


How transboundary processes connect commons in Japan and Thailand: A relational analysis of global commodity chains and East Asian economic integration

Carl Middleton* and Takeshi Ito†* 

*Center of Excellence on Resource Politics for Social Development, Center for Social Development Studies, Faculty of Political Science, Chulalongkorn University, Bangkok, Thailand.
Email: carl.chulalongkorn@gmail.com.

†Faculty of Liberal Arts and Graduate School of Global Studies, Sophia University, 7-1 Kioicho, Chiyoda, Tokyo, 102-8554, Japan.
Email: takeshi.ito@sophia.ac.jp.

Abstract: *In this paper, with a focus on Japan and Thailand, we outline a relational environmental and economic history of East Asian economic integration (EAEI) and its implication for the commons in both places. We draw attention in particular to global commodity chains as relational processes not only of trade and investment, but also geopolitics and aid, to argue that these transborder processes have connected together commons in distant localities resulting in their simultaneous enclosure, dispossession and (re-)commoning with implications for community vulnerabilities in positive and negative ways. To demonstrate this argument we analyse three periods of EAEI: the late nineteenth century until World War II, when Japan and Thailand both began to modernise and new trade and geopolitical relations emerged in the context of colonialism; the post-World War II recovery until the Plaza Accord in 1986, during which time Japan rapidly industrialised, as did Thailand to a lesser extent and regionalism was largely defined by US hegemony; and the post-Plaza Accord period, when Japan deindustrialised its labour intensive manufacture and heavy industry and Thailand rapidly industrialised and EAEI became defined by new and intensified global commodity chains.*

Keywords: *(re-)commoning, dispossession, enclosure, environment–society relations*

Introduction

From the observation tower of the Map Ta Phut (MTP) industrial estate in Rayong Province, Thailand, one can see a vast expanse of industrial infrastructure. MTP is the largest petrochemical plant in Southeast Asia and central to Thailand's industrialisation. Printed on to the viewing tower window in the direction of Japan, it states that it is 4627 km to Tokyo. Japan has played a key role in MTP given the large amount of Japanese investment, as well as government aid and concessional loans for its design and construction (Mieno, 2013). Indeed, MTP is best understood as the product of East Asia's economic integration (EAEI). Since its construction, MTP has been at the centre of controversies, protests and court cases over its environmental, social and health impacts,

including related to commons enclosures of coastal fisheries and water resources, dispossession of land and air pollution (Soytong and Perera, 2017). Environmental justice literature has comprehensively detailed how transboundary investment and trade in industrialisation commonly results in such impacts (Walker, 2012). Yet, whilst it has been portrayed in Thailand that Japan has inflicted environmental injustice onto Thailand (Chittiwatanapong, 1988), in Japan's deindustrialised society alongside various social and environmental improvements there also co-exists a legacy of industrial ruins, brownfield sites and ongoing health risk (Ministry of Environment, Japan, 2007).

With a focus on impacts on various commons in Japan and Thailand, the purpose of this paper is to examine in more detail this contradiction. We do this through a relational reading of the

environmental and economic history of EAEI, whereby distant places and their 'local' environment–society relations have become entwined and reworked through the various transboundary processes of EAEI. These processes include not only trade and investment, but also geopolitics and aid and are in essence the dynamics of capitalist development that establish global commodity chains¹ (GCCs). Overall, we argue that the multiple local commons enclosures and recommoning in Japan and Thailand that have taken place at different temporal points over the history of EAEI and have impacted people's vulnerability in positive and negative ways should be understood as relationally connected together rather than as the outcomes only of external actors and processes acting upon localities. In essence, they may be understood as transboundary-connected commons that are subject to multi-scaled hybrid forms of governance (Miller *et al.*, 2019).

In the next section we conceptualise our approach towards identifying transboundary connections between commons in distant places. In the following sections, we empirically demonstrate the argument by dividing the history of EAEI into three periods: the late nineteenth century until World War II (WWII); from post-WWII to the signing of the Plaza Accord; and the post-Plaza Accord period. Our analytical strategy for each period entails: (i) outlining the narrative of conventional EAEI, including how its practices and institutionalisation have been shaped by geopolitics, domestic politics in Japan and Thailand, flows of trade and investment via GCCs and aid; (ii) a more detailed examination of domestic dynamics in Japan and Thailand through a relational lens, which examines how each country has shaped practices and politics in the other, with particular attention to processes of commodification (commons enclosure; resource dispossession) and recommoning and the role of the 'development state,' private actors and communities; and (iii) reconsidering of EAEI through a relational lens that draws out how environment–society relations are connected between distant localities. The paper is based on an extensive critical reading of literature in political ecology, teleconnections, world ecology and environmental history and EAEI in Japan and Thailand. Our analysis is also influenced by recent and ongoing fieldwork in Thailand and

