017: 2): "large-scale, complex ventures that typically cost $1 billion or more, take many years to develop and build, involve multiple public and private stakeholders, are transformational, and impact millions of people." Naomi Brookes and Giorgio Locatelli (2015) have said megaprojects have "long-lasting impact on the economy, the environment, and society." Others have focused on the symbolic significance of megaprojects or the complexity of their contents, such as combining residential, service, industrial, and transport dimensions (Orueta and Fainstain 2009). Here, however, we follow Paul Gellert and Barbara Lynch's more abstract characterization of "mega-projects as displacements," as they frame it clearly in their title. They argue:

> Mega-projects entail "creative destruction" in a material sense: they transform landscapes rapidly and radically, displacing mountaintops, rivers, flora, and fauna, as well as humans and their communities. We argue that displacement is intrinsic to mega-project development and that both are socio-natural phenomena . . . We define mega-projects as projects which transform landscapes rapidly, intentionally, and profoundly in very visible ways and require coordinated applications of capital and state power. (2003: 15)

Applying these characteristics of megaprojects to plantations, we define mega-plantations as the development of plantations that either through a single plantation project or in the aggregate of many smaller plantation projects, and all sorts of production arrangements in between, rapidly and radically transforms entire landscapes in ways that displace or transform local communities and rural environments that previously existed there. We intend not to romanticize the social-environmental landscapes that existed before mega-plantation development but merely to highlight the abrupt transformations that take place. Mega-plantations require the application of large amounts of capital and political power to achieve such transformations. Mega-plantations are created at a scale beyond that of the prior landscape, especially because of their often-complex connections with the regional, national, and global economy, tending to take on a transnational character (Pye 2013b). They become what Tania Li (2018) calls "plantation zones," a distinct kind of space, such as districts with significant areas of land devoted to plantations, in which land, livelihoods, law, and government are monopolized by, colonized by, and folded into the plantation system—a phenomenon that is both historical and contemporary. Furthermore, they are driven by ideological motivations that prioritize large-scale transformation over small-scale, incremental changes, viewing the large as characteristic of modernism and progress, what James Scott (1998) refers to as the logic of high modernism. Finally, megaprojects create a hitherto unseen degree of complexity and connectivity, through new flows of capital, labor, and commodities across national borders (Cramb and McCarthy 2016a).

The previous paragraphs logically explain why we preface plantations with the qualifier "mega." However, in reflecting on our choice of terminology, we also identify a deeper, more affective reason. "Mega" evokes a certain type of reaction we have experienced when encountering plantation development in Southeast Asia, which other terms such as estate or large-scale fail to capture. Miles Kenney-Lazar vividly remembers his first encounter with a transformed plantation landscape in southern Laos. Arriving at the edge of an area cleared in preparation for the development of a rubber plantation by a Vietnamese multinational corporation, he was struck by the seemingly unending expanse of empty land, cleared of all agricultural fields, forests (apart from a few remaining stands of trees), and people (see Figure 1). The newly cut plantation road led into the distance, where it and the plantation landscape disappeared from view, seemingly running up against the mountains that were just visible in the smoggy haze. He remembers thinking, "So this is what 10,000 hectares looks like," reflecting on the size of the land granted to the company. It turned out that this particular plot was only 1,000 ha, not all of which is visible in the image. Similarly, the term mega-plantation captures Ishikawa's experiences of moving through endless oil palm plantation expanses in Sarawak, Malaysia, as can be seen in Figure 2. What these experiential dimensions capture is the vast scale of the mega-plantation, which is ordered and developed beyond the scale of the human. Not only does the plantation go beyond the scale of the foreign researcher; more importantly, it also operates beyond the scale of the people that live in or near plantation spaces—farmers, migrants, workers, and even plantation managers. It is a landscape transformation that strikes both awe and unease for the viewer, especially in providing a sense of the dramatic changes that are underway, and what they mean for rural communities and environments.

Figure 1. Land cleared in preparation for a Vietnamese rubber plantation, southern Laos (© Miles Kenney-Lazar, 2009).



The remainder of this article is dedicated to investigating how mega-plantations have been pursued in Southeast Asia, what are their contemporary social and environmental dynamics, and what types of political reactions they have generated. First, we examine the historical drivers of mega-plantation development, particularly their ideological motivations and political-economic drivers during colonial, nationalist, and neoliberal historical periods. Following that, we focus on the contemporary aspects of mega-plantation development and maintenance, particularly the scope and scale of mega-plantations across the region, transnational linkages, and social-environmental transformations. Then, we write about the ways in which rural people, civil society groups, government institutions, and plantation companies have reacted to the trends of mega-plantation development, with a particular focus on efforts to emphasize small-scale over large-scale plantations, legal and regulatory reforms, and various forms of social movements

Figure 2. Young oil palm plantation in Sarawak, Malaysia (© Noboru Ishikawa, 2007)

and resistance. We conclude by reflecting on potential future trends for mega-plantations. The article is largely based on a review of the available literature and simultaneously aims to provide a comprehensive review of plantation expansion in Southeast Asia. However, it is also built on our own research experiences in Laos and southern Myanmar (Kenney-Lazar) and Sarawak, Malaysia (Ishikawa), and thus we recognize that our particular research backgrounds may influence the issues, trends, and regions we focus on.

