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Alternatives to land grabbing: exploring conditions for smallholder inclusion in agricultural commodity chains in Southeast Asia

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5 **Alternatives to land grabbing: exploring conditions for smallholder inclusion in agricultural commodity chains in Southeast Asia**

10 Rob Cramb, Vongpaphane Manivong, Jonathan C. Newby, Kem Sothorn and Patrick S. Sibat

15 Smallholder engagement with export commodities in Southeast Asia potentially offers a more inclusive development pathway than large-scale plantation production, which has been associated with the phenomenon of land grabs. This raises three questions which we explore in this paper: What are the agro-economic factors favouring or obstructing smallholders relative to plantations? What are the incentives for agribusiness firms to contribute to smallholder production other than by direct control of land? Can smallholder production be broadly inclusive in the face of internal differentiation and encroachment by external investors? We compare smallholder involvement with four cash crops which have experienced strong market demand – rubber, oil palm, cassava and teak – based on fieldwork in six Southeast Asian countries. We conclude that smallholder production can be a viable and inclusive strategy, contingent on the case-by-case confluence of a number of key factors which we enumerate.

20 **Keywords:** smallholders; agribusiness; plantations; cash crops; value chains; agrarian differentiation; Southeast Asia

25 **Introduction**

30 Much of the conflict over land acquisitions in Southeast Asia has been associated with the expansion of large-scale agribusiness investment in cash crops, such as rubber and oil palm, for which export demand has been increasing (Hall 2011; Hall, Hirsch, and Li 2011; Borras et al. 2011; Deininger 2011). Though rent-seeking, speculation, and amassing ‘land banks’ to impress stock exchanges are part of the motivation for land acquisitions, the fundamental driver is the underlying profitability of producing these export commodities, given strong market conditions (Byerlee 2013; Cramb 2013a; Fairbairn 2014; McAllister 2015; Baird and Fox 2015). The state has frequently underpinned this profitability with policies that provide land and labour at low prices to favoured agribusiness companies, with minimal regulation (Hall 2011; Cramb and McCarthy 2016), but the long-term growth in demand for the end products, particularly from China and India, is the driving force behind land investment. The expansion of investment in these cash crops has been associated with a resurgence in the plantation or estate mode of production throughout the region (Byerlee 2014; Cramb and McCarthy 2016), hence the perceived need for the state to constrain or displace existing small-scale landholders to make way for large plantations. It is thus the association between the growing regional demand for cash crops and the plantation mode that is at the heart of the ‘land grabbing’ phenomenon in Southeast Asia.

Yet, despite the political dominance of these plantation interests, in both the ‘first era of globalisation’ under high colonialism and in the ‘second era of globalisation’ of the last few decades there has been an upsurge in smallholder production of export commodities (Byerlee 2013). The widespread smallholder impulse to engage in cash crop production in Southeast Asia offers a potentially more inclusive development pathway than large-scale plantation production (Hayami 1998, 2010; Byerlee 2013). By ‘inclusive’ we mean a process in which large numbers of small farm households are enabled to benefit financially from participating in a profitable commodity chain, without being locked into low productivity, incurring burdensome debt, or risking the loss of their land assets.¹

In this paper we temporarily put aside the question of the political economy of plantations (Hayami 2010; Cramb 2016) in order to focus on a series of issues affecting the viability of a smallholder-oriented development strategy:

- What are the agro-economic factors favouring or obstructing smallholder modes of cash crop production relative to large-scale production entities (estates, plantations, land concessions)?
- What are the incentives for agribusiness firms to contribute to smallholder cash crop production through roles other than direct farm management?
- Can smallholder cash crop production be made broadly inclusive in the face of tendencies towards agrarian differentiation and the operation of emerging land markets?

To address these questions we compare a variety of modes of smallholder participation in commodity chains for four different cash crops – rubber, oil palm, cassava and teak – and illustrate this with examples and case studies from six Southeast Asian countries – Myanmar, Cambodia, Laos, Vietnam, Malaysia and Indonesia. These crops were selected because of their contemporary importance to agrarian change in major parts of Southeast Asia, differences in their agro-economic characteristics, the availability of a good comparative literature, and our involvement in localised case studies of smallholder production of each crop which has stimulated our thinking on these larger issues. Including other crops (e.g. sugarcane, banana and shrimp) would have been desirable but was not feasible within the limits of one paper.

The analysis is exploratory in nature and attempts to build on the contributions of Hall (2004, 2011), Hall, Hirsch, and Li (2011), Li (2002, 2014), McCarthy (2010) and others who have in different ways pursued a conjunctural approach to one or more of these questions. This approach involves systematically examining the way a number of elements (from the agro-ecological to the political) come together at particular conjunctures to influence agrarian structures and trajectories, and the way in which these conjunctures influence subsequent developments through path-dependence. Conjunctures are complex, dynamic and difficult to unravel, but they are not random (Li 2014, 16). Hence, it is possible to build up an understanding of key elements and interactions through comparative case studies.

We first analyse the potential roles of the different actors in the production and marketing of export commodities and examine how various institutional arrangements combine these roles in different ways. For each of the four commodities we then give (1) a brief overview of the modes of production used in Southeast Asia and (2) a case study derived from our own fieldwork, illustrating some of the ways these alternative arrangements work out in

¹These latter features are characteristic of situations described as ‘adverse incorporation’ (McCarthy 2010).

practice. Following this we provide a comparative analysis of the four cases in which we identify a large number of factors related to agro-economic characteristics, agribusiness incentives and tendencies to agrarian differentiation that we suggest can contribute to favourable or unfavourable conjunctures for inclusive smallholder development. The analysis is thus necessarily ‘under-determined’ – there are too many factors and too few cases to derive definitive causal explanations. However, we put forward this analysis as a contribution to understanding the conditions for smallholder modes of production to provide an alternative to the large-scale land investments associated with ‘land grabbing’.

Smallholders, largeholders and in between

The ability of small family farms to out-compete large-scale centrally managed production operations has long been argued – though with widely differing interpretations (Chayanov [1966] 1925; Netting 1993; Allen and Lueck 1998; Hayami 1998, 2010; Eastwood, Lipton, and Newell 2010; Bernstein 2010, ch. 6; Byerlee 2013; Van Vliet et al. 2015). The advantages derive from considerations such as the seasonal variability and complexity of agricultural production, the intrinsic motivation of family labour to support the household as a unit, the flexibility with which family labour can be deployed in space and time (both on- and off-farm), the low supervision costs (family workers are also typically joint managers), the greater local (site-specific) knowledge of family workers, and the diversity of household livelihood activities, promoting greater economic resilience. Hence (for example), in traditional settings where land is unequally distributed, large landowners have typically preferred dividing their land among share-croppers to hiring and supervising labour with the attendant costs and risks (Stiglitz 1986).

However, large-scale entities may have an economic advantage in activities where there are significant economies of scale and financial risk (Hayami 2010). These may include mechanised land development, mobilising finance, acquiring (high-quality) production inputs, and of course processing and marketing. None of these in itself necessitates large-scale production or long-term control of land. For example, land development on the ‘agricultural frontier’ exhibits economies of scale where it involves mechanised land clearing, terracing, drainage, soil improvement (e.g. heavy doses of lime and phosphorus in acid upland soils), road construction and finance. However, as Byerlee, Masters, and Robinson (2015) have highlighted, there are historical examples in both developed and developing countries where this function has been the precursor to sub-dividing and selling the developed land to small-scale farmers who then take over the management of production (essentially a ‘sites-and-services’ approach to rural development). The smallholder settler schemes for rubber and oil palm pioneered by the Federal Land Development Authority (FELDA) in Malaysia from the 1960s to the 1980s also illustrate this approach, though with a state agency rather than a private firm acting as the land developer (Pletcher 1991; Sutton 2001).

Likewise, economies of scale in processing often favour large-scale agribusiness entities with the necessary capital, technology and skills. Whether this also favours large-scale production depends on the stage of development of the industry as well as policy decisions (Hayami 2010). In order to achieve the economies of scale, processors need a reliable throughput of raw material; hence, in the pioneer phase it may make economic sense for them to invest in large-scale production to assure this supply. However, if there are sufficient small-scale producers within the catchment of a processing plant, a steady flow of raw material may be forthcoming without incurring the higher costs of centralised production. The influence of government policy in this commercial decision can be seen in

the case of oil palm. In Thailand, mills to process fresh fruit bunches can be established as independent business entities (Dallinger 2011) but in Malaysia a company needs to have a minimum area of oil palm (5000 ha) before it can obtain a licence to establish a mill, thereby effectively mandating large vertically integrated operations, at least at the outset (Cramb and McCarthy 2016).²

Thus agribusiness firms (small and large) and/or state development agencies can make a variety of contributions to commodity value chains, singly or in various combinations, as enumerated in Table 1. The incentives for a firm to contribute any given function vary with the agro-economic characteristics of the commodity, the state of rural infrastructure, and the politico-legal context (Hayami 2010; Hall 2011). Where these combine to provide strong incentives for large-scale, vertically integrated operations, there will be pressure to squeeze out smallholder activity, increasing the likelihood of (though not necessitating) a ‘land grab’. However, the incentives might be such that large firms concentrate on just some of these functions (e.g. input supply, processing) and rely on smallholders to undertake (minimally) the management of crop production. These incentives typically shift over time, for both smallholders and agribusinesses, for example as industry infrastructure is developed, as smallholders’ knowledge and skills increase, as the volume of production increases and as government policies change. Such shifts can account for the historical resurgence of smallholder commodity production, as well as the contemporary impetus for smallholders to capitalise on profitable market conditions for cash crops.