Japan on a relational approach to EAEI, including at industrial sites in Thailand in peri-urban Bangkok (Bang Kasii in 2017); Map Ta Phut (2017–present) and Ayuthaya (2019); and in Japan in Ashio copper mine (2019–present) and Watarase (2017–present).²

Conceptualising transboundary connections between commons in distant places

A rapidly growing body of literature has emphasised how global processes 'teleconnect' together people, societies and ecosystems and that place-based vulnerabilities are interdependent on one another at multiple spatial and temporal scales (e.g. Adger *et al.*, 2009; Liu *et al.*, 2013). They have emphasised a range of co-produced processes that increase interdependence, including: economic processes such as the structure of GCCs and deepening economic market linkages; associated flows of resources, including primary commodities, manufactured goods and embodied resources such as 'virtual water'; geopolitical processes, including the role of regional institutions, diplomatic activity and aid; movement of people; flows of information and knowledge; and physical and biological environmental processes, such as climate and large-scaled ecosystems. In this paper, we adopt a critical reading of the teleconnection literature, following Robbins (2014) who emphasises the relational nature of risk and the production of vulnerability along chains of accumulation and the inequalities and injustices associated with these.

Economic processes deserve particular consideration in understanding how local places become connected together. Here, researchers have paid growing attention to the GCCs defined as 'the nexus of interconnected functions, operations and transactions through which a specific product or service is produced, distributed and consumed' (Coe *et al.*, 2008: 272). The framework of GCCs is useful for capturing the process of sequential transformation in which each production stages adds value in the process of the production of goods or services, forming networks of interconnected nodes and links extended spatially across national boundaries. Thus, the analytical focus tends to be interfirm relations and how lead firms organise stages of value creation in

hierarchies through their control of capital, technology and knowledge. Of relevance to our analysis, however, is how flows of capital (investment) and resources (trade) along GCCs, as well its governance and political structures, connect distant locations of production and consumption and simultaneously rework environment–society relations.

Production, exchange and consumption of commodities between places are said to create a win–win relationship for all by allocating and using resources for production efficiently based on the principle of comparative advantage. Yet, it is through the division of labour in capitalist production and the separation of places of production and consumption that GCCs sustain uneven patterns of resource and labour exploitation, vulnerabilities and consumption. Lamb *et al.* (2019), for example, have demonstrated how in the case of sand mining and trade for construction, GCCs connect vulnerabilities at points of production and consumption (also Robbins, 2014). Their work seeks to ‘reveal how value produced in one field can effectively overlook and sometimes undermine value in another’ (Lamb *et al.*, 2019: 2), revealing how simultaneously one group can accumulate whilst another experiences degradation (also Huber, 2017). Meanwhile, Tsing (2004) emphasises how globalisation and the creation of its GCCs should not be viewed in the abstract, but rather that all along the GCCs friction emerges as significant work is required to create and maintain them given that local circumstances must be reworked to ensure compatibility of practices between locations along the GCC.

Another aspect of the GCC relationship relates to ecological flows. Through the economic relations developed under GCC trade, importing countries can reduce domestic pressures on land and water by offshoring production to exporting countries (Urry, 2014). As environmental economists Muradian and Martinez-Alier (2001) put it, ‘If one conceives international flows of cheap primary products (or environment-intensive products in general) as ‘ecological flows’, that is as environmental-cost shifting from the importing to the exporting country, then freer trade can promote increasing environmental-load displacement from the importing to the exporting country’. In this view, trade through GCCs

creates an uneven distribution of environmental degradation between importing and exporting countries. This line of analysis has also been developed in the concept of ecologically unequal exchange (EUE), which is grounded in world systems theory and highlights structures of social and environmental inequality between the countries of the North and South (Scott Frey *et al.*, 2019), as well as Dauvergne’s concept of shadow ecology that revealed how resource management in Southeast Asia was influenced via trade, investment and aid as Japan’s resource demand grew (Dauvergne, 1997).

We agree with the critiques put forward by Robbins (2014), Lamb *et al.* (2019), Muradian and Martinez-Alier (2001) and other others that demonstrate the GCC framework presents a too simplified understanding of the relationship between economic nodes. In this paper, we want to draw attention to an underappreciated implication, namely how relational processes of the reworking of environment–society relations unfold. The expansion of capitalist relations into uncapitalised environments via GCCs represents the complex process of turning the environment into commodities as an integral part of value creation (e.g. Prudham, 2009). This commodification is a complex process of reworking social relations, including its institutions and formal and informal governance arrangements and holds implications for the commons that may be either maintained or enclosed. Indeed, for Moore (2015) and his conceptualisation of world ecology, capitalism is a way of organising nature and nature in society relations. Of relevance to our argument, ‘capitalism in nature’ emerges as a network of global processes that connects localities.

