

Waterlands: Coconut smallholders, commodity frontiers and environmental transformation on the Malay Peninsula, c.1862-1972

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Waterlands: Coconut smallholders, commodity frontiers and environmental transformation on the Malay Peninsula, c.1862-1972¹

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The coconut palm is one of Southeast Asia's earliest-known domesticates, treasured for its drinkable water, sweet sap, nourishing oil and sturdy construction material.² Relatively little historical attention, however, has been paid to the cultivation of the coconut palm's products and their circulation as commodities, even from the mid-nineteenth century onwards, when new uses for the palm were progressively honed in the industrialised world.³ This paper helps redress this historiographical gap by examining environmental change in a coconut-producing zone along the western coastline of Johor, the southern-most state of the Malay Peninsula (Map 1).

The study of coconut farming in western Johor contributes to the historical understanding of commodity frontiers in two main areas. First, the 'life and times' of coconut farming offers a window into a tree crop's many uses over a period of time long enough to discuss questions of continuity and change. West Johor, initially sparsely populated by a core of Malay peasantry, eventually played host to waves of coconut-growing settlers from the Dutch East Indies from the mid-nineteenth century onwards, shortly before Western demands for coconut oil began to make their presence felt globally. In its commodity 'infancy', between the 1840s and 1870s, the coconut was farmed by West Johor smallholders primarily for its household edible products, drinkable water and exchange value in local/regional Asian coconut trade networks. As it entered the 'bloom of youth' and 'early adulthood' between the 1880s and 1920s, it became ensconced within successive groundswells of hunger for copra, the oil-laden meaty kernel of the coconut, emanating from the industrialised world. By the early 1930s, western Johor was the single largest coconut-producing zone in Malaya, accounting for over half of all recorded coconut smallholdings in the Peninsula. During the 1930s and 1940s, however, the zone entered a prolonged 'mid-life' crisis, triggered by the Great Depression and its aftermath. By the 'twilight of old age' in the 1950s, the West Johor coconut zone had become largely derelict, besieged by a pack of more commercially vigorous oilseed exports, and an increasingly unfavourable physical environment. By the early 1960s, the sector was finally put under publicly-funded life support, in a belated and ultimately unsuccessful effort to prevent coconut farming from retreating into local obscurity.

¹ An earlier version of this paper was drafted for the 'Global Commodity Frontiers in Comparative Context' Workshop, University of London, 9-10 December 2016. I am grateful to Ulbe Bosma, William Clarence-Smith, Hugh Harries, Corey Ross, Jean Stubbs, Jonathan Curry-Machado and Aparajita Majumdar for their support and constructive comments. Pearlyn Y. Pang helped draft Map 4 in this paper. The usual caveats apply.

² R. D. Hill, 'Towards a Model of the History of "Traditional" Agriculture in Southeast Asia', in Peter Boomgaard and David Henley (eds), *Smallholders and Stockbreeders: Histories of Foodcrop and Livestock Farming in Southeast Asia*, Leiden: KITLV Press, 2004, pp.27-9.

³ A key exception being Christiaan Heersink. *Dependence on Green Gold: A Socio-Economic History of the Indonesian Coconut Island Selayar*, Leiden: KITLV Press, 1999.



Map 1. The Malay Peninsula, c. 1998

Source: 'Jpatokal', licenced under Creative Commons Attribution-Share Alike 1.0 Generic, (https://commons.wikimedia.org/wiki/File:Map_PeninsularMalaysia.png), last accessed 6 October 2018

The second contribution of this study concerns the environmental impacts of commodity production. The zone's spatial boundedness makes it possible to isolate the effects of environmental transformation on a specific group of commodity producers. Several phenomena appear to have been primarily responsible for the environmental shifts which worked against long-term coconut production in Johor. The first, and earliest, was the partial disruption of local mangrove-swamp ecologies. Peat-swamp forests and their soils were particularly crucial for nutrient recycling, flood mitigation and water-supply regulation. In Johor, the clearing of these landscapes was led by migrant coconut farmers themselves, who then excavated new drainage systems and bunds along the Johor coastline to try and make local soils more amenable to the expansion of coconut agriculture. West Johor's drainage systems, however, were also afflicted by developments upstream, as logging, plantation expansions and the mining of Johor's forested interior all caused the rivers transecting the western coastline to silt and flood with increased

frequency. Thus, while contributing to Peter Boomgaard's call for more research into pre-colonial Southeast Asian water-management technologies – particularly those dealing with drainage, as well as their subsequent development under colonial rule – this paper also traces how one commodity frontier zone's expansion was undermined by other competing zones of resource exploitation, over the course of a century straddling Malaya's pre-colonial, colonial and national periods.⁴

Coconuts in Southeast Asia since antiquity

Scholar-administrator Richard Winstedt claimed that coconuts were being cultivated in Peninsular home gardens during the prehistoric period, alongside bananas and sugarcane, a practice that seems to have continued into the first millennium CE.⁵ Perhaps the oldest and most localised coconut-consumption habit was the breaking of the immature coconut for its uncontaminated fresh water.⁶ Oil extraction from the fleshy kernel of the ripe coconut had occurred long enough for coconut oil to be considered a traditional source of fat in Malayan diets. Fresh coconut oil was usually made within the village household, with the use of a manual grater, a fire and a pot to clarify the oil (Photograph 1). The resulting clear, fragrant oil was typically used for frying and illumination. Coconut 'milk' (*santan*) was also made by soaking freshly grated kernels in warm or hot water, and then hand-squeezing the wet mass by hand through a sieve. Rich in calories, *santan* formed a popular sweet-savoury base for spiced relishes, desserts and traditional medicines, enhancing the flavour and mouthfeel of starchy staples (rice, sago and tubers), fish and vegetables.⁷

Notwithstanding localised circulations, coconut-palm products have also travelled across Asia since antiquity. Copra did not begin as a Western construct, and had long been traded within Asia and Southeast Asia for conversion into a cooking fat.⁸ Moreover, before Chinese and Arab traders began to dominate trade networks during the nineteenth century, Bugis and other 'Malay' merchants frequently used southern Malaya as a zone for the trade and redistribution of coconut produce throughout the wider Malay Archipelago during the seventeenth and eighteenth centuries.⁹ For households, copra had no use-value. It formed a

⁴ Peter Boomgaard, 'In a State of Flux: Water as a Deadly and Life-Giving Force in Southeast Asia', in Peter Boomgaard (ed.), *A World of Water: Rain, Rivers and Seas in Southeast Asian Histories*, Leiden: KITLV Press, 2007, pp.15-18.

⁵ Richard Olaf Winstedt, *Malaya and Its History*, London: Hutchinson, 1966, p.15; Paul Wheatley, *The Golden Khersonese: Studies in the Historical Geography of the Malay Peninsula before A.D. 1500*, Kuala Lumpur: University of Malaya Press, 1961, pp.230-1.

⁶ Hugh C. Harries, 'Nuts to the Garden of Eden', *Principes* 23 (1979), pp.145-7.

⁷ Sir Raymond William Firth Papers, LSE Library Archives, University of London. 2/7/10, Raymond Firth & A.E.P. Collins, 'Malay Peasant Agriculture' (LSE FIRTH), pp.143-4; Isaac Henry Burkill, *A Dictionary of the Economic Products of the Malay Peninsula*, Kuala Lumpur: Ministry of Agriculture & Cooperatives, 1966, pp.611-2; Rosemary Firth, *Housekeeping among Malay Peasants*, London: Athlone Press, 1966; J. M. Gullick, *Malay Society in the Late Nineteenth Century: The Beginnings of Change*, Singapore: Oxford University Press, 1987, pp.182.

⁸ R. O. Winstedt, 'A History of Johore (1365-1895 A.D.)', *Journal of the Malayan Branch of the Royal Asiatic Society* 10:3 (1932), p.41; Heersink (1999), p.10.

⁹ Carl A. Trocki, *Prince of Pirates: The Temenggongs and the Development of Johore and Singapore, 1784-1885*, Singapore: NUS Press, 2007, pp.92-3; Winstedt (1932), p.40; Lin Ken Wong, 'The Trade of Singapore, 1819-69', *Journal of the Malayan Branch of the Royal Asiatic Society* 33:4 (1960), p.75; Barbara Watson Andaya & Leonard

durable medium for long-distance transport of vegetable fat, and could be created using simple techniques and local materials. But by being easily stored and consolidated over long intervals, copra became highly amenable to large-scale oil extraction methods when these came to be available in the West by the mid-nineteenth century.



Photograph 1. Handheld coconut kernel grater, circa 1900
Photograph taken by author at the National Museum of Singapore, July 2014

By the eighteenth century, areas under coconut cultivation in Malaya, both old and new, began noticeably expanding.¹⁰ The enmeshment of older Asian and newer British trading interests lifted demands for consumer goods within Malaya itself. Malaya's growing production of tin and cash crops for the China trade, greased by an inflow of migrant labour, boosted the local market for coconut produce. Population growth was further accelerated by British colonisation of Penang and Singapore, urbanisation and the founding of Johor as a territorial state in the early nineteenth century.¹¹ In one historian's estimate, Malaya's population grew almost six-fold in less than a century, going from 250,000 in 1800 to 1.4 million in 1891.¹² Within this context, the domestic Peninsular trade in coconut products expanded.

Malaya's booming copra trade with the West would only begin to take place by the late nineteenth century. But even before this surge, exports of coconut produce from Malaya to the wider Asian region were already expanding rapidly. During the nineteenth century, regions such as Burma saw their populations increase significantly, from 4 million in 1830 to 10.5 million in 1901, driving demand for a popular dietary staple.¹³ By the 1880s, Penang was a major exporter of copra and coconut oil to southern Burma, southern Siam and Deli (Sumatra). To meet this

Y. Andaya, *A History of Malaysia*, London: Macmillan, 2001, pp.86-116; Heersink (1999), pp.104, 134, fn.39, 139; John N. Miksic, *Singapore & the Silk Road of the Sea, 1300-1800*, Singapore: NUS Press, 2014.