Various typologies have been developed to capture the ways in which smallholders, agribusinesses and state agencies can combine the roles or functions listed in Table 1 (Cramb and Curry 2012; Byerlee and Haggblade 2014; Byerlee et al. 2014). The typology in Table 2 gives us a useful framework for analysing the cases considered here. The table shows a continuum of modes of production from independent smallholders to fully integrated agribusiness concerns. The intermediate types may need some clarification. ‘Supported smallholders’ are considered to be farmers who have full autonomy over the production process and the sale of their produce but receive support, typically but not necessarily from a state development agency, in the form of inputs (e.g. subsidised high-yielding planting material) and technical advice. ‘Organised smallholders’ are those who, with or without facilitation or incentives from state agencies, organise themselves into groups to acquire inputs, share technical knowledge and/or to assemble, process and sell their produce.³ ‘Contract smallholders’ enter into a formal or informal contract with a trader/processor in which inputs are provided on condition that the product meets specified criteria and is sold to the contractor (who in this way recovers his/her investment). ‘Outgrowers’ are smallholders (whether the original landowners or new settlers) who are tied to a nucleus estate from which they receive inputs and varying degrees of technical supervision and to which their produce is committed. ‘Managed smallholders’ are those whose land is managed on a large scale by a state agency while they continue to occupy and operate their individual lots. ‘Joint ventures’ go a step further towards the plantation mode in that smallholders pool their land in a large estate which is managed entirely by a private company in which smallholders hold shares in proportion to the area of land they have contributed.

²Hayami (2010) makes a similar point about the influence of government policy on the early structure of the rubber industry in Malaysia (where the colonial government favoured British plantations) compared with Thailand (where a smallholder policy prevailed).

³These are sometimes referred to loosely as ‘cooperatives’ but do not conform to the traditional definition of a producer cooperative or a multi-purpose cooperative which both require much higher levels of organisation and are rarely successful.

Table 1. Potential contributions of agribusiness firms and/or state development agencies to production and marketing of industrial crops.

Function	Details
185 Land development	Firm/agency undertakes broad-scale, mechanised land clearing and development, possibly including infrastructure (roads, houses, social infrastructure)
Land settlement	Firm/agency surveys/allocates individual smallholder lots; agency issues titles, often subject to repayment of development credit and other conditions
190 Production inputs	Firm/agency provides planting material, fertiliser and other inputs, typically as credit-in-kind
Knowledge	Firm/agency provides training and advice to smallholders in crop production, processing techniques and land management
Finance	Agency provides direct grants to smallholders; firm/agency provides loans to smallholders; firm/agency obtains finance for other functions, e.g. land development
195 Labour management	Firm/agency recruits and accommodates plantation labour force, whether locally or internationally
Field operations	Firm/agency provides direct oversight of production (planting, maintenance, harvesting); work undertaken by plantation labour force
Harvesting	Firm undertakes contract harvesting of crop, whether mechanised or by harvesting gangs; may involve harvesting fee or purchase of standing crop
200 Acquisition (purchase, assembly, transportation)	Firm/agency undertakes purchase, assembly and/or transportation of harvested crop to processor and/or wholesaler
Processing	Firm/agency transforms raw product into intermediate or final product
205 Marketing (wholesale, retail, export)	Firm/agency trades/exports intermediate or final product; agency manages trade/exports to control prices and/or raise revenue
Facilitation	State agency brokers/enforces agreement between landholders and company for the latter to undertake one or more functions in return for land rent, profit share or other payment

210 **Smallholder rubber in Luang Namtha province, Laos**

Rubber (*Hevea brasiliensis*) began as an estate crop in Insular Southeast Asia (and southern Vietnam) around the turn of the twentieth century but was also taken up spontaneously by smallholders at an early stage, and eventually smallholders came to dominate the sector, despite fierce opposition at times from plantation interests (Barlow 1978; Byerlee 2013; De Koninck and Rousseau 2012). Rubber has agro-economic features that make it suitable for either smallholders or large-scale plantations, depending on the context. While supported smallholders can do well with rubber, there is a strong incentive for agribusiness firms to control the entire operation from land preparation to processing in a single vertically integrated operation, provided they can obtain secure tenure over large land concessions and a ready supply of cheap, 'disciplined' labour. Hence Fox and Castella (2013, 157) conclude that 'in places where land rights and support services are provided smallholder rubber cultivation is viable and profitable, and in places where they are not provided smallholders face a much more insecure future'.

In the post-war era, though direct linkages with industry remained weak, many rubber smallholders in the traditional growing areas were given significant state support, as well as

Table 2. Division of roles between smallholders and agribusiness firms or public agencies in different modes of production.

Function (see Table 1)	Independent smallholders	Supported smallholders	Organised smallholders	Contract smallholders	Outgrowers (of a nucleus estate)	Managed smallholders	Joint-venture smallholders	Integrated agribusiness company
Land development	NA	NA	NA	NA	+	+	+	+
Land settlement	NA	NA	NA	NA	+	+	+	+
Production inputs		+		+	+	+	+	+
Knowledge		+		+	+	+	+	+
Finance		+		+	+	+	+	+
Labour management						(+)	+	+
Field operations						(+)	(+)	+
Harvesting				(+)		(+)	(+)	+
Acquisition	+	+		+	+	+	+	+
Processing	+	+	+	+	+	+	+	+
Marketing	+	+	+	+	+	+	+	+
Facilitation	NA	+	+	+	+	+	+	NA

Note: Shaded cells indicate smallholder role; + indicates agribusiness firm or government agency role; (+) indicates agribusiness firm or government agency may fulfil this role in some cases; NA indicates not applicable.

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benefiting from state and industry investment in rubber research. In Malaysia, FELDA established managed smallholder schemes on state land for landless settlers, and both the Federal Land Consolidation and Rehabilitation Authority (FELCRA) and the Rubber Industry Smallholder Development Authority (RISDA) provided inputs and management for existing smallholders in so-called mini-estates (Barlow 1978). Local Departments of Agriculture also implemented subsidised planting schemes for smallholders. In Thailand, the Office of the Rubber Replanting Aid Fund (ORRAF) has long supported smallholders with high-yielding planting material, technical advice, credit, and assistance with cooperative processing and marketing (Chambon et al. 2016). In Indonesia, several types of block planting scheme for rubber smallholders were initiated, culminating in the nucleus estate and smallholder (NES) schemes, with the nucleus estate being established by a state-owned or private plantation company. However, widespread state support for rubber smallholders through extension services and provision of planting material was lacking, resulting in low yields and incomes (Barlow and Jayasuriya 1984; Barlow and Tomich 1991).

Rubber remains predominantly a smallholder crop in these traditional producing areas. However, the upsurge in prices from 2002 to 2011 has seen the expansion of rubber by more than 1 million ha in upland regions of Mainland Southeast Asia where rubber trees were not traditionally planted (Fox and Castella 2013), drawing on earlier pioneering work by Chinese agricultural scientists who successfully pushed the geographic limits of rubber cultivation to these higher latitudes and altitudes. This expansion has been undertaken by both independent and contracted smallholders (e.g. in northeast Thailand and northern Laos) and private plantation companies utilising large land concessions, particularly in southern Laos, parts of Cambodia, and Myanmar, but also in northwest Vietnam (Baird 2010; Fox and Castella 2013; Dao 2015; McAllister 2015).

This is illustrated by the recent rubber boom in Laos. According to official estimates, the area of rubber in Laos rose from only 900 ha in 2003 to 234,000 ha in 2010. Nearly 60 percent of the total rubber area in 2010 was in the Northern Region, while around 17 percent was in the Central Region and 23 percent in the Southern Region. In terms of modes of production, about 61 percent of the total rubber area in 2010 was reportedly in large estates held under land concessions, 13 percent was planted under contract farming systems and 26 percent was planted by independent smallholders (NAFRI 2011). Concessions held by Thai investors dominated in the Central Region, while Vietnamese-held concessions dominated in the Southern Region. The proliferation of concessions, particularly in southern Laos, has had major negative impacts on rural livelihoods as villagers with insecure tenure lose access to some or all of their farming and forest land (Baird 2010; Laungaramsri 2012). The promise of local employment on these rubber estates is likely to be overtaken by the use of large numbers of Vietnamese workers to meet the skilled labour requirements of the companies.