In this paper, then, rather than view GCCs as merely connecting nodes of economic production, we emphasise how GCCs relationally connect localities and rework simultaneously environment–society relations in both places through its transborder process. Taking Japan and Thailand as connected case studies, mediated by the economic and geopolitical processes of EAEL, we detail how in localities of extraction and production commons have often been commodified and enclosed and private smallholdings dispossessed, whilst simultaneously in localities of consumption, re-commoning processes *may* occur if GCCs lessen existing pressures on

extractive or production activities.³ Drawing on Miller (2019), GCCs and associated transborder processes of EAEI connect, border and (re)order (b/order) commons in particular places, increasingly through hybrid governance arrangements (Miller *et al.*, 2019). Of interest to us, as stated by Miller (2019), are ‘the processes of (re)ordering, parceling, fragmenting and enclosing resources, revenues and labour that shape (re)distributive inclusions and exclusions. In everyday practice, b/ordering privileges the relationship between human interests internal to political boundaries and the external balancing of mutual (geo)political interests’. Whilst Miller (Miller, 2019) examines in particular how processes of commoning and b/ordering co-produce each other, we seek to extend this perspective to consider how b/ordering occurs relationally between transborder localities connected through transboundary processes including processes of hybrid governance.⁴

We now turn to discuss the economic and environmental history of the three periods of EAEI through a relational lens to draw out how local commons in Thailand and Japan have become connected together through these transboundary processes.

EAEI from the late nineteenth century until World War II

Whilst there has been a history of mercantilist trade in East Asia since at least the sixteenth century, between the mid-seventeenth century until the mid-nineteenth century Thailand and Japan largely held isolationist policies (Ishii and Yoshikawa, 1987: 96–107). In the 1850s, both countries, whilst not formally colonised, were forced to open their economies to western interests following the Bowring Treaty between Britain and Thailand and the Harris Treaty between the US and Japan. Under these and similar treaties with other western countries, Japan and Thailand exported primary products and imported the West’s manufactured goods.

It was during this period that Japan and Thailand initiated modernisation policies, but on dramatically different paths. Japan, after the Meiji Restoration of 1868, sought to build a modern country through *fukoku kyōhei* (a prosperous country and strong military), which emphasised the role of the state in both

infrastructure and industrialisation (Shimomura, 2012). In Thailand, modernisation started under the reigns of King Mongkut (1851–1868) and King Chulalongkorn (1868–1910) and initially prioritised primary product export, such as rice, teak and tin via European trading houses (Suehiro, 1985; Phongpaichit and Baker, 2002). This changed property and labour relations from subsistence production towards larger concessions and the early enclosure of some commons. For example, forest land was increasingly enclosed as teak was sought by British companies (Vandergeest and Peluso, 1995). Meanwhile, intensified rice production transformed the landscape of the lower Chaophraya basin (Phongpaichit and Baker, 2002).

Trade with the West spurred more demand for daily necessities within Asia and from the 1880s new intra-Asia trade relations emerged under regional divisions of specialisation, including cotton fabrics manufactured in Japan and rice from Thailand (Sugihara, 2001). Japan’s economy became increasingly dependent on trade with other countries – the import of food and raw materials such as cotton, rubber, petroleum, iron ore and the export of industrial manufacturers such as cotton fabrics, rubber products and steel (Okita, 1992: 28–29). Summarising this period, Sugihara (2001) states ‘Japan acted as the workshop of Asia in this period, just as Britain acted as the workshop of the world in the first half of the nineteenth century’.

In Japan, major industrial bases developed in Tokyo, Nagoya, Osaka and Kitakyūshū. The Keihin Industrial Zone situated around Tokyo Bay was the largest concentration of manufacturing factories.⁵ Initially, the industrial area occupied the west of the Sumida River and the main production was shipbuilding and military industries. Japan’s Ministry of Industry established 22 state-owned factories between 1868 and 1886 in the lowland area of East Tokyo producing paper, soap, leather shoes, printing presses, incandescent light bulbs, bricks, cement and rubber. Industrialisation attracted people to live near factories, triggering further land use change that were once rice paddy fields (Endoh, 2007). By the end of the Meiji period (1912), the industrial area expanded to the east side of the Sumida River by landfilling shallows in Tokyo Bay. In the process, communally managed fisheries and

seaweed in the Tokyo Bay were increasingly encroached and enclosed. Outside of Tokyo, mining activity polluted air and water commons; perhaps the most well-known case is the heavy metal pollution (arsenic, cadmium, copper, lead and zinc) of the Watarase and Tone Rivers after the transfer of ownership of the Ashio copper mine from the government to a private company, which initiated the intensive mining activity in the 1880s as part of Japan's industrialisation (Iijima, 1982; Shoji and Sugai, 1985).⁶

