

Sustaining livelihoods in a palm oil enclave: Differentiated gendered responses in East Kalimantan, Indonesia

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Abstract: *With large tracts of forested land planned for, or already converted to, industrial palm oil concessions, there is a need to better understand the gendered implications for, and responses by, communities affected by such landscape change. This paper examines the differentiated gendered responses and livelihood strategies of Dayak Modang women and men in a hamlet in East Kalimantan, Indonesia, surrounded by industrial palm oil plantations. Informed by feminist political ecology, we investigate how the compounding impact of industrial oil palm – the basis and outcome of enclavement – curtails livelihood options and reinforces gender differentiation in terms of access to and use of customary resources. Gendered inequalities and food insecurity dynamics emerge as a result. We show how, however, that despite gendered exclusions, Dayak Modang women use their own knowledge and practices to diversify livelihoods to negotiate emerging constraints over resource access and use. Our paper demonstrates that ways in which Dayak women ‘sustain livelihoods’ reflects forms of everyday negotiations and resistance to intensifying constraints over life and livelihood.*

Keywords: *gender, resistance, Indonesia, palm oil, sustaining livelihoods*

Ibu Margareta, a middle-aged Dayak Modang woman of the Hongoi hamlet,¹ is almost always in motion: weeding her swidden plot, clearing brush from her cocoa grove, foraging mushrooms and leafy vegetables, fishing. Only at the peak of the durian season does she allow herself to sit beneath her family’s towering trees to wait for fruit to fall. While resting, she describes the properties of the garden around her: which parts of plants can be boiled and drunk to ease childbirth, to remove poison, to brighten skin. For Margareta, these qualities underline the value of the gardens and remaining forest area around the hamlet and demonstrate why retaining land still matters. She contrasts this with the impacts brought by palm oil:

don’t have large areas of land anymore. We don’t have money. The palm oil impacts are costing people here.

Margareta’s quote describes the aftermath of palm oil companies arriving in the region in 2006, emboldened with early-stage land use permits (*izin lokasi*) issued by the East Kutai district head. Land clearing preceded negotiations, despite regulations that require companies reach agreements with local communities over the acquisition of land for plantations. *Adat* leaders from Hongoi confronted and stalled land clearing operators, refusing to release land in the negotiations that followed. Under pressure, however, neighbouring villages eventually conceded. Enabled in part by a lack of clear village boundaries, palm oil plantations established in adjacent villages have encroached upon Hongoi’s ancestral forests and farmland. Despite Modang efforts to prevent forest clearing through protests, seizing land clearing machinery, issuing *adat* fines, and pursuing formal

There’s more land conflicts now – the initial land rights are now not acknowledged. The *adat* (customary) ethics are being lost... We

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grievances, in the space of 10 years Hongoi's *adat* land has become enclosed between several large-scale plantations. While some were optimistic that plantations would bring new wealth, the costs to lives and livelihoods now outweigh the benefits.

The Modang's customary lands and livelihoods are now literally enclosed, or as Li (2017) suggests, subject to comprehensive 'enclavement' processes – wherein plantation zones 'include the residual spaces or "enclaves"' situated between plantations and customary lands upon which Dayak communities make a living (Li, 2017: 1158). As other studies have shown, the consequences of enclavement drive socio-economic differentiation, with women often bearing the brunt of changing social relations and uneven access conditions that emerge within and between these enclaves (Julia and White, 2012; Li, 2015; Elmhirst *et al.*, 2017). In this paper, we attend to the gendered implications of and responses to industrial palm oil as it expands into and ruptures frontier regions. We examine the gender implications of enclavement for social inequalities, livelihoods, and food security on forest lands once held in common (Doss *et al.*, 2014; Hall *et al.*, 2015; Zoomers and Otsuki, 2017). Far from being passive 'enclave victims', we explore how and why Modang women sustain livelihoods with diverse strategies to thrive in the impoverished social and ecological conditions arising from plantation enclaves. In the context of such constraints, we come to view women sustaining livelihoods as part of the everyday politics of negotiating and resisting constraints (Scott, 1985; Kerkvliet, 2009) from the cumulative pressures from oil palm.

In establishing an oil palm estate, pre-existing agrarian and forested landscapes are fundamentally transformed: forests are felled, rivers are rerouted, and hamlets are orphaned (Li, 2015). Where communities are not fully incorporated into palm oil systems, dispossessed from land by force or voluntarily, they are increasingly 'enclaved' (Li, 2017, 2018). Oil palm enclavement reduces access to land, diminishes soil and water quality, and drives rat and pest plagues that threaten livelihoods and food security (Potter, 2011; Gillespie, 2016). Studies on local responses to palm oil expansion in Indonesia have foregrounded political reactions from below (Potter, 2009; Haug, 2014; Morgan,

2017), but tend to neglect household *livelihood responses* and how these differ across gender and generation (see Behrman *et al.*, 2012). Drawing on a feminist political ecology perspective (see Elmhirst, 2011a,b; Nightingale, 2011; Harcourt and Nelson, 2015), we contribute to this emerging literature by exploring how gendered livelihood responses to oil palm plantations relate to the meanings given to land and livelihood aspirations, and how these vary across differently situated social groups subject to 'enclavement'. In the context of declining access and use rights, we ask what land use and livelihood strategies do rural women (and men) pursue in response to the changing agrarian conditions brought on by palm oil enclavement in East Kalimantan?

Methods

We draw on ethnographic field research conducted by the lead author while living in Hongoi hamlet between May 2017 and March 2018. To reveal the gendered responses to and the process by which enclavement emerged, fieldwork traced gendered land use and livelihood strategies since palm oil's arrival in 2006 to the establishment of concessions in abutting villages in 2018. Fieldwork involved 30 livelihood questionnaires among men and/or women from a random sample of households, 15 iterative life story interviews, three focus group discussions and participant observation. Thirty-seven in-depth interviews were also conducted with local traders, government workers, customary and religious leaders and non-government organisations involved in the region's land rights struggles. Transcripts were coded for emergent themes.