In Northern Laos, however, where Chinese businesses dominated, large concessions were less prevalent and the majority of the planted area was equally divided between independent smallholders and contracted smallholders. The government's Land and Forest Allocation (LFA) programme was implemented in this region earlier and more extensively than in the south, thereby making household and village tenure somewhat more secure. In Luang Namtha Province, one of the main rubber-growing areas in the north, the Provincial Agriculture and Forestry Office (PAFO) reported a total planted area of just over 33,000 ha in 2015, of which 11 percent was in concessions, 49 percent was held by independent smallholders (some of whom can be considered 'supported' or 'organised'), and 40 percent was under some form of contract farming arrangement (Vongvisouk and Dwyer 2016, 45). These two forms of smallholding are now considered in turn.

Hadyao, a smallholder swidden and rubber village in Northern Laos, has become the paradigmatic case of independent (*i.e.* non-contracted) smallholdings (Manivong and Cramb 2008a, 2008b, 2015; Vongvisouk and Dwyer 2016). Hadyao is a Hmong village in Namtha District of Luang Namtha Province, close to the district centre and near the main road to the Chinese border. In 1994, 14 Hmong households from Yunnan migrated to Hadyao, where they had relatives, and introduced rubber cultivation to the village, drawing on over 15 years' experience working in a rubber collective in Yunnan. The village headman and local authorities went to Yunnan to explore the possibility of planting rubber. They made a proposal to the provincial authorities and received low-interest loans for rubber cultivation, with repayments deferred until after tapping had commenced. This institutional credit proved crucial.

A survey of 95 farm-households in Hadyao was conducted in 2005 and several follow-up visits were made in subsequent years (Manivong and Cramb 2008a, 2008b, 2015). From 1994 to 1996, 341 ha of rubber were planted by individual smallholders, using seed supplied by Chinese traders, and in 2002 about 266 ha of rubber trees began to be tapped, making Hadyao the first rubber-producing village in Laos. Many villagers have since expanded their rubber holdings, using seed obtained from existing trees. A further 296 ha of rubber trees were planted during 2003–2005, so the area for swidden agriculture was substantially reduced. Village leaders undertook a survey in 2008 and found that every household had enough rubber trees to fully utilise their household labour force; hence, in that year the village declared 'no more growing rubber'.

By late 2011 there were about 650 ha of rubber planted in the village, of which 360 ha were being tapped. Every household in the village owned a rubber holding and none grew upland rice. Those with immature trees undertook tapping for others with mature plots for a 25 percent share of the output. Some also tapped rubber in other nearby villages. Since tapping began in 2002, rubber had become the major source of income in the village, with farmers benefiting from the boom in prices between 2002 and early 2011.

The rubber was sold as 'tub-lump' (the coagulated latex from a bucket) to Chinese traders who came to buy at the village, usually once a month. Every month the village authorities contacted the buyers in Yunnan by phone, looking for those who offered the highest price. Despite the establishment of a rubber-processing factory in the province by the Sino-Lao Rubber Company in 2004, Hadyao farmers continued to sell their rubber to the Chinese traders as they received a higher price. The village had set up a rubber cooperative, initially to assist new rubber farmers and manage the allocation of land, but also to improve their marketing skills and bargaining power. The cooperative came to include units from surrounding villages. This stood them in good stead when prices fell sharply from 2011, enabling them to get a price advantage of around 15 percent over unorganised smallholders (Vongvisouk and Dwyer 2016).

Bio-economic modelling of Hadyao smallholders based on conditions in 2005 showed that, while investment in rubber was very profitable, if the price of latex fell to around LAK 5500/kg, further planting would be uneconomic, and if the price fell below LAK 3500/kg, it would no longer be economic for households to tap their existing stands (Manivong and Cramb 2008a).⁴ This has been confirmed by a recent survey at a time when prices had fallen as low as LAK 4000/kg which found that, while investment had stalled and tapping had declined, farmers were still willing to tap 2–3 ha using family labour at this price, though not to hire labour (Vongvisouk and Dwyer 2016). The rural wage rate had

⁴USD 1.00 = LAK 10,500.

doubled in the intervening 10 years but the lower opportunity cost of family labour, especially where no other land was available, made tapping sufficiently worthwhile to continue on this reduced scale.

365 Almost as many rubber farmers in northern Laos began as contracted smallholders. Contracts between Lao farmers and Chinese rubber investors were initially in the form of a '2 + 3' agreement, with '2' referring to the land and labour contributed by the farmer and '3' referring to the capital, technology and marketing provided by the investor. Contracts were for 30–35 years, with options for extension or renegotiation. The revenue distribution was based on the type of agreement and the remoteness of the investment zone; normally 60–70 percent accrued to the farmer and 30–40 percent to the investor. 370 Depending on the particular contract, farmers had a choice whether to sell rubber to the investor, but the investor still received the agreed share of revenue. Rubber was sold at the prevailing market price, whether to the investor or to another trader. The '2 + 3' model of contract farming was promoted widely by the government as a way to provide smallholders with the necessary inputs and to maximise their share of revenue, as well as to ensure they retained their access to the land (NAFRI 2011).

375 While contract farming had the obvious advantage of providing new rubber planters with access to capital and technology, there was a major issue with regard to farmers' inability to contribute the agreed labour during the long gestation period before the rubber could be tapped. Hence, in many cases what started as a '2 + 3' contract has become a '1 + 4' contract in which farmers have ceased to provide unpaid labour, contributing only their land, while the investing company has taken over responsibility for management of the rubber plantation during the pre-tapping years (perhaps employing the landholder who has thereby gained a regular cash income while the rubber is maturing). The agreed revenue sharing has then been reversed, with a lower share for farmers (30–40 percent) and a higher share for companies (60–70 percent). In some instances, the sharing has involved a partitioning of land and trees rather than revenue (Shi 2008; NAFRI 2011; Manivong and Cramb 2015; Vongvisouk and Dwyer 2016). Thus the '1 + 4' model, when aggregated across many landholders, approximates to a joint venture or even an outright land concession, with smallholders effectively excluded (Shi 2008; McAllister 2015).

380 In addition to the acquisition of land by companies through modified contractual arrangements, there has been a tendency for both independent and contracted smallholders to sell their rubber plots to wealthier individuals, often urban-based investors or government officials (Shi 2008; Vongvisouk and Dwyer 2016). Some companies, such as the Yunnan Rubber Company, have also been buying rubber land, from both smallholders and other companies wanting to exit following the fall in prices. However, the demand for rubber land was at its peak during the 2009–2011 price spike, and interest has waned as prices have tumbled. 395 While there is some evidence that poor or indebted households were selling their rubber plots, it was also the case that those with more rubber than they could tap with family labour were selling 'surplus' land to businesses with the capital to hire labour. The fall in prices and the demand from Chinese companies to lease land for other crops, especially bananas, had prompted some households to cut down (some or all of) their rubber trees.⁵ Hence, the ultimate effect on the distribution of land is difficult to disentangle. The collective organisation of Hadyao and some other villages to prevent both excess planting within the village and the loss of land to outsiders is noteworthy in this context. 400

405 ⁵A report in 2015 indicated that farmers in Luang Namtha had cut down 500–600 ha of rubber trees (Rubber prices may decrease in Luang Namtha 2015).

Summarising in terms of the three research questions: (1) the agro-economic characteristics of rubber are generally favourable to smallholders, except for the long gestation period with no income, requiring some form of financial support; (2) there are profitable opportunities for agribusiness firms to support smallholder production with inputs, credit, technical advice and marketing; (3) rubber planting can adversely affect access to land for subsistence production and attract outside investors wanting to buy up established holdings, unless there are strong village institutions capable of managing these tendencies.

Smallholder oil palm in Sarawak, Malaysia

Oil palm (*Elaeis guineensis*) has been the most extensively planted Southeast Asian cash crop in recent decades (De Koninck and Rousseau 2012). The oil palm grows best in continuously wet, equatorial conditions; hence, it is planted primarily in a zone from southern Thailand, the Malay Peninsula and Sumatra in the west, through the southern Philippines (Palawan and Mindanao), Borneo and Sulawesi, to New Guinea in the east (though attempts are being made to extend these limits into Mainland Southeast Asia) (Cramb and Curry 2012). With the surge in demand for vegetable oil, driven primarily by population and economic growth in the large economies of South and East Asia, as well as the more recent growth in demand for biofuels, world palm oil production increased from five million tons in 1980 to 61 million tons in 2015, an annual growth rate of seven percent.⁶ While Malaysia was the dominant player up to the mid-1990s, Indonesia has accelerated its expansion from that point, overtaking Malaysia in terms of planted area in 1997 and surging to over 10 million ha by 2014, compared with Malaysia's total of just over five million ha (though much of this expansion in Indonesia is due to Malaysian and Singaporean investment). Between them the two countries account for 84 percent of the world's palm oil production. Each country exports about USD 18 billion of palm oil and palm oil products – in the case of Malaysia, including almost USD 3 billion in oleochemicals (Cramb and McCarthy 2016).