Historical Drivers of Plantation Expansion in Southeast Asia

In this section, we outline the driving historical forces behind the expansion of mega-plantations throughout Southeast Asia. Research on plantations in the region has shown that these forces are multiple and interactive. While the expansion of global capitalism is often framed as the dominant driver of resource extraction, including plantation development, the ways in which capitalism has integrated with forces of colonialism, nationalist modernism, the interests of national and local elites, discourses of taming unruly natures and populations in the countryside, and forestry management are critically important.

Colonial Origins of Mega-Plantations (Late Nineteenth—Mid-Twentieth Century)

The plantation, "producing tropical cash crops based on hired labor" (Hayami 2010: 3305), first emerged during the colonial period, including in Southeast Asia, to serve the resource and capital accumulation interests of European powers. Before colonial intervention, subsistence and cash crops, traded regionally and internationally, were produced by smallholders. Colonial plantations were dominated by estates at the time, and economic turbulence led to unprecedented conglomerations of ownership. Although much smaller in scale compared to contemporary mega-plantations, they were mega-plantations in their own right, as they significantly transformed rural landscapes across the region, created new labor relations of agricultural production, and established a model for plantation expansion in the later postcolonial and neoliberal periods. While the mega-plantations of the time were for the most part not comprised of smallholders, they did initiate the expansion of smallholder food crops, particularly rice, that were used to support estate plantations and an expanding urban workforce.

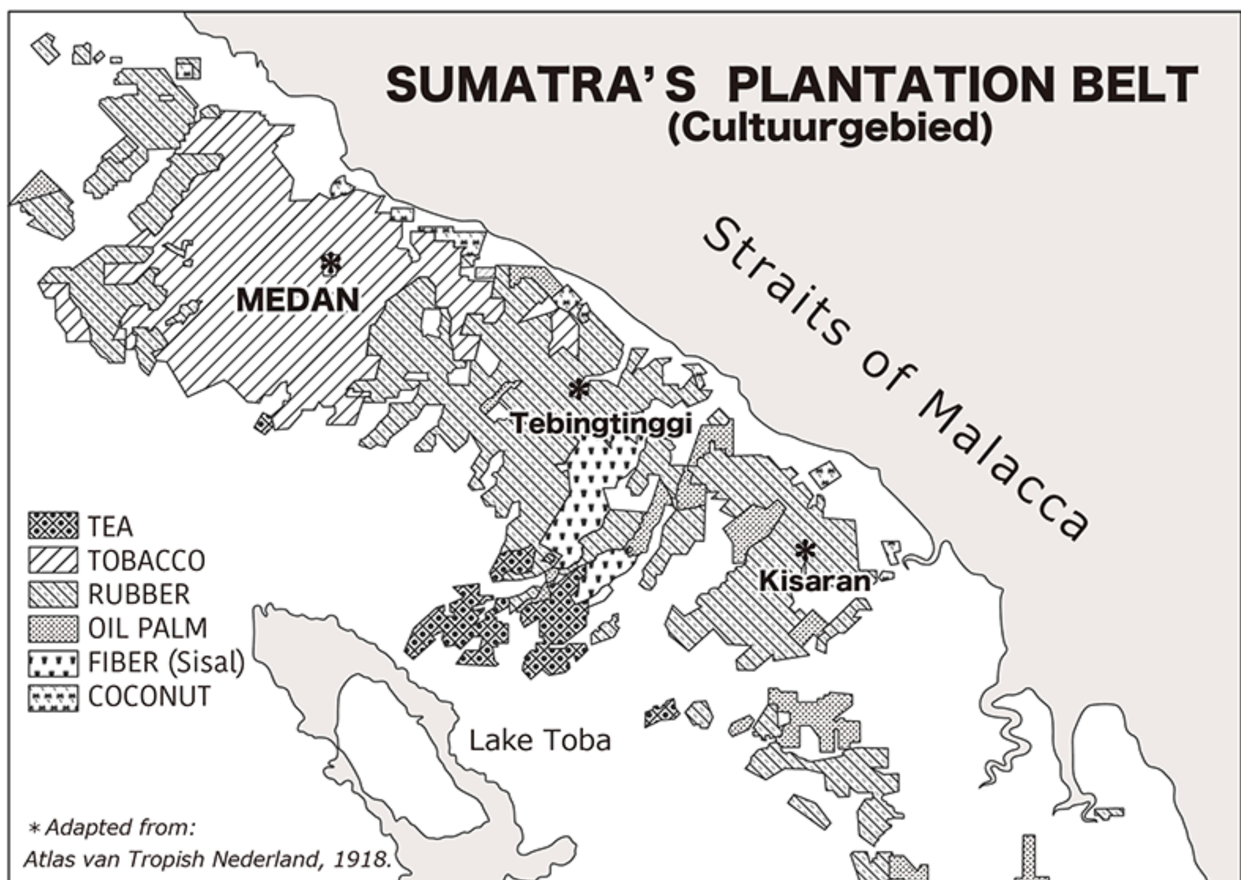
Such transformations of social-environmental relations in the tropics had their origins in a crisis of capital accumulation in Western Europe (Wolf 1982: 311). These are seemingly distant forces, but the genesis of the plantation mode of production, the increase of smallholdings, regional specialization, and the spread of a worldwide network of commodities were all related to the long depression of the European economy from 1873 to 1896. After an economic boom between 1848 and 1873, Europe experienced a significant economic depression characterized by high wages, the high cost of raw materials, and declining rates of profit. The outcome was that several European capitalist nation-states embarked upon an intense search for new investments, markets, raw materials, and cheap labor across the world, including Southeast Asia (312). From the 1880s onward, agricultural expansion in Southeast Asia quickened (De Koninck 2011: 5). The advent of new crops and new products altered the relations between regions; some specialized in producing foodstuffs or industrial materials; others processed the raw materials, consumed the food grains or meat, and sent back manufactured goods. Regional specialization was not confined to food grains, meat, and cotton. To provide tropical products like sugar, tea, coffee, or rubber in bulk, entire areas were turned into sugar, tea, rubber, or coffee plantations.