Feminist political ecologies, and sustaining livelihoods

We draw on feminist political ecology (FPE) to explore the intersectional impacts and outcomes of oil palm enclavement across gender and generation, and how women negotiate and resist these impacts differently by sustaining their own livelihood. FPE aims to recalibrate political ecology's concern over resource access and control by foregrounding women's

experiences of oppressions, exclusions and resistance (Rocheleau *et al.*, 1996). Calling for a decentring of gender in terms of differential power and social inequality (Nightingale, 2006; Elmhirst and Resurreccion, 2008), FPE scholars have more recently engaged with the notion of 'intersectionality' (e.g. Nightingale, 2011; Elmhirst, 2011a,b). Intersectionality highlights how subjectivities are mutually constituted in and through multiple intersecting markers or axes of difference (Crenshaw, 1989), imbued with differentiated power that 'articulates in time and place' (Sundberg, 2017: 17). Applied to livelihoods, intersectional FPE shows how a persons' gendered power shapes subjectivities, access to livelihood assets and consequently the strategies available to them over time and space. In this sense, FPE is uniquely placed to examine the gendered impacts and outcomes that emerge from enclavement processes in agrarian frontiers beset by plantation expansion.

As we show, locally embedded gendered norms and power inequalities are produced and sharpened when individuals and communities are adversely incorporated into palm oil systems (McCarthy, 2010; Cramb and McCarthy, 2016), producing uneven gendered implications. Yet this work has largely focused on cases resulting in land dispossession (Levien, 2017), with less attention given to the variation in gendered property relations, land control and livelihoods produced by land deals that involve new forms of enclosures (White and Dasgupta, 2010; White *et al.*, 2013). Scholarship on 'new enclosures' provides a more nuanced framing of land deals, recognising that local people are not necessarily, or at least not immediately, expelled or displaced by force or coercion as their lands are being appropriated (e.g. Edelman *et al.*, 2013; Hall, 2013).

Expansion of industrial oil palm in Indonesia offers further empirical insights to understandings of 'new enclosures' (White *et al.*, 2013). Increasingly, palm oil companies enclose communities who refuse to release land, or whose labour companies do not require, leaving communities in place with plantations installed around their forests and farmland, creating 'residual spaces or "enclaves"' (Li, 2017: 1158). Given the dramatic rise of such land appropriation, there is value in examining the process more closely. As a deliberate practice, the political and economic processes

behind enclavement aim to avoid the negative press and high cost of dispossession by violence or brute force, though such tactics are also used. In enclaves, farmers are left with just enough land for the current generation to farm in the short term (Li, 2018). Unfolding over time and across space, such dispossession inevitably leaves farmers with few other options but to renegotiate their lives, join plantations by selling land or becoming palm oil smallholders, or to simply move away. The uneven gendered responses to such enclavement remain understudied.

Despite the increasing constraints imposed by enclavement, we show how Dayak women (and men) farmers demonstrate impressive capacity and creativity in pursuing livelihood diversification strategies. Drawing on Scott (1985) and Kerkvliet's (2009) notion of everyday politics and resistance, we describe such diversification processes as a form of resistance that manifests in less overt and visible ways. We suggest that acts of sustaining livelihoods reflect the 'everyday politics of resistance [that involve]...adjusting and contesting norms and rules regarding authority over, production of, or allocation of resources... in quiet, mundane and subtle expressions and acts...' (Kerkvliet, 2009: 232). This framing opened agrarian change scholarship to consider how varying expressions and forms of everyday politics reflect resistance to land accumulation and dispossession (Borras and Franco, 2013; Hall *et al.*, 2015). In this sense, livelihood diversification strategies reflect expressions of resistance to adverse agrarian change (Schneider and Niederle, 2010; Turner, 2012; Jenkins, 2017). Yet to date, studies exploring local responses to land accumulation by industrial palm oil in Indonesia have tended to focus on overt political acts (see though de Vos and Delabre, 2018).

We argue that sustaining livelihoods *through* diversification strategies reflect everyday politics of resistance in how they manifest in local farmers' desires to remain autonomous and maintain the cultural, subsistence and financial basis of their livelihoods. In Kalimantan, while swidden-based livelihoods are broadly in decline (Schmidt-Vogt *et al.*, 2009; Dressler *et al.*, 2017) due to transitions to intensified cash cropping (including palm oil smallholdings), many farmers persist with swidden because it supports customary practices, livelihood diversity, food security and autonomy

over labour (Colfer, 2008; de Vos, 2016; Maharani *et al.*, 2019; Santika *et al.*, 2019). As FPE scholars note, livelihood practices are not just about navigating exclusions to meet economic needs, but also about ‘ensuring fundamental human requirements’ (Harcourt and Nelson, 2015: 13). In this context, FPE scholars have shown how ‘sustaining livelihoods’ involves culturally meaningful relations with lands and forests that shape decision making, future aspirations and desires in changing agrarian landscapes (Harcourt, 2017).

Through FPE’s intersectional lens, we reveal how industrial palm oil enclavement interacts with pre-existing gendered social relations and norms to create uneven access to resources and livelihood opportunities, making every aspect of sustaining a livelihood more burdensome, particularly for women. Yet rather than passively succumbing to the dispossession effects of plantation enclavement, we reveal how Modang women use their experience to devise creative strategies to sustain livelihoods. Sustaining livelihoods means creating spaces where women can control their time, labour and produce, and retain a source of social power in a context where men increasingly dominate incomes from emerging livelihood options.