The oil palm industry in Southeast Asia has many examples of land grabbing and is dominated by large plantations (Cramb 2013a), though there is a sizeable and growing smallholder sector in Indonesia, now accounting for 40 percent of the planted area, and in Thailand small- and medium-sized holdings have always predominated. The industry has also experimented with almost all the intermediate arrangements listed in Table 2. Especially in Malaysia and Thailand, but less so in Indonesia, some smallholders have been supported by state-provided or state-subsidised services such as the provision of planting materials, fertiliser and technical advice. Smallholders in Indonesia are now frequently organised into cooperatives or farmer groups as a way of interacting with state services or private plantations. The major approach used in Indonesia has been the NES scheme, with the nucleus estate occupying 30 percent of the land and outgrowers occupying 70 percent (Zen, Barlow, and Gondowarsito 2005). In this arrangement the agribusiness company provides inputs and technical support to the surrounding smallholders who in turn sell their fruit to the company's mill. In contrast, in Malaysia the major approach has been the managed smallholder schemes of FELDA, which opened up forested land for settlers, and FELCRA and similar state-based agencies, which developed land on behalf of existing smallholders. Initially, the smallholders in these schemes looked after their own plots, but increasingly the schemes are centrally managed as plantations, with the landowners

⁶Compound growth rate computed from time series data in FAOSTAT (2014).

receiving a share of the profits. Joint ventures between smallholders and private plantation companies have been initiated in both Malaysia and Indonesia. These involve the pooling of smallholder land from the outset so it can be managed entirely as a plantation, with the smallholders receiving shares and dividends according to the area of land contributed. However, these schemes have proved to be very disadvantageous to the participants, who have no control over the management of the estate and receive little or no return for their land (Cramb 2013b).

There are no important economies of scale in oil palm production that would suggest oil palm is inherently unsuited to smallholders (Barlow 1986). A diversified rural household with other farm and non-farm activities can cope with the up-front costs of oil palm development. Where governments, plantation companies, traders or farmer organisations are able to provide capital to smallholders in the form of credit or grants for seedlings and fertiliser, the extra returns easily justify the initial outlay. Once the necessary skills are acquired (sometimes through family members who have worked on estates), household labour can just as easily undertake the tasks of planting, crop maintenance and harvesting as an estate labour force, and without the need for costly supervision. Thus, assisted or otherwise favourably situated smallholders can in fact obtain comparable yields to private or state-run plantations at significantly less cost.

The major economies of scale with respect to oil palm emerge in processing. The harvested fresh fruit bunches (ffb) need to be transported within 48 hours to a local mill for crushing to produce crude palm oil. While small-scale processing can be viable, a standard commercial mill in Malaysia or Indonesia capable of handling 60 tons of fruit per hour can process up to 300,000 tons of fruit per year at full capacity. This would require 15,000 ha of oil palm producing 20 tons of ffb per ha (The Palm Oil Mill 2011). A mill can still run profitably at less than full capacity, and many do, but to undertake the large investment that a commercial mill entails requires assurance that there will be a large productive area (at least 5–10,000 ha) supplying the mill. These economies of scale provide an incentive for plantations to maximise their direct control over production. In both Indonesia and Malaysia, many investors have argued that models which give ‘unreliable’ smallholders responsibility for production entail significant financial risks. By avoiding dependence on smallholders and directly controlling the largest area of production possible, plantations argue they can boost profits by maximising and stabilising the daily input of high-quality fruit to their mills. In large part this logic underpins the shift away from the NES models of the New Order period in Indonesia (McCarthy, Gillespie, and Zen 2012a). The same motivation has been behind the push to replace smallholdings with shareholdings in both government-managed and joint-venture schemes in Malaysia. However, there is no inherent reason why the supply area for a mill should not be some combination of estates and smallholders, or even a purely smallholder landscape, provided the necessary transport infrastructure is in place (Shiel et al. 1999; Rival and Levang 2014). In essence, this is a coordination problem that could be solved internally by a large private company or by a public agency or through private (or government-brokered) contracting between a processor and smallholders, whether acting individually or as a marketing cooperative.

The state of Sarawak in Malaysia has been an important example of state policies biasing the oil palm boom towards large-scale private estate development (Cramb 2011). However, the area of smallholder oil palm in Sarawak has increased dramatically in the past decade, from 9000 ha in 2001 to 96,000 ha in 2013, a growth rate of 20 percent. This compares with negligible growth in managed smallholdings over the same period and growth of around 10 percent in joint venture schemes. The growth in smallholdings has occurred with little government assistance compared to the concerted political

campaign in support of the joint venture approach – indeed, it has occurred in the face of active discouragement (Cramb 2011; Ngidang 2002; Majid Cooke, Ngidang, and Selamat 2006). Moreover, the expansion has occurred without the agrarian differentiation among smallholders that has been observed in the Indonesian context (McCarthy 2010). We now examine how smallholders in Sarawak have inserted themselves into the rapidly expanding landscape of large-scale plantation development, based on a case study of a cluster of Iban longhouse-communities that have been among the pioneers of oil palm planting in Miri Division in northern Sarawak (Cramb and Sujang 2011, 2013).⁷

The case study is based on a questionnaire survey of 72 Iban farm-households conducted in 2009. The oil palm planters in the survey were essentially independent smallholders who had taken on the activity with little or no assistance from government agencies or contractual obligations to private traders and financiers. Though there was a small number of landholders with 10–30 ha of oil palm who had started earlier and now made use of hired labour, by far the majority had planted under 8 ha, typically 2–4 ha, and operated with labour provided by husband and wife (who also engaged in other farm and non-farm pursuits). Less than one in five households had not planted oil palm, most of whom lacked non-farm sources of cash flow to provide the start-up capital and/or did not have suitable land. Thus, although there were different strata in terms of the area planted with oil palm, this did not reflect a process of agrarian differentiation in the sense that wealthy households were acquiring land from poorer households. Land remained relatively abundant in this former swidden area and the strata were more the product of initial differences in wealth and status within the longhouse and differences in ‘human capital’ affecting access to off-farm sources of cash flow, rather than a necessary consequence of the oil palm boom. The evidence from other surveys, anecdotal evidence and casual observation elsewhere in Sarawak suggest that the survey respondents were fairly typical of indigenous oil palm smallholders in the state.

Many of the smallholders surveyed began planting oil palm desultorily and experimentally in the 1980s, mainly to confirm their claim to the land, which was under pressure from large-scale plantation development. But once they started selling their fruit, oil palm became their major on-farm source of income – ‘strategic agriculture’ had become a genuine ‘livelihood strategy’. Their oil palm smallholdings provided them with steady employment and cash income throughout the year, without them being subject to the directions of plantation managers or having onerous financial obligations to suppliers of inputs and credit. This strategy was buttressed, on farm, by low-input swamp rice cultivation for subsistence and, off farm, by urban wage and salary employment, and in a few cases self-employment in rural transportation and marketing.

The survey confirmed that smallholder oil palm is a livelihood strategy that generates relatively high returns to household labour and capital, even though yields per unit of land are lower than on plantations. However, this is consistent with the circumstances of most farm-households in Sarawak, where farming land is still relatively abundant and underutilised but family labour is increasingly scarce and costly, given the opportunities available for urban-based employment and residence. Capital has also been scarce and costly, with limited availability of private credit for smallholder farm development and restricted access to the subsidised capital resources channelled through government schemes for smallholders. This constraint is being progressively lifted as increased

⁷The Iban constitute the largest ethnic group in Sarawak and are numerically dominant in the oil palm zone of Miri District.

income from oil palm provides the working capital to purchase farm inputs and expand the planted area without resort to credit, but the level of fertiliser use is still low, suggesting that capital remains limiting.

Even with low inputs of labour and capital, and hence yields of around 12 tons ffb per ha (compared with 20–25 tons/ha on plantations), smallholders with about 3 ha of mature palms were able to earn around MYR 7000 per year, providing a return to family labour of over MYR 40 per day when prices were low (around MYR 300/ton in 2009), rising to over MYR 120 per day with higher prices (around MYR 600/ton in 2011).⁸ Nevertheless, smallholder returns to labour and capital could be improved, particularly by greater use of fertiliser to increase yields. This suggests a need for greater use of well-targeted support measures enabling the acquisition of good-quality planting material, the use of higher levels of recommended fertilisers, and improvement in infrastructure.