Rubber became the predominant industrial cash crop in Southeast Asia and characteristic of the mega-plantation model. Rubber seeds were brought from the Royal Botanic Gardens at Kew,

London, after being stolen from Brazil (Jackson 2008). Rubber had become a critically important plantation crop to supply Europe's second industrial revolution, essential for connecting and protecting the moving parts of machinery. A mere 345 acres were reported as planted with rubber in the Federated Malay States in 1897, but within a quarter of a century, the Peninsula accounted for 53 percent of all rubber planted in India, in Ceylon, and throughout Southeast Asia (Drabble 1973). The colonial governments of the region supported the development of rubber by granting loans to private developers, such as Malaysia's Loan to Planters Scheme of 1904, and by granting lands at cheap prices. In Peninsular Malaysia, areas considered "wastelands"—sparsely settled forestlands—were provided to rubber investors. In French Indochina, where the rubber industry developed since the 1920s, concessions were practically handed out to investors, which led to expansive land acquisitions that conflicted with upland ethnic minorities (Byerlee 2014). Although rubber is an ideal crop for smallholders to produce, colonial policies favored estate production while discouraging smallholders and initial investments. Plus, larger planters were the only ones willing to take the technological and financial risks of investing in a new crop to the region.

While rubber was the predominant plantation crop of the colonial period, it was by no means the only one. Although oil palm did not become the dominant plantation crop of the region until the second half of the twentieth century, the first commercial oil palm plantations were established in Sumatra in 1911 and in Malaya in 1917[1] (Corley and Tinker 2016). Ann Stoler (1995) writes of the *cultuurgebied* (plantation belt, in Dutch) which emerged on Sumatra's east coast, also known as Deli, which included tea, tobacco, rubber, oil palm, fiber (sisal), and coconut plantations, all butting against one another (see Figure 3). Plantation operations there became some of the most lucrative in the Western colonial enterprise, and thus the area became known

Figure 3: Sumatra's plantation belt (*cultuurgebied*), 1918 (adapted from Stoler 1995).



as the Dollar Land of Deli. The Agrarian Land Law that the Dutch colonial government promulgated in 1870 allowed multinational foreign investment, leading to a surge of not only Dutch investment but also British, American, and Franco-Belgian investments, among others. Some of the companies had rubber holdings in the area totaling up to 100,000 ha. The consolidation of foreign holdings in the area meant there was little land left for local use. The contemporary effect of this plantation history can be seen today, where 265 plantations cover an area of more than 700,000 hectares.

The profitability of plantation agriculture in Malaya and the Dutch East Indies inspired plantation development in French Indochina at the very beginning of the twentieth century. In addition to the emergence of a class of smallholding rubber producers, the colonial administration encouraged large-scale private investment in rubber plantations by granting huge tracts of land and using *corvée* labor to build a road network into more remote areas of Cochinchina (Southern Vietnam). By 1937, 127,000 ha of land had been planted with rubber in Indochina, 98,000 ha of which were in Cochinchina and 27,000 ha in Cambodia. Although approximately 70 percent of the rubber plantations were small (less than 40 ha), they accounted for only 6 percent of the total area planted. Most of the region's latex was produced by large-scale concession companies, typically between 1,000 and 5,000 ha, while a few companies, such as Michelin, owned plantations larger than 5,000 ha. By the late 1930s, Indochina was the fifth-largest producer of rubber in terms of area and fourth in terms of output (Murray 1992). The extensive coverage of rubber plantations across Cochinchina can be seen in Figure 4.