Hongoi hamlet, East Kalimantan – Land and life before the arrival of palm oil

Located along the Kelinjau River, a tributary of the Mahakam, Hongoi hamlet is a Dayak Modang community, forming part of a larger village agglomeration in the East Kutai district of East Kalimantan, Indonesia (see Fig. 1). The Modang are a sub-group of the Dayak Kayanic group who have customary claims over the region – bounded by a river to the south, and low-lying mountains to the north, east and west – dating back to the 16th century when they first descended from the Apo Kayan plateau seeking fertile alluvial soil (Bock, 1882; Urano, 2014). The Modang formed Hongoi in 1941 (Fujiwara, 2017); a settlement of now around 110 household units. Two other ethnic groups, local Kutai Malay and migrant Bugis occupy separate hamlets within the village. While we recognise that multiple identity characteristics intersect across ethnic groups, we foreground

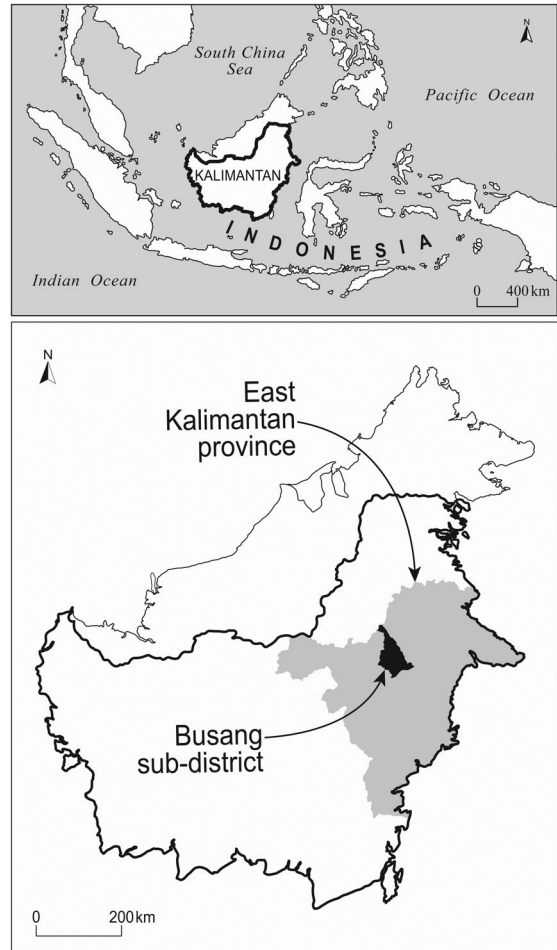


Figure 1. Map of Kalimantan, Indonesia (above) Busang, East Kalimantan (below) Source: Chandra Jayasuriya.

Modang women’s experience in terms of intra-household and community relations in the context of expanding palm oil estates.²

Gendered livelihoods, land and labour roles

As with most Dayak groups, Modang livelihoods have long been entangled with translocal commodity trades and cash cropping (see Dove, 2011). Informing land ownership, social relations and food security, swidden (*ladang*) agriculture has been integrated with ‘low input’ perennial cash crops since well before 1950, with income used for building materials and other day-to-day needs. In the 1960s, for example, Kutai Malay riverboat traders brought soybean to the region and into Modang swiddens, followed by salak (*Salacca zalacca*), banana, rubber, coffee, and more recently, cocoa. Other food and materials

were gathered from forests and freshwater fish from the Kelinjau River, and the streams emptying into it. To supplement starchy staples, in the *tenoa pelaq* – the Modang's shared customary forest – men hunted pig, *pejiue* (sambar deer), *e'oh* (barking deer), collected rattan and timber, and harvested honey and fruit. Households also raised pigs and chickens for eating at cultural and religious events, such as *hedo'* (rice harvest thanksgiving) and *naklam* (children's naming ceremony), and younger to middle-aged men often laboured in artisanal mining and logging camps. Until the early 2000s, other men spent days collecting edible birds' nests in distant caves to accrue cash. Modang women also joined river trading trips downstream to sell python and monitor lizard skins, or sticky rice and banana cakes. Women often worked with their children to forage fruit, mushrooms, rattan (for eating and weaving), snails, frogs, leafy vegetables and weaving materials in forests around graveyards, river edges and fruit gardens near home.

As kinship is bilateral, conjugal partnerships form the basis through which women and men accumulate swidden plots and land over time (Guerreiro, 1984). As explained by elder respondents, until about a decade ago, land for swidden was claimed by identifying a potential patch of *tenoa pelaq*, and securing approval from the *lembaga adat* (customary council) to ensure the land had no pre-existing claimants and was suitable for clearing. The purpose of swidden farming was not just for household consumption, but also to accumulate land to pass on to future generations.

Upon marriage or household formation, swidden plots and household assets were distributed to adult male and female children relatively equitably. Gendered divisions of labour have been mutually supportive, with women and men playing distinct but complementary roles in swidden cultivation and other labour activities. For example, men's tasks generally included clearing heavier trees, with women assisting to clear undergrowth. These divisions were not fixed, and women assumed such tasks upon losing the labour of a male family member. Rather than rely on family labour, today wealthier farmers will hire labour to clear plots, paying 100 000 rupiah (US\$7) a day to women and men equally, with payment varying depending on the work.

Relatively symmetrical though differentiated gender roles were also prevalent in the social and political realm of the Modang. The role of the customary leader (*kepala adat*), though generally inherited by men of aristocratic descent, could also be appointed to women. The last *kepala adat*, Ibu Mensea, a woman of *hepuy so'* (aristocratic) descent, held the role from 1994 to 2013. However, women have been less visible in formal state administrative spaces – in 2017, for example, no women had formal roles in the village administration or as neighbourhood heads. In general, due to the Protestant and Catholic Church reforming social customs and Indonesian regulations (1979 village law) imposing a village administration system typically allocated to and presided over by a male village head, Dayak hereditary social status has hardened further, falling along the male line. However, an intensifying market economy associated with plantations and land markets has most significantly reinforced social and economic differentiation in Hongoi, particularly along gender lines.

Though class remains fluid and changing, contemporary Modang wealth has been increasingly differentiated in terms of land holdings, gender and ethnicity. In recent times, the wealthiest Modang-Bugis households, often male-headed and long settled in the hamlet, have held more than 15-ha of land and own trading businesses. Moderately wealthy to poor Dayak households have typically held 1–6 ha of land, with the former having access to off-farm work (e.g. government employees or traders), and the latter only having access to intermittent local farm-based work (e.g. clearing swidden plots). There remains a distinct generational division in land holdings, with some older households owning up to 20-ha of land, having accumulated this through their own labour (or inheritance) in times of land abundance. A small number of very poor, female-headed (often widowed) landless households resided in the hamlet.³ Where they can, these women have worked as labourers and/or borrow land to grow vegetables or rely on remittances. Younger Modang, between 18 and 30 years of age, tend to be near-absent in the village, with many studying and/or working in nearby towns. To have children gain secure employment and provide remittances was a

source of pride, as well as an important household income contribution. Despite the rise in off-farm labour and plantation regimes, Dayak Modang still considered forests and lands as central to their identity and livelihood.