¹⁰ D. J. M. Tate, *The RGA History of the Plantation Industry in the Malay Peninsula*, New York: Oxford University Press, 1996, pp.56-7, 63, fn. 7; Burkill (1966), p.610.

¹¹ Andaya & Andaya (2001), pp.92-8; Kay Kim Khoo, *The Western Malay States, 1850-1873: The Effects of Commercial Development on Malay Politics*, Kuala Lumpur: Oxford University Press, 1972, pp.53-8.

¹² Yee Tuan Wong, 'Before Palm Oil, There Was Coconut Oil...', *Penang Economic Monthly* 13:2 (February 2011), p.46.

¹³ Wong (2011), p.46.

rising regional demand, Penang's recorded coconut acreage grew from about 6,000 acres in 1830 to 17,000 acres by 1874.¹⁴

The expanding geography of coconut-palm cultivation mimicked broader trends in Malaya's economic development during the nineteenth century. While many palms were cultivated on Malaya's sandier East Coast, most new cultivation during the nineteenth century unfolded along the western half of the Peninsula, where the bulk of tin deposits, transport infrastructure and consumers were located.¹⁵ The palms planted along the Peninsula's western seaboard during this period grew up mostly on poorly-draining, low-lying clay soils. These lands were distinctly different from the porous crumb on which most coconuts grew outside Malaya.¹⁶ Indeed, dense soils are problematic for many forms of dryland agriculture, and often require man-made drainage interventions to be useful (Photograph 2). However, the high natural fertility of Malaya's coastal alluvial clays, coupled with the ability of the coconut palm's roots to respire in waterlogged conditions for limited intervals, made the western coastline a relatively conducive environment for planting coconut palms.



Photograph 2. Labourers excavating a five-foot deep drain on an unidentified coconut holding in Malaya

Photo taken circa 1900s to 1920s. Reproduced with permission of Arkib Negara Malaysia

¹⁴ Yee Tuan Wong, 'The Rise and Fall of the Big Five of Penang and Their Regional Networks, 1800s-1900s', PhD thesis, The Australian National University, 2007, pp.30-1.

¹⁵ Amarjit Kaur, *Bridge and Barrier. Transport and Communications in Colonial Malaya, 1870-1957*, Singapore: Oxford University Press, 1985, p.xvii.

¹⁶ Reginald Child, *Coconuts*, London: Longman, 1974, pp.77-8.

Coconut farming in Johor for local and regional markets during the nineteenth century

Following its reconstitution from maritime kingdom to territorial state by the early nineteenth century, the polity of Johor was not to be left out of this economic surge. As part of Singapore's expanding hinterland, Johor's location and abundance of land placed the territory in prime position to capitalise on the boom in coconut cultivation. Although coconuts were grown around scattered settlements in Johor throughout the nineteenth century,¹⁷ the year 1862 marked a turning point in the expansion of Johor's farm sector. This was the year in which Temenggong Sri Maharaja Abu Bakar succeeded his father as Johor's ruler. Under Abu Bakar's watch, new initiatives were quickly launched by his brother, Ungku Abdul Rahman. One of these was the creation of new settlements along Johor's western and southern coastlines, where 'police stations' and coconut groves were established with the aid of hundreds of immigrant Javanese settlers.¹⁸ Such settlements were based on older traditions of control over the movement of goods near river estuaries, and were structured to enable Johor's rulers to accrue wealth for themselves and their inner circle through revenue farming and trade monopolies, within the limits of a sparsely populated jungle landscape whose main modes of communication were waterways.¹⁹

Historian Carl Trocki has persuasively argued that Abdul Rahman's sponsorship of these enterprises was motivated by the need to reduce the Johor aristocracy's reliance on revenues from the incumbent Chinese-dominated *Kangchu* system. This latter system – peculiar to Johor, Singapore and Riau during the nineteenth century – consisted of grants of riverine agricultural concessions to Chinese strongmen (*Kangchus*). Once deforested by the *Kangchu*'s men, such land within Johor's interior was then planted up with pepper and gambier (the latter was used in leather tanning, silk dyeing and occasionally as an ingredient in betel quid, a mildly narcotic masticatory popular across much of Asia at the time). Revenue diversification for the aristocracy seems to have become especially urgent after a financial crisis in Singapore almost bankrupted Johor's Chinese planters during the mid-1860s.²⁰

Coastal settlement helped to widen Johor's range of agricultural offerings beyond inland pepper and gambier. Besides the economic benefits derived from these new settlements, Johor's ruling elites were able to establish direct patron-client ties with a growing immigrant population from the Dutch East Indies, thus cultivating a following that would not have been possible via the arms-length nature of the *Kangchu* system. These coastal settlements eventually became bastions of political legitimacy for the Johor government. The latter would eventually style itself as a Malay-dominated administration, ruling over a largely ethnic Malay state, with a Malay Sultan as its apex.²¹

¹⁷ Andaya & Andaya (2001), p.144; Trocki (2007), pp.57, 89; Syed Husin Ali, *Social Stratification in Kampong Bagan: A Study of Class, Conflict and Mobility in a Rural Malay Community*, Singapore: MBRAS, 1964, p.29.

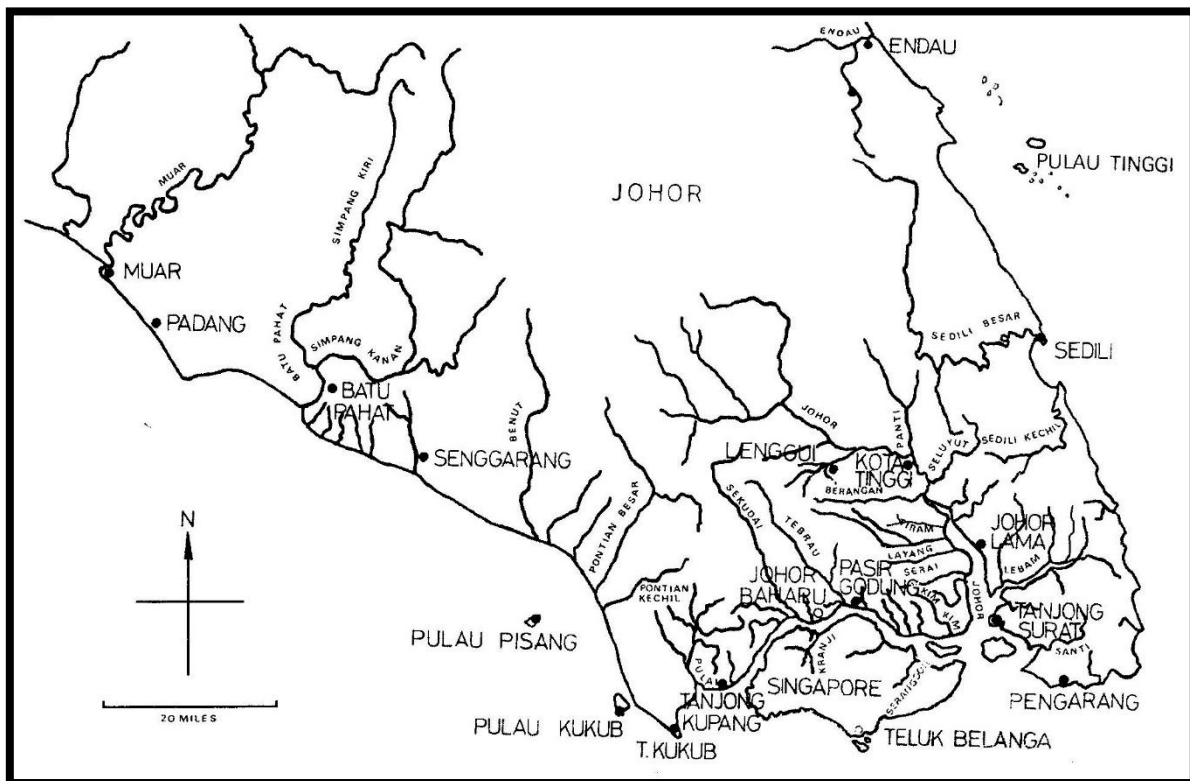
¹⁸ Trocki (2007), p.152; Christopher Stephen Gray, 'Johore, 1910-1941, Studies in the Colonial Process', PhD thesis, Yale University, 1978, pp.3-4.

¹⁹ Heather Sutherland, 'Geography as Destiny? The Role of Water in Southeast Asian History', in Peter Boomgaard (ed), *A World of Water: Rain, Rivers and Seas in Southeast Asian Histories*, Leiden: KITLV Press, 2007, p.32; Trocki (2007), pp.88-90, 164-86; Jeyamalar Kathirithamby-Wells, *Nature and Nation: Forests and Development in Peninsular Malaysia*, Copenhagen: NIAS Press, 2005, p.12.

²⁰ Trocki (2007), pp.138-53.

²¹ Gray (1978), p.101.

In contrast to the archival records concerning Kangchu arrangements, accounts of Johor's state-endorsed coastal agricultural expansion are hampered by sparse government records.²² Some detailed accounts can be found in the writings of Johor's first 'court scribe', Munshī Mohamed Ibrahim. While accompanying Abdul Rahman and his entourage on a tour of Johor's western coastline in 1871, Ibrahim jotted down manifold observations about pioneer settlements at Tanjong Kupang, Batu Pahat, and Padang (Map 2).



Map 2. Administrative Divisions of Johor, 1874

Source: Trocki (2007), p.165. Reproduced with permission from NUS Press

Besides the fact that these coastal areas were easily accessible via waterways, soil conditions appeared to be sufficiently fertile for coconut planting, at least in the short term. Javanese labourers had been brought in by Abdul Rahman to dig ditches, build new roads and clear the mangrove forests lining the shores at both Padang and Tanjong Kupang. Forest clearance would have disrupted organic processes of swamp-based land reclamation, and left both settlements vulnerable to future coastal erosion and inundation from the tides.²³ Ibrahim gives no reasons for forest removal, but it is possible that much of the resultant mangrove firewood and timber was being sold for use within Malaya's burgeoning tin and construction industries.²⁴

²² Trocki (2007), p.152.