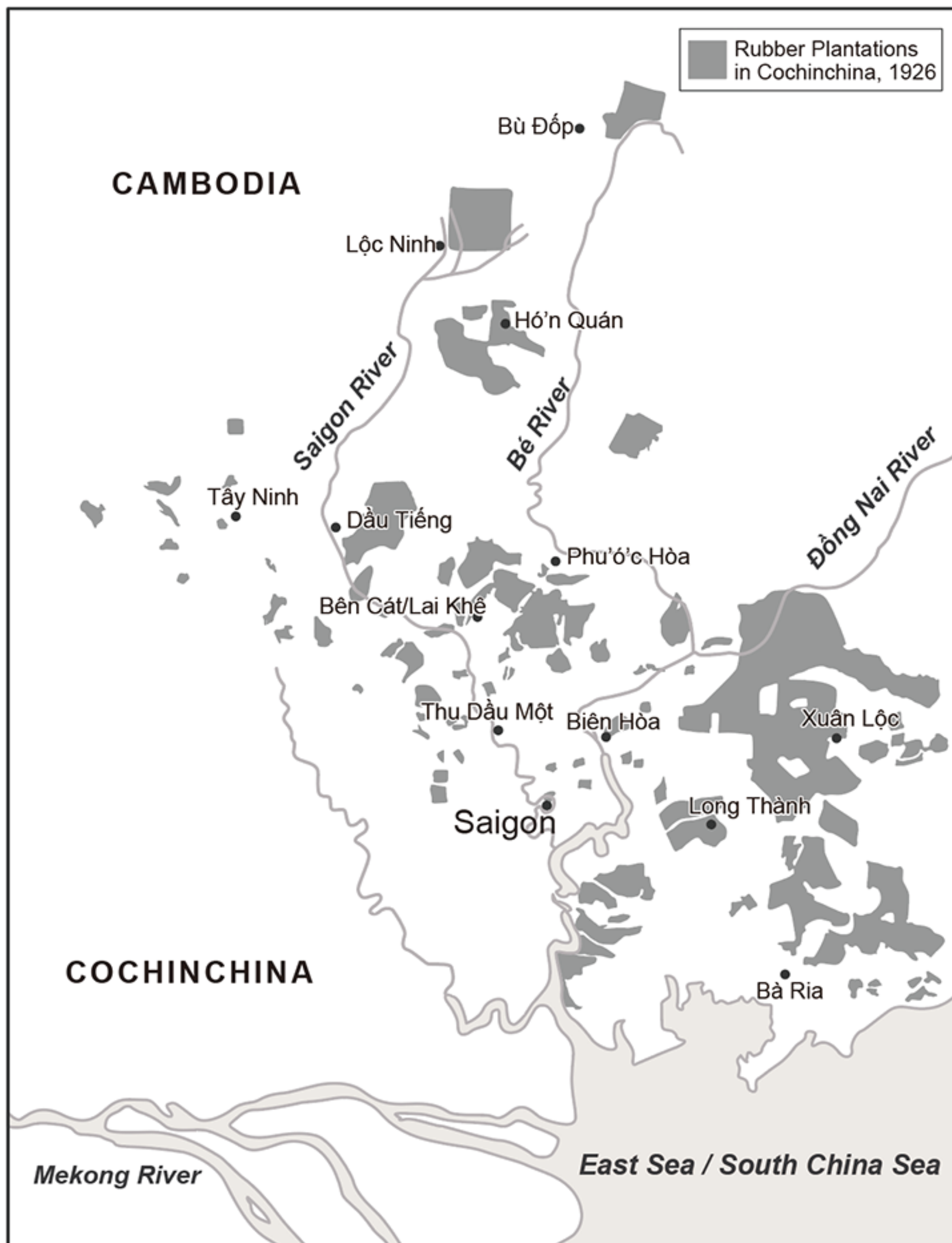
Smaller companies and individual planters also played a role in the emergence of rubber plantations in colonial Southeast Asia. However, they were not always able to endure the volatility of global rubber prices. As early as the mid-1880s, when individual planters could not survive the economic crisis, 179 individual planters' estates in East Sumatra of the Dutch East Indies were consolidated and merged into four powerful companies, thus facilitating a trend of emerging mega-plantations (Stoler 1995: 16). Rubber prices slumped in the 1910s and 1930s, which many smaller planters could not tolerate, leading to a consolidation of their holdings and an emergence of large, vertically integrated firms, including major tire manufacturers such as Goodyear (Indonesia), Dunlop (Malaysia), and Michelin (Vietnam) (Barlow 1978; Bauer 1948).

The cash crop mega-plantations, especially rubber and oil palm, not only transformed the landscapes where they were developed but were also indirectly linked to the expansion of other agricultural areas, particularly for commercial rice production. Paul Kratoska has shown how the colonial period led to a transition from subsistence to commercial rice production, leading to the creation of larger, commercial rice fields into the marshy plains of Lower Burma, central Siam, and Cochinchina, requiring the creation of new waterways for transport and embankments for flood control. While most of this rice was exported to European destinations, a significant portion was also used to feed the laborers in plantation belts, particularly on the west coast of the Malay Peninsula and the east coast of Sumatra, which both had a food deficit, importing 50 to 70 percent of the rice consumed (Kratoska 2008: 78).

Postcolonial Plantations: Independence and Nationalism (1950s–1980s)

The plantation sector in Southeast Asia rapidly changed after World War II because of waves of postcolonial independence, nationalism, and socialism, in ways that paved the way for the expansion of contemporary mega-plantations. This happened in a bifurcated manner, however, in which the paths of plantation development were broadly divided by the front lines of the Cold War. Plantation development and expansion in zones of active conflict in Indochina were halted during the three decades of the Indochina Wars (1946–1975). Plantations were subse-

Figure 4: Map of rubber plantations in Cochinchina, 1920s (adapted from Aso 2018: 11).



quently nationalized by socialist governments while production and trade was limited due to economic sanctions by the Western Bloc. In contrast, the plantations of Thailand, the Philippines, Malaysia, and Indonesia could flourish outside of active zones of conflict and with the ability to trade commodities on the global economy, even when plantations were nationalized, such as in Malaysia and Indonesia.

In Malaysia and Indonesia, independence led to new forms of nationally driven plantation development that launched them into their greatest period of plantation expansion (Cramb and McCarthy 2016b). The European-owned plantation industry was nationalized, and a shift

from rubber to oil palm proceeded concurrently. This led both countries to grant plantation concessions while also implementing nationally managed smallholder schemes or nucleus-estate arrangements, such as those by the Federal Land Development Authority (FELDA) in Malaysia and Perkebunan Inti Rakyat (PIR) in Indonesia. In Cambodia, Laos, Vietnam, and Myanmar (CLMV), in contrast, independence movements were hampered by war (two Indochina Wars, civil war in Myanmar) and closed socialist political-economic systems that stymied the expansion of plantations, even when they were nationalized (Byerlee 2014). Yet when these economies began opening up to market economies and foreign investment in the late 1980s, the powerful role of the state in controlling vast swathes of land in the country led to a rapid expansion of new mega-plantations not possible during the colonial era, as large amounts of state land could be granted to domestic and foreign companies (Hirsch and Scurrah 2015).