An approach pioneered by the Malaysian Palm Oil Board (MPOB) in Miri District looks promising. This involves the establishment of smallholder buying groups (*Kelompok Baja Terkumpul*, KBT) to improve access to fertiliser and credit. The concept is that a commercial agent supplies fertiliser on credit to the participating farmers, who agree to deliver their fruit to a specified mill, which in turn agrees to deduct the cost of the fertiliser and repay the supplier. MPOB's role is to oversee the arrangement and to supply good-quality planting material and technical advice to the farmer group. The uptake of this scheme in pilot sites has been rapid and the results in terms of increased yields and incomes impressive. A typical outcome is for fertiliser use to increase fourfold to 800 kg/ha and yields to 20 tons/ha, generating a return to family labour of MYR 570/day (at MYR 600/ton) – a more than fourfold increase over the returns cited in the previous paragraph. This approach not only alleviates the constraint on capital, ensuring greater use of fertiliser, but also provides access to good-quality planting material and technical advice, and facilitates savings in the transportation and assembly of fruit for processing, while leaving the overall development and management of the farm in the hands of the smallholders. A further area of improvement would be in the upgrading of farm access roads to lower the cost of harvesting and hauling fruit, and to assist those whose land is currently not sufficiently accessible for them to consider planting. Thus, as with the rubber case above, well-targeted programmes for supported or organised smallholders have the potential to spread the benefits of the oil palm boom more widely and equitably.

Returning briefly to the research questions: (1) the agro-economic characteristics of oil palm are even more favourable to smallholders, with a shorter investment period and lower labour requirements, though to avoid being locked in to low yields, access to high-yielding planting material and credit for fertiliser is important; (2) once an oil palm industry is established, there are profitable opportunities for input suppliers and palm oil mills to support smallholder production with credit arrangements, infrastructure, transportation and marketing; (3) where land is relatively abundant and livelihoods diversified, oil palm planting can benefit the majority of smallholders in accessible villages without resulting in significant differentiation, but where land is scarce and livelihoods more vulnerable, poorer farmers can experience adverse incorporation and be caught in the backwash of oil palm development.

⁸USD 1.00 = MYR 4.03. These returns to labour are well above rural wage rates of up to MYR 30–35 per day.

Smallholder cassava in Tbong Khmum province, Cambodia

Cassava (*Manihot esculenta*) is a small perennial shrub that produces a starchy root. The crop is typically cultivated on an annual basis and has a diverse range of uses, including direct consumption as a food crop, livestock feed, starch production and biofuel production. The recent rapid spread of commercial cassava cultivation has been one of the major land-use changes in Southeast Asia, where over 3.6 million ha are now cultivated (De Koninck and Rousseau 2012; Lefroy 2014). Cassava production began increasing in Thailand in the 1970s, and then in Vietnam and Indonesia, to meet new market opportunities, particularly for livestock feed in Europe. Since 2000, changing trade policies and rising incomes have seen the market for cassava products become increasingly focused on Asia, particularly China. Southeast Asia now contributes over 95 percent of global cassava exports, with Thailand and Vietnam accounting for the majority of both dried cassava chips and cassava starch.

Cassava is subject to a range of production risks, including drought and emerging pests and diseases, and is particularly affected by price fluctuations in a range of global commodity markets that compete for land (such as maize, rubber and sugarcane) and/or substitute in final product markets (such as maize, oil, sugar and potato starch) (Newby 2016). Nevertheless, cassava production is considered a suitable activity for resource-poor farmers, given its low demand for inputs, its ability to grow on marginal land and its relatively quick turnaround. This makes it potentially important for local livelihood development in marginal upland communities. However, such smallholders need support from public- or private-sector actors to access suitable varieties, other inputs and technical advice (e.g. with regard to pests and disease control, and soil conservation measures).

In Thailand, the state has funded research, extension, the free distribution of improved planting materials, and financial support for smallholders, paid for in part by a levy on exports (as for rubber). This has permitted the growth of a prosperous smallholder industry. Cassava production in Vietnam has also become an important livelihood activity for upland smallholder farmers, but here there has been limited state support. However, there are now almost 100 large starch factories operating throughout the country, as well as hundreds of small-scale, family-operated starch extraction enterprises. Cassava starch factories do not have the option of obtaining large land concessions within Vietnam, hence they have an interest in developing formal and informal relationships with traders and smallholders to secure a reliable supply of good-quality feedstock. The perishable nature of the crop means that coordination of delivery is important to maintain quality and processing efficiency. Many starch factories have been providing planting material (stakes), credit and extension services to farmers within their supply zones in the absence of a public extension system. The incentive to do so depends on the company's ability to capture the benefits from increasing the productivity of farmers. In situations where there are competing factories or alternative value chains, hence an increased risk of side-selling, there is less incentive to provide inputs and technical advice. However, other inducements and sanctions are often given to traders and farmers to maintain loyalty.

One factory in the Central Highlands of Vietnam pursues a number of business models within its supply zone. Previously, formal contracts were signed with a large number of farmers, which was a complicated and inefficient process (Wandschneider 2008). Now the company has formal contracts with traders to deliver roots according to a schedule, and these traders develop a network of farmers, often using informal contractual arrangements. Often these key traders are advanced money from the factory which they supply to the farmers in their network. These specialist traders have an incentive to increase the

productivity of their farmers and to monitor quality and coordinate delivery. In other cases, particularly with the Ede ethnic minority, farmer groups have been established, with a farmer leader as the main intermediary between the factory and the farmers, providing inputs and coordinating the harvest and supply of roots to the factory.

Given the limited opportunity for further expansion in the main producing countries (in fact, the planted area is declining in Thailand and Indonesia, and the central government in Vietnam would like the planted area to be reduced), the industry has turned to Cambodia, Laos and more recently Myanmar to meet the growing regional demand. However, unlike the first wave of expansion in Thailand, Vietnam and Indonesia, which was dominated by smallholders supplying traders and processors, the current growth in Cambodia, Laos and Myanmar has been driven by domestic and foreign companies receiving large concessions to establish both plantations and processing facilities, with smallholders delivering varying amounts of feedstock under different market linkages (Zola 2008; Wright 2009; Manoram et al. 2011). While the expansion of estates could perhaps be explained by the ‘pioneer industry’ argument (i.e. the need to ensure an initial supply area for a new processing plant), it is a cause for concern that this expansion is occurring in countries with ‘weak land governance’ where large land concessions for other boom crops such as rubber and sugarcane have displaced smallholder livelihoods. Nevertheless, thousands of smallholder farmers are also growing cassava in these newer cassava-producing countries, as independent producers or under various contractual arrangements.⁹

The most prominent newcomer has been Cambodia, where the area has increased 15 times in the past 10 years. An ongoing study of smallholder cassava producers includes a case study of Dambae, one of six districts in the newly established province of Tbong Khmum, previously part of Kampong Cham in the country’s east. Unlike newer cassava areas in the west where there has been an influx of migrant farmers, Dambae has a long-established population, most of which was locally born, with some migrants from other districts within the province. In addition to lowland rice, grown mainly for family consumption, farmers in Dambae have been planting cash crops since the early 1990s, following de-collectivisation, the restoration of peace and stability, and improvement in infrastructure. Cassava is now the major commercial crop, accounting for 15,940 ha in 2014 or 54 percent of total agricultural land. Other commercial crops include rubber, cashew, pepper and vegetable crops. Farmers also raise livestock for income, food and manure. Proximity to Soung, a major market centre, and to the border with Vietnam makes it easy to transport agricultural produce and obtain inputs. There is no government extension or support for cassava producers, and there are very few local starch factories. Most traders are linked to starch factories in Vietnam, which are looking to expand their supply zone and obtain out-of-season feedstock to keep their factories running. While there is a flow of planting material and advice from these processors and traders to Cambodian smallholders, the link is more tenuous than within Vietnam itself.

Two major cassava-growing villages were selected for study – Pr Sreleu and Bangheur Khleung. The former had close proximity and a good connecting road to Soung, while the latter was more remote from markets and had a higher incidence of poverty. Interviews were conducted with 39 households in Pr Sreleu and 51 households in Bangheur

⁹For example, in Myanmar there are more than 15,000 ha of smallholder cassava grown in the Ayeyarwady Region supporting over 250 small-scale starch processors. By comparison, in Kachin State the Yuzana Company has a 100,000-ha cassava plantation (with 16,000 ha currently established) (Nyi Nyi 2015).

Khleung. Most households owned 2–3 ha of farming land, while around 20 percent owned 5–10 ha. A minority worked as daily-paid agricultural labourers within the village. Some landless poor had moved out of these villages to other nearby provinces such as Kratie and Prea Vihear where there was still land that could be cleared and occupied, as there was little room for expansion in either village.