²³ Kathirithamby-Wells (2005), pp.3, 62-3, 106.

²⁴ Munshī Muḥammad Ibrāhīm ibn 'Abd Allāh, *The Voyages of Mohamed Ibrahim Munshi*, Kuala Lumpur: Oxford University Press, 1975, p.4.

At Tanjong Kupang on Johor's southern front, the ground, already drained by settlers, was remarked by Ibrahim to be:

reddish black and swampy, soft and full of crab-holes. It is not proper earth but a soil composed of leaves and so forth. It is because many wide, deep and long ditches have been made that the soil is dry and the trees can flourish. The water in the soil is fresh and cold, and red-brown like tea.²⁵

Similarly peaty conditions prevailed at Padang.²⁶ Both localities offered attractive, and yet precarious situations for their inhabitants. Nearby streams ran red with sediment, and their water had to be boiled before drinking, which reduced the risk of falling ill, but did little to improve palatability.²⁷

By the time of Ibrahim's visit, coconut groves already formed the agricultural mainstays of these settlements. A compact block of 80 acres at Tanjong Kupang was "dark with coconut [palms]...all of them low and bearing fruit".²⁸ The smaller-than-average fruit size and low height of these palms may have alluded to the 'yellow dwarf' coconut variety, a breed commonly seen in local markets during the twentieth century.²⁹ Dwarf palms were often preferred by migrant growers because they began yielding fruit at a very early age.³⁰

Other food crops were being grown by the settlers, either on a permanent basis, or as a temporary catch crop near coconut palms, until the latter shaded out the food crops. At Padang, where a hundred Javanese migrants had recently settled alongside over a thousand already-resident 'Malays', coastal soils permitted sugar cane, bananas and tubers to be grown successfully. Areca palms were being harvested for construction lumber and arecanuts, the latter forming an essential alkaloid-generating relaxant within the betel chew. According to Ibrahim, areca palms were in fact the chief cultivar of the "original Malay inhabitants of Padang" at the time, with coconut palms playing a lesser role.³¹ At Tanjong Kupang, rice appears to have been cultivated during initial settlement, but had become neglected, possibly because local coconut stands had matured. In both settlements, valuable protein was also being obtained through fishing, including "huge quantities" of seasonally-available small shrimp (*geragau* or *pepai*), subsequently fermented into shrimp-paste (*belacan*), a widely-traded condiment that lent a mouth-watering *umami* accent to Southeast Asian curries.³² Ibrahim thought both littoral settlements were doing pretty well: at Padang, especially, residents had "an easy livelihood because both sea and land at Padang [were] well-stocked".³³ Proximity to Singapore, by then a

²⁵ Muḥammad Ibrāhīm (1975), p.3.

²⁶ J. K. Coulter, 'Peat Formations in Malaya', *Malayan Agricultural Journal* 33:2 (1950), p.68.

²⁷ Muḥammad Ibrāhīm (1975), p.7, 11.

²⁸ Muḥammad Ibrāhīm (1975), p.4.

²⁹ Ahmed Bin Haji Omar, 'Races of the Coconut Palm', *The Gardens' Bulletin* 2:5 (12 September 1919), p.143.

³⁰ Frank Stockdale, *Report by Sir Frank Stockdale... on a Visit to Malaya, Java, Sumatra and Ceylon, 1938*, London: Colonial Office, 1939, pp.46-7; H. W. Jack & W. N. Sands, 'Observations on the Dwarf Coconut Palm in Malaya', *Malayan Agricultural Journal* 17:6 (1929), pp.140-65.

³¹ Muḥammad Ibrāhīm (1975), pp.4-7

³² Muḥammad Ibrāhīm (1975), pp.4-7; Toffa binte Abdul Wahed, 'Caviar of the East: Shrimp Paste in the Food and Foodways of Southeast Asia,' BA (Hons) thesis, National University of Singapore, 2013, p.14.

³³ Ibrāhīm (1975), p.7.

major trading centre for all these comestibles, was undoubtedly also aiding West Johor's migrant-fuelled population expansion.

Cost-saving pioneer strategies were hardly unique to Johor. In the Dutch East Indies, coconut palms were often sown alongside faster-maturing subsistence crops like rice, and once the former's fruits could be harvested and sold, growers increased their reliance on markets for their food supplies.³⁴ In coastal Perak, most new coconut lands were being cultivated by "immigrant peasants who, unlike the indigenous peasantry, tended towards specialised monoculture of the crop".³⁵ At most, these farms were all probably "simple agroforests" comprised of one tree species and a few short-cycle crops.³⁶ These smallholdings were all being run by farmers looking for quick returns on their labour.

Some literature has treated decisions to sow large numbers of coconut palms along Malaya's western coastlines as part of a response towards the copra export economy in Europe.³⁷ However, this view cannot explain attempts to plant dense groves in places like Johor since at least the 1860s, several decades before the European-oriented copra boom began in Malaya. There is no sign of any incipient copra manufacture in Ibrahim's writings, and it would have been uncharacteristic of him to ignore such activity if encountered. Aside from cultural beliefs regarding the positive value of coconut palms in new settlements, coconut-kernel fat would have been an essential component of rural diets, and as mentioned earlier, its fruits were an extremely useful regional tradable.

Furthermore, Ibrahim's comments on the scarcity of freshwater supplies at coastal settlements allude to the importance of the palm as a source of potable water. To quench his thirst, Ibrahim periodically drank coconut water from local nuts.³⁸ To reduce the likelihood of diseases like cholera, it made sense to sow quick-growing coconut-palm varieties as soon as possible.³⁹ Coconuts would have been especially important in a region lacking in fresh springs and constructed wells.⁴⁰ Rapid land clearance for perennial crops was probably also necessary to secure usufruct rights at a time when Johor's rulers had yet to provide a legal framework for permanent property ownership.⁴¹

The rather precarious environmental situation of these pioneer settlements was aggravated by surrounding economic activity. Ibrahim noted that Chinese Hakka and Hokkien communities were concurrently carving out their own territories several miles inland from the coastline, around the same watersheds shared by the western coastal settlements themselves. At

³⁴ David Henley, *Fertility, Food and Fever: Population, Economy and Environment in North and Central Sulawesi, 1600-1930*, Leiden: KITLV Press, 2005, pp.546-7.

³⁵ Teck Ghee Lim, *Peasants and Their Agricultural Economy in Colonial Malaya, 1874-1941*, Kuala Lumpur: Oxford University Press, 1977, pp.51-2.

³⁶ Hubert de Foresta, Genevieve Michon, and Achmad Kusoro, 'Complex Agroforests', Lecture Note 1, ICRAF, 2000, p.14.

³⁷ Tate (1996), pp.56-7, 435-7; Stockdale (1939), pp.46-7.

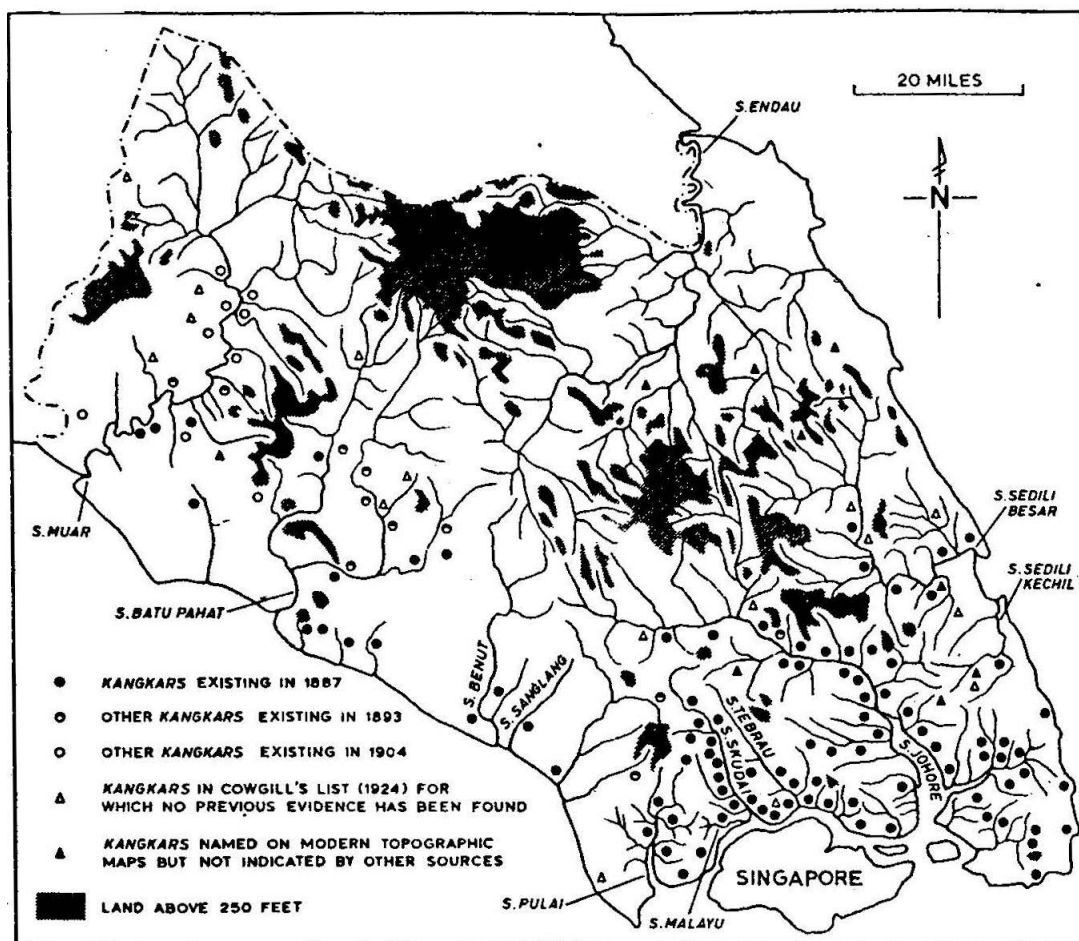
³⁸ Muḥammad Ibrāhīm (1975), p.3.