In Malaysia, nationalist concerns led to the emergence of managed smallholder schemes for the planting of oil palm, which have produced massive landscape transformation, despite smallholders being at the center of such changes. FELDA has played a critical role in mobilizing smallholder farmers to establish plantations across the country (Bissonnette and De Koninck 2017). FELDA is a government agency that was founded to resettle the rural poor into new areas and to organize cash crop production among smallholder farmers. Thus, the smallholder cash crop plantations that FELDA supported were also accompanied by large resettlement schemes and rural development projects. For example, the Jengka Project in Pahang included timber extraction, commercial plantations, and urban development in 24 settlement schemes and covered 121,700 ha. As of 1990, FELDA had settled 119,300 families and managed 475 schemes that covered a total crop area of 823,720 ha. Starting in the 1990s, FELDA began launching its own commercial plantations under FELDA Plantations Sdn Bhd, which eventually became a public company in 2003 and is now the largest palm oil producer in the world (Cramb and McCarthy 2016a). Thus, despite starting as a resettlement scheme of managed smallholders, its business model shifted to a model similar to plantation estates, therefore demonstrating the slippage between varying modes of production when pursuing mega-plantation expansion.

The Indonesian government developed the PIR scheme, which is a nucleus estate and smallholder arrangement whereby an agribusiness firm establishes the core plantation estate and palm oil mill and then provides land to landless farmers, known as outgrowers or plasma, who plant oil palm trees whose fruit can be sold at the nearby mill. Initiated in the 1970s and supported by World Bank funding, the PIR scheme has been an important way in which new lands for plantation development have been opened, transforming landscapes and creating new plantation zones, bringing together state agencies, agribusinesses, peasants, and the landless. The nucleus estate provides inputs, credit, and technical advice and then collects and processes the fruit, thus resembling a type of production contract farming. Additionally, the smallholders are either local landholders with customary rights to the land or migrants from other regions of Indonesia, resettled out of densely populated areas via Indonesia's transmigration program.

Large-scale, capital-intensive plantation expansion was halted in Indochinese countries and Myanmar from the mid-1950s to the late 1980s during periods of war, land collectivization, agrarian reform, and restrictions on private capital and trade (Aso 2018; Byerlee 2014). In Vietnam, Cambodia, and Laos, two Indochinese wars that stretched from 1946 to 1975 economically devastated all three countries with field battles, insurgent warfare, bombing, and chemical defoliation. As the conflicts escalated, especially US bombing and chemical defoliation, plantation production was affected and halted. After the war, the socialist governments that came to power engaged in various forms of land and agricultural collectivization or nationalized plantations, which had detrimental effects on the plantation economy. In Myanmar (then Burma), the 1962 military coup led by General Ne Win led to a socialist military junta government, followed by

economic deterioration. Myanmar went from a top rice exporter in the 1940s to a rice importer, demonstrating the impact of the economic transformation on plantation agriculture (Aung-Thwin and Aung-Thwin 2013).

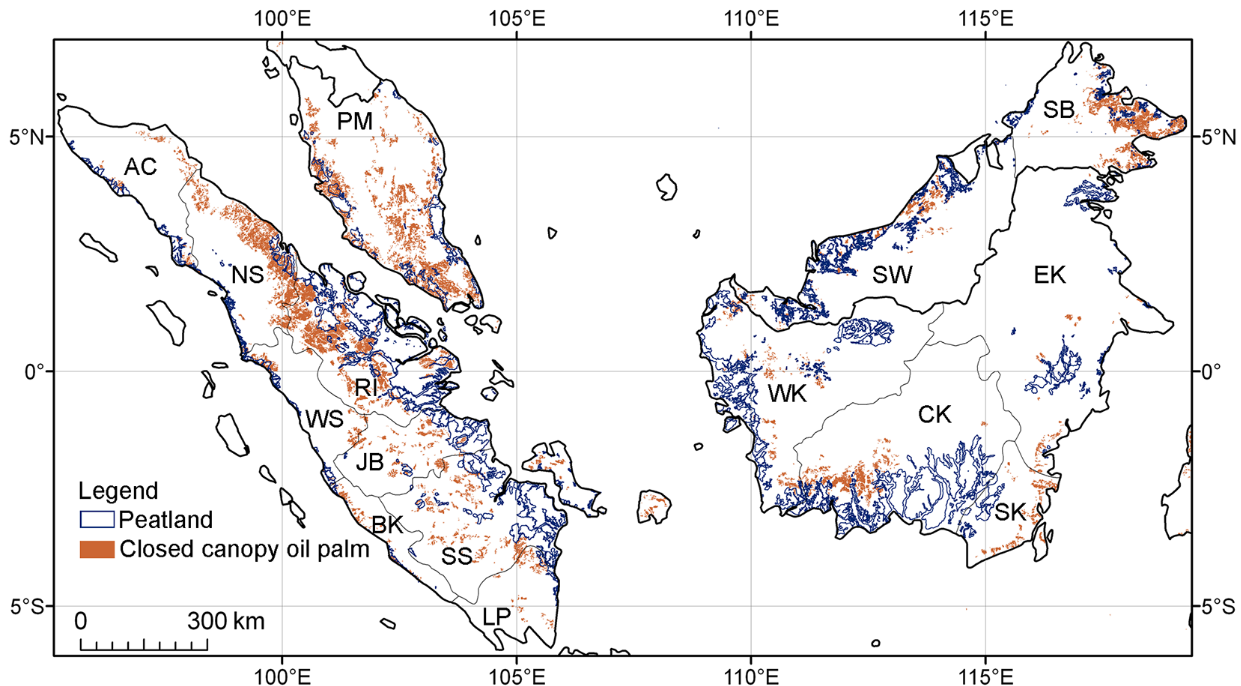
However, the wars, revolutions, and socialist periods of Indochinese countries and Myanmar set the stage for rapid plantation expansion in the 1990s and 2000s (Hirsch and Scurrah 2015). This period led to greater state control over land and plantation industries. Thus, when these countries started to transition toward a market economy in the late 1990s, the government was able to offer large-scale concessions of state land to private investors, domestic and foreign, for the development of mega-plantations. Additionally, the socialist governments of the region had their own plans for large-scale plantation expansion, which set the stage for some forms of future plantation expansion. For example, the Myanmar government planned for the country to be a major exporter of agro-industrial crops such as oil palm.