We now turn to examine how the arrival of oil palm has, despite initial resistance, led to local processes of enclavement, gendered livelihood differentiation, marginalisation and responses by way of 'sustaining livelihoods'.

Palm oil arrives

Oil palm companies targeted Hongoi and surrounds in the early 2000s to replace logging concessions that closed after companies had exhausted timber supplies. It was not until Modang men discovered workers cutting trees in their ancestral forests that they learnt their land had been permitted for palm oil. After villagers demanded the forest clearing end, the Triputra Group subsidiary company behind the land clearing held a *sosialisasi* (information session) in January 2008, inviting village and *adat* leaders from Hongoi and surrounding villages. Then *kepala adat*, Mensea stated firmly to *adat* leaders who would attend the meeting: 'don't surrender our *adat* land without compromise'. Failing to reach an agreement with the company, men from both Hongoi and the neighbouring Dayak Kenyah village travelled repeatedly to the district, provincial and national capital to deliver letters and reports of the clearing to various government authorities, maintaining their position to reject palm oil. All the while these unfolded, new subsidiary companies appeared and continued to clear forests. The community responded with more direct strategies, including rallying the entire community – men, women and children – to protest land clearing. The Modang held *adat* ceremonies and issued *adat* fines to the companies for *nyemuah* (stealing trees) and *jimje* (environmental damage) (Tempo.co, 2015).

Despite the Modang's decade-long resistance, under pressure, neighbouring villages eventually conceded to release land for palm oil plantations. By 2017, four palm oil estates had established their camps in neighbouring villages, with plantations extending over much of Hongoi's remaining customary forests. As Mensea described: 'When

the company first came, we knew the impacts would be bad, but the neighbouring villages accepted, so now we are encircled by palm oil'. Conversion of surrounding forests to industrial palm oil brought extensive ecological impacts. Where the forest floor previously absorbed heavy rains, more water now carries silt from erosion, turning the Kelinjau River into a muddy brown. Aged in her 60s, *Ibu* Karina remembers collecting drinking water from the river in hollowed bamboo vessels: 'we used to be able to drink from the river, it was cool and deep and clear'. Now, like many in the village of moderate wealth, her drinking water is sourced from a household well. Poorer households remain reliant on polluted river water, however. Sediment has thickened the river floor, making it shallower and flood prone. The loss of forests has also diminished access to forest products, such as medicine, materials for weaving and building, and food-security buffers against environmental shocks (e.g. such as drought or fire). Deforestation has destroyed forest habitat, resulting in animals feeding on rice, cocoa and fruit plots in plague proportions, particularly after drought periods. Below we explore how these impacts have had significant gendered implications for livelihoods, particularly in terms of land, swidden and cocoa.

Gendered implications of changes to land: From abundance to scarcity

People used to own a lot of land... Once land has been cleared of forest it is owned. Now we have land that has been measured, it's known by a *pengurus lahan* (land administrator) – older widow, *Ibu* Song.

In the quote above, Song points to how industrial palm oil has reduced the availability of land for cultivation and driven the shift from *adat* control to formalised systems of state control. Once perceived as abundant, expanding plantations have increased the scarcity and value of land, reinforcing a sense that land has become finite. Until about a decade prior, both male and female *adat* elders granted families permission to claim land in shared customary forests. Today, villagers consider the male-dominated (state-imposed) village administration as the official body controlling land,

including formalising the *lembaga adat's* decisions. The village administration's role has become that of land broker, mediating the release of property titles sought by villagers to defend their lands and by palm oil companies to claim land and exert 'formal' ownership. As oil palm companies rely on easily secured state documents as evidence of land ownership, villagers must navigate local bureaucracy to claim and/or leverage lands, paying 250 000 rupiah (US\$18) for a *surat keterangan tanah* (SKT) (letter of land certification) as a proof of land holding (*de facto* ownership) from the village administration with the sub-district head's approval. The shift from customary governance of land tenure to government oversight and issuance of 'ownership' certificates reveals how state administrative powers now govern access to and control over *adat* lands.

Gendered nature of new local land tenure

The process of land titling has distinctly gendered implications. SKT are held in the name of male household heads (except where households are female-headed). Informed by a prevailing state discourse enshrined in the 1974 marriage law, the practice of recognising men as household heads assumes that households are comprised of hetero-normative conjugal partnerships formed upon marriage, where the male is the *de jure* land owner (and breadwinner) and the female is *de facto* rights bearer (and his dependent) (Elmhirst, 2011b). Despite this, however, the partial registering of landholdings – a relatively new and abstract concept – in only the husband's name was not necessarily a key point of concern for some Modang women, who continued to believe they were co-owners of family land.⁴ Recently though, divorced or widowed women noted that other family members or villagers were increasingly expropriating their land (held under their husband's name). Without formal land titles, these women could do little to defend or reclaim their lands. Modang women's experiences of land access restrictions resonate with observations in West Kalimantan, where the shift from customary tenure to formal titling has enabled men to accumulate land for plantations at the expense of women's rights to land (Maharani *et al.*, 2019).

As the arrival of palm oil has intensified the demand, scarcity and monetary value of land, the titling and formalisation of land has continued apace. Here, the bureaucratic formalisation of land (see Goldstein and Yates, 2017) erases customary social relations, usufruct holdings and accumulation that once enabled women's access to land through conjugal partnerships and village custom. Village governments, from which women face significant exclusions, now administer land and its property rights. The formalisation of land into men's names was underlined by less visible processes in which women were losing their social power embedded in their bilateral kinship rights that enabled their access to land and other forest resources (Robinson, 2009). The growing tensions around land also affected the role of middle-aged or elderly women in positions of *adat* leadership. For example, in 2013, Mensea stepped down from her role as *kepala adat*, suggesting she was too old to deal with the growing land conflicts linked to palm oil. Traditionally, the role would be passed down to a relative of similar aristocratic lineage. Yet despite having an older daughter who could have fulfilled the role, there was a view that the role should go to someone who is *berani* (brave) and *tegas* (firm) in dealing with growing land conflicts, traits considered to be masculine. Only Modang men put themselves forward as candidates. As the household's primary provider (her other siblings live away or have disabilities), Mensea's eldest daughter believed she did not have enough time to deal with both farming swidden and cocoa and attend to *kepala adat* duties. We explore next how oil palm plantations influence access to and use of customary lands – particularly swidden and cocoa – and gender roles and divisions of labour over time.