³⁹ R. D. Hill, *Rice in Malaya: A Study in Historical Geography*, Singapore: NUS Press, 2012, pp.128, 133.

⁴⁰ Bick Yin Cheong, 'The Growth and Distribution of Population in Johore, 1911-1957', BA thesis, University of Singapore, 1960, p.12; Abd. Jalil Bin Abd. Gani, 'Sejarah Batu Pahat, 1917-1942' (*History of Batu Pahat, 1917-1942*), BA (Hons) thesis, Universiti Kebangsaan Malaysia, 1976, pp.2-3.

⁴¹ François Ruf, 'The Myth of Complex Cocoa Agroforests: The Case of Ghana', *Human Ecology* 39:3 (2011), p.374.

Tanjong Kupang, these included pepper and gambier farmers, as well as timber harvesters.⁴² Historians Jeyamalar Kathirithamby-Wells and James Jackson have both detailed how gambier and pepper farms established by Chinese agriculturalists within Johor's interior from the 1820s onwards thrived on the remains of the felled jungle itself, whose timber was used as firewood to boil gambier leaves during processing, and any remaining matter turned into green manure for pepper vines. The approach was estimated to use a block of forested land equivalent to the amount under cultivation as fuel for crop processing.⁴³ After about 15 years of such treatment, local soil fertility was exhausted, leaving behind sprawling areas of scrub (*belukar*). By the early 1890s, the entire lower valleys of rivers flowing into Johor's southern coast were believed to be occupied by Chinese communities, as well as the western river systems of Sanglang, Benut, Batu Pahat and Muar on the western front, where significant numbers of 'Malay' coconut settlers had already established themselves downstream (Map 3).



Map 3. Known locations of Chinese riverine agricultural settlements (Kangkar) in Johor, up to 1924

Source: Jackson (1968), pp.268-9. Reproduced with permission from University of Malaya Press

⁴² Muḥammad Ibrāhīm (1975), p.3.

⁴³ J. C. Jackson, *Planters and Speculators: Chinese and European Agricultural Enterprise in Malaya 1786-1921*, Kuala Lumpur: University of Malaya Press, 1968, pp.9-10.

Mining also exacted an increasing localised cost on Johor's environment. At Padang, for instance, some 200-300 Chinese were said to be fishing, trading and working about twenty tin mines inland. These mining activities were conducted within the watersheds of streams and rivers. Sediments and eroded soil from these interior activities – logging, plantation farming and mining – were almost certainly being washed into rivers and swamplands downstream, eventually impinging on their capacities to discharge water out to the Malacca and Johor Straits, raising average coastal elevations and seeding conditions for increasingly frequent flooding of the nearby areas by the early twentieth century.⁴⁴ Coastal coconut settlements were thus increasingly vulnerable to both a frontal incursion from the sea, and a rear-guard attack from overflowing rivers and inland freshwater swamps.

The copra-fuelled expansion of Johor's coconut commodity frontier, late nineteenth century to the early 1930s

The flipside of these extractive practices was short-term commercial vigour. After bringing the north-western territory of Muar under his control in 1879, Abu Bakar established a light railway system within Muar, beginning with Padang district. By the time of the railway's completion in 1890, Padang had become Muar's "richest agricultural district", boasting some 10,000 Javanese settlers growing arecanuts, coconuts and other crops for sale.⁴⁵ The railway ferried agricultural produce from Padang to Muar's port town of Bandar Maharani for onward shipment, typically to Singapore. In exchange, rice and other consumer goods were railroaded back to Padang's villages.⁴⁶ The train line also helped expand Muar's economy by opening up more coastal land for agriculture. By 1911, Padang's population had increased to 12,000.⁴⁷

Indeed, by the beginning of the twentieth century, booming demand for edible oils from the industries of Western Europe, North America and Japan was propelling coconut cultivation across Malaya. Research breakthroughs in the hydrogenation of liquid fats by 1902 enabled certain plant- and marine-based oils, like coconut, palm kernel, groundnut and whale oil, to be effectively substituted for more costly animal fats in margarine and shortening manufacture.⁴⁸ Between 1904 and 1913, the estimated coconut acreage in the Federated Malay States – Perak, Selangor, Negri Sembilan and Pahang – grew by almost 7 percent per annum, from roughly 77,500 to 175,000 acres, while copra production increased tenfold in the same period, from 976 to 9,287 tons.⁴⁹ It was Johor, though, that became the single largest contributor to Malaya's copra sector. From 1914 to 1918, Johor exported 73,156 tons of copra, comparing favourably with the roughly 90,000 tons sent abroad by the entire Federated Malay States grouping during

⁴⁴ Muḥammad Ibrāhīm (1975), p.23; Kathirithamby-Wells (2005) p.172.

⁴⁵ Trocki (2007), p.191; Kaur (1985), p.28.

⁴⁶ Kaur (1985), pp.28, 196-204.

⁴⁷ Kaur (1985), p.204.

⁴⁸ W. G. Hoffmann, '100 Years of the Margarine Industry', in J. V. Stuyvenberg (ed.), *Margarine: An Economic and Social History, 1869-1969*, Liverpool: Liverpool University Press, 1969, p.16; Sean Francis O'Keefe, 'An Overview of Oils and Fats, with a Special Emphasis on Olive Oil', in Kenneth F. Kiple & Kriemhild Conee Ornelas (eds), *The Cambridge World History of Food. Volume One*, Cambridge: Cambridge University Press, 2000, pp.376, 387.

⁴⁹ R. W. Munro & L. C. Brown, *A Practical Guide to Coco-Nut Planting*, London: Bale, Sons & Danielsson, 1920, p.166.

the same interval. What seems particularly remarkable about this development is how heavily it relied on smallholder activity in a relatively confined area along Johor's western coastline.



Photograph 3. Coconut smallholding in Malaya

Photo taken circa 1910-1930s. Reproduced with permission of Arkib Negara Malaysia

The demographic changes underlying this expansion were considerable. In Johor, as in many other parts of Malaya, population increases during the first half of the twentieth century were due mostly to inter-Asian migration. With its relatively abundant coastal lands, Johor consistently claimed the lion's share of Dutch East Indies migrants coming to Malaya, with some 120,200 of its residents claiming Dutch East Indies ancestry by 1931, out of a total of 280,600 across Malaya.⁵⁰ Smallholding ownership in Johor cost practically nothing except one's labour, as land tenure was effectively based on usufruct rights until well into the first half of the twentieth century. Further encouragement was provided by sponsorship from wealthy patrons (*orang kaya* and *penghulu*), many of whom were recent migrants themselves.⁵¹ Over

⁵⁰ Tunku Shamsul Bahrin, 'The Growth and Distribution of the Indonesian Population in Malaya', *Bijdragen tot de Taal-, Land- en Volkenkunde* 123:2 (1967), p.275.

⁵¹ Abd. Jalil (1976), pp.11-12; Kenelm O. L. Burridge, 'The Malay Composition of a Village in Johore', *Journal of the Malayan Branch of the Royal Asiatic Society* 29:3 (1956), pp.61, 77, and 'Managerial Influences in a Johore Village', *Journal of the Malayan Branch of the Royal Asiatic Society* 30:1 (1957), p.96; Lim (1977), pp.51-2; Tunku Shamsul Bahrin, 'The Pattern of Indonesian Migration and Settlement in Malaya', *Asian Studies* 5:2 (1967), p.239; Paul H. Kratoska, 'The Peripatetic Peasant and Land Tenure in British Malaya', *Journal of Southeast Asian Studies* 16:1 (1985), pp.19-20; Gray (1978), pp.105-6, 175-6.

time, initial success bred further interest. Fresh settlers gravitated towards communities of friends and relatives along the coastline, on whom they could call on for help.⁵²

Johor's water-logged coastline was further transformed by this settler influx. From the northern district of Batu Pahat down to Pontian in the south, existing streams and tributaries were straightened and widened by Javanese, Bugis and Banjarese settlers, who brought with them coastal engineering techniques inherited from their places of origin.⁵³ Because of the indivisible nature of this pioneering work, labour was usually mobilised through locally-organised mutual assistance systems (*gotong royong*), arrangements which continued to be used around Southeast Asia to open up tidal swamp lands well into the late twentieth century.⁵⁴ Internal drains were dug for individual smallholdings, and linked up with refurbished canals (*parit*). These networks were then used to transport coconuts and other cash crops towards the coast, for processing and shipment to Singapore. Wooden tidal gates were installed on some canals, both to control sea-water incursions, and to extend the reach of waterborne transport several kilometres inland. Coastal bunds were also constructed from surrounding earth to block unwanted tidal intrusions into farmland.⁵⁵

At the same time, West Johor's drainage networks were coming under visibly heavy strain from within. By the 1910s and 1920s, uncultivated lands along West Johor's coastline were growing scarce, prompting incoming settlers to establish new holdings up to ten kilometres inland, taking advantage of existing river networks and new road extensions for market access.⁵⁶ According to historian Mohamed Halib, the drains dug by these settlers were latched on to existing canals. Little effort was made to enlarge the capacities of these older *parit* and accompanying infrastructure. By the late 1920s, some tidal gates were being regularly overwhelmed, while bunds were collapsing, causing prolonged flooding that hurt coconut yields in affected areas.⁵⁷

Halib's account suggests that *gotong royong* systems were unable to cope with the fallout from this increased economic activity. But perhaps, as other historians have suggested, co-operative labour arrangements were already being undermined by changes to local village leadership organisation occurring under colonial rule in Malaya.⁵⁸ In Johor, the village headman (*penghulu*) was originally the founder of a single settlement, and personally accountable to his constituents in exchange for tribute and loyalty. Under British rule, he eventually became a minor salaried official under the purview of British district officers, with only formal oversight of several villages. This occurred in different parts of Johor, during an interval of rapid settler expansion in the 1910s and 1920s.⁵⁹ Control over communal labour routines was probably

⁵² Tunku Shamsul Bahrin (1967b), pp.238-40.