Contemporary Displacements of Southeast Asia's Mega-Plantations

Multiple and layered historical drivers of mega-plantation development have firmly entrenched the plantation as a dominant economic system of the countryside across Southeast Asia. Throughout Southeast Asia, plantations are destroying and reformulating rural ecosystems for purposes of state building, internal colonization, and capital accumulation (Hall 2011; Li 2018), generating massive environmental transformations such as deforestation, loss of biodiversity, drought, and significant climate change emissions among others (Ahrends et al. 2015; Carlson et al. 2013; Fox et al. 2014). As contemporary forms of enclosure, plantations are inherently exclusionary, keeping out other forms of land use that do not fit within their monoculture logic (Hall et al. 2011). Mega-plantations are a key element of how land grabbing has operated in Southeast Asia, rapidly and extensively dispossessing various groups of peasants, indigenous peoples, and forest users of their lands and livelihoods (Bissonnette and De Koninck 2017; Schoenberger et al. 2017; White et al. 2012). In this section, we address the contemporary role of mega-plantations in Southeast Asia. We focus on the key dimensions that comprise mega-plantations today in the region: the scale and scope of the phenomenon, transnational linkages with the global economy, land displacement and dispossession, and environmental despoliation.

A key dimension of the trend of mega-plantations across Southeast Asia has been the scale and scope of plantation development since the colonial period but in particular over the past 20 to 40 years. The rapid and spectacular expansion of oil palm in insular Southeast Asia, particularly Malaysia and Indonesia, is characteristic of the mega-plantations that are emerging across the region. In Malaysia, more than 5 million ha of oil palm have been planted throughout the country (Cramb and McCarthy 2016b). In Indonesia, oil palm has rapidly expanded since 1970, when it covered only 100,000 ha of land, to 11 million ha as of 2015, equivalent to 40 percent of the country's area of arable land (Hawkins et al. 2016; Li 2018). Aiming to expand the coverage of oil palm plantations throughout the country, the government has planned for another 20 to 30 million ha to be planted (Li 2018). The largest plantation developer in the country has planted more than 380,000 ha of oil palm. Furthermore, during the downturn in palm oil prices in 2011, when many operators were struggling, major transnational corporations looked at the long run and bought up struggling plantations to increase their holdings, leading to consolidation within the sector (Hawkins et al. 2016). In Figure 5, the distribution of mature, closed canopy oil palm across the lowlands of Peninsular Malaysia, Borneo, and Sumatra can be seen (as well as the distribution of peatland), showing distinctive belts of mega-plantation development in key regions of both countries as of 2010.

Figure 5. Distribution of closed canopy oil palm and tropical peatland in the lowlands of Peninsular Malaysia, Borneo, and Sumatra. Provincial abbreviations in the figure (clockwise from top left): Peninsular Malaysia (PM), Sarawak (SW), Sabah (SB), Eastern Kalimantan (EK), Southern Kalimantan (SK), Central Kalimantan (CK), Western Kalimantan (WK), Lampung (LP), South Sumatra (SS), Bengkulu (BK), Jambi (JB), West Sumatra (WS), Riau (RI), North Sumatra (NS), Aceh (AC) (reprinted with permission from Koh et al. 2011).



In the CLMV countries of the Lower Mekong, agricultural land has expanded by 9 million ha, or approximately 21 percent, from 1996 to 2015. An important driving force of this trend has been the granting of large-scale agriculture and tree plantation concessions that began in the late 1990s and accelerated around 2006. A total of 5.1 million ha of land have been granted for plantation development across the region, which in Cambodia, Laos, and Myanmar represents 66, 30, and 16 percent, respectively, of the amount of land that smallholder farmers cultivate. The boom crops of rubber, sugarcane, oil palm, cassava, and maize represent 76 percent of the concession areas in these countries (Ingalls et al. 2019).

Mega-plantation development across Southeast Asia has generated widespread displacement: of land uses, agrarian livelihoods, communities, and ecosystems. Such displacement occurs not only as a result of massive plantation estates that cover thousands of hectares at the plot level. Such displacement can even be generated by smallholders, especially when a wave of smallholders convert their agricultural and forest lands to a boom crop and transform the countryside. Thus, mega-plantation development has the potential to materialize via a wide range of production arrangements, all of which we consider here in Table 1. These include estate plantations established by government land concessions or outright land purchases, nucleus estate and smallholder arrangements, land-based contract farming, product-based contract farming, managed smallholders, and independent smallholders. In discussing the displacement of mega-plantations throughout the region, we reference the role that these various production forms can play in that process.