Challenging swiddens

Land used to be expansive. We'd open a new plot of land each time we made ladang (swidden). We'd plant one kaleng of rice, and we'd get 300 kaleng [5 tons] at harvest... Now there's more weeds, it wasn't like that before...
– older woman, *Ibu* Wuang.

With the arrival of palm oil and associated land shortages, fallow periods have been

reduced significantly, leading to declining yields. In the past, swidden plots were left fallow for periods of 12 to 20 years (Guerreiro, 1984). Older households reported holding up to 20-ha of land (accumulated through their labour and inheritance). In such a vast area, fields could be left in fallow for extended periods to allow for adequate nutrient cycling, the rejuvenation of soils and ultimately better yields. One *kaleng* (17 kg) of rice seed planted on a 1-ha plot would yield 1.6 t of rice on average, with some yields producing as much as 5 t, as quoted above. Today, however, acquiring new plots is prohibitively expensive for poorer, younger and women-headed households. With few prospects to accumulate new lands for family farming or generate a sufficient cash income from off-farm work to purchase land, these households are drawing more heavily on their swidden plots in reduced fallows (planting the same plots for more than two consecutive years). As access to once abundant land diminishes, new wealth inequalities are emerging among poorer women and across generations.

Weed-prone swidden absorbing women's time and labour

Reduced fallow periods and successive swidden rotations are resulting in more weed-ridden, poorer quality soils (Mertz, 2002; Kameda and Nawata, 2017). Weeding is necessary to give rice shoots space to grow strong. Coming from a poor household with 1.5-ha of flood prone land, middle-aged farmer *Ibu* Lina explains: 'If I don't weed then the rice grows weak, and the ears of the rice get too heavy and blow over'. As local norms establish weeding as women's work, as fallow periods shorten, women now must spend more time cleaning weed-prone swidden plots. Moreover, when flanked by palm oil plantations, swidden fields tend to draw more pests. After a particularly devastating El Niño year in 2015, the following year's rice harvest was even worse due a rise in the number and type of pests: rats, sparrows and grasshoppers had destroyed most rice yields. As Wang notes:

There's pests at every stage of the swidden cycle now... We don't know if its directly related to the company, but certainly less

forests mean that there is less habitat for squirrels, pigs, monkeys and birds and they are hungry.

The average swidden rice yield in 2016 was just 289 kg (55% of interviewed households planting between 0.5 and 1-ha plots) and seven households had no yield at all. Drought years are not unusual; elders remembered drought years linked to El Niño drying periods in past decades. But even then 'we were always rich in food', one elder man described. Today, without the insurance that forests and water systems once provided, food must be bought in times of crisis. Land shortages means reduced fallows, more weeding, lower fertility and declining yields, further aggravated with a rise in the number and type of pests. As palm oil enclaves previously abundant land, the increased labour required to weed and protect swidden plots from pests leaves women with less time to dedicate to their social responsibilities within and beyond the household and other customary social roles.

Prior to palm oil, older generations could accrue larger land holdings upon which to establish cash crops and finance their children's education outside the village. Now middle-aged, these children are better able to access more secure waged work (e.g. as nurses, or private sector workers) and contribute to their parents' livelihoods with remittances. Among younger generations who have lost land to palm oil or whose households have lost husbands or fathers who facilitate land claims, the inability to accrue land has in turn made it difficult to accumulate cash savings and finance education. Adult children of these households often had only primary (for those older than around 35), or middle-school (for those under 35) education, and were often employed in more precarious, casual work in extractive industries (e.g. in plantations or mines).

Changing cocoa

Influenced by Bugis migrants arriving in the village from Sulawesi, Modang farmers have been growing cocoa (*Theobroma cacao*) planted in swidden fallows since the 1990s. By the early 2000s, cocoa had become the main cash crop,

with 54% of households maintaining cocoa gardens between 0.5 and 2-ha. Cocoa sold to traders once provided reliable cash income for households, yielding about 300–400 kg per hectare yearly, for between 12 000 and 20 000 rupiah (US\$0.80–US\$1.30) per kilogram. Women and men were both actively involved in cocoa gardens, cutting away undergrowth and shade cover, and harvesting ripe pods. Men spent more time in maintenance, while women alone processed and sold the cocoa to nearby Bugis traders with whom the Modang had long-established trade relations.

While difficult to ascertain definitively, farmers and traders alike perceived the arrival of palm oil to have had a major impact on cocoa yield. A wealthy Bugis trader, Pak Darwis, the village's major cocoa buyer married to a Modang woman, reported that: 'Cocoa has reduced massively since oil palm moved in. Now we are only getting 5 tons a month (from a previous total of 200 tons a month)'. Various interrelated factors were related to declining cocoa yield. For example, villagers observed that the upstream oil palm had altered the once-stable water table, which now rose and fell more rapidly, causing cocoa roots to become saturated in times of flooding and then dry too fast during extended dry periods. The palm oil-induced land shortage also meant that farmers could no longer plant new cocoa in swidden fallows to replace aging cocoa gardens. With the higher cost of scarce land, farmers had to nurture aging and unproductive plots, but lacked the extension training to do so productively.

Cocoa gardens age more quickly when they are not pruned and shaded, resulting in less productive trees prone to pests and disease (Curry *et al.*, 2007). This may have enabled the devastating impact of insect pests on cocoa fields that arrived in around 2009, including black pod and cocoa pod borer.⁵ A common symptom of infested pods is unevenness and premature ripening. Current ecological conditions compounded by pest infestations have made growing cocoa more difficult, now requiring more intensive maintenance practices, including more family or paid labour to prune and clean infested trees to have any yield. Where healthy cocoa seeds come loose from their pods easily, infested cocoa seeds are sticky and harder to remove – requiring more labour and time to process.