Taking the fisheries as an example, commonly managed fisheries and fishing grounds had provided livelihoods for local people in coastal villages in Tokyo Bay for at least 400 years. Water, shallows and fisheries including sardines, Spanish mackerel, seaweed, short-neck clams (*asari*) and freshwater clams (*shijimi*) were managed as commons, until fishing rights were terminated in 1963. The tradition of common ownership (*iriai*) in Japan is a social system in which community members collectively manage spaces and resources (Suga, 2012). Fisheries as commons can be found, for example, in the Yoro Code (718 AD) which stipulated that resource use of mountains, rivers, bushes, bogs and coasts were open to all and free from levies in contrast to terrestrial farmlands (Makino, 2017: 2). Until the end of the nineteenth century, fishing villages (*ura*) controlled and managed fisheries as commons. A Fishery Law enacted in 1901 shifted the earlier concept to grant exclusive rights of coastal fisheries to 84 local fishers' associations and individuals, although fishing villages continued as fishery cooperative associations.

In Thailand, a coup in 1932 replaced Thailand's absolute monarchy with a constitutional monarchy and led to a dominant role for the military in Thai politics and a rising militaristic nationalism (Wyatt, 2003: 238). Over the 1930s, the military elements of the Thai government pursued a policy of 'economic nationalism' against western countries and the domestic Thai-Chinese (Wyatt, 2003: 243–244; Phongpaichit and Baker, 2002: 117) and were influenced by Japan's military nationalism ideology (Phongpaichit and Baker, 2002: 274; Wyatt, 2003: 239). During this period, a growing volume of manufactured goods were imported from Japan, whilst Japanese trading companies (*sogoshoshas*) significantly expanded their activities in Thailand (Suehiro, 1985: 4–37).

From the late 1930s, the Thai government began promoting import substitution industrialisation (ISI) through a limited number of state-owned enterprises (SOEs) (Phongpaichit and Baker, 2002: 117; Suehiro, 1985).

From the early stages of the Meiji era until WWII, the imperative to increase economic autonomy through industrialisation led Japan to progressively expand its military power over Asia, driven by the need to secure natural resources (Hara, 1976; Beasley, 1987; Beethon, 2001). During 1939 and 1940, the Japanese government promulgated imperialistic plans for the Greater East Asia Co-Prosperity Sphere under a vision of pan-Asianism (Hara, 1976: 10). Japan intended to secure war-related materials from areas under direct military occupation and food from areas where national sovereignty was recognised, such as Thailand (Hara, 1976: 9; Reynolds, 1994 cited by Hartley, 2017). Partly in response, the U.S. introduced economic embargo against Japan in 1941, which threatened Japan's economic security and supply of oil and rubber from Southeast Asia on which it had become increasingly dependent (Beethon, 2001). Japan's military invaded Thailand in late 1941 and Thailand subsequently allied with Japan and declared war against the Allies in early 1942. This led to Thailand's dependence on Japan for the import of essential commodities and consumer products, which as fighting turned against Japan became in short supply (Wyatt, 2003: 248).

In sum, even before the accelerated post-WWII industrialisation of Japan and the embedding of GCCs under EAEI, there were already regional connections between Japan and Thailand. Sugihara (2001) observes that Japan's external relations with other Asian countries have been largely discussed in terms of Japanese imperialism and colonial rule, but its full significance for Japan's own industrialisation has scarcely been noted. A relational reading of this early EAEI and the colonial economic and political relations that constituted it reveals early connections between both countries linking local commons enclosures and environmental commodification as Japan transformed from a weak, feudal and agrarian country into a modern industrial power and Thailand's modernising economy was increasingly shaped by primary commodity export.

Post-WWII to mid-1980s plaza accord

During the 1940s and 1950s, East Asian trade remained relatively low as the region recovered from WWII. The US occupied Japan from 1945 to 1952 and at first implemented a restrictive policy towards Japan's trade with Asian countries fearing Japan's rearmament. With the onset of the Cold War, however, the US switched its policy towards creating a regional Asian order that can be summarised as trilateral relations amongst the US (centre), Japan (semi-periphery) and Southeast Asia (periphery) (Cumings, 1984). The strategy was aimed towards containing communism in Northeast Asia and preventing its spread into Southeast Asia. The US vision was articulated by the Economy and Science Bureau Chief of the Allied Forces in 1951: 'To increase the supply of globally undersupplied materials, Japan should promote economic development in Southeast Asia... it is ideal to develop trilateral collaboration with Southeast Asian countries providing raw materials, Japan machineries, technology, and labor, and the US capital' (cited in Sato, 2012: 97). The US encouraged Southeast Asian governments to trade with Japan and Japan rebuilt and expanded its industrial capacity under dominant US relations.

Thailand was particularly prone to US influence, as after WWII it had turned to the US seeking assurance that the British would not seek Thailand as its protectorate, or impose severe reparation measures (Wyatt, 2003: 250). During the 1950s, the US provided massive economic and military aid to Thailand that constituted almost two thirds of the government's total budget (Wyatt, 2003: 262). In exchange, Thailand's military government asserted its commitment to fight communism and was a base for US troops (Phongpaichit and Baker, 2002: 130).