Upon implementation of decollectivisation in 1989, each family received 0.5–1.5 ha depending on the number of household members. Farmers slowly converted the village for-estlands for cash crop cultivation. They switched among multiple crops such as sesame, soy bean and cassava as prices fluctuated. Production was mainly for the local market, with some exported to Vietnam. Increasing demand for cassava tubers from starch factories in Vietnam has driven the cassava boom since the early 2000s. A high-yielding Thai variety (KU50) was introduced by traders to Pr Sreleu in 2000 and to Bangheur Khleung in 2004. Cassava stakes were imported from Vietnam and retained by farmers for sub-sequent plantings. The price of cassava roots has been fluctuating but the demand from traders has continued to increase. The introduction of commercial cassava led to abandon-ment of existing cash crops such as soybean and sesame. Farmers preferred cassava because it was much easier to plant and had higher returns and better market prospects, the village was accessible to traders, and newly cleared forest land was suitable for cassava production.

The village studies found three implications of cassava planting for rural livelihoods. First, the conversion of land to cassava production led to loss of access to forest for food, timber and resins. Most people stopped raising cattle because they were replaced by tractors and there was very little forest available for grazing. In Bangheur Khleung, an increasing proportion of forest land had been cleared for soybean production. On adoption of commercial cassava farming, the rate of forest loss increased. In 20 years of cash crop production, the village forests disappeared.

Second, commercial crop production caused rising land prices and attracted urban-based investors to buy land for cash crops. Land ownership is increasingly concentrated in medium and large holdings. Some farmers sold their land to urban investors or better-off households in the village as a means to survive when faced with price or yield down-turns or other financial shocks (i.e. distress sales). Others took the opportunity of increasing land prices to sell their land so as to invest in other, less labour-demanding livelihood activi-ties (i.e. strategic sales). Some sold their land to outsiders, fearing that their land would be grabbed due to the lack of a proper title.

The third implication is that the cassava boom has led to the movement of some farm households out of the community. Findings from both villages confirm that push factors (many of them interrelated) included an initial lack of productive land, growing household numbers, distress sales of land, failure in commercial crop production, and the rising price of land locally. The main pull factor was the availability of forest land in Kratie, Rattanakiri and Mondulakiri provinces to the north that could be cleared for farming. Hence many of those caught up in the backwash of the cassava boom in Dambae were contributing to the spread of the boom to more remote and less-densely populated areas, where minority groups were less prepared for the transformations this involved (Mahanty and Milne 2006).

In terms of the three research questions: (1) the agro-economic characteristics of cassava are favourable to smallholders, giving a quick return with low requirements for labour and inputs and flexibility in crop choice, though there are significant yield and price risks that can adversely affect smallholders who go into significant debt to plant the crop; (2) starch processors and traders have a strong incentive to support smallholder production within their supply areas by providing suitable planting material, credit and technical advice, provided the risk of side-selling can be minimised; (3) where rural

poverty is high and land tenure insecure, rising land prices and indebtedness can induce poorer farmers to sell their land and migrate, thereby shifting the locus of cassava expansion to frontier zones in a cascading process of differentiation.

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Smallholder teak in Luang Prabang province, Laos

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Teak (*Tectona grandis*), a tall, deciduous, tropical hardwood, occurs naturally in a discontinuous distribution across India, Myanmar and Thailand, extending into northern Laos (Midgely et al. 2007, 2015).¹⁰ It has also become naturalised in Java, following its introduction several centuries ago. Steadily increasing global demand for tropical hardwoods and depletion of native teak forests have created an incentive to establish teak plantations in these and other tropical countries, both as smallholdings (as in Thailand) and as large-scale plantations (as in Brazil). Teak requires little labour or other inputs. Apart from suitable environmental conditions, productivity depends on selection of good planting material, appropriate spacing, periodic thinning and pruning, and harvesting to maximise the market value, which varies in increments with size class.

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The total planted area of teak is estimated to be about 30 million ha in 36 countries (Midgely et al. 2015). The Floresteca Group is the world's largest privately owned teak producer, with 24,000 ha of planted teak forest in Brazil, producing 200,000 m³ of round timber annually. The Floresteca website frankly identifies the desiderata of plantation companies throughout the world: 'The group benefits from ideal conditions in Brazil due to the availability of arable low priced land, sufficient rainfall, high soil quality and optimum climate conditions. Moreover Brazil offers access to an economically favourable labour force ...'.¹¹ However, as with other plantation crops, Midgely et al. (2007) report a general shift from large-scale teak plantations to small-scale lots incorporated in diversified farming systems, whether as independent holdings or as outgrowers of a vertically integrated concern.

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In Laos, there are no large-scale teak plantations. Rather, smallholder teak farms have been identified by government planners as a potentially valuable component of upland farming systems, enabling subsistence swidden farmers to move into commercial agriculture and out of poverty. Teak planting commenced with government support more than 50 years ago in Luang Prabang Province in northern Laos, but a rapid expansion has occurred in the last 20 years, with over 10,000 ha of smallholder teak now established in the province (Midgely et al. 2007). This crop provides high returns, especially in relation to current household incomes, and has good long-term market prospects. Most of the teak is sold to traders who supply local sawmills, but only five percent of the sawn timber remains in the region while 95 percent is transferred through Vientiane-based traders to Thailand, Vietnam and China (Mohns and Laity 2010). Local agribusiness actors purchase, harvest, transport and process teak logs, acquiring whatever they can, usually in a buyer's market. Improved management and marketing practices have the potential to increase substantially the returns to teak-growing households (Dieters et al. 2014), but these local agribusiness actors have no real incentive to transmit these improved practices to smallholders (compared with the case of cassava processors considered above).

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¹⁰Teak was also introduced to Vietnam in the early twentieth century. It was almost eradicated in the French and American wars, but has been revived in recent decades.

¹¹Floresteca Group website, <http://www.globalforestry.com/floresteca-group-overview> (accessed 1 May 2015).

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Smallholder teak planting in Luang Prabang has been strongly influenced by government land policy. The Land Law 1997 and Forestry Law 1996 provide the current framework for the eradication of swidden agriculture and the encouragement of sedentary farming, including the establishment of tree plantations. The state authorises individuals and households to use agricultural land in accordance with a village-based allocation plan and objectives – the LFA process mentioned above in relation to rubber. The area allocated includes land for food crops and up to 3 ha of ‘degraded forest land’, mainly land previously used for swidden agriculture, where tree-planting activities are meant to be focused. If a household does not utilise the land it has been allocated within three years it may be returned to the village committee for redistribution to other farmers (Ducourtieux et al. 2005). As a result, many farmers planted teak on the plots they did not currently need for food crops to retain them for the future (Kolmert 2001; Midgely et al. 2007). This disadvantaged households that were slow to realise the implication of the LFA process, as well as those arriving later in the village (either as part of a resettlement programme or through voluntary migration) who had a reduced pool of available land to claim.

There was a brief boom in teak planting in Luang Prabang in 1988 and another larger one in 1996, after which the rate of planting slowed. Nevertheless, the total area has increased from 500 ha to over 10,000 ha in the past 20 years (Kolmert 2001; Midgely et al. 2007). Researchers have identified a variety of reasons why farmers have planted teak (Hansen, Sodorak, and Savathvong 1997; Kolmert 2001; Midgely et al. 2007):

- depletion of wood supply from natural forest and the emergence of a market for relatively young teak timber (15–20 years old);
- relatively secure private land tenure since the 1990s;
- the permanent settlement pattern adopted by most villages;
- expansion of the road system;
- land allocation schemes that gave additional land for production of perennials;
- promotion of tree planting by private investors through financial support, the production of stumps, and information dissemination;
- promotion and extension by government agencies.

Thus, while teak was planted by independent, village-based smallholders, the role of public agencies and private investors in providing planting material and technical support was significant.

There is considerable diversity both within and between teak-growing villages in Luang Prabang. In November 2009 a survey of 127 households in five teak-growing villages was carried out in four districts of Luang Prabang Province to explore the differences within and between villages in teak planting and management (Newby et al. 2012). The five villages were selected to highlight differences in proximity to Luang Prabang City, ethnicity, resettlement history, population density, and other land-use opportunities. Four-fifths of the surveyed households had planted teak, averaging 1330 trees (1.4 ha) per household. The distribution of plantation size was positively skewed, so the average was inflated by a small number of larger plantations. About 20 percent of households surveyed had never planted teak and 40 percent had planted less than 1000 trees (1.1 ha). The largest 10 percent of plantations ranged from 3000 trees (3.2 ha) to 20,000 trees (just over 20 ha). However, the sampling was not able to capture absentee landholders (discussed below) whose holdings reportedly represented up to 50 percent of the planted teak area in the more accessible parts of Luang Prabang.