Gendered implications of more labour-intensive cocoa processing

Given that women are largely involved in the processing of cocoa, the additional labour required to process infested cocoa absorbs more of women's time. As she husks, moderately wealthy farmer Karina describes the increased labour required to process infested cocoa. To harvest cocoa, pods are split open carefully with a machete, and beans are removed. Healthy cocoa loosens easily from the pod and are placed in a pile, then laid out to dry. Like most in the village however, Karina's cocoa was infested with cocoa pod borer. Beans were immature and required more handling, as greater force is required to remove the mucilage from the pods. 'If the fruit is healthy it shouldn't need this much work', she said. 'The more diseased fruit takes longer to loosen'. Processing infested cocoa adds days of more tedious work to Karina's busy workload, whose household has 4-ha of cocoa, one of the larger cocoa gardens in the hamlet.

More labour required for cocoa processing has diminished the time that women have available for managing swidden-based practices. Women explained that up to 5 years ago they could balance both swidden and cash crop production, focusing on cash crops at different times in the swidden cycle. Recently, decisions have turned to which crop to sacrifice to get any yield from the other: few can make both swidden and cocoa work successfully. Margareta opted to prioritise swidden at the expense of her cocoa. 'If we don't look after cocoa properly it doesn't fruit, but if we don't manage our ladang then we don't have rice to eat. It's a hard trade off', she explains. Once described as enjoyable and fulfilling work, as palm oil enclaves local landscapes, women's roles in maintaining swidden and cocoa farming have become more burdensome, labour and time intensive, with many left with a choice over food security or cash income.

'Only swiftlet and palm oil are worth producing': The gender dynamics of new livelihood strategies

As palm oil began to expand, rising land costs, increasing infestations, and unpredictable

weather began to undermine swidden and cocoa cultivation, among other lost forest uses, driving households to look for new livelihood strategies to sustain themselves. Dayak men described the cultivation of edible birds' nests and small-scale palm oil cultivation as the newest desirable activities due to their high economic returns (wealthier farmers within the Bugis migrant hamlet had already adopted these activities, reflecting their deeper engagement with the market economy). As a male Bugis migrant farmer observed: 'Only swiftlet and palm oil are worth producing now'. Not only did Modang women find these livelihood options risky, but they were closed off from accessing and using any income derived from these options.

Swiftlet farming

In the context of palm oil enclavement, the cultivation of edible birds' nests (i.e. swiftlet farming) has emerged as an aspirational income source for men in Hongoi, reflecting a wider boom across Southeast Asia. As a lucrative, high-value delicacy sought after by wealthy Chinese (Connolly, 2017), swiftlets (*Aerodramus fuchiphagus*) are increasingly domesticated to produce nests in purpose-built timber buildings that replicate cave conditions (Thorburn, 2014). Due to the high cost of setting up timber buildings (up to 100 million rupiah (US\$7200)), only a small number of wealthier Dayak men (who had worked outside of the village, or who had used their registered land deeds as collateral to take out bank loans) were now establishing swiftlet farms, while still partly sustaining swidden and cocoa cultivation. They sought to capture the commodity's high cash return, observing the success of wealthier migrant Bugis nearby.

The emerging industry around swiftlet farming – from the building of timber swiftlet houses to the final buying and selling of nests – are all male domains. Given the high start-up costs and difficulty in securing loans (as land is predominantly registered in men's name), many women were excluded from using their lands as collateral – most women found the enterprise too costly and risky. Ultimately women have less control over the decision-making and revenue earned from these activities, sharpening

gendered divisions of power within a household and broader community.

'Like it or not there's few other options now': Oil palm smallholdings

Independent, smallholder palm oil cultivation is another income earning activity emerging in the region that runs narrowly along the male line. In the Bugis settlement, it is wealthier households with larger land holdings who adopted palm oil cultivation. Several Modang households interviewed were growing palm oil seedlings in 'polybags', with the aim of phasing out their low-yielding cocoa crops. However, palm oil smallholdings cost around 25 million rupiah (US\$1700) per hectare to establish. As with swiftlet farming, this high-cost option was only available to households with men who could use cash savings or assets as collateral to establish palm oil smallholdings.

Male farmers typically planted between 1 and 3 ha of oil palm. One poorer Modang male respondent in his 20s planned to establish himself as an independent palm oil smallholder: 'Like it or not, there's few other options now. Palm oil's the most productive'. Upon reopening the 1-ha of swidden land he inherited from his parents, and harvesting rice for two seasons, he intended to plant up to 5 or 6-ha of palm oil, the maximum amount manageable without needing labourer assistance. Palm oil smallholders predominantly hire young men for short periods at harvest. Pay is usually output based, often 20% per ton of the amount sold. If one works fast enough, cutting off heavy palm oil bunches and carrying them to roadsides for collection, it is possible to earn up to 200 000 rupiah per day. For older men, however, the heavy work makes it difficult to earn this much.

As with swiftlet farming, much of the palm oil labour, finance and industry are in the male domain. The managers of the nearest mill, owned by Triputra Group, required that smallholders sell through cooperatives. To join a cooperative (the closest operated in the neighbouring Dayak Kenyah village), palm oil farmers needed to obtain a SKT from the village administration to indicate land ownership. Like with SKT registration, cooperatives register households in the male name, who cooperatives paid directly on behalf of their households.

As cooperatives are the official line of communication between smallholders and the company, registering only men as members also means that women have no control or voice over how cooperatives are managed (see Li, 2015). Distinct from cocoa and other perennial crops, where women control earnings and negotiate directly with buyers, paying men directly significantly constrains the social power of women within their households.

Sustaining livelihoods as resistance

In the context of more lucrative livelihood strategies emerging in the social and economic domain of men through processes of enclavement, women overcame gendered livelihood constraints by pursuing their own strategies – the basis of ‘sustaining livelihoods’. Vegetable gardening and weaving emerged as two critical strategies for women, and while not explicit forms of ‘resistance’, reflected everyday political acts that held open social and economic spaces for themselves (Kerkvliet, 2009). In this sense, sustaining livelihoods reflects subtle, implicit political acts of resistance against access and use constraints in oil palm enclaves.