At an early stage, the Korean War (1950–1953) accelerated economic activity in Thailand and Japan. In Thailand, there was a boom in commodity exports such as rice, rubber and tin, domestic consumption of imported consumer goods grew and state enterprises and private business backed by military politicians expanded (Phongpaichit and Baker, 2002: 129; Wyatt, 2003: 261). For Japan, given its poor endowment of natural resources, revival of international trade was vital to its economic

recovery via the export of light industrial goods and machineries (Okita, 1992).

From the mid-1950s, Japan offered war reparations and technical cooperation to Southeast Asian countries, including Thailand, much of which was delivered via government payments in yen to Japanese firms which then sold Japanese goods and services to Southeast Asian countries. This arrangement helped Japanese firms regain access to markets in Southeast Asia (Kato, 2016: 1). As war reparations transition to Overseas Development Aid (ODA), Japan held multiple goals, including rebuilding/ maintaining bilateral relations and standing in the international community, normalising trade relations to access raw materials and markets and attaining regional security objectives (Rudner, 1989; Sato, 2012).

During the 1960s, under a strong development state, Japan pursued an export-led economic strategy promoting trade and capital liberalisation (Shimomura, 2012: 34). Japan's National Comprehensive Development Plan of 1962 focused on the development of heavy chemical industry in the four major industrial bases – Tokyo, Nagoya, Osaka and Kitakyusyu – whilst seeking to avoid overconcentration in big cities that was increasingly causing social and environmental problems (Okita, 1962). In Tokyo, industrialisation in the Tokyo Bay area resumed and expanded. This led to more extensive enclosure of Tokyo Bay's fisheries and seaweed beds with landfills to build factories and infrastructure such as canals, a seaport and airport and electricity and gas generation (Kumaki *et al.*, 2013: 996).

Many well-documented environmental and social issues arose relating to various commons. These range from environmental pollution causing illnesses, such as *Minamata* disease, to the consequences of factory concentration in East Tokyo causing urban problems such as: overpopulation; air, water and noise pollution; and subsidence due to overuse of groundwater. In 1961, an official of the Economic Planning Agency observed, 'There is no doubt that land, water, and other resources have been over-exploited beyond the limits' (Nagai, 1961: 6). There was public debate about how to manage the impacts of industrialisation. In 1969, the Tokyo Metropolitan government issued the Pollution Prevention Act which required companies

to take pollution-reduction measures, making it harder for companies to keep their factories located in inner Tokyo leading to factory relocation to the Greater Tokyo Area.

In Thailand, since 1957, the government held a policy for private-sector-led ISI. The policy was heavily influenced by Thailand's relationship with the US and Japan, whose ODA supported investment in infrastructure such as highways and other transportation, irrigation and (hydro) electricity generation and transmission and the creation of SOEs such as the Electricity Generating Authority of Thailand in 1969 and the Industrial Estate Authority of Thailand in 1972 (Raquiza, 2012). This also accelerated the export of primary commodities, that increased at a rate of 10% per year between 1960 and 1975 (Phongpaichit and Baker, 2003: 133).

Meanwhile, in Japan, from 1960 and in the early 1970s there were progressive easing of capital export controls in Japan and Japanese investment began to move into Asia. Reasons included to: reduce land and labour costs to compete with South Korea and Taiwan; improve access to raw materials; and address pollution problems through relocating polluting activities (Lehmann, 2001: 62; Stubbs, 2005: 156). Thailand passed policies to attract foreign investment, such as permitting profit repatriation and kept labour wages low and labour rights weak (Phongpaichit and Baker, 2003: 132). The flow of investment accelerated; between 1965 and 1975, 38% was from the US and 30% from Japan (Phongpaichit and Baker, 2002: 138). Japan's investors sought joint ventures with domestic Thai capital for assembly of domestic consumer goods and also for manufacture for export. Initially the most important sector was textiles, but other sectors grew in importance including automotive, consumer electronics and fertilisers (Phongpaichit and Baker, 2002: 137–141). The importance of Thai trade with Japan also grew; Thai exports and imports grew from 8 to 21% and 26 to 37% respectively between 1960 and 1972 (Phongpaichit and Baker, 2003: 142). As US hegemony weakened in the 1970s, aid, trade and investment from Japan increasingly led East Asian regionalism and established foundations of an integrated production platform were established.