The dispossession of land and natural resources from rural land users, especially indigenous peoples, has been one of the most consistent critiques of plantation expansion in the region,

especially in the literature on land grabbing, and is characteristic of megaproject development that displaces prior land uses and livelihoods. Much of the literature has focused more on the impact of large-scale investments, especially estate plantations established through government land concessions and outright purchases. There has been a significant focus on such dispossession in Laos, Cambodia, and Myanmar, where the governments have granted concessions of

Table 1. Description of Key Modes of Plantation Development and Their Relation to Mega-Plantations in Southeast Asia

Mode of production	Description	Relation to mega-plantation development
Estates	Private or state-owned enterprises own or exclusively lease large plantation areas with hired labor.	Estate plantations can cover large areas of land, including multiple plots that are thousands of hectares each. They can involve significant displacement of prior landscapes, including dispossession of peasant livelihoods and deforestation. They are often accompanied by multiple layers of infrastructure and are linked up to the global economy.
Nucleus estate and smallholder (NES) arrangements	Private or state-owned enterprises establish a "nucleus" estate, often including a processing facility and infrastructure, and then smallholders are supported to develop their own plantations nearby.	NES arrangements can cover areas larger than estate plantations, as they enroll smallholders into additional landscape conversion. They can create new plantation complexes or zones in rural areas where none previously existed.
Land-based contract farming	Private or state-owned enterprises develop plantations on community land and share control over the plantation or land with the community.	Land-based contract farming tends to involve smaller plots of land than estates, as the land comes from communities. In aggregate, however, these types of arrangements can cover large areas of a landscape, transforming its socio-environmental characteristics, especially when combined with other forms of plantation development.
Product-based contract farming	Private or state-owned enterprises enter into a production contract with a community or farmers in which production inputs are provided to farmers and a share of the product at harvest belongs to the enterprise.	Also involving small amounts of land at the individual plot level, product-based contract farming often involves many farmers entering contracts with a single company, thus leading to a coordinated transformation of a particular area into plantations.
Managed smallholders	The state organizes the development of smallholder plantations by providing land to farmers through leasing or resettlement.	Managed smallholder schemes are organized and led by the state and thus can lead to a significant displacement of rural areas, especially when settled with new migrants as in Malaysia.
Independent smallholders	Smallholders develop plantations using their own or borrowed inputs on their own or leased land.	In aggregate, independent smallholders planting a commercial plantation crop in response to policy incentives, and market signals can radically transform a whole landscape. Although producing independently, they can also be linked up with estate plantations and the processing facilities there, thus being tied into larger scales of mega-plantation development

so-called state land to domestic and foreign investors for plantation development, but such land was customarily used and managed for decades by peasants who are now dispossessed from it (Baird 2011; Beban and Work 2014; Kenney-Lazar 2012; Schoenberger et al. 2017; Suhardiman et al. 2015; Woods 2011). Estates are the dominant form of planted area in Malaysia and Indonesia, 61 and 56 percent, respectively (Cramb and McCarthy 2016a).

However, all the forms of plantation development we have described can include some element of dispossession. Even independent smallholders can be involved in developing plantations on contested land, ignoring the customary claims of marginalized groups. The marketization of land as a result of developing cash crops can lead to land sales and consolidation of land ownership, as Li (2018) has shown in the case of cacao plantations in Sulawesi, Indonesia. In Northern Laos, contract farming of rubber between Lao peasants and Chinese companies has become an alternative form of dispossession, even though it was pursued precisely to avoid this problem associated with large-scale concessions. In certain types of contracts, instead of dividing the produced latex among the two parties, they divided the management of land, putting up to 70 percent of land management in the companies' hands, leading to de facto dispossession (Dwyer 2013).

Oil palm plantations have attracted controversy for displacing tropical rainforests and replacing them with monoculture plantations: nearly half of oil palm planted has involved some forest destruction, and 70 percent of Indonesia's oil palm plantations are established on land that was part of the country's forest estate (Cramb and McCarthy 2016b). Not only are plantations across the region a major cause of deforestation; clearing forests and logging is oftentimes the primary motivation for plantation development. In Myanmar, the clearing of forests to make way for the expansion of commercial agriculture and tree plantations has become the leading cause of deforestation (Woods 2015). In many cases, large areas cleared are never planted with crops, or the crops planted are not tended to as the goal of logging timber has already been achieved. Plantations lead to significant carbon dioxide emissions by displacing carbon-rich environments, like primary forest areas and peatlands, and replacing them with monoculture plantations that absorb significantly less carbon (Carlson et al. 2013; Fox et al. 2014). Fifteen percent of oil palm in Malaysia and 25 percent in Indonesia has been established on peatland, which leads to carbon dioxide emissions (Cramb and McCarthy 2016b). The methods of displacement have their own environmental impacts: fire is often used in clearing land for oil palm plantations, especially in Indonesia, which leads to forest fires and air pollution (Cramb and McCarthy 2016b; Mizuno et al. 2016).

Mega-Plantation Politics

Despite the consistent expansion of mega-plantations across the region, their development has not gone uncontested. Instead, at just about every turn, mega-plantations have been subject to various forms of political reactions from customary land users, laborers, regulatory government agencies, and nongovernmental organizations, among others. Such politics range from everyday resistance, protests, strikes, and social movements to advocacy campaigns, regulatory reforms, and sustainability guidelines. Such political reactions have questioned the underlying logic of mega-plantations in their unrelenting displacement of rural landscapes, have limited the geographies of their expansion and which landscapes are displaced, or have transformed the socio-environmental dynamics of how mega-plantations are developed and operated. Mega-plantation politics operate across all of the varying political regimes of Southeast Asia,

from single-party communist states to multiparty democracies, although in ways that are distinct to each geographical and historical political context. They have also operated during each historical period, from the colonial period to the present, but have amplified in the past few decades in response to the massive expansion faced.