Planting vegetables and medicinal plants

Since most forestlands have been cleared for oil palm there are fewer spaces for women to harvest forest products and in any remaining forest patches, they tend to harvest much more intensively. Due to norms that assign women ‘*urusan dapur*’ (kitchen responsibilities), the increased difficulties of finding food and meeting daily household costs weighed heavily on women. Partly in response, women were increasingly planting small gardens in and around their houses as a source of food for consumption or sale locally. In discussions, women mentioned that if they could save money from vegetable gardening, they would invest in setting up a small *warung* (stall) as they observed Kutai Malay and Bugis women do with some success. Other women aspired to invest in establishing a fish pond farm near their houses, for household consumption and sale (now less abundant in local rivers due to pollution and siltation from palm oil upstream, fish had increased in value).

Frequently referred to by men pejoratively as ‘*hobi-nya ibu-ibu*’ (women’s hobbies), growing vegetables was distinctly gendered, reflecting the differentiated value of women’s contribution to household livelihoods.

Though vegetables have long been intercropped in swidden plots, women were exploring maintaining kitchen vegetable gardens beside their homes to secure rapid and more consistent yields for themselves to smooth increasingly unreliable incomes and yields from swidden and cash crops. ‘[Vegetable growing] is the most profitable. It’s easy to grow and close to the house... Vegetables fruit all year round, you can harvest them when you need to’, explained a middle-aged mother from a moderately wealthy household. Another woman from a poorer household emphasised the reliability and security of vegetable growing: ‘Growing vegetables is faster to get a yield. If you have a [vegetable] plant every day you can get something’. The relatively low intensity and flexibility of vegetable growing was also appealing; it does not require harvesting at a fixed time and can be maintained in between child-care and other social responsibilities. Importantly, unlike palm oil, vegetables require no external transport or markets; indeed, local demand increases when external access is cut off by increasingly frequent floods.

Handicrafts

The Modang women have an extensive craft tradition – weaving baskets, mats, conical field hats and intricate beadwork during periods of rest. It creates spaces that allows for investments in women’s time and practices in the face of pressures and constraints from oil palm. As older woman Ibu Lembong explains: ‘We weave in *ntopen beliu*, the time for festivities, after harvest’. Handicrafts, made from rattan, leaf fibres and fibrous barks, are produced mostly for sale or exchange locally. ‘Women used to go to the forest to get *wo’ih*. It was close by, we’d go walking together’, recalls Lembong. *Wo’ih* is a serrated leafed palm plant found on the forest floor. The leaves are cut, and dried flat, then woven into layers and sewn with thread to create *ho’ing*: conical field hats with wide brims that provide effective sun and rain protection. As forests are cleared, *wo’ih* is increasingly difficult to find.

Ibu Leah, a widow in her 50s, lives with her 30-year-old son Loni in a small one-roomed house, and has very little land. Loni was only able to complete middle school, and works as a casual labourer in combination with forest product collection. Aside from contributions from her son, Leah's income is dependent on weaving, and she would like to make more *ho'ing*, but finds materials difficult to come by due to forest loss from palm oil: 'I have three *ho'ing* on order, but I have not finished them as I have to order *wo'ih*, it's hard to get'. *Nya'n*, robust baskets woven from strong, fine strips of rattan to be worn on the back, were also produced by women in post-harvest periods. One plentiful (and planted) in forests near to the village, rattan is now hard to find. *Ibu* Leng, in her 50s, whose husband has a degenerative illness, works as a daily labourer but also depends heavily on selling *nya'n*. Leng explains that where she once would have spent the post-rice harvest time weaving *nya'n*, this is not an option any more: 'Now there's no rattan because of the palm oil. If I had rattan I could weave again'.

As rattan and *wo'ih* are increasingly unavailable with the loss of forests, some women are replacing these materials with increasingly prevalent single-use plastic cups and straws – a new and innovative strategy for many women. Lina, a skilled weaver, once wove intricate and durable baskets from rattan her husband collected while hunting, but is having to adapt to weave with plastic instead as rattan is increasingly scarce, a practice she learnt from Bugis women in a neighbouring village. 'Finding the plastic is the hardest part; once I have them weaving them together is easy, it only takes a few nights', she noted. Lina sits on her balcony in the afternoon, cutting lids off used plastic cups she had collected from a waste heap behind the village government office to use for weaving. 'They must have had an important meeting today, there's lots of cups', she remarks. The meeting, we learned later, was a *sosialisasi* held by a new palm oil company looking to establish a concession across a portion of village land. While few people in the village knew the meeting was being held, since most were tending their fields, Lina took advantage of the gathering's refuse, learning to weave from plastic instead of rattan.

Discussion and conclusion

As palm oil expands into frontier regions, it leaves in its wake communities who often resist incorporation, or whose labour is not required, enclaved by large-scale plantations. While this practice has corrosive effects on many pre-existing livelihoods, the implications are most detrimental when they intersect with and reinforce state-influenced gender norms and divisions of labour that sharpen as markets intensify (Li, 2015; Elmhirst *et al.*, 2016, 2017). The loss of extensive forest areas and quality land for farming that once enabled conjugal partners to maintain a broader, mutually supportive livelihood portfolio, means that narrower livelihood options must be explored. As men control access to and use of the social and material benefits from more lucrative livelihood activities, gender differentiation sharpens in rural Dayak communities.