Yet this growing investment from Japan began to elicit concern from Thailand's domestic

businesses, university students and the wider public about economic dominance and a growing trade imbalance, as well as concerns towards environmental and social exploitation. Sentiments against Japanese investors and Japan led to street protests and product boycotts from 1972 until 1985 (Chittiwatanapong, 1988: 85). In 1984, Dr. Amnuay Viravan, Thailand's former Permanent Secretary for Finance, commented in a journal article: 'ASEAN finds itself in the role of raw material supplier to Japan and as a market place for Japanese consumer and capital goods' (Lehmann, 2001: 66). Japan responded by reducing import duties and increasing its aid,⁷ which simultaneously sought to appease concerns and further its own investment and trade opportunities (Rudner, 1989: 115; Stubbs, 2005: 158). Yet, also significant, in the late 1970s, Thailand's economy began to struggle, facing global economic shocks, dropping commodity prices internationally and less economic and military aid from the US, as well as volatile domestic politics (Stubbs, 2005; Shimomura, 2012). A major economic crisis in from 1983 to 1985 led the government to shift its economic policy towards export-oriented industrialisation (EOI) and liberalisation and building on the aid, trade, investment and geopolitical relationships of the preceding decades, Japan emerged as Thailand's most important investor.

Thus, the conditions for the 'Asian Miracle' and the intensification of the EAEL as a production platform via GCCs was set. During the period from WWII to mid-1980s, Japan's economic recovery and industrialisation depended upon an expanding and deepening regional integration to secure resources and export manufactured products. Meanwhile, Thailand exported resources and was slowly industrialised where domestic capital partnered with Japan capital. Industrialisation in Thailand and Japan and commodity export in Thailand, reworked environment–society relations and enclosed commons, but also entangled localities in both countries through connections via GCCs and regional trade, investment, aid and geopolitics.

Plaza accord to present

The rapid industrialisation from the 1950s to 1970s elevated Japan into a major industrialised

country, but also created large trade surpluses with other industrialised economies, especially the United States and European countries (Urata, 2015). In response to these trade frictions, the Plaza Accord of 1985 between the US, Japan, West Germany, the UK and France depreciated the US\$ *vis-à-vis* the Japanese Yen. The Plaza Accord, which preceded Japan's asset price bubble and 'lost decade,' necessitated changes to Japan's trade policy and industrial structure, forcing Japanese corporations to reduce domestic production and significantly accelerate establishing GCCs that had been initiated since the 1970s. Thailand, together with Malaysia, Indonesia and the Philippines, were important locations of Japanese FDI.⁸ Thus, as Japan deindustrialised and Thailand rapidly industrialised, EAEI became defined by the emergence of an intensified regional production platform connected through GCCs.

Under these new regional conditions, the Thai government established further policies to attract FDI, undertook a series of devaluations of the baht and kept labour and environmental protection legislation weak. At its peak, in 1988, Thailand's manufacturing annual growth rate was 17.9% (Mieno, 2013) and by the end of the 1980s Thailand was recognised as a 'Newly Industrialising Country.' During the 1990s, Thailand's industry upgraded from labour intensive textiles and food processing to skill-based mid-tier manufacturer, in particular of automobiles and electronics again with Japan as key investors (Mieno, 2013). Japan also invested in other industries, such as chemicals and paper and metal products and machinery (Hartley, 2017). Between 1985 and 2016, Japanese investment in Thailand totalled US\$85 billion, which was 43% of total investment into the country and twice that of the next largest investor, the US (Hartley, 2017).

As Hartley (2017) argues, Thailand should be understood nowadays as a 'global-competition state' that situates its economic policy-making within and between the interests of domestic elites, the incentives of global markets and also the imperatives of Japan's investors, who themselves are also responding to Japan's domestic context. For example, deepening regional integration and (asymmetric) economic co-dependence between Japan and Thailand led Japan to offer significant economic support to

Thailand during the 1997 Asian Financial Crisis and in 2007 the two countries signed the Japan–Thailand Economic Partnership Agreement. Other significant political commitments to East Asian regionalism include the Chiang Mai Initiative for multilateral currency swap signed amongst the ASEAN+3 countries in 2009; the East Asia Summit held annually amongst ASEAN+6 countries since 2005; and the Mekong–Japan Summit held annually since 2009. Thus, to understand domestic economic and associated social and environmental changes in Thailand and Japan in the period of deeper EAEI requires a relational analysis.

The transformation of Thailand's economy towards EOI was accompanied by profound economic, social and environmental change and the enclosure of commons. Urbanisation accelerated and the primate city Bangkok grew rapidly, as well as other economic sites such as industrial estates in Ayuthaya and the eastern seaboard. In Ayuthaya, the site of electronic and automobile manufacture, rice fields were turned into industrial estates. Around Bangkok, wetland 'floodways' were built upon with housing, industrial estates and a new airport. Commodity export and agricultural production also continued to intensify. Impacts have included on forests, that were progressively logged until a ban in 1989 and subsequently cleared for agriculture or industrial tree plantations (Vandergeest and Peluso, 1995; Pye, 2005), the fragmentation and enclosure of rivers and fisheries by hydropower and irrigation dams (Middleton, 2017) and harms from industrial pollution and electricity generation (Boonlong, 2011). These enclosures elicited various forms of grassroots social movements and national and international environmentalism from the 1980s onwards (Missingham, 2003).