⁵³ Tunku Shamsul Bahrin (1967b), pp.240-1.

⁵⁴ Abd. Jalil (1976), p.12; William L. Collier, *Social and Economic Aspects of Tidal Swamp Land Development in Indonesia*, Canberra: Development Studies Centre, ANU, 1979.

⁵⁵ Mohammed Halib, *Peat, Pits and Pittance: An Integrated Agricultural Development Experience in Peninsular Malaysia*, Hull: Centre for South-East Asian Studies, University of Hull, 1992, p.24.

⁵⁶ Arkib Negara Malaysia, Kuala Lumpur (ANM-KL): High Commissioner's Office (HCO) 425/1934, Encs.4, 10.

⁵⁷ Halib (1992), pp.24-5.

⁵⁸ Gullick (1987), pp.110-3; Paul H. Kratoska, 'Penghulus in Perak and Selangor: The Rationalization and Decline of a Traditional Malay Office', *Journal of the Malaysian Branch of the Royal Asiatic Society* 57:2 (1984), pp.31-59.

⁵⁹ Abd. Jalil (1976), pp.23, 30-2.

disrupted during this transition to a new system. In short, the destabilisation of West Johor's environmental situation was not a straightforward process, and may have been aggravated by colonial political restructuring.

These problems were compounded by state-backed forest clearance within Johor's interior, where unprecedented agricultural expansion was occurring. For example, in the midst of Malaya's first rubber boom, the completion of a new Federated Malay States-owned railway axis cutting through Johor's territory right up to the doorstep of Singapore – by then one of Southeast Asia's premier export shipping hubs – led to the “opening up of the great rubber belt of west central Johore”. Between 1906 and 1910, Johor's recorded rubber acreage grew tenfold to 43,517 acres. Much of this *Hevea* rubber cultivation was clustered around the new railway route and ancillary road networks, where about 170,000 acres of adjacent land had been alienated for cultivation by 1910. Both estates and smallholders were involved in these export-oriented expansions (Map 4).⁶⁰

Like the *kangkars* of the nineteenth century, the new railway axis generated spill-over effects on West Johor's coastal farmlands. Although Johor state authorities belatedly passed a Control of Rivers Enactment in 1921 that officially forbade “interference with any river” in-state, there was no authority present to effectively monitor and enforce transgressions by growers.⁶¹ Inland expansions of rubber and oil-palm plantations continued to play havoc with smaller feeder streams, not just through soil clearance and erosion, but via the dumping of unwanted forest trees and plant material into rivers, where unprecedented numbers of man-made snags hindered river drainage further downstream. Water runoff from deforested catchment areas was also dramatically increased during heavy rains, contributing to the further silting of westward-flowing rivers and drains.⁶² Notwithstanding their own weaknesses, coastal drainage systems in western Johor were further tested by these upstream developments (Map 4).

Johor's state bureaucracy might have been able to mitigate some of these environmental upheavals during the first three decades of the twentieth century, but it was largely unable and unwilling to keep pace with rapid demographic expansion. In Batu Pahat district's coastal zone, migrant settlers often took up land without any form of legal title until the 1910s, planting rubber, coconuts and areca palms in the process. The local district office did little to aid such establishments, and did not even seem to be very aware of what was going on. In March 1924, Johor's Commissioner of Lands and Mines lamented that some 80,000 smallholdings along the western coast still required surveying, and plans to do so were allegedly being held back by a lack of qualified survey staff, aggravated by Federated Malay States recruitment policies that discriminated against Malays being trained for such skilled positions.⁶³ In the meantime, *penghulus* sought to increase local control over such matters by issuing their own temporary land grants (*surat sementara*). Yet thousands of these documents were either lost or were of

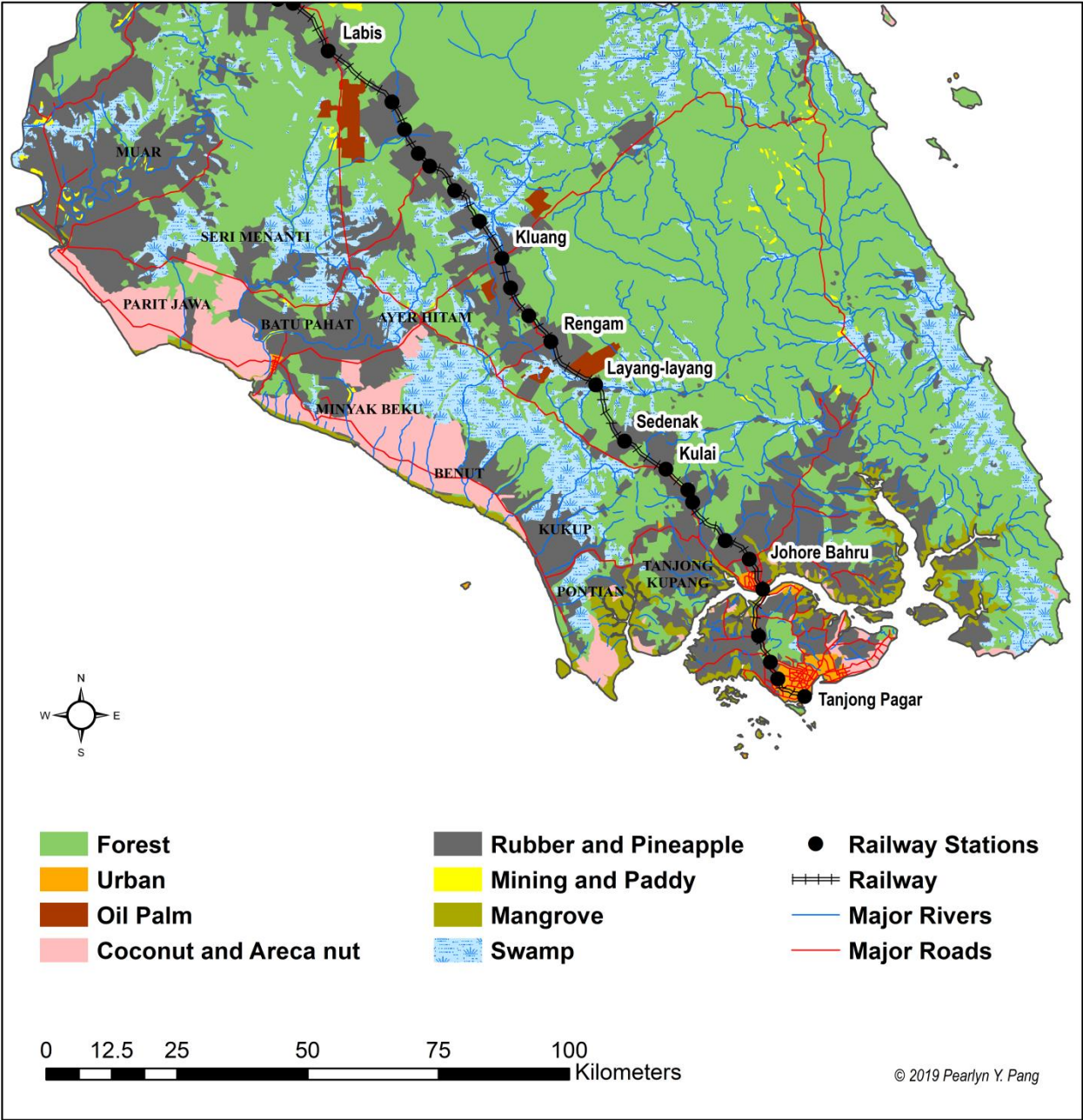
⁶⁰ Kaur (1985), p.57.

⁶¹ Arkib Negara Malaysia, Johor Baru (ANM-JB) Commissioner Lands and Mines (CL&M) 299/39, Enc 1A.

⁶² Halib (1992), p.25.

⁶³ ANM-JB State Secretary 694/24, Encs.1, 2.

such poor quality that new grants had to be issued in the 1930s, when more manpower and funding were finally available to carry out more competent smallholding land surveys.⁶⁴



Map 4. Land use in West Johor, 1930s

Created by Pearlyn Y. Pang with permission from Malaya Land Utilization Map No. 3, B. R. 877 J, and Thomas Brian Wilson, 'The West Johore Coconut Production Survey', *Department of Agriculture Bulletin no. 104*, Malaysia: Division of Agriculture, 1958, Map 1

⁶⁴ Kenelm O. L. Burridge, 'A Report on Fieldwork in Batu Pahat, Johore', Singapore: Social Research Unit, University of Malaya, 1956, pp.34-5.