As Maharani *et al.* (2019) have similarly observed, practices of titling land holdings in men's names further undermines women's social power previously afforded through bilateral kinship and customary relations. Restricted access and control over land and livelihood resources increases women's dependence on their husbands and male decision makers, devaluing their active roles as farmers, and limiting their ability to use land as collateral to invest independently in emerging livelihood options. Intersecting male social relations and control works within and through land, farm and productive assets to broadly limit women's ability to access the capital needed to engage in more lucrative farm and off-farm production. In this instance, gendered social differences are reproduced based on how patriarchal social relations inform and constitute state law, land registration, assets and agricultural practice in enclaved spaces (Elmhirst, 2011a,b; Nightingale, 2011). These intersectional dynamics become more complex when relating gender to age and generation. Returning to *Ibu* Leah, for example, we see how following her husband's death, local families believed Leah's claims to land had become tenuous and so grabbed several hectares of her land. Now with little remaining land for cash cropping or to secure loans against to invest in emerging income-earning opportunities, Leah is increasingly

reliant on income from her son's work as a casual labourer, supplemented with the income she makes from weaving. She feels this has diminished her social status within the village, and worries that without land, her son will have few livelihood prospects. Leah's experiences of marginalisation emerged as gendered social differences hardened across an increasingly narrower range of male-dominated production, causing her to invest in the productive creativity of sustaining her livelihood through weaving. Indeed, the transfer of power over land to male-dominated village administration has reinforced another hierarchy already in place. It is largely men, not women, who benefit from new capital-intensive opportunities that accrue financial and social capital within and beyond villages (Haug, 2017; Park and Maffii, 2017; Park and White, 2017; Maharani *et al.*, 2019).

However, against this context of male control of capital, intensifying commodification, and resource partitioning, we show how young and elderly Modang women are not passive victims of palm oil enclavement. Instead, these women have pursued creative livelihood diversification strategies to, as Jenkins (2017) describes, 'stay put' and 'carry on', to survive the constraints of large-scale agrarian transformations. Rather than become reliant on boom-crop economies and external markets, women's creative diversification strategies aim to minimise and spread risk across various small-scale initiatives to produce an income they alone control. Through these strategies, they forge their own social and economic spaces to accommodate the intensified labour required to maintain increasingly unruly swidden and cocoa, and demonstrate the continuing value and productive purpose of their land, labour and knowledge as enclavement intensifies. As shown, Modang women's own social histories and contemporary familial contexts inform their ability to sustain livelihoods relative to increasing gender differentiation within and between different ethnic groups, resource commodities and exchange relations. While palm oil enclavement narrows lucrative livelihood options in the male realm and reinforces differentiation, social difference is, as Nightingale (2011: 155) suggests, relational, emergent and produced out of everyday social practices that may overcome labour precarity.

In many ways, how and why Modang women sustain livelihoods reflects everyday acts of resistance; socio-political practices expressed through creative ways of making a living and raising a family that includes 'resource production and distribution practices' (Kerkvliet, 2009: 232). Women's subtle, less overt socio-political and cultural responses to enclavement constraints and marginalisation often go unnoticed, as they differ from traditional forms and sites of struggle (Mittleman and Chin, 2005). By recognising women's livelihood diversification strategies as expressions of everyday resistance we show how, by creating new openings to reclaim control over the socio-economic dimensions of their lives, women were enacting their values and visions for the future to maintain their autonomy as farmers, to ensure household nutrition and food security, and to distance themselves from the male-dominated input markets of plantation regimes (Schneider and Niederle, 2010). By sustaining livelihoods, women facilitated change and negotiated the gender constraints that harden as market relations intensified with oil palm enclavement (Elmhirst *et al.*, 2016), and sustained Hongoi's struggles against the dispossessionary implications of total incorporation into plantation economies.

In sum, women's strategies reflect their defiance of broader state narratives that ignore the contribution women make to their households and communities, often used to justify the expansion of industrial palm oil and processes of enclavement (Tsing, 2005; Cramb and McCarthy, 2016). By exploring women's decision making over time and space, we show how sustaining livelihoods involves utilising materials and options available in an enclaved landscape. By staying put and carrying on with swidden food production, cash crop cultivation, and continuing to weave, indigenous women resist the forms of development imposed by distant governments and corporations who, facilitating plantations, claim, clear and commodify comprehensively, reordering and replacing the customary.

NGOs and development organisations that support customary and local communities in negotiations with industrial palm oil must recognise the contrasting ways that women and men navigate change and express resistance by

sustaining their livelihoods in different ways. Commonly in Indonesia, NGOs take the position they only support communities that present a united position in their opposition, reflected in visible acts of formal protest involving an entire community. Such assumptions overlook the growing challenges for communities enclaved by palm oil and the uneven implications for marginalised women who find creative ways to sustain livelihoods in the face of expanding palm oil plantations. To be effective, governance and livelihood interventions must align with and support the 'everyday' strategies of 'staying put' and 'carrying on' rather than with binaries of 'traditional' or 'modern' and exacerbating social inequalities.

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Notes

- 1 The name of the village and respondents have been changed to ensure anonymity.
- 2 We note the flexibility of the identifying term Modang, as a small number of interviewees were migrants having long-settled in the Hongoi hamlet and married Modang partners. As interviewees of mixed-ethnicity lineage with one Modang parent commonly self-identified as Modang, we follow this same identifying term.
- 3 Similar, though more uneven wealth disparities are more distinct across the Bugis migrant settlement. Bugis wealth differentiation intersects with their period of arrival to the area. Longer established Bugis migrants who settled in the 1970s accumulated larger land holdings and wealth from cash crops, while more recent arrivals, particularly those arriving after the mid-2000s, have less access to land due to the palm oil-induced land shortage and are reliant on intermittent wage work (e.g. as carpenters).
- 4 SKT (letter of land clarification), issued by the village administration with approval from the sub-district head, declares the validity of an individual's land tenure, and is used as proof of ownership in land purchasing locally. SKT is however an 'unregistered property right' (Sanders *et al.*, 2019: 203), the first step in the process of securing

a formal legal property title (*Surat Hak Milik*, SHM) registered through the National Land Agency (BPN). The high costs and bureaucratic challenges involved in the process of national land registration meant that very few respondents had secured SHM.

- 5 Black pod is carried by wind and water, and by insects, rodents and bats, and like its name makes cocoa pods blacken, shrivel and die. When a spore lands on a pod or leaf, it germinates and the infection begins. Increased flooding may have facilitated the spreading of black pod. Cocoa pod borer is a moth, *Conopomorpha cramerella*, that enters cocoa pods to feed and lay eggs.

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