For example, a particularly notable case is the Eastern Seaboard Development Project (ESDP), which has been central to Thailand's industrialisation. The first phase of the ESDP was completed in the mid-1990s and it continued to expand throughout the 2000s and 2010s. Plans for the ESDP were first supported by the World Bank and Japan during the 1980s. Central to the ESDP has been a petrochemical industrial estate established by the IEAT utilising natural gas discovered in the Gulf of Thailand in the 1973, built together with a deep sea port

used to import various primary materials. Road, railway and water supply infrastructure were also built, largely with ODA and soft loans from Japan (Soytong and Perera, 2017). According to Thailand's National Economic and Social Development Board, between 1995 and 2000, as the industrial area expanded, direct investment created 460 000 jobs (Hassarungsee and Kiatiprajuk, 2010). However, many of the original population did not have the skills needed for industrial work and could not find decent work (Soytong and Perera, 2017).

The five industrial estates that constitute the core of the Map Ta Phut (MTP) complex include 45 petrochemical factories, 12 chemical fertiliser factories, 8 coal-fired power plants and 2 oil refineries (Soytong and Perera, 2017). At MTP, key issues have been air and water pollution, illegal hazardous waste dumping, encroachment on to community land and health impacts (Hassarungsee and Kiatiprajuk, 2010; Soytong and Perera, 2017). There have been various impacts on commons in the area that have become either degraded or enclosed. The air has become polluted by a range of toxic and cancerous chemicals (Boonlong, 2011). Local water resources have become polluted as toxic chemicals such as cadmium, zinc and lead, were flushed by rainwater into rivers and then the sea (Hassarungsee and Kiatiprajuk, 2010; pers comm., 2018). Various studies have indicated the harm to people's health, including a National Cancer Institute study that found an elevated incidence of cancer and leukaemia and the Rayong Public Health Office that identified increased levels of birth deformities, disabilities and chromosome abnormalities (Hassarungsee and Kiatiprajuk, 2010).

Whilst environmental standards have improved over time, this has been in no small part due to communities challenging the industrial estate, but many issues remain outstanding. Growing local community opposition cumulated in the filing of a court case in October 2007 against Thailand's National Environment Board (NEB) for its failure to designate MTP and nearby areas as pollution control areas (Soytong and Perera, 2017). Acknowledging the harm to health and the environment, on 3 March 2009 the court ruled in favour of the community. Despite declaring the area a Pollution Control Area in April 2009, the NEB approved a further

76 projects the following month, which was subsequently the subject of a further court case that required most projects to undertake Environment and Health Impact Assessments as required under Article 67 of the 2007 Constitution. Most recently, under Thailand's military government from 2014 to 2019, the ESDP was significantly expanded to become the Eastern Economic Corridor, whilst the legal requirement for comprehensive environment impact assessment was suspended.

In Japan, deindustrialisation, which as we have discussed above is intimately connected to Thailand's industrialisation, reduced pressure on Japan's domestic land and water resources for production and made environmental protection standards more readily attained. One example is the Disaster Prevention Block Improvement scheme, initiated in 1999. This programme aims to reduce the vulnerability of cities to natural disasters by developing evacuation parks and block improvement through the acquisition of former factory lands and other types of lands. Between 1999 and 2006, 12 areas (six in the Greater Tokyo Area and six in the Greater Osaka Area) were redeveloped using this scheme. For example, the former Nissan Ogikubo factory in Tokyo's Sugunami Ward was redeveloped in 2001 into a designated evacuation area with private shopping and residential areas and public facilities including park, fire station, nursery school and elderly care centre. Other former industrial sites have been transformed into private investments. Some, however, have been repurposed with an emphasis on sustainability. For example, Panasonic closed down major factories in Japan in the 2000s and two ex-factory sites near Tokyo, Fujisawa and Yokohama, were developed as sustainable towns – solar powered residential areas combined with a shopping malls and Apple's research and development centre.

On the other hand, other historically contaminated and now abandoned industrial sites have left a legacy of pollution and risk. This industrial legacy, including chemical poisoning in soils, is a type of environmental injustice that is still not well recognised. In Japan, one study estimated 331 000 cases totalling 113 000 ha of potentially contaminated sites (Ministry of Environment, Japan, 2007). In 2003, the government created the Brownfield Countermeasures Law

specifically to address the rising issue of brown-fields as a result of relocation of factories. One infamous recent case has been the site of the Tokyo's tuna market operated by the Tokyo Metropolitan Government that was relocated from Tsukiji to Toyosu. In 2016, just before the move to the new site, harmful chemicals were found from water in the basement of the newly established building from past industrial activity, which required costly removal at the expense of the Tokyo Metropolitan Government before the market could open.