Economic and environmental challenges to Johor’s coconut frontier, early 1930s to early 1940s

The Great Depression became the proverbial straw that broke the back of Johor’s (and Malaya’s) coconut farming sector. International copra demand petered out during the later stages of the slump, as international markets suffered from a growing fats and oils glut (Figure 1).⁶⁵ In Johor, where coconut production was almost completely derived from smallholdings, state-wide copra exports peaked in 1933.⁶⁶

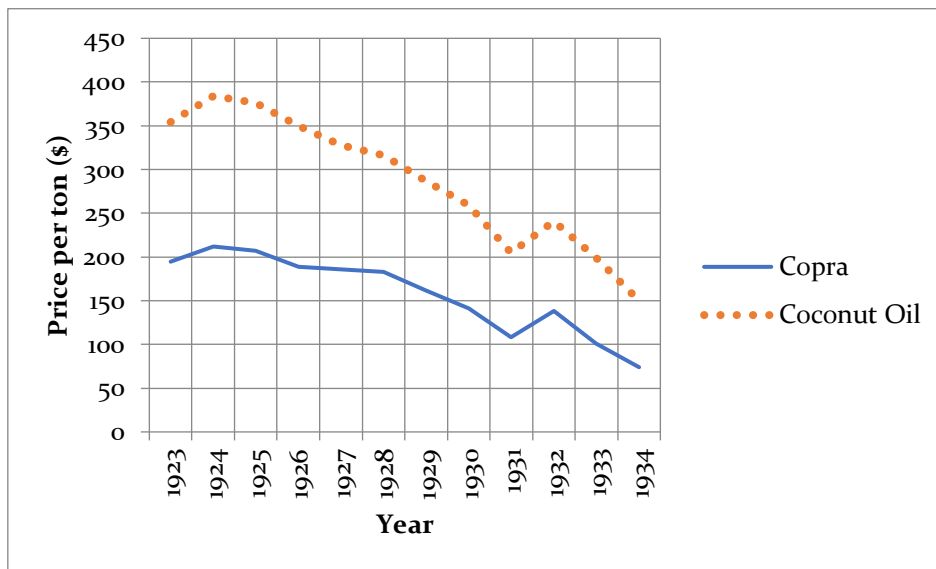


Figure 1. Singapore: wholesale prices, copra and coconut oil, 1923-1934, deflated by the Sugimoto Consumer Price Index (1928=100)

Source: Pakiam (2017), Appendix 2.1

Taken alone, the copra slump of the early 1930s dealt a serious blow to the Malayan industry, but not one which did irreparable damage to its prospects. The crash was mitigated by the extremely low cash costs of smallholder coconut production, which, by one educated estimate, were even lower than those of most rubber smallholdings during the same period.⁶⁷ Moreover, local and regional demands for surplus coconut produce provided a level of support that rubber was not privy to.

In Johor, coconut smallholders used several strategies to try and stabilise falling incomes. The first was to step up the sale of nuts and copra to try and make up for falling produce values. Copra production surged. In 1928, the year before the great slump began, about 576,000 piculs of copra were exported, with an estimated value of \$6,225,927. By 1933, copra

⁶⁵ Tate (1996), p.447.

⁶⁶ Geoffrey K. Pakiam, ‘Smallholder Involvement in Tree Crops in Malaya, with Special Reference to Oil and Coconut Palms in Johor, 1862-1963’, PhD thesis, SOAS, University of London, 2017, Appendix 4.1.

⁶⁷ LSE FIRTH, pp.297-307.

exports had reached 813,000 piculs, but with a total value of only \$3,193,515, almost all of this coming from West Johor.⁶⁸

A second strategy for some was to tap into the domestic scene, and sell more coconut produce to areas which were traditionally coconut-deficit regions, such as Pahang and Negri Sembilan. In early 1930s Johor, growers continued to keep the largest, best nuts for themselves for use during festivals, and hived off unripe nuts for copra manufacture instead.⁶⁹ Where sufficient household labour existed, production of ‘village’ (*kampung*) oil was intensified for sale in nearby markets (*pasar*): a common phenomenon across the Peninsula during periods of economic stress, when Malayan consumers cut back on purchases of factory-milled coconut oil in favour of cheaper kampung-oil substitutes.⁷⁰

Another alternative, for coconut smallholders with supplementary cash crops and spare labour, was to intensify involvement in other commercially viable cultivars. In the western districts of Batu Pahat, Muar, and Kukup, renewed attention was given to areca palms, which adapted better to the region’s peatier soils, and whose crop price declines were less severe than those of the coconut palm.⁷¹ Consequently, the interval between 1931 and 1934 witnessed a Malaya-wide rise in net arecanut exports, from 19,260 to 27,336 tons, mostly destined for British India and mainland Southeast Asia via Singapore.⁷² In addition, Johor’s exports of coffee, a plant commonly found in many West Johor coconut settlements, tripled between 1929 and 1932. Much of this seems to have been of the pricier Liberian variety, with a smaller Robusta crop grown around Batu Pahat.⁷³ Other crops that could survive the West Coast’s increasingly waterlogged soils, including sago, pepper, tubers and pineapples, saw massive surges in export values during the interval.⁷⁴ Again, on these same soils, efforts to diversify into rubber were problematic. But where soils were less dense, and smallholders had access to both rubber and coconuts, living conditions appeared “considerably better” than in areas where coconuts were the main cash crop.⁷⁵ Agricultural diversification was thus moulded by local environmental constraints.

The extent to which the West Johor coconut frontier changed in size during the Depression and its aftermath is impossible to gauge precisely, due to the changing assumptions surrounding the land office records used to estimate coconut acreages during the period concerned.⁷⁶ None of the estimates, however, suggest any significant expansion of Johor

⁶⁸ Principal Agricultural Officer, Johor (PAOJ), *Annual Report for 1932*, p.32; PAOJ 1935, Appendix C.

⁶⁹ ANM-KL HCO 425/1934, F.C. Cooke, Department of Agriculture, ‘Report on a Visit to the Coconut Area of Johore’, p.10.

⁷⁰ LSE FIRTH, pp.143, 211; SSVOC, *Report of a Committee...on the Present Economic Condition of the Coconut and Other Vegetable Oil Producing Industries in Malaya*, Kuala Lumpur: Government Press, 1934, p.39; Department of Agriculture, Malaya. *Annual Report for 1938*, Kuala Lumpur: Government Printer, 1939, p.12.

⁷¹ Pakiam (2017), Appendix 4.1; D. H. Grist, ‘The Betel-Nut Industry’, *Malayan Agricultural Journal* 14:7 (1926), p.220.

⁷² Pakiam (2017), Appendices 3.2, 3.10.

⁷³ Government of Johore, *Annual Report of the State Agricultural Officer, Johore*, Johore Bahru: Government Printer, 1937, p.22.

⁷⁴ PAOJ 1929, pp.26, 32; PAOJ 1930, pp.22-4; PAOJ 1932, pp.13, 37-8.

⁷⁵ SSVOC (1934), p.15; P. T. Bauer, *The Rubber Industry. A Study in Competition and Monopoly*, London: Longmans, 1948, pp.45-6, 61.

⁷⁶ Thomas Brian Wilson, ‘The West Johore Coconut Production Survey’, *Department of Agriculture Bulletin* 104, Malaysia: Division of Agriculture, 1958, pp.4-6.

acreage beyond the original 161,000 acres declared during the national coconut census of 1930. In all likelihood, the frontier had begun internally disintegrating soon after the Depression hit, as coconut groves started thinning out.

The evidence for this gradual implosion comes from colonial agricultural field reports, all concerned about increasingly problematic drainage and soil situations in coconut areas. As early as 1929, it was being reported in localities such as Ayer Hitam and Benut that recently-planted coconut and areca palms on peaty soils along the coast were beginning to suffer from nutrient deprivation, whose problems a sharp drought then accentuated by drying out the underlying peat layers and destabilising the soil, causing trees to topple.⁷⁷ The most frequent and widespread cause for complaint across West Johor, however, had to do with flooding and unsatisfactory drainage. District and agricultural officers throughout the 1930s were consistently uniform in their direct observations and second-hand information obtained from local village leaders (*penghulus*): existing drainage systems along the western Johor coast were letting in far too much salt water, while being unable to drain off excess fresh and brackish water that was accumulating further inland. Even where bunds and water gates had been built by smallholders themselves to stem seawater incursions, structures were often either steadily crumbling, or were porous to begin with.⁷⁸ By the late 1930s, officials believed at least one-seventh of the total coconut-producing area of West Johor was being affected in this manner.⁷⁹ Coconut crop yields were being decimated as a result.

The environmental underpinnings of this ‘mid-life crisis’ were reported in great detail in the area of Sri Menanti, not far from where Munshi Ibrahim documented the initial blossoming of a coconut-growing settlement at Padang half a century earlier. Sri Menanti’s development, however, appeared to be of a more recent provenance. During the early 1920s, the area began to grow increasingly popular with coconut smallholders. The predominant drain in the area, Parit Rabu, was progressively enlarged over time by the smallholders themselves to accommodate a population of around six-hundred ‘Malays’. Drainage enlargements were necessary to cater to the new coconut stands being planted increasingly inland. But they also provided an important means of transport for cash crops from up to six miles inland to the coast, and purchasable goods the other way round too. By the early 1930s, most palms in the locality were reportedly producing some of the largest nuts in the Muar district, with only 200 fruits required to produce a picul of copra (the Malayan average in 1924 was 220 fruits).⁸⁰

However, when a copra research officer checked in on the area’s progress in 1938, the local *penghulu* informed him that many stands had already been deteriorating for several years, leaving lands nearest the coast completely denuded of palms, and those a mile or two inland visibly suffering from taper tops and small crowns, picked up from extended immersion in water-logged, brackish soils (Photograph 4). Bunds, on the verge of collapse in some areas,

⁷⁷ ANM-KL HCO 425/1934, F.C. Cooke, Department of Agriculture, ‘Report on a Visit to the Coconut Area of Johore’, pp. 2-3; PAOJ 1929, p.15.

⁷⁸ ANM-KL HCO 425/1934, F.C. Cooke, Department of Agriculture, ‘Report on a Visit to the Coconut Area of Johore’, pp.14-15; SSVOC (1934:31-32); PAOJ 1934, p. 22; PAOJ 1937, pp.15-16; PAOJ 1938, pp.19-20.

⁷⁹ LSE FIRTH, p.208.