815 The pattern of planting reported in the household survey showed a few years of extensive planting during the 1990s, and a major expansion in the 2000s. The data suggest that this more recent expansion was not primarily strategic, to take advantage of the LFA process, but was related to factors such as the implementation of restrictions on swidden agriculture, the new ability to transfer land, and the improvement in road infrastructure and market opportunities. Furthermore, seeing early planters reap the benefits as the trees reached harvestable age encouraged other households to plant. The survey data indicate that it was the better-off households that had settled earlier, had access to paddy land, had achieved higher education, had off-farm sources of income, were not reliant on swidden cultivation, and were less dependent on cattle that had adopted teak and planted more trees. Those households without teak typically had fewer assets and lived in houses constructed of temporary materials. This relative lack of assets was also related to other factors, notably the household's relocation history (mainly affecting Hmong households resettled from the highlands). Some of the variation in assets can also be explained by village-level factors, such as the absence of electricity or a mobile phone signal in one village, or a recent fire in another that had destroyed the majority of the houses.

820 The causal relationship between teak holdings and household assets was not straightforward. Did teak households have more assets because they had planted and benefited from teak, or were they able to establish teak plantations because they had more resources to begin with? Analysis of the survey data showed that the asset levels of those households that had planted but not yet harvested teak were higher than those of households that had never planted teak, suggesting that initial household wealth was an enabling factor. However, early planters who had already harvested some teak tended to have greater wealth than other planters who had not yet harvested any trees, suggesting that teak planting also had a positive economic impact.

825 Given the low rate of rice self-sufficiency in the region, households with little land that adopted teak faced a food shortage problem until the trees could be harvested. For this reason, Hansen, Sodorak, and Savathvong (1997) suggested that teak was primarily suitable for wealthier farmers, businessmen and government employees. These authors concluded that one of the main motivations for other upland farmers to plant teak was the possibility of selling young (1–3 year-old) plantations to investors. Furthermore, they supposed that, since plantations were predominantly established on flatter land next to roads, farmers had lost much of the best agricultural land for the production of other cash crops. According to Kolmert (2001), the selling of land recently planted with teak had been occurring even before farmers had the required certificates and resulted in many farmers not having enough land on which to grow food.

830 During the 2009 interviews, respondents were asked if they had purchased or sold land in the recent past. Overall, 36 percent of households had purchased land and 21 percent had sold land. The data suggest that better-off households in the survey were purchasing both established teak blocks and fallow land that they later converted to teak. Given that the survey did not include absentee landowners, the full extent of land transactions was difficult to quantify. Anecdotal evidence, however, suggests that the scale of land transactions is increasing, with investors looking for land on which to plant both teak and rubber. The money from land sales was reported to be used for school fees and weddings, and to meet healthcare expenses.

840 For households that depended on swidden agriculture for their livelihoods, the role that teak played in their livelihood strategy had changed little since the 1950s. Many of these households reported that they borrowed land for upland rice production on the condition that after harvest they established teak for the owner. The next year they would have to

find a new piece of land to grow their crops. However, because the area of teak had expanded, these households reported that they now have to travel farther afield, often walking to neighbouring villages and into more remote and steeper country.

860 Formal and informal sources of credit were available to farmers in some villages. The incidence of borrowing was higher among non-teak households and those with smaller plantations, suggesting that teak plantations (like rubber plantations) substitute for borrowed capital, providing a 'bank' to fund household needs as they arise by selling a number of trees (regardless of whether they had attained optimal girth). This also suggests that indebtedness was a motivator for selling young teak plantations, which had come to imply selling the land underneath. Therefore, without access to alternative productive land or income sources, maintaining ownership of teak land will continue to be difficult for many households. As permanent land titles are progressively issued, permitting the land to be transacted legally, more households may sell some of their titled land in order to survive.

870 Research on teak agroforestry systems that provide short- and medium-term cash flow (e.g. under-planting with rattan, intercropping with paper mulberry) may enable a more gradual transition to teak systems for households with little land. However, farmers with alternative livelihood activities and absentee landowners are unlikely to adopt these more diversified and labour-using systems. For these households, the establishment of teak plantations not only represents a source of future income and wealth, but also provides a method for maintaining access to land beyond the area they can physically cultivate. Thus, even with increased research and extension efforts, the boom in teak planting is accelerating processes of agrarian differentiation, with a small group of better-off farmers and urban-based outsiders capturing the majority of the benefits, while those with greatest dependence on swidden agriculture are actually made worse off through declining access to land and capital.

880 Returning to our research questions: (1) the agro-economic characteristics of teak make it an attractive crop for smallholders as it can be easily established and requires little or no household labour to grow and harvest; hence, it can be used to secure claims to 'surplus' land while accumulating wealth for emergency needs and/or long-term investments; (2) governments and investors have an incentive to supply good-quality planting material and technical advice to smallholders to 'stabilise' land use and expand the supply of teak logs for millers and traders; (3) because teak planting locks up land without requiring significant labour input it favours better-off smallholders and outside investors, while creating a backwash effect on poorer households who are more likely to sell their teak stands early and push farther into marginal land to meet their subsistence needs.

890 **Discussion**

A wide range of factors have been apparent in considering the potential of the four commodities to improve smallholder livelihoods, summarised in Tables 3–5. It is not possible to review each factor here. However, the influence of these factors on inclusive smallholder conjunctures can be illustrated by comparing the four case studies in terms of the three research questions.

895 What are the agro-economic factors favouring or obstructing smallholder modes of commodity production relative to large-scale production entities? Each of the four commodities considered has agro-economic attributes that advantage and disadvantage smallholders (Table 3). For example, rubber has a low requirement for major land development, being readily established in swidden fields; once tapping begins there is year-round employment for family labour, which can include men and women, young

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Table 3. Agro-economic characteristics of four boom crops.

Characteristic	Rubber	Oil palm	Cassava	Teak
Need for major land development	L–M	L–M	L	L
Investment up front for production	M–H	M–H	L–M	L–M
Benefit of using improved planting material	H	H	H	M
Time to first harvest	6–7 years	3 years	< 1 year	10+ years
Year-round labour requirements	H	H	M	L
Susceptibility to mechanised production	L	L–M	M–H	L
Yield risk	L	L	H	L
Susceptibility to mechanised harvesting	L	L–M	M	M
Harvesting frequency	1–2 days	3–4 weeks	Annual	Episodic
Storability of harvested product	M	L	L	H
Selling frequency	Monthly	3–4 weeks	Annual	Episodic
Price risk	H	M	H	M
Coordination between harvesting and processing	M	H	H	L
Percentage of processed product to raw material	H	H	H	H
Investment in first-stage processing	L–M	M–H	L–H	L–M

Source: Adapted from Byerlee (2013, Table 2.1). Note: L = Low; M = Moderate; H = High.

and old; there is little yield risk; and the product is storable and transportable in small quantities, giving market flexibility. However, there is a long time to first harvest, making it difficult for smallholders to sustain family labour unless they also have other livelihood activities or there is some form of external support. Similar sets of trade-offs can be identified in Table 3 for the other commodities. However, given strategic interventions in the establishment phase (e.g. provision of good-quality planting material and planting grants or concessional loans), smallholder production proved viable for a majority of households in all four cases, showing that arguments for large-scale agriculture cannot be based on commodity-specific factors alone.

Given that smallholder production of the four commodities was viable and expanding in the case studies, what were the incentives for agribusiness firms to contribute to smallholder commodity production through roles other than direct farm management? As enumerated in Table 1, agribusiness firms and/or state agencies can provide a variety of inputs and services to commodity value chains, singly or in various combinations. The case studies showed a range of complementarities between smallholders, agribusiness firms and government agencies, specific to each context, summarised in Table 4. For example, in the cassava case, while farmers manage the entire production process, there is a strong mutualistic link between smallholders and starch processors, mediated by traders, such that planting material, credit and information are frequently sourced from the processors, who benefit from the increased supply of better-quality product. Even where the relationship is monopsonistic, farmers have flexibility in their crop choice and need to be treated fairly by traders if they are to remain loyal suppliers.

The case studies also shed light on the question whether smallholder commodity production can be broadly inclusive in the face of powerful tendencies towards agrarian differentiation and the impersonal operation of land markets. The agro-economic attributes of the commodities and the complementarities with agribusiness firms, discussed above, combined to allow smallholder production to be a profitable undertaking, increasing household incomes and assets, both tangible (e.g. land values, house quality, vehicles) and intangible (e.g. knowledge, skills). Moreover, adoption of these cash crops has been widespread, with most or all households in the case-study villages benefiting from planting the crop in

AQ22 Table 4. Contributions of actors in four smallholder value chains.