Political reactions animated plantation expansion during the colonial period, largely in the form of labor politics on plantations (Stoler 1995). In Indochina, rubber tappers engaged in various forms of everyday resistance such as loafing, petty theft, sabotaging company property, self-mutilation, suicide, and desertion. They also organized eight large strikes between 1930 and 1937 that led to modest material gains and contributed to the growth of the Vietnam workers' movement in the 1930s (Murray 1992). The present period of plantation politics has been more animated by various dimensions of displacement: of customary lands, of forests, of carbon-rich ecological landscapes, and of smallholder uses of the land. Across the region, small-scale land and forest users have pursued a diverse set of political strategies for contesting the unjust displacement of their lands to make way for mega-plantation development (Ngidang 2005, 2008; Ramy Bulan 2006). Land displacement has sparked social movements in countries where freedom of political expression has recently emerged. In Myanmar, the political transition from a military junta to civilian government and then pluralistic democracy that began in 2010 has led to a flowering of social activism and movements to contest historical and contemporary land grabbing that has facilitated mega-plantation development (Mark 2016). Even in politically repressive contexts, creative forms of resistance have emerged to contest land expropriation. In Laos, the political repercussions for disruptive protest and other forms of contentious politics have led to creative forms of what several authors have termed "resisting with the state," putting significant pressure on state apparatuses to protect access to land (Kenney-Lazar et al. 2018; McAllister 2015).

Another set of politics has concerned the environmental displacements of mega-plantation development, led in particular by coalitions of local and international NGOs. These have been particularly pronounced in reaction to oil palm plantation development in the rainforests of Malaysia and Indonesia, building on the transnational advocacy campaigns against logging that began in the late 1980s. Such campaigns are produced transnationally by building links between indigenous peoples who customarily use the forests targeted for oil palm expansion, local activists and civil society organizations, and large international NGOs like the Worldwide Fund for Nature or Greenpeace. In Malaysia and Indonesia, such environmental conflicts are also land conflicts with local indigenous communities concerning whether the communities or the state have rights to the forests and the ability to make decisions concerning how they are used (Pye 2013a). The plight of orangutans whose habitats are being destroyed because of oil palm development has been particularly powerful in the media.

Finally, there have been political responses in the form of private regulation, particularly the development of voluntary guidelines, the most prominent of which has been the guidelines of the Roundtable on Sustainable Palm Oil (RSPO). Established in 2004, the RSPO aims to address critiques from activists and NGOs that oil palm is the cause of environmental and human rights abuses by developing a set of global standards that when followed would avoid such abuses. However, the RSPO has been heavily critiqued for not significantly altering the socio-environmental dynamics of oil palm plantation development and acting more as a tool of legitimacy for oil palm companies to protect their investments from critique and advocacy campaigns (Ruysschaert and Salles 2014). In the rubber sector, an RSPO-inspired set of standards, the Global Platform for Sustainable Natural Rubber, is under development by an association of the world's major tire companies.

Conclusion

Agro-industrial plantations have expanded across Southeast Asia since the colonial era, transforming vast swaths of rural landscapes into what Li (2018) has referred to as "plantation zones," playing a critical role in the progression of the Plantationocene in the region. Here, we conceptualize such plantation expansion through the lens of megaprojects—complex, expensive developments that have significant impacts on the economy, environment, and society through their creative destruction, radically displacing and transforming landscapes. They are developed through massive applications of state power and capital. Applied to the plantation sector, mega-plantations radically transform rural landscapes, displacing previously existing peasant communities and rural environments and producing in their place new landscapes of monoculture and mono-crop plantations, networks of road and electric infrastructure, processing facilities, and labor camps. Such transformations do not arise solely from the development of large-scale estate plantations with large plot sizes that constitute a megaproject in and of themselves. Mega-plantations are also produced when a complex array of plantation developments cohere in a particular landscape or region, which when combined lead to the same types of landscape transformations or at an even larger scale than single projects. Thus, mega-plantations develop through both rapid, intentional projects and a more spontaneous aggregation of smaller projects. In this article, we do not set a strict quantitative definition concerning what precisely constitutes a mega-plantation, as we believe they are better defined by qualitative parameters describing them as both a process and a particular type of landscape transformation.

Despite the essential role that mega-plantations have played in Southeast Asia's rural landscapes, their expansion has been restricted and shaped at times by political reactions from customary land users, smallholding peasants, laborers, civil society and NGOs, government regulators, and private industry organizations. Such reactions have strengthened over time, especially in the past two decades, as mega-plantations have expanded across a variety of frontiers, leaving few untouched landscapes for development. There are signs that the era of mega-plantation expansion in the region may be reaching its limits. CLMV countries have all put various types of limits on granting large-scale concessions for plantation development, although plantation capital may move into other arrangements as a result of contract farming and community or household land leasing. In Malaysia and Indonesia, oil palm expansion continues but under intense scrutiny from well-organized transnational advocacy campaigns. Even as the formations and arrangement of plantation development are altering, it is likely that large-scale displacement and transformation of entire landscapes will endure for some time.

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NOTE

1. Oil palm grows best in continuously wet, equatorial conditions within 10 degrees of the equator. Thus, it cannot be grown in many parts of mainland Southeast Asia.

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