⁸⁰ A. G. Robinson, *Report of Mr. A. G. Robinson, Adviser, Drainage and Irrigation, Malay States, on His Visit to Johore, 1938*, Kuala Lumpur: Federated Malay States Govt. Press, 1938, pp.23-4, 26; H. Lake Coghlan, *Coconut Industry in Malaya*, London: Malay States Information Agency, 1924, pp.35, 43.

were found to be riddled with holes made by mud lobsters (*Thalassina sp.*) sifting the earth for nutrients. Indeed, swamp flora and fauna seemed to be busily reclaiming the area as it stood, with an increasing number of woody shrubs and weeds characteristic of heavily brackish and saline conditions thriving alongside the palms. In many areas, smallholders had simply packed up and left, driving the local population down to around a third of its former size.⁸¹



Photograph 4. Parit Rabu, Sri Menanti: eroded bunds and heavily debilitated palms, 1938

Source: ANM-JB Commissioner Lands and Mines (CL&M) 299/39, Enc. 1A. Reproduced with permission of Arkib Negara Malaysia

The tipping point for this coconut-based settlement seems to have been the excessive flooding of coconut areas close to the coast, at a time when newcomers upstream were putting pressure on existing drainage infrastructure downstream, combined with the prolonged fall in copra prices between 1929 and 1934. Low copra prices, together with declining crop yields, in turn put less fortunate coconut-growing households with farms closest to the waterlogged coast in debt, which they then sought to mitigate by mortgaging holdings to either Chettiar moneylenders, or Chinese crop buyers. As both economic and environmental conditions

⁸¹ Robinson (1938), pp.23-6.

deteriorated during the 1930s, many Sri Menanti households forfeited their properties to the creditors, and migrated elsewhere. This accentuated the neglect of smallholder-built coastal bunding and drainage infrastructure even further, setting off a chain reaction of misfortune further inland. On their part, the new Chinese and Chettiar landholders tried shoring up their locality through privately-hired engineers, seeking official permission to install sluice gates with automatic valves at their own private expense.⁸² And where they could spare time and energy, poorer coconut cultivators continued to undertake minor bunding and drainage works near their own farms, drawing on soft mud and clay in the vicinity.⁸³

This local episode, and other descriptions of poor tidings from the West Coast, was widely reported in official correspondence during the mid-to-late 1930s, but the responses from local and federal authorities were underwhelming. Unlike coastal Perak and Selangor, where colonial state governments had publicly funded some drainage and transport infrastructural work to attract settlers during the early twentieth century, much of West Johor's coconut-farm expansion had been independently established by growers themselves. The Johor government took decades to muster the necessary engineering expertise to manage drainage matters, only establishing a relatively under-powered state-level Drainage Board in 1935. Severe flooding across Johor the previous year had drawn fierce complaints from affected planters, prompting the authorities to finally address decades of river silting, uncleared snags and general pollution in all of Johor's major rivers in a more concerted manner.⁸⁴ However, the heavy projected capital costs of remedial measures, and the relatively small contribution of coconut produce to government revenue compared to that of rubber (or tin), made it extremely unlikely that state-run drainage reconstruction would become a reality before the 1940s.

Instead, the predominant response of both the federal and Johor state governments to the coconut zone's commercial crisis was to focus on improving the quality of smallholder-sourced copra. Quality concerns had troubled colonial administrators since the beginning of the copra boom in Malaya.⁸⁵ Indeed, only when publicly-funded copra kilns and cooperatives set up during the early to mid-1930s were found to be moribund due to the progressively lower yields of nuts being sold for processing, did attention begin to turn more towards the deeper environmental causes behind the malaise.⁸⁶ And only then, it seems, did state-backed drainage management also become an expression of political commitment to Malay welfare in Johor.⁸⁷ While \$35,000 was ring-fenced in Johor's 1941 budget for a large-scale drainage scheme at Sri Menanti, plans for other coconut sites remained subject to further surveys and revision.⁸⁸ All of these plans were nevertheless interrupted, first by the upheavals of the Japanese Occupation

⁸² ANM-JB CL&M 202/39, Encs. 1A, 1B, 1C.

⁸³ ANM-JB CL&M 202/39, Encs. 1B, 1C; Government of Johore (1938), p. 15; Government of Johore, *Annual Report of the State Agricultural Officer, Johore*, Johore Bahru: Government Printer, 1938, pp.19-20.

⁸⁴ ANM-JB CL&M 299/39, Enc 1A.

⁸⁵ PAOJ 1932, pp.9-10.

⁸⁶ Robinson (1938), pp.23-6.

⁸⁷ ANM-JB CL&M 995/38, Enc. 3; Ibid., Minute, General Adviser, 17 December 1938; Gray (1978), pp.118-124.

⁸⁸ ANM-JB CL&M 202/39, Minute, CL&M Johore, 9 November 1940.

across Malaya, and then the messy reconstruction period following the return of the British colonial administration in 1945.⁸⁹

The failure of post-war attempts to rehabilitate Malaya's coconut industry, late 1940s to 1972

Efforts to make the West Johor coastline more amenable to coconut cultivation through government-sponsored civil engineering works faltered across the post-war period. The enormity of the work involved in rehabilitating derelict drainage and irrigation facilities all along Malaya's western coastline meant that manpower and resources had to be initially prioritised for paddy cultivation zones, given existing post-war rice shortages. As a result, coastal areas such as Johor's, with little paddy growth, tended to be initially neglected by federal authorities.⁹⁰ Further complicating matters for planners was the continuing dynamism of West Johor swamp ecologies. Despite changes wrought to the swamp ecologies of western Johor since the nineteenth century, large mangrove areas remained intact into the 1950s. One of the consequences of this retention was the reclamation of coastal soils during the Japanese occupation, when widespread deforestation for food cropping within Johor's hinterlands released sediment that accumulated in freshwater and saltwater swamps closer to the coastline, raising land levels and reducing the discharge capacity of existing drainage methods. In short, the swamps had expanded, at the cost of agricultural settlements. As a result, select parts of Johor's coastline, such as the Sri Menanti locality near Parit Jawa, had actually enlarged to the extent that drainage officials had to drastically amend blueprints conceived prior to 1942. This involved further landscape surveys, which in some cases took until 1950 to make their way into revised blueprints for action.⁹¹

By the mid-1950s, plans were in the works to establish a total of seventeen major drainage systems along Johor's western half, affecting nearly half a million acres of land, comprised mostly of smallholdings. As a consequence of new nationalist electoral pressures, the region was promised a 'higher priority' in these drainage and irrigation works, effectively shortening the estimated time to completion from 30 to 20 years.⁹² For growers living in the midst of already dilapidated farmland, however, such efforts would do little to arrest current problems. In 1956, an inaugural field survey of West Johor's entire coconut area found that one in every ten acres was completely devoid of palms. Astonishingly little planting of new palms had taken place, with over half of the entire area surveyed having no young palms at all.⁹³ Extensive flooding had killed off whatever had remained of nuts left to germinate on the ground, rendering any 'continuous replanting' techniques moot. Partly as a result, average smallholding palm densities, usually twice as much as the estate average of 48 per acre, had withered away

⁸⁹ The National Archives, Kew, Ministry of Food 83/2912, 'Coconut Production: Malaya', enclosed in W.J. Thorogood, Colonial Office, to J.C. Gardiner, Ministry of Food, 7 September 1944; J. N. Wilson, 'The Sri Menanti, Senggarang and Muar Drainage Schemes, Johore', *Malayan Agricultural Journal* 40:4 (1957), pp.241-52.

⁹⁰ Wilson (1957), pp.242, 247.

⁹¹ Wilson (1957), pp.242, 247.

⁹² Federal Legislative Council, Federation of Malaya. *Report of the Proceedings*, Kuala Lumpur: Government Printer, 1955-1957, p.764.

⁹³ Wilson (1958), pp.16, 20.

to a mere 35. A quarter of the total area lacked any internal drainage, and two-thirds of the existing internal drains were “completely choked”.⁹⁴ At the same time, many smallholders were reluctant to cut down degenerate palms because some still bore miserable-looking fruits, few and small in size.⁹⁵

For Malaya’s post-war growers, there was little that remained economically attractive about the producing coconuts for the export economy, compared to alternative tree crops (rubber, oil palm) and wage work, both on and off-farm. During the 1950s, international demand for coconut produce had continued to decline, due to the increased use of synthetic detergents in the United States, as well as prohibitive tariffs on non-Philippine coconut products after 1950. In addition, technical changes in oil processing for margarine and vegetable shortening, first set in place since the end of the First World War, were continuing to accentuate the increasing interchangeability of different fats and oils during the 1950s. After the Second World War, palm oil, which had previously been limited to inedible uses, such as soap and tin-plate manufacture, could now finally join the ranks of coconuts and other oilseeds in the margarine sector.⁹⁶

In the light of these economic and environmental obstacles, a number of senior Malayan agricultural officials, including the lead architect of the West Johor coconut survey, Thomas Wilson, had begun to openly advocate that growers be given public support and funding, not just to rehabilitate their soils, but to allow them to switch from coconut to rubber and oil-palm cultivation.⁹⁷ This view was also borne out by the fact that some wealthier and better-organised smallholders in West Johor were already moving away coconut-palm cultivation, in favour of oil palms and rubber, by the late 1950s (but not areca palms, whose nuts, while still widely chewed in Southeast Asia and elsewhere today, had become increasingly unfashionable to munch during the colonial period).⁹⁸

By the 1950s and 1960s, West Johor’s coconut sector was beset by the most frustrating of paradoxes. Its environmental and economic problems had never been as daunting as they were at this stage, prompting many growers to either abandon their holdings completely, or else switch to more remunerative tree crops. At the same time, political interest in the coconut-smallholding sector’s fortunes, fuelled by a volatile atmosphere of Malay ethno-nationalism, had reached unparalleled levels. Improving the fortunes of the coconut industry, as well as Johor’s ‘Malay’ growers, had become essential touchstones of election campaign strategies by the victorious Alliance cross-party coalition during both the 1955 and 1959 national elections.

⁹⁴ Wilson (1958), p.46.

