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## ‘RATTAN IS SICK’

### Exploring the (dis)continuity of Kalimantan’s rattan-swidden complex<sup>1</sup>

*Viola Schreer\**

#### Introduction

‘These days, rattan is sick’, Bapa Edwin\*\* declared, as we sat on the remnants of a fallen tree in his rattan garden in April 2013. Bapa Edwin’s garden was a legacy from his ancestors, handed down by his great-grandfather to him and his siblings. We had taken a break from harvesting rattan (locally called *manetes*) to take a sip of coffee and have some biscuits. Bapa Edwin smoked. The cigarette smoke and the smouldering of a small fire protected us from the mosquitos attracted by the sweat of our bodies. It was 10 o’clock in the morning and the heat had started to build up, adding to the travails involved in working rattan. Harvesting the canes, said Bapa Edwin, was *uyuh* – in his language, tedious, painful and exhausting. My back was hurting. My arms were tired from holding the machete and pulling the canes. Feeling small pieces of spiny leaves in my hair and inspecting the scratches on my hands despite the gloves I had worn, I had to agree. Bapa Edwin, who was 52 years old at that time, continued:

Rattan harvesting is the hardest work on Earth: first, the spines; second, you have to pull hard; third, you have to climb; fourth, you have to peel the skin off; fifth, you have to carry the rattan to the river; sixth, you have to bundle the rattan; seventh, you have to release it into the water and then lift it again; and eighth, there are many mosquitoes and other insects. In fact, harvesting rattan just makes trouble.

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\* DR. VIOLA SCHREER is a postdoctoral researcher at the Anthropology Department of Brunel University London, where she explores a community conservation scheme in Central Kalimantan as part of a broader study into the global nexus of orang-utan conservation. Since 2009, she has carried out almost two years of anthropological fieldwork in Central Kalimantan. This study stems from her PhD fieldwork, conducted in 2012 and 2013 with support from the German Academic Scholarship Foundation and the World Agroforestry Centre (ICRAF).

\*\* All names used in this chapter, including those of villages and people, are pseudonyms.

Rattan (from the plant family *Arecaceae*, subfamily *Calamoideae*) is a general term for a large and complex group of mostly climbing spiny palms that occur in Old World tropical forests and constitute the world's most important (agro-)forest product (Siebert, 2012, p.1).<sup>2</sup> For centuries, local communities have used rattans for tying, basketry, dying, construction, medicine, food and rituals, and have sold the cane to international markets (Schreer, 2016b).

Despite the pain and frustration I felt throughout that day, I was happy to accompany Bapa Edwin and learn more about working the cane. During 16 months of fieldwork, it remained my first and last-but-one time that I joined in harvesting in Indonesia's self-proclaimed 'Rattan Regency'.

In 2008, Katingan (Figure 30-1) set itself the goal of becoming the production and trade centre of rattan in Indonesia.<sup>3</sup> Supported by the national government and several non-governmental organisations (NGOs), Katingan's government drafted an impressive master plan with the aim of developing the local rattan industry. The Ministry of Forestry decided that, as part of Indonesia's ambitions for so-called 'green development', it would establish a rattan cluster in Katingan as part of a wider government strategy of developing its non-timber-forest-product (NTFP) sector. Diverse initiatives were set up, including an inquiry into rattan stocks, rattan reforestation projects, the formation of farmer cooperatives, rattan certification, handicraft workshops, the resettlement of Javanese furniture-makers and the establishment of a state-owned factory. However, what I found throughout

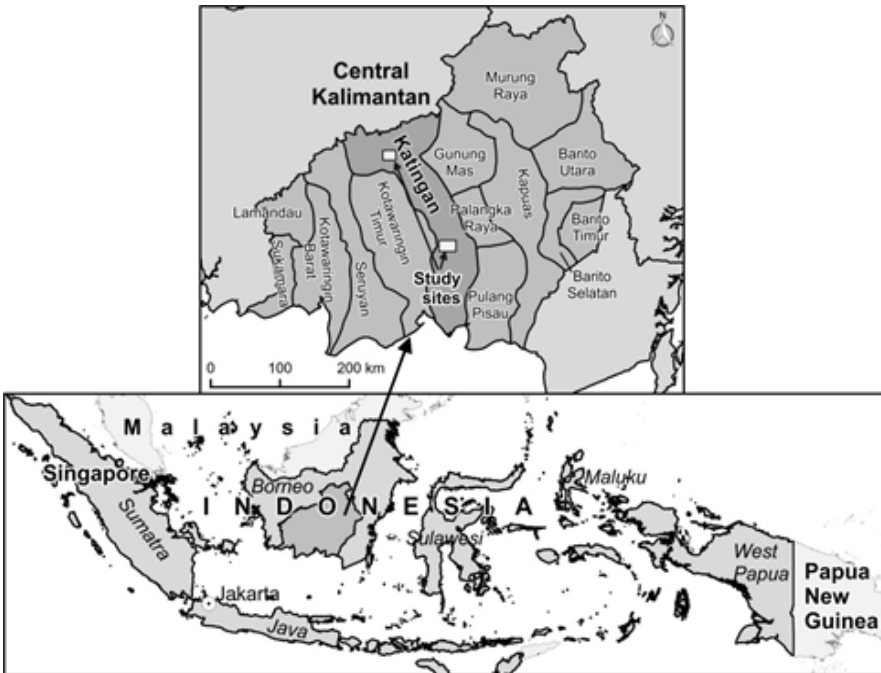


FIGURE 30-1: The study sites at Dahanen (lower) and Sapan (upper) in Katingan regency, Central Kalimantan.

my research in 2012 and 2013 contradicted this vision of a thriving local rattan industry. Rattan gardens were left unmanaged or converted to alternative land uses (e.g. banana plantations, rubber gardens and oil-palm fields), while more and more farmers worked in small-scale gold mining operations or as wage labourers in expanding oil-palm plantations.

'These days, you can no longer live from rattan, not like in the past. Rattan is sick indeed', Bapa Edwin repeated. In the past, rattan harvesting had allowed for livelihood improvement and well-being. But nowadays, Katingan's rattan farmers consider it *pehe* (sick). Not only does rattan no longer guarantee their livelihood, the prices also fail to compensate for the stresses and strains involved in working the cane. Just as rattan is sick, so is the economic situation of the local rattan farmers. Given that there was little chance for his life to improve under present political-economic conditions, I asked Bapa Edwin whether he was considering replacing rattan with rubber, oil palm, or bananas. 'No,' he said without hesitation. 'Rattan has always been there and it will always remain. Rattan won't disappear.'