Function	Rubber (Luang Namtha, Laos)	Oil palm (Miri, Malaysia)	Cassava (Dambae, Cambodia)	Teak (Luang Prabang, Laos)
Land development	Infrastructure already in place; land cleared by smallholders	Infrastructure already in place; land cleared by smallholders	Infrastructure already in place; land cleared by smallholders	Infrastructure already in place; land cleared by smallholders
Land settlement	Land and Forest Allocation managed by village	Customary tenure remains in force	Land ownership recognised by village	Land and Forest Allocation managed by village
Production inputs	Smallholders purchase seed and inputs	Smallholders purchase inputs with cash; agency provides some planting material	Smallholders purchase planting material and inputs	Smallholders purchase planting material from government and private nurseries
Knowledge	Farmers learn from experienced farmers and traders	Farmers learn from government agencies and other farmers	Farmers learn from processors	Farmers learn from government agencies
Finance	Government loans, repayable on maturity of crop	Government planting grants; credit for fertiliser deducted by mill	Credit from processors, moneylenders	Purchase of standing crop
Labour management	Family and local labour	Family and local labour	Family and local labour	Family and local labour
Field operations	Farm household	Farm household	Farm household	Farm household
Harvesting	Family and local labour	Family and local labour	Family and local labour; harvested by buyer	Harvested by buyer
Acquisition	Trader comes to farm to purchase tub-lump rubber	Smallholder delivers fruit direct to mill or via local collector	Trader/processor comes to farm to purchase, perhaps harvest, and transport tubers	Trader/miller comes to farm to cut and transport logs
Processing	Large-scale rubber mills (in China)	Large-scale palm oil mills	Mostly large-scale mills (small-scale mills in Myanmar)	Small- to medium-scale local sawmills
Marketing	Traders to mills in China	Mills to refineries to exporters	Starch processors to traders and end-users	Sawmills to exporters
Facilitation	Government loans; village negotiates best price, arranges for traders to come	Agency facilitates link between smallholders, fertiliser suppliers, and mills	Processors/traders supply planting material, inputs, advice, scheduling	N/A

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Table 5. Factors potentially affecting agrarian differentiation in the four case studies.

Factor	Rubber (Luang Namtha, Laos)	Oil palm (Miri, Malaysia)	Cassava (Dambae, Cambodia)	Teak (Luang Prabang, Laos)
995 Initial wealth differentiation	Low	Moderate	Low	Moderate
Land frontier	Closed	Closed	Open	Closed
Land abundance	Moderate	High	Moderate	Moderate
Tenure security	High	Moderate-high	Moderate-high	High
Access to rice land	Limited	Widespread	Widespread	Limited
1000 Extent of participation in cash crop production	High	High	Moderate-high	Moderate-high
Ease of absentee management	Low-moderate	Low	Low	High
Income risk due to yield and/or price fluctuation	High	Low-moderate	High	Low
1005 Dependence on credit	High (but not onerous)	Low	High	Low
Alternative sources of livelihood	Limited	Widespread	Moderate	Moderate
1010 Strength of community institutions	Moderate-high	Moderate-high	Low	Moderate

question. Nevertheless, in each case there was an emerging inequality in the area planted, and in some cases in the overall distribution of land owned. The key factors contributing to this differentiation are listed in Table 5. However, there was no simple causal relation between a given factor and an observed outcome. Rather, it was the conjuncture of multiple factors that influenced the degree of inequality that emerged.

For example, in the oil palm case in Miri, though there was relatively abundant land (including widespread access to paddy land), no indebtedness, alternative sources of income, and no land transactions, there was a positively skewed distribution of oil palm holdings. But this was largely related to initial differences in land and labour resources, enabling some households to plant more oil palm, without impinging on the ability of other households to follow suit. This, then, was a case of 'non-impoverishing differentiation' in which all or most households were progressing but some faster than others.

In the rubber case, farmers were more constrained. However, the early rubber planters in Hadyao were able to find enough land to grow rice, within and outside the village, and the later planters were able to work as tappers while their own holdings matured. Though some inequality in land and income emerged, largely related to the time of planting, the village leaders took a strong role in ensuring everyone had a rubber holding, limiting the total area planted, prohibiting land sales to outsiders, and promoting a cooperative approach to marketing. The outcome was 'minimal differentiation'. However, contract farmers were much more vulnerable to loss of land due to their inability to fund their own labour during the establishment phase under '2 + 3' contracts and the perverse twist by which renegotiated contracts often involved splitting not just the output but the land with the investor. In addition, purchases of rubber land by wealthy outsiders were resulting in a redistribution, not just within the village but between urban and rural landowners (as also in the teak case in Luang Prabang).

1040 The cassava case study in Dambae shows a less well-insulated situation. Though farmers started on a fairly equal footing with land reform in the 1990s and had maintained their subsistence base, the expansion in commercial crops, especially cassava, combined with steady growth in population, had eaten into their available forest land, limiting forest-based livelihood pursuits such as cattle grazing and closing the frontier for new households. In addition, the high levels of indebtedness and the risks associated with cassava production meant that some households were forced into distress sales of land. More successful farmers were ready to buy up this land and enlarge their holdings, while outside investors were also attracted by the rising land values and the opportunity to profit from cassava production. Hence some households became landless or near-landless, and some left the village to occupy land in more remote provinces. Village institutions were not able to address this process of 'impoverishing differentiation', for example by preventing absentee land purchases.

1050 **Conclusion**

1055 Land grabs in Southeast Asia are driven by many motivations, but the underlying dynamic is to cash in on favourable agricultural commodity markets, increasingly driven by demand from within Asia. Past and present crop booms have seen both small- and large-scale production entities emerge. While large-scale operations may have economic advantages, particularly in a pioneering setting, it is clear that once an industry is underway and infrastructure is in place, there is a strong smallholder impulse to engage in commodity production, such that the share of planted area and output attributable to smallholders increases over time. In some policy settings, a successful industry can be developed from the outset entirely by small- and medium-holders, such as with all four commodities in Thailand. Hence the agro-economic attributes of the commodities associated with land grabbing do not in themselves warrant a policy emphasis on large-scale land investments. This underscores the point made at the outset that it is primarily politics rather than economics that underlies land grabbing.

1065 Where the politics restricts the opportunity for land grabbing and facilitates the expansion of smallholder commodity production, the case studies underscore that smallholder success depends on crucial contributions to value chains by private- and public-sector actors. These include upstream contributions, notably the provision of quality planting material, production inputs, technical knowledge and finance, and downstream contributions, especially transportation, processing and marketing. Public agencies committed to smallholder development can broker innovative arrangements between farmers and agribusinesses that ensure all parties benefit, such as the fertiliser buying groups (KBT) for oil palm smallholders in Sarawak. Even without such public-sector facilitation, specialised processors dependent on smallholder supplies of feedstock often have an incentive to provide technical and financial support to smallholders in their catchment, as with cassava starch factories in Vietnam (though not extending to the opportunistic cross-border trade with Cambodian producers). To avoid the high transaction costs of dealing with many smallholders, intermediaries in the value chain become important to coordinate activities, including traders and farmer groups.

1070 There is little doubt that widespread smallholder engagement with agricultural commodity chains is associated with more inclusive patterns of rural development than **are** large-scale land concessions that typically restrict and displace traditional rural livelihoods. However, what Tania Li (2011) calls 'everyday processes of accumulation and dispossession' can undermine the effectiveness of smallholder-oriented policies in reducing rural

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AQ21 poverty, leading instead to ‘small-scale land grabs’. All four case studies presented here showed this tendency towards growing inequality among smallholders. Nevertheless, depending on the contextual factors in play, the emerging differentiation can be either impoverishing (as with teak in Laos and cassava in Cambodia) or non-impoverishing (as with oil palm in Sarawak). One important factor is the initial inequality and vulnerability of poorer households in the community. Another is the incentive and opportunity for outside investors to acquire increasingly valuable land from smallholders, many of whom find they end up without their foothold in the village economy and have to resort to selling their labour or migrating. However, strong village institutions can enable all households to benefit from a profitable cash crop, limit the extent of internal differentiation, prevent a land grab by outside investors, and engage on a cooperative basis with the market. The pioneering rubber village in Laos is a rare example of this degree of foresight and self-organisation. However, secure land tenure and smallholder-oriented policies, as pursued in Thailand and (in the past) in Malaysia and Indonesia, can go a long way to ensuring the benefits of engaging in commodity chains are widely spread.

Thus, our analysis leads us to agree with Byerlee, who concludes that

historical experience has shown the importance of providing a level playing field for smallholders. Where support services have been put in place, including research, extension, land-tenure security, and finance, a vibrant smallholder sector has eventually emerged to dominate the industry. This has not only alleviated land conflicts, but also promoted inclusive rural development. (Byerlee 2013, 39)

There are clearly alternatives to land grabs that enable small- and medium-scale family farms to benefit from cash crops, but these are radically contingent on the conjuncture of favourable land policy and institutions, robust farmer organisations, and well-targeted support from state agencies and agribusinesses.

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