⁹⁵ Wilson (1958), pp.17-19, 39.

⁹⁶ ANM-KL Ministry of Agriculture and Co-operatives (KPDANSK) 1083/58, ‘Report of Working Party No. 2 of the Coconut Advisory Committee’, pp.7-8, in Enc. 160B, Chairman, Working Party No. 2 of the CAC, to Chairman CAC, August 1962; ANM-KL Ministry of Commerce and Industry (C&I/E) 1015/VOL.1, Enc. 71A, ‘Trends in U.S. Imports and Utilization of Copra and Coconut Oil, 1912-1956’, July 1957; TNA Dominions Office (DO) 35/9995, D. Mellor, Office of the High Commissioner for the United Kingdom, Malaya, to R. B. Dorman, Commonwealth Relations Office, 14 August 1959; Susan M. Martin, *The UP Saga*, Copenhagen: NIAS Press, 2003, pp.101-2.

⁹⁷ Wilson (1958), p.39; ANM-KL C&I/E 1022, Chairman, FLDA, to Secretary to Ministry for Natural Resources and Local Government, Kuala Lumpur, 2 January 1957; ANM-KL Commodity Development Branch, Department of Agriculture (SA) 28/7, ‘Minutes of the Departmental Conference Held at Headquarters from the 31st October to the 4th November, 1960’, p.56.

⁹⁸ ANM-KL SA 28/7, ‘Minutes of the Departmental Conference Held at Headquarters from the 31st October to the 4 November, 1960’, p. 56; Anon., ‘Hope for Copra’, *The Straits Times*, 17 May 1960; Pakiam (2017), pp.274-5.

In addition, during the late 1950s, vigorous lobbying by some of Malaya's largest ethnic Chinese copra millers also persuaded the government to lend support to keep coconut growers as they were. The millers wanted assurances that they would continue to have sufficient domestic supplies of raw coconut materials. This resonated with federal officials sympathetic to the imperatives of industrialisation and economic diversification in Malaya, looking to move away from heavy reliance on tin and rubber primary exports alone.⁹⁹

In a way, the situation for Johor's coconut growers was akin to putting chronically-ill patients on life support, regardless of their wishes. Despite internally-voiced criticisms from a number of agricultural officials, arguing that the federal Malayan authorities should be less concerned with "rehabilitating the coconut industry" and more with "rehabilitating the coconut farmer", federal schemes designed to prop up the coconut-growing sector were launched during the early 1960s, beginning with West Johor's old, dying frontier.¹⁰⁰ Under Malaya's first federal coconut-rehabilitation scheme at Minyak Beku, Johor, growers were only permitted access to public funds if they agreed to replant holdings with coconut palms and a restricted list of approved catch crops.¹⁰¹ These terms crimped the scheme's popular appeal, with many growers refusing to participate outright. An internal review of all coconut-rehabilitation schemes in operation across West Malaysia in 1972 found that they had been unable to reverse the declining yields of coconut smallholdings as a whole. Chief blame was attributed to official ignorance regarding both the agronomic and economic aspects of the coconut situation. In the interim, better-resourced growers had continued switching over to rubber and oil palms without public aid. The rehabilitation schemes in their current state were prevented from expanding until further notice.¹⁰² Coconuts continued to hold an appeal for growers in Johor, but mainly as a backyard crop from which palm sugar, village oil and whole nuts could be produced and sold for local use and enjoyment.¹⁰³

Concluding remarks

As it stands, two broadly plausible but opposing interpretations can be distilled from this century-long episode. First, the documentary records from the colonial archives suggest that smallholders were initially successful in seeding and expanding the coconut commodity frontier, but failed miserably in sustaining it because they lacked the knowledge and ability to construct the long-lasting, large-scale drainage infrastructures required to surmount the difficulties of coastal clay and organic muck soil ecologies. Only state authorities were capable of mustering the funding and manpower to do this, provided the will to do so was present.

⁹⁹ ANM-KL C&I/E 1180, Manager, Lee Oil Mills, to Minister for Commerce and Industry, 3 April 1959; Anon., 'Probe Urged for Coconut Industry', *Singapore Standard*, 23 May 1959; ANM-KL SA 28/1, Acting Chief Coconut Replanting Officer, 'Information Paper No. 225: Coconut Rehabilitation/Replanting Scheme', 10 December 1963.

¹⁰⁰ ANM-KL SA 28/7, 'Minutes of the Departmental Conference Held at Headquarters from the 31st October to the 4 November, 1960', p. 6.

¹⁰¹ ANM-KL Ministry of Rural Development (MRD(L)) 128, Enc. 1; Ibid., Minute to Dy Secretary (L), Ministry of Rural Development, 27 July 1962.

¹⁰² ANM-KL Socio-Economic Research Unit, Prime Minister's Department (BPE) 15/115/5, Enc. 2, 'Extract from NAC Briefing Paper by Ministry of Primary Industries and Commodities, 17 April 1972'.

¹⁰³ ANM-JB District Officer Mersing (DO.MG) 296/56, DO Mersing to State Secretary Johor, 26 February 1957.

There are several problems with this argument. The most obvious one is its heavy influence from the general bias and racism of the colonial record, which tended to denigrate the ‘mental capacity’ of smallholders to be able to conceive of large-scale drainage schemes.¹⁰⁴ As a result, colonial officials seldom paid much attention to the details behind the design and construction of non-European drainage systems in Malaya, and where they did, underlying rationales were not always well understood. Moreover, colonial officials (and their post-colonial counterparts) themselves struggled for decades to understand the complexities of tropical soils, and did not achieve much in the way of success with their own attempts at drainage systems in West Johor, even by the end of the period surveyed in this paper. The interpretation also overlooks the fact that West Johor’s coastal swamp environment had its own intrinsic environmental logic and natural value. The larger the intervention, the more disruptive it would be to local ecologies, and the greater the costs of environmental destabilisation for future generations of Malaysian residents.

An alternative, more charitable interpretation follows: in West Johor, smallholders since the mid-nineteenth century had used the same limited labour approach that was applied so successfully elsewhere to rubber smallholdings decades later. Past studies have shown how yields of first-generation unselected *Hevea* stocks on Malayan smallholdings generally outdid those of estates, despite the crowded, ‘undergrowth-infested’, and untidy appearance of native gardens. Many were essentially forms of agroforestry, mimicking jungle conditions. Declining productivity of rubber holdings was gradual, and was driven by the natural progression of older holdings towards lower rubber-tree densities, rather than a fall in locally available nutrients, or a rise in weeds and pests.¹⁰⁵

The main difference between the limited labour approach to rubber, and that towards coastal coconuts, was that the latter was subject to much harsher, volatile environmental conditions. Smallholder coconut stands, initially asymmetric and densely planted, were rapidly integrated into the ecologies of coastal clay environments. They were mired in brackish water, muddy landscapes, shallow inlets and bunds that were constantly being carved up by wind, water, flora and fauna alike. Such intertidal environments, as a general rule, placed their local inhabitants, flora and fauna alike, under permanent stress.¹⁰⁶ In short, coconut smallholdings were anchored in a setting constantly destabilising, if not recolonising the lands that had been initially shaped for coconut cultivation. The smallholders generally adopted as environmentally benign an agricultural approach as one could attain on these coastlines, albeit one that was perhaps not necessarily intended as such, but primarily out of necessity and limited resources.

Resource exploitation within Johor’s interior further destabilised coastal ecologies and made littoral livelihoods less attractive over time. Beginning with forest clearance fuelled by

¹⁰⁴ ANM-KL, File No. 2006/0009846, ‘Third Inter-Departmental Agricultural Conference, Thence Held at Kuala Lumpur. Report of Proceedings, 2-6 August 1932’, p.9.

¹⁰⁵ Kathirithamby-Wells (2005), p.66; Michael R. Dove, ‘Rubber Kills the Land and Saves the Community’, in Michael R. Dove et al. (eds), *Beyond the Sacred Forest: Complicating Conservation in Southeast Asia*, Durham: Duke University Press, 2011, p.103; Jeyamalar Kathirithamby-Wells, ‘The Implications of Plantation Agriculture for Biodiversity in Peninsular Malaysia: A Historical Analysis’, in Michael R. Dove et al. (eds), *Beyond the Sacred Forest: Complicating Conservation in Southeast Asia*, Durham: Duke University Press, 2011, pp.68-71.

¹⁰⁶ Michael Mastaller, *Mangroves: The Forgotten Forest between Land and Sea*, Kuala Lumpur: Tropical Press, 1997, p.27.

timber harvesting, pepper and gambier farming, and tin mining during the nineteenth century, silt-induced flooding was compounded by plantation rubber's expansion, food cropping, and oil-palm cultivation during the first half of the twentieth century. The metalled roads and railways that made these inland activities appealing to planters and smallholders alike also rendered older modes of economic activity, premised on physical access to rivers and coastal waters, less relevant over time. In short, while the West Johor coconut frontier's expansion and retreat had its own irrevocably local environmental logic, the environmental and economic repercussions of other commodity zones within central Johor helped accelerate the coconut industry's demise.

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The mutually reinforcing relationship between 'commodities' and 'empires' has long been recognised. Over the last six centuries the quest for profits has driven imperial expansion, with the global trade in commodities fuelling the ongoing industrial revolution. These 'commodities of empire', which became transnationally mobilised in ever larger quantities, included foodstuffs (wheat, rice, bananas); industrial crops (cotton, rubber, linseed and palm oils); stimulants (sugar, tea, coffee, cocoa, tobacco and opium); and ores (tin, copper, gold, diamonds). Their expanded production and global movements brought vast spatial, social, economic and cultural changes to both metropolises and colonies.

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- 3) The impact of agents in the periphery on the establishment and development of commodity networks: as instigators and promoters; through their social, cultural and technological resistance; or through the production of anti-commodities;
- 4) The impact of commodity circulation both on the periphery, and on the economic, social and cultural life of the metropolises;
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