This chapter asks why so many of Katingan's farmers keep their rattan gardens – if rattan is as sick as they claim. On one hand, people consider that rattan harvesting is a painful labour from which they can no longer make a living, yet, on the other hand, they keep their gardens and remain deeply convinced that they will still exist in the future. How can we make sense of this obvious paradox? By addressing this question, I seek to unravel the factors influencing smallholder decision-making, and thereby contribute to discussions surrounding the decline and resilience of forest-garden systems.

In the light of the rapid transformation of tropical landscapes to annual crops and monocultures of tree crops, scholars have begun to investigate farmer decision-making in the context of these on-going, dynamic land-use changes in an attempt to discover why traditional forest-management systems, such as rattan gardens, disappear or continue to exist. As well as demographic change due to in- and out-migration, which results in land pressure, shorter fallow periods, more intensive-based farming, labour shortages and thus increased production costs (Cramb et al., 2009), politico-economic factors also impact negatively on rattan management. Government policies and resulting unfavourable market conditions, expansion of alternative land uses and infrastructure development all bring pressure to bear on the rattan-swidden complex. Although many factors – both endogenous and exogenous – simultaneously and interactively influence smallholder decision-making, it will be shown that the foremost reasons why rattan farmers keep their gardens are non-economic. Previous analyses of the economic benefits of rattan cultivation in East Kalimantan suggested that rattan gardens were kept mainly for their non-economic values. These included using the flexible harvesting potential of rattan as insurance in case of an urgent need for cash, the low need for labour inputs to maintain the gardens, as a sign of land ownership, spreading the risk of farming, and affective ties to ancestors (Belcher et al., 2004, pp.85-86; Pambudhi et al., 2004, pp.361-362). My study thus reaffirms the findings of previous analyses

showing the demise of rattan cultivation in Kalimantan and swiddening in general (e.g. Belcher et al., 2004; Pambudhi et al., 2004; Cramb et al., 2009; Siebert, 2012; Bizard, 2013). However, the following ethnographic account seeks to add to these studies by exploring the material processes involved in rattan management, as well as people's emotional investments in their rattan gardens, in order to detail the non-economic values of rattan gardens and situate them in their socio-cultural and historical context. This chapter makes explicit the fact that rattan gardens are not simply a form of tropical forest management. Rather, rattan gardens are affective spaces allowing people to recall and narrate the past, relate to their forefathers, imagine times of improvement, and thereby experience a sense of security and well-being.

The findings stem from 16 months of anthropological fieldwork carried out in several villages in Katingan regency in 2012 and 2013. I spent most of my fieldwork in the lowland village of Dahanen, a small Muslim settlement with a population of 374 (in October 2012), which was surrounded by swamp and peat-swamp forest, logged and burnt-over forest, shrubland and oil-palm plantations. In the past, people practised swidden farming, complemented by the sale of rattan, the collection of forest products and fishing. With the arrival of logging in the 1970s and a decline in the rattan price in the 1980s, local livelihoods gradually underwent major changes. More and more people left shifting cultivation to work as loggers until the era of logging finally came to an end in 2006. Since then, the residents have sustained their livelihoods mainly by fishing and working as wage labourers in an oil-palm plantation that was established nearby in 2009. While spending most of my time in Dahanen, I also conducted research in neighbouring villages and stayed for several months in an upland village called Sapan. In May 2013, Sapan had a population of 237 people living in 60 nuclear families in 54 households.<sup>4</sup> The people of Sapan practise an animistic religion called *Kaharingan*, involving the diverse yet related indigenous cosmological and ritual traditions of southeast Borneo. In contrast to the people of Dahanen, those at Sapan are active swidden cultivators who



*Calamus trachycoleus* Becc.  
[Arecaceae]

Having been cultivated in Kalimantan for more than a century, the stems of this rattan species grow up to 60 metres long, and are up to 13.5mm in diameter. The canes are light and pliable, and are used as skin peels for weaving; the cores are used for furniture and basket-making.

are able to meet their rice and vegetable needs almost exclusively on a subsistence basis. They also practise small-scale gold mining to obtain cash. The experience and data collected in Sapan served both as a point of comparison and to give a broader overview of the (dis)continuity of the rattan-swidden complex in Katingan.

### **Rattan smallholders in Indonesian Borneo**

The villagers of Dahanen are Ngaju-speaking Dayak, a people who together with other Dayak groups and the (formerly) nomadic Punan, are the native inhabitants of Borneo.<sup>5</sup> Like other Dayak groups, Ngaju were traditionally smallholders practising extensive swidden agriculture. The term 'smallholder' is usually reserved for 'rural cultivators practising intensive, permanent, diversified agriculture on relatively small farms of dense population' (Netting, 1993, p.2). Yet, as noted by Netting (1993, pp.10–15), and in Dove's (2011, p.5) study of Kantu' swidden cultivators in West Kalimantan, the idea of swiddeners living in isolation from market forces has led to a misunderstanding of their economy, history and identity. For Bapa Edwin and his fellow villagers at Dahanen, trading rattan and other forest products is intrinsically tied to their history and identity (Schreer, 2016a).

As Dove (2011) pointed out in *The Banana Tree at the Gate: A History of Marginal People and Global Markets in Borneo*, the island's native inhabitants have been involved for millennia in commodity production for global markets. The same assertion has been emphasized by several other authors (e.g. Wolters, 1967; Padoch and Peluso, 1996; Wadley, 2005). Since at least the 5th century A.D., forest dwellers have collected and traded forest products to supply coastal Malay kingdoms located at river mouths, as part of the commerce between the Indonesian archipelago and China (Wolters, 1967, p.158f). Far from being 'without history' (Wolf, 1982), Bornean societies were enmeshed in global commerce long before the onset of the modern era. In fact, production for the market was, for the majority of the island's population, a complementary pillar to what Dove (2011, pp.13–16) referred to as a 'dual household economy' composed of subsistence-oriented extensive agriculture and market-oriented trade in forest products and cash crops. People's ancestors met their food needs with rice and other food crops from their swiddens, while they gathered forest products, such as gold, beeswax, resin, and particularly rattan, and/or cultivated cash crops, for the market. While they initially collected rattan only from the forest, growing global demand during the mid-19th century led the ancestors of present Dayak groups in Kalimantan to begin cultivating rattan (e.g. van Tuil, 1929, cited in Pambudhi et al., 2004, p.349; Weinstock, 1983, p.60; Knapen, 2001, p.363).

### **Kalimantan's rattan gardens: vanishing forest-garden systems**

Although the specific characteristics of rattan cultivation differ from one grower to another and from place to place, a comparison of studies of the rattan-swidden complex shows that its basic features are similar throughout Kalimantan (e.g.

Weinstock, 1983; Godoy, 1990; Godoy and Feaw, 1991; Fried and Mustofa, 1992; Fried, 2000; Belcher, 2001; Gönner, 2001; Belcher et al., 2004; Arifin, 2003; Matius, 2004; Sasaki, 2007; Bizard, 2013; Schreer, 2016a). In the context of swidden agriculture, people plant rattan seeds – foremost, *Calamus caesius* and *Calamus trachycoleus* – together with rice or other annuals like maize or cassava. Alternatively, farmers raise seedlings in a nursery and then transplant them in the subsequent year. Seedlings may also be collected from productive rattan gardens and transplanted after the rice harvest. The young rattan plants are left to grow with other secondary vegetation during the fallow period, and eventually they become the focal species in a rattan garden. The first harvest is possible about seven to 10 years after planting. Depending on the species, rattan can then be harvested over a span of 30 to 50 years (Belcher et al., 2005, p.247), with large harvests possible every second or third year, and small harvests whenever there is need for immediate income.

Like other so-called ‘forest garden systems’ (Asbjørnsen et al., 2000, p.9) in Indonesia, Kalimantan’s rattan gardens are part of a broader, multi-species agricultural system that enables diversification, thus spreading risk. Similar to the damar gardens (Michon et al., 2000), coffee gardens (Michon et al., 1986), and cinnamon gardens (Aumeeruddy, 1994) in Sumatra, the fruit gardens of East Kalimantan (Michon and de Foresta, 1999), and rubber gardens found in Sumatra (Joshi et al., 2002; Feintrenie and Levang, 2009) and West Kalimantan (Dove, 2000, 2011), rattan gardens produce one commercially valuable main crop that matures in the medium-term and allows for multiple harvests. Rattan gardens require medium levels of energy, labour and capital input and involve relatively simple equipment, with sophisticated environmental knowledge as a compensation. Access to and control of rattan gardens are defined by customary property regimes that establish long-term use rights or ownership. The gardens also fulfil various ecological functions, including biodiversity conservation, hydrological regulation, soil protection and carbon sequestration (Asbjørnsen et al., 2000; Belcher et al., 2005). Like all smallholder forest gardens, Kalimantan’s rattan



*Calamus caesius* Blume  
[Arecaceae]

One of the main rattan species grown at the study sites, this species can grow canes that climb an astounding 100 metres into the forest canopy. It produces the highest-quality small-diameter canes that are widely used in the local furniture industry as well as for traditional uses such as weaving.

gardens have contributed significantly to both village economies and national foreign-exchange earnings since at least the middle to the end of the 19th century.

Over the last few years, however, Kalimantan's rattan gardens have been disappearing at an increasing pace. In some areas, in-migration leads to land pressure, shorter fallows and more intensive farming, whereas in others out-migration and lower birth rates result in labour shortages. Increased production costs, as a consequence (Cramb et al., 2009), have been identified as the foremost politico-economic factors impacting negatively on rattan management (e.g. Belcher et al., 2004; Pambudhi et al., 2004; Siebert, 2012; Bizard, 2013; Myers, 2015). Since 1986, government policies have resulted in unfavourable market conditions for rattan smallholders. Expansion of alternative land-uses, particularly oil-palm plantations, and infrastructure development has put the rattan-swidden complex under additional pressure and the disappearance of Katingan's rattan gardens is accelerating, much like it is elsewhere in Kalimantan.

### **Pain: working the cane in contemporary times**

At first glance, harvesting didn't look particularly troublesome (Figure 30-2). Bapa Edwin's body movements assumed a routine aspect. In the middle of the garden, he cleared the vegetation to create an open space, so that he could move freely and gather the canes. Before cutting any of the climbing palms entangled in the surrounding trees from their clumps, Bapa Edwin carefully inspected the rattans, their climbing path and maturity, looking for old, mature canes. It would be a pity to harvest young rattan that was not fully-grown, he said. Mature canes are easier to harvest, as the skin can be removed by knocking the spiny sheath off with the machete. Not only can mature rattan be distinguished from younger parts by the nature of its sheath, but also because – according to Bapa Edwin – fully grown rattan smells like gunpowder.

Holding the rattan with his left hand and with the machete in his right, he knocked off the spiny sheath to be able to grab it more firmly. Then, with both hands he pulled the cane down, hunkering down to swing his weight against the cane. Cutting off four to five spiny leaves, he then ripped off the remaining skin with his machete, followed by hitting the cane strongly, causing the epidermis to fully peel off. Repeating this procedure, Bapa Edwin slowly worked along several canes until pulling was no longer dislodging them. He then had to climb one of the supporting trees to disentangle the spiny palms.



**FIGURE 30-2:** Bapa Edwin hauls a collection of freshly-harvested cane out of his rattan garden.

*Photo: Viola Schreer.*

What looked simple was a challenge for a beginner. I was unused to holding a machete, much less using it to effect. The spines got caught in my clothes and hair. Lacking the necessary technique, knocking and ripping off the sheaths was difficult and exhausting. Pulling the cane tired my arms. Inspecting my first trials, Bapa Edwin showed me how to hold the rattan, how and where to cut it, and how to proceed. 'In three days, you will have become proficient', he suggested. I doubted it. We chatted, joked and worked to the sounds of our labour and the surrounding forest: the 'whack' of the machetes, the rustling of the rattan, insects and distant birds. 'Take it easy, if you are tired. Let's take a break', Bapa Edwin said and sat down on the fallen tree, lighting another cigarette.

Our efforts were just the start of a long process. The canes would be bundled and immersed in water until traders collected them. If the rattan was not sold 'wet', but was processed before being sold, the canes needed to be washed, polished, sometimes sulphured, and in any case, dried. Apart from sulphuring, which posed a serious health issue, the processing was often done by women and children (Mulyoutami et al., 2009, p.2058) (Figure 30-3).

Throughout 2012 and 2013, Bapa Edwin was one of the few people harvesting cane in the Dahanen area, despite the widespread occurrence of rattan gardens. In Sapan, people frequently collected rattan from their swiddens to make baskets, but no one harvested rattan for commercial purposes – apart from an elderly couple who harvested cane following a rumour that a trader would visit the village. It remained a rumour; the trader never came.

According to a comprehensive survey conducted across Katingan in 2005, more than half of all the households in the regency owned a rattan garden (TeROPONG and SHK Kaltim, 2005). During my fieldwork in 2012 and 2013, a large majority of households in Dahanen and Sapan still owned such gardens (Figure 30-4). In Dahanen, 81% of households each had an average of 1.48 rattan plots, whereas in Sapan, 79% of households owned, on average, 4.6 plots each.<sup>6</sup> Still, hardly anybody was harvesting. Several interdependent factors help to explain why, in recent years, there has been a demise of rattan management. They include unfavourable terms of trade, ideological prejudices, alternative income opportunities and the laborious difficulty of working rattan.



**FIGURE 30-3:** Processing rattan for sale. In this case, villagers near the Sebangau National Park in Central Kalimantan debarking rattan in what is a standard process.

*Photo: Gerard Persoon.*



## Unfavourable terms of trade

Farmers in various parts of Katingan say that they have become disinterested in harvesting rattan, because 'there is no price', meaning that the price of rattan no longer justifies the labour input. Following implementation of the export ban on unfinished and semi-finished rattan that came into effect in January 2012, the farm-gate price for rattan fell significantly.<sup>7</sup> In 2012 and 2013, it ranged from 1200 to 1600 rupiah (US\$0.09 to \$0.12) per kilogram of unprocessed *uei/uwei sigi* (*Calamus caesius*) and 800 to 1200 rupiah (\$0.06 to \$0.09) per kilogram of unprocessed *uei irit* (*Calamus trachycoleus*). This was significantly lower than the year before.<sup>8</sup> The export ban imposed in 2012 was not the first of its kind. Over the past three decades, the Indonesian government has implemented several policies that have resulted in rises and falls of farm-gate prices for rattan.<sup>9</sup>

During the 1970s and 1980s, the objective of these interventions was to halt further depletion of natural stocks in the face of serious over-harvesting, as recorded in East Kalimantan by Peluso (1983).<sup>10</sup> In recent decades, policy initiatives have aimed mainly at boosting the national rattan industry, although the most-recent ban was also justified by the threat of over-exploitation. However, there seems little empirical evidence to support this claim (Myers, 2015, p.212). Studies have shown that if properly managed, rattan collection is a sustainable way of extracting forest products (e.g. Salafsky and Wollenberg, 2000; Siebert, 2012).

In his analysis of the impact of the 2012 ban on domestic and international markets, forests, and the livelihoods of rattan collectors, Myers (2015) concludes that the policy mainly serves elite interests; those engaged in smuggling rattan from Indonesia have profited most. The country's rattan-processing industry has benefitted only partially, while demand at local level has been depressed. Therefore, the impact of the ban on local cultivators and extractors has not been much different from the consequences of earlier government interference. Several recent studies have shown that trade regulations, including the latest ban, have depressed demand and raw-material prices and, hence, led to severe economic losses for cultivators and extractors (e.g. Gönner, 2001; Belcher et al., 2004; Belcher, 2007; Bizard, 2013; Myers, 2015). The economic position of cultivators and extractors has been further weakened by world market prices and currency fluctuations (Gönner, 2001, p.141), as well as by their feeble bargaining power vis-à-vis middlemen, and their inability to sell rattan directly to urban traders and manufacturers. The increasing number of

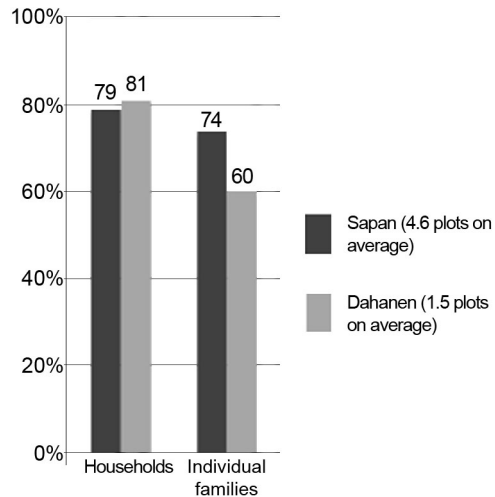


FIGURE 30-4: Local ownership of rattan gardens (%).

middlemen has progressively marginalized collectors (see Dove, 2011, pp.201–206), and together with the government policies, this has added to the sickness that is nowadays afflicting rattan.

Like his fellow villagers, Bapa Edwin sold his rattan to the local middleman, who lived in Dahanen and was, in fact, Bapa Edwin's first cousin. Thanks to the propinquity of their kinship, Bapa Edwin did not suffer a lower price, as was the usual outcome if people harvested on a credit basis. The price was commonly between 5000 to 10,000 rupiah (\$0.38 to \$0.76) lower per 100 kilograms of wet rattan. Social relations proved to be essential for this particular patron–client arrangement. Apart from impacting on the rattan price that farmers received – sometimes for better, sometimes for worse – the fact that the middleman was kin actually protected Dahanen's residents from the economic loss that rattan harvesters in Sapan had to suffer.

Sapan's residents usually sold their rattan to Banjar traders, who repeatedly asked me how I could voluntarily stay in such an isolated and backward place. Worse, they capitalized on the inhabitants' weak bargaining power. First, the villagers were offered a much lower price because of Sapan's rather remote location. Moreover, the prices offered in the first instance often fell by as much as 50% on the day of collection. On several occasions the traders failed to collect the rattan, resulting in severe losses and frustration for the people of Sapan. Under these unfavourable politico-economic conditions, contemporary rattan harvesting no longer guarantees a stable income. In fact, it may be economically risky. As suggested above and observed by Tsing (2005, p.185), the cultural prejudices of the downstream traders contribute significantly to the economic disadvantages of the villagers. In keeping with the evolutionary logic pervading popular thinking in Indonesia, downstream traders often look down on disadvantaged swidden cultivators living further upstream and seek to profit at their expense. Non-state actors often perpetuate the pejorative connotations attached to swidden agriculturalists by Indonesian development ideologies.

### **Ideological prejudices and the hidden premises of the NTFP concept**

Indonesian development ideologies have long stigmatized shifting cultivation as a primitive form of agriculture with low technology and low returns, and as such in need of replacement with modern land-use systems (e.g. Dove, 1983; Li, 1999). As Asbjørnsen et al. (2000, p.19) wrote, 'A perfect example is found in Indonesia, where the government classified rattan gardens as "degraded forests" and systematically scheduled such lands for conversion to large-scale plantations.' Fried (2000) witnessed such a tragic exercise of state power over rattan gardens in East Kalimantan (see also Belcher et al., 2005, p.250). Even to the present day, the central government of Indonesia does not acknowledge rattan as a cultivated crop, but Forestry Law No. 46/2009 classifies all rattans as non-timber forest products (NTFPs) (*hasil hutan bukan kayu, HHBK*) growing on forest land (Dharma, 2013).<sup>11</sup> While even scholars disagree on what constitutes a non-timber forest product, classifying rattan as an NTFP may make sense with regard to species growing wild in the forest, but it seems



*Calamus manan* Miq.  
[Arecaceae]

Synonymously known as *Calamus giganteus*, this rattan species has a single stem that grows up to 100 metres long and 8 cm in diameter. Growing at higher altitudes, it is said to produce the best large-diameter canes in the genus, with great strength and flexibility. They are hotly sought-after for making furniture.

contradictory in terms of rattan cultivated by farmers in their fields (Belcher, 2003, p.166).

The undifferentiated conceptualization even caused confusion among officials in Katingan, many of whom owned rattan gardens themselves. Nevertheless, the local government strove to implement permits for the extraction of NTFPs (*Izin Pemungutan Hasil Hutan Bukan-Kayu, IPHHBK*). But unless farmers could prove that their rattan gardens were located outside the state forest by means of legal ownership, the permits only allowed people to extract rattan from the ‘forest’ – that is, from their rattan gardens – without acknowledging their ownership. When discussing with Katingan’s farmers the government’s conceptualization of rattan as an NTFP rather than as a cultivated crop, they usually became emotional. Bapa Edwin, in a raised voice, told of a discussion he and other farmers once had with officials of the local forestry office:

They don’t consider rattan as a garden product but as a forest product, although rattan has been planted ever since the time of our ancestors. *Uei sigi* doesn’t grow in the forest, only here along the river. It doesn’t survive, unless it is cultivated and maintained.

The Ministry of Forestry’s denial of the existence of people’s rattan gardens was a mystery not only to Bapa Edwin, but to many other farmers who voiced their discontent with the official position:

According to them, a garden has (to look) like an oil-palm garden (or) a rubber garden, although in the case of rattan it’s impossible to establish a garden like that. Rattan needs trees.

They really deny it and consider rattan to be just the accidental result of birds. That’s what we discussed with them. Whereas all of the people of Katingan, in essence Central Kalimantan, say that it is not like they say, but (that rattan) really has been planted since the time of our ancestors

For the farmers, the government's position implied more than a lack of comprehension of rattan ecology, ignorance of local environmental knowledge and denial of ownership rights; it meant a complete disregard for the 'drops of sweat' spent by the farmers, and especially their ancestors, in labouring to prepare and maintain the gardens. Failing to pay tribute to the 'results of their ancestors' toil' – as one person termed it – was not only unacceptable, but as I argue and will further show below, it was also a disregard for the emotive relationships between the people and their rattan gardens. In fact, it was a complete denial of their history (Schreer, 2016a).

As aptly argued by Dove (2011, pp.211–212), while the non-timber-forest-product concept appears to be 'a politically neutral botanical reference to a slice of tropical forest resources, it has hidden premises' with 'far-reaching implications for power and equity'.<sup>12</sup> Revealing the logic behind the official construction of rattan as an NTFP shows the tensions between local and state conceptualizations of landscape, natural resources and their 'proper' management. Moreover, it uncovers aspects of the politico-economic environment of contemporary rattan management that disadvantage and disempower. The case of rattan exemplifies on-going conflicts over rights of access to, and ownership and management of, Indonesia's forests and, by association, it reveals the risk to local people of land capture, dispossession and disempowerment, often in the interests of large-scale plantation development. While such politico-economic factors may lead to an understanding of why rattan is now 'sick', it is important to emphasize that plantation and infrastructure development, accompanied by market expansion, also provide more lucrative alternative economic opportunities for Kalimantan's rattan farmers (Belcher et al., 2004; Pambudhi et al., 2004; Bizard, 2013).

### Alternative income opportunities

Following the establishment of an oil-palm plantation on Dahanen's village grounds, many local people chose to work on the plantation as temporary or daily-wage labourers, since this guaranteed them a higher and, more importantly, a stable income (Schreer, 2016a). As has been observed elsewhere (e.g. Belcher et al., 2004, 2005; Cramb et al., 2009), younger generations, in particular, prefer plantation work to agricultural labour, not least because of changes in values and aspirations for modern lifestyles as a consequence of school attendance away from the village.

For elders like Bapa Edwin, plantation work was hardly an option. He couldn't stand the heat in the open fields, and like many villagers, he rejected the prospect of working under someone else's authority (Schreer, 2016a). 'If we harvest rattan, we are the ones deciding. You don't have to follow the rules of others', he said. Even though many agreed with him, that harvesting rattan allowed a self-determined working routine, the income it provided was unstable at best, so they were drawn into wage labour. Increasing involvement in plantation work led to a local shortage of labour, and this made it even more difficult to find people to sharecrop rattan gardens. It therefore contributed to the demise of rattan management.

However, the move from rattan and other livelihood activities into oil-palm wage labour was not necessarily an either-or choice. In line with the Dayak appreciation of independence and flexible adaptation to economic opportunities, the residents of Dahanen who temporarily engaged in wage labour were not implying a permanent abandonment of rattan harvesting, but rather a diversification of their household strategies. If no other alternatives were available, they could switch back to harvesting rattan, provided that the price was attractive and weather conditions were suitable. During the rainy season, harvesting is not feasible. It is too dangerous to climb trees, and the rattan gardens in Dahanen become flooded. Rattan farmers' decision-making is thus not predicated solely on economic considerations; it may also be influenced by individual preferences, age, values, climatic and ecological conditions, access to alternatives and risk management (see Belcher et al., 2004, p.578). Farmers operate within a complex web of endogenous and exogenous factors, including how they feel about different kinds of labour.



*Elaeis guineensis* Jacq. [Arecaceae]

Oil-palm plantations near the study site of Dahanen have offered rattan gardeners an alternative means of livelihood. The drift to wage-labouring in the plantations is leading to the disappearance of rattan gardens. The loss of biodiversity as a consequence is collateral damage from the expansion of oil palm.

### The sensory experience of rattan harvesting

Having felt the pain of engaging with rattan myself, I can readily understand why the villagers of Dahanen and Sapan consider rattan harvesting, first and foremost, as painful (Figure 30-5). The analysis of my interlocutors' statements clearly shows the stresses and strains involved in rattan harvesting. Most of my local interlocutors mentioned terms such as *pehe* (painful), *uyuh* (exhausting) and *are duhi* (many spines) when describing how they felt about harvesting. Given the physical pain of working rattan, the expected income per person from a day's difficult labour – about 52,000 rupiah (\$3.95) – does not justify the effort required. This further explains why people prefer engaging in physically less painful and more profitable work: oil-palm wage labour or fishing in Dahanen and mining for gold in Sapan.<sup>13</sup>

Against the background of this interdependent set of factors, including ecological factors such as forest fires (see Gönner, 2001; Pambudhi et al., 2004), it is possible to understand the ‘sickness’ that has overwhelmed rattan. Having outlined various factors that help to explain the recent demise of rattan management in Kalimantan generally (Belcher et al., 2004; Pambudhi et al., 2004; Bizard, 2013), the rest of this chapter explores the conundrum of why people nevertheless keep their gardens, even though there is an observable shift to alternative land uses.



FIGURE 30-5: Feeling the cane – experiencing rattan harvesting.

**The (dis)continuity of rattan gardens**

In some parts of Katingan, farmers have converted their rattan gardens into other land-use systems, mostly rubber, bananas and oil-palm gardens. Such land-use changes have been observed in Sapan, where 46% of the households have sold or converted single rattan plots, with 74% of them replacing rattan with rubber, 42% selling their gardens, and 26% converting them into gold mines (Figure 30-6). In the latter case, people began mining their own gardens or allowed others to mine there. As compensation, the garden owner received either a 10% share of the profits or an installation payment. By comparison, just 7% of people in Dahanen had ever sold or converted a rattan garden.

The picture becomes more complicated when rattan-planting activities in the two villages are taken into account. Between 2010 and 2013, only 5% of Dahanen’s households planted rattan, all of which was aimed at rejuvenating existing gardens. By contrast, 46% of all households in Sapan planted rattan. Of these, 63% aimed to establish new rattan gardens following their swidden-rice harvests and 37% intended to rejuvenate old gardens. When rattan-planting activities in and before 2009 were taken into consideration,

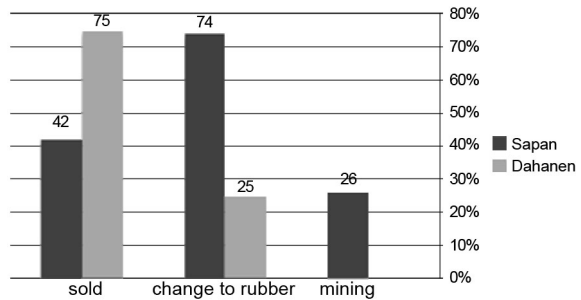


FIGURE 30-6: Conversion of rattan gardens into other land uses (%).

it became evident that people in Sapan had been more active in managing rattan than people in Dahanen, where 75% of all households had never (trans)planted rattan (Figure 30-7).

How can this paradox be explained? Why should there be a high rate of sale and conversion of rattan gardens together with more active planting activities on one hand, and a low rate of sale and conversion of rattan gardens together with a low rate of planting activities on the other?

In Dahanen, ecological conditions have become unfavourable for agricultural activities. The shallow alluvial soils along riverbanks, where rattan gardens are located, have become prone to flooding as a consequence of logging activities. Therefore, people have established new rubber gardens on less fertile, but higher, flood-proof ground, instead of converting rattan gardens to rubber and taking the risk that the young rubber trees may die due to flooding.

In contrast to the people of Dahanen, residents of Sapan are active swidden cultivators. Since 2009, only 10% of all households in Dahanen have attempted to open swiddens. All of them failed because of flooding. In fact, most of Dahanen's households (61%) have never engaged in growing swidden-based rice. In Sapan, 92% of all households opened a swidden between 2011 and 2013, with rice self-sufficiency in the village reaching as high as 79% in the 2012-2013 season (Schreer, 2016a). For the people of Sapan, planting and replanting in a rotational system of forest management and modification of the landscape are natural ways of engaging with their environment. The swidden cycle usually involves the cultivation of rattan, or more recently, rubber, following the rice harvest. In 2013, 85% of Sapan's households that planted cash crops following the rice harvest planted rubber, and 95% of those intending to plant something in their swidden fallows and empty land said that rubber was their first priority.<sup>14</sup> Soil fertility and distance to the hamlet were decisive criteria for field selection. The villagers of Sapan prefer the easily accessible, flat and fertile areas alongside rivers for their agricultural activities, which might imply the conversion of previously established rattan swiddens.

Given the high mean number of 4.6 rattan plots per household in Sapan, replacing rattan with rubber did not inevitably mean the complete abandonment of rattan gardens. Rather, establishing a rubber garden was a way for Sapan's residents to diversify their household economies, predicated on the hope for future well-being. Both children and adults of different age and sex expected that rubber would become the major income activity, and that this would guarantee a stable income and allow them to improve their lives.<sup>15</sup> As well as the hope for a better future, there was

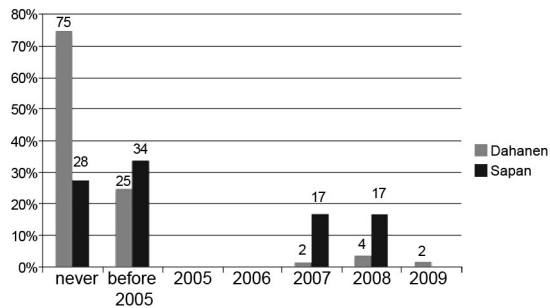
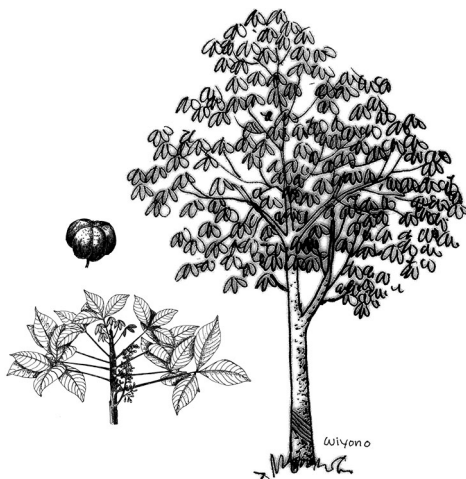


FIGURE 30-7: Planting of rattan before 2009 (%).

another psychological motive driving people's decisions to plant rubber: by joining the trend of establishing rubber gardens, the villagers stuck to the local principle of 'following the festivities of others', meaning that they did not want to miss the projected prosperity arising from the hoped-for rubber boom. Thus, future visions shaped resource-management practices just as firmly as past experiences, as we shall see below.

In addition to the above motives, villagers believed that, compared to harvesting rattan, tapping rubber was 'relaxing'. This supported my claim that the physical experience of different kinds of labour played an important role in people's decision-making. Moreover, local rules of inheritance and ownership rights had to be taken into account. As can be seen in Figure 30-8, most of Dahanen's rattan gardens were inherited. In Sapan, by contrast, most farmers established their gardens themselves, although some were inherited or received as bride wealth. However, a decisive difference was that 37% of all inherited rattan gardens in Dahanen were the collective property of siblings. Collectively managed gardens were absent in Sapan, where, under the observance of cognatic kinship, rattan gardens were usually divided on an equal basis among male and female children.<sup>16</sup> Whereas individual ownership meant that decisions were made at the level of an individual family, collective ownership constrained conversion of rattan gardens insofar as common agreement had to be reached among siblings.



*Hevea brasiliensis* (Willd.  
ex A.Juss.) Müll.Arg.  
[Euphorbiaceae]

Much like rattan, but in more recent decades, rubber has been associated with shifting cultivation as 'rubber gardens' in fallow vegetation. More recently, rubber has brought pressure to bear on the continued existence of rattan gardens because of the commercial 'sickness' of rattan and farmers' desire to diversify.

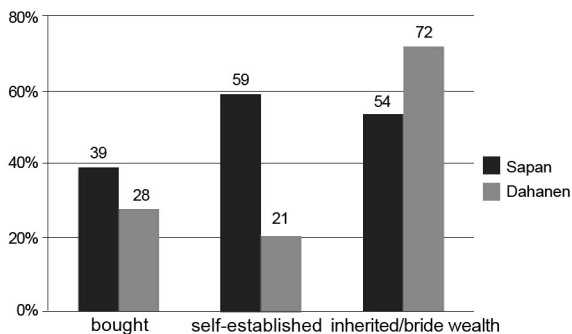


FIGURE 30-8: How rattan gardens were acquired (%).



As the previous sections show, ecological constraints – many of which are human-induced – economic diversification, and rules of ownership help to explain why rattan gardens have been converted in Sapan but not in Dahanen. It seems that in the future, rattan gardens may disappear in Sapan, not least because some villagers are uncertain whether their children will still have a rattan garden and many households express interest in further land-use change. Still, the large majority of all residents, in both Dahanen and Sapan, follow Bapa Edwin's claim that rattan gardens have always been there and will always exist in the future.

### **Sayang – rattan gardens as affective spaces**

When I asked Bapa Edwin whether he had any plans to convert his garden, he replied: 'It would be a shame'. The Indonesian word he used was *sayang*. The same word was used by most of my interlocutors in spontaneous reactions to the same question. There is no single translation of *sayang*. Depending on context, it connotes meanings such as 'affection', 'dear', 'love', 'compassion', or 'sadness', and despite its multiple meanings, it conveys a sense of feeling. I suggest, therefore, that *sayang* expresses the affective connections between the people and their ancestors, entangled in their rattan gardens.

I asked Bapa Edwin: 'Why would it be sad?' He explained, in his words, *warisan datu hiang* – the garden was a legacy from the ancestors – *akan anak-esu hindai* – and it was intended to be passed on to his children and grandchildren. His reasoning was the same as that of many others to whom I put the same question (see Figure 30-9): future generations, both young and old, would continue to manage the legacy.<sup>17</sup> Thus, images of the future that are not necessarily detached, but are imbued with the past, shape people's present-day decisions.

As revealed in Figure 30-9, parents hoped that their children and grandchildren would still own a rattan plot. Although wishing that their children would have more successful jobs, thanks to higher education, and would no longer be the ones to do the harvesting, the gardens would still serve their male children as bride-wealth (in Sapan), indicate land ownership and especially support their children in times of economic hardship (see also Belcher et al., 2004, pp.85-86; Pambudhi et al., 2004, pp.361-362). Among the elders who explained to me that rattan had always served as a safeguard in times of need, there was a group of women:

*Indu Refan*: Because, how shall I say (...), just don't let rattan disappear, because rattan is our last resort. It has never misguided us, but we could always still look for rice...

*Indu Lia*: We really need rattan, really need it indeed...you get sick, if there is no rattan...

*Indu Tina*: It's possible as livelihood, the last resort...



cash and consumer goods in advance to secure rattan stocks. Worldwide demand gave farmers much greater bargaining power than they have at present. Rattan was processed at village level, guaranteeing labour, higher prices and a decent life. To quote the people of Dahanen:

Try to imagine counting rattan's value at that time. For 100 kilograms of (finished) rattan we could buy 15 grams of gold. Hence, people said: 'Working one day is enough for eating one week', eating from rattan's yields, even longer...<sup>19</sup>

In the past, the rich people had a rattan garden. If you owned a rattan garden, life was already pleasant, because rattan was the primary livelihood.

In the past, rattan provided a steady income, food security, prosperity and improvement. Envisioning rattan's future by recalling its glorious past allows people to (re-)imagine themselves into times of well-being.

However, there was a challenge to the common narrative of a comfortable past. 'No garden, no harvesting', an old woman declared. 'If you did not have a rattan garden, life was sick, difficult.' So not everyone benefitted from the rattan boom. Just as prosperity and well-being are part of people's rattan memories, inequality and economic hardship are also a part of that local past. Multiple, and even conflicting, pasts converge, notwithstanding the dominant narrative of rattan enabling a decent life.

As we sat on the remnants of the fallen tree, Bapa Edwin's gaze wandered around the garden. An expert eye could spot the ordered lines of rattan clumps once planted by his forefathers. Lighting another cigarette, he became lost in childhood memories. Each day after school, he said, he would accompany his parents to the family's rattan gardens. He recalled how his father taught him how to hold the machete properly; how to move it; how to cut the cane; how to select seeds and seedlings; how to plant, transplant and manage rattan. As a child, he had crawled between the spiny clumps, sitting on his haunches and fighting the mosquitos, waiting for his father to shout from the top of the trees: 'Now! Cut the cane'. His eyes alight with the memories, Bapa Edwin told of how frightened he had been when an old person (a spirit), appeared to him at the back of the garden one day. But smiling whimsically, he remembered spending most of the time simply relaxing on the forest floor, watching his parents, sleeping, and nibbling snacks. For Bapa Edwin, just as for other villagers, rattan gardens were imbued with memories, most of them of childhood, evoking mixed feelings of pain, boredom, anxiety, relaxation and joy. Rattan gardens were spaces rich in sentiment, which created a sense of belonging and responsibility.

In Sapan, emotive ties to the surrounding landscape were created not only through the inheritance of rattan gardens, but through the active engagement of people in reworking the land. In Dahanen, however, such feelings could relate to a single rattan stem once planted by forefathers. Replacing rattan clumps without particular reason amounted to disregard for their ancestors' drops of sweat; it was *sayang*,

connoting a notion of sadness. 'If we give up our rattan gardens, we forget our parents', one person reasoned. Keeping rattan gardens and thereby showing respect to their ancestors was not only seen as a moral obligation (see also Belcher et al., 2004, p.886), but, metaphorically speaking, rattan gardens also bound families together. 'Since the ancestors in the past, it has just been rattan. It can't be broken,' Bapa Edwin concluded as he rose from the fallen tree. 'If we give up our gardens, we lose our history.'

As I have shown elsewhere, this history tells of the village's formation, local kinship, improvement, resource control, trade, material affluence, social cohesion and conviviality (Schreer, 2016a). In short, it is a chronicle of prosperity and well-being, thanks to their ancestors' success in trading rattan as far as Singapore from the middle to the end of the 19th century. For the villagers of Dahanen, rattan gardens were part of their identity; the gardens allowed them to relate to their ancestors. Bapa Edwin and his siblings' garden once belonged to their great-grandfather, who had accompanied the village's founding father to Singapore to sell the local rattan in international trade. For Bapa Edwin and his fellow villagers, keeping their gardens was an assertion of who they were. Beyond that, it was an assertion of what they and their life could be, if rattan was able to recover from its sickness.

### **Conclusion: 'Rattan identity?'**

In his study of the dual economy of Kantu' smallholders, composed of subsistence rice cultivation and rubber cultivation for global markets, Dove (2011, p.15) argues that the 'cultural niches' of the two crops 'are fundamentally different', insofar as they belong to separate 'transactional orders'. Whereas rice cultivation centres on long-term reproduction of social and cosmological order, the market-oriented production of rubber focuses on individual short-term benefit. He sees these two different transactional orders as having different places in the moral hierarchy, with rice taking supremacy. Dove's analysis clearly holds true for the local economy in Sapan, where people place rice cultivation above all other livelihood pursuits, given its importance for the local economy as well as its sacred character (Schreer, 2016a). His analysis becomes less relevant in places such as Dahanen, where traditional swidden farming no longer exists. As has been observed elsewhere, the demise of rice cultivation can lead to 'redefinitions of local identity' and cause, for instance, the appearance of a Dayak 'pepper identity' (Cramb et al., 2009, p.332)

While rattan cultivation is geared towards market production and thus short-term maximization of individual benefit, this chapter has shown that rattan gardens are, at the same time, of great non-economic significance. In the near absence of swidden farming, rattan gardens seem to have taken moral supremacy in places like Dahanen, although purchased rice remains the primary ingredient in ritual conduct and fishing is the primary livelihood activity. As one person stated, 'rattan is identical with our culture'. Rattan gardens are more than a patch of forest managed by means of elaborate environmental knowledge. They are spaces that evoke memories and

associated feelings; that allow people to (re-)imagine themselves into times of well-being, recall and narrate the past, and thus relate to their forefathers. As a material manifestation of people and their ancestors' labour, rattan gardens not only reflect the continuous interaction between humans and their environment, but they also symbolize an unbroken legacy, conceived to endure for an indefinite time.

King (1993, p.167) claims that 'the traditional view of Borneo natives is that natural resources are held in trust for future generations'. This, he contends, is an expression of 'traditional adaptation to the natural environment' and as such, a sign of intrinsic sustainable resource management.<sup>20</sup> The case of Katingan's rattan gardens shows that resources are indeed held for future generations. The reasons behind this are far more complex than suggested by King's materialist approach. Despite a multitude of endogenous and exogenous factors simultaneously and interactively influencing the decision-making of rattan smallholders, the expectation that rattan gardens will be managed by future generations reflects their hope for their children's security and the continuity and recognition of their history. An understanding of why farmers maintain their gardens and imagine that they have a future comes not least through an elaboration of people's emotive relation to the gardens.

The government's construction of farmers collecting 'wild' rattan from the forest, together with the fantasies of non-governmental organizations seeking to clear and replace the 'untidy' vegetation with 'orderly' rattan plantations implies more than disregard for people's rattan gardens. It is a complete misinterpretation of rattan ecology, people's environmental knowledge and their history and identity, which is entangled with rattan.<sup>21</sup> Writing about the threat of appropriation of 'the banana tree at the gate' (a metaphor for the rich but vulnerable natural-resource wealth of Borneo's peoples), Dove (2011, p.258, emphasis in original) holds that it is necessary to recognize that this is 'not an image of a community that *needs* a resource that it doesn't have; rather, it is an image of a community that cannot afford to *lose* a resource that it does have.' The case of Katingan's rattan gardens makes this more than explicit.

**Epilogue:** About one year after I sat with Bapa Edwin on the remnants of the fallen tree in his rattan garden, I returned to Dahanen. Nobody was harvesting rattan, not even Bapa Edwin. He was working as a wage labourer in the adjacent oil-palm plantation. These days, rattan is sick indeed.

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## Notes

1. Parts of this chapter have been published previously as a working paper (Bizard, 2013).
2. Two readily observable and distinctive features (apomorphies) arising from the evolution of Calamoideae palms are spines and fruits covered by reflexed scales. Rattans are found in the tropical forests of Equatorial Africa, South and Southeast Asia, northern Australia and Fiji (Sunderland and Dransfield, 2002, p.10). The broad range of ecological niches in which rattans grow not only explains the wide geographic distribution and the species richness of rattan, but also the high endemism occurring within this palm group (Siebert, 2012, p.10). Even though rattans are normally described as climbing palms, some species do not climb. For more details on rattan ecology see Dransfield et al. (2008, pp.141-207).
3. Apart from being a political strategy to capture the votes of local rattan farmers in the local elections of 2003 and 2008, the policy was part of a macro-political vision of an economy of added value that arose in the aftermath of the Asian financial crisis in 1997-1998 (Bizard, 2013, p.1). The initiative involved, among other growth measures, a ban on raw-material exports, including rattan raw material and semi-finished rattan products. It came into effect in January 2012.
4. While Indonesian government data is based on nuclear families, this paper takes the household as its unit of analysis.
5. The Ngaju Dayak are the most numerous and dominant group in southeast Borneo (King, 1993, p.53; Knapen, 2001, p.89). The majority of them live along the middle and lower reaches of Central Kalimantan's waterways. The region is also inhabited by different Muslim groups, the most numerous of which are Malay, Buginese, Banjarese, Javanese and Madurese (Casson, 2001, p.1). However, like elsewhere in Borneo, ethnic and religious boundaries are far from clear-cut and people's self-conception is in flux (Schreer, 2016a).
6. People did not measure the size of their gardens in hectares, but spoke of 'plots' – in their language, *lembar*. The size of a plot ranged between 0.5 and 2 hectares, which constrained an accurate analysis. As can be seen in Figure 30-4, when ownership was examined in terms of individual families the numbers changed, meaning that each nuclear family that was part of a larger household did not necessarily possess its own garden.
7. Regulation of Trade Minister no. 35/2011.
8. In 2011, the farm-gate price for one kilogram of wet (unprocessed) *uei/uwei sigi* reached 2000 rupiah (\$0.15), which was about the average minimum price that people would have expected, had they been tempted back into rattan harvesting. Some claimed that rattan harvesters in Sulawesi had also experienced reduced volumes, but the latest ban had not resulted in a price change there (Myers, 2015, p.218). This might have been due to the fact that large-diameter canes collected in



the 'wild', foremost in Sulawesi, were in demand, whereas demand for small-diameter rattans, such as those cultivated by farmers, had fallen (Achdiawan, 2014).

9. These policies were bans on the export of raw rattan in 1986 and semi-finished rattan in 1989. These bans were lifted with the introduction of export quotas in 1998 and further policy modifications in 2004, 2005, 2007, 2008 and 2009, allowing the raw material price to slowly recover (Haug, 2010, p.43).
10. Peluso (1983) provides a detailed analysis of the explosion of collection from wild stocks and the threat to the rattan commons in East Kalimantan during the 