Since the Plaza Accord, the geopolitical and economic interests of Japan and Thailand were realigned towards intensified regional economic integration, which simultaneously reworked local economies and environments to meet the demands of production, exchange and consumption via GCCs. In Thailand, the increasing flows of capital and ODA from Japan as a result of the Plaza Accord decisively shaped Thailand's 'local' environment–society relations, mostly in negative ways, leading to commons enclosures and pollution. For Japan, whilst the Plaza Accord was a political compromise to reduce the tension of trade surplus with the US and Europe, it also marked the beginning of structural change characterised by Japan's deindustrialisation along with the dialectic process of recommoning and coping with industrial legacies.

Conclusion

Modernisation since the mid-nineteenth century has profoundly transformed the East Asian region economically, socially and environmentally. Whilst there is a large and diverse literature on this 'regionalism' and how it has been constituted of and shaped by various interconnections and flows (e.g. Dent, 2016), much emphasis has been placed on the regionalisation of the economy and the emergence of an East Asian production platform connected via GCCs. To the extent that this literature engages with regional and local environmental change, a relatively direct approach is taken that typically explains negative environmental change as an economic externality, or as a case of unidirectional environmental injustice inflicted by one country (and its transnational corporations) upon another.

In this paper, we have sought to outline a relational environmental and economic history of East Asian regionalism to reveal how economic modernisation has connected together commons in distant places not only economically but also ecologically via GCCs, which we broadly understand to be transborder state-private sector hybrid processes of trade and investment, as well as geopolitics and aid. We have drawn on a critical reading of teleconnection and political ecology literature that explains interdependence between people, places, ecosystems and landscape transformation, the production of risk and vulnerability along GCCs and the associated distribution of environmental and social harms and benefits. In doing so, we have sought to move from a 'causality' analysis to a 'relational' analysis of the political economic processes of industrialisation and deindustrialisation and the connected transborder processes of commons enclosure and recommoning in both capital-sending Japan and capital-receiving Thailand. We are not proposing direct causal relations between specific locations in Japan and Thailand, but rather our paper contextualises how environment–society relations in specific locations are transformed under the relational processes and structures of East Asian capitalism. This reflects Moore's (Moore, 2015) argument that capitalism does not act externally on to the environment, but rather capitalism itself *is* the fundamental restructuring of environment–society relations.

In post-Plaza Accord Japan, deindustrialisation has to an extent been an opportunity for furthering environmental protection and recommoning, for example for disaster preparedness, as well as the reallocation of land to new private uses that seems more sustainable than previous industrialise uses. However, besides from the economic consequences of the Plaza Accord that led to Japan's 'lost decade,' there also remains a significant and underappreciated legacy of risk from contaminated industrial sites yet to be remediated. In contemporary Thailand, meanwhile, whilst remarkable economic growth since the 1980s has reduced material vulnerability for many, environmental degradation and pollution and loss of access to common pool resources such as water, fisheries, forests and land has also increased vulnerability for many others. Yet, the interdependence between society and

environment still needs to be better understood by scholars, government policy makers and civil society, including how seemingly local, but in fact transboundary-connected, commons are maintained, enclosed and/or recommoned. We argue that a relational lens on economic and environmental history in East Asia can help better explain the changes in environment–society relations in particular localities and the associated actions of ‘development states’, their relationship with domestic and foreign capital and the forms of social movements that emerge locally and transnationally in response.

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Notes

- 1 Sometimes referred to as global value chains
- 2 In Japan, we focus on Tokyo and its vicinity as a key site of the country’s industrialisation, but note that other industrial areas also grew rapidly during the Meiji period with significant environmental harm, for example Osaka’s early spinning industry in Hanshin region, which caused significant air pollution. We thank an anonymous reviewer for this insight.
- 3 Deindustrialisation does not inevitably lead to recommoning. There are many examples where deindustrialised areas have been turned to other private uses.
- 4 This differs from the types of transboundary governance arrangements that seek to maintain commons in multiple sites to maintain an ecological commons, such as a migratory wild-capture fishery or migratory bird habitats.
- 5 During the early period of Japan’s industrialisation, the Hanshin Industrial Zone situated between Osaka and Kobe initially was Japan’s largest industrial area, which

was overtaken by the Keihin Industrial Zone in Tokyo in 1940.

- 6 We appreciate one anonymous reviewer who provided additional information on the Ashio Copper Mine incident.
- 7 By the 1980s, two thirds of Thailand’s aid was from Japan, which constituted 10% of Japan’s global aid budget (Phongpaichit and Baker, 2003: 142).
- 8 These countries also benefited from the US generalised system of preferences and therefore enabled Japanese brands made in Southeast Asia for export to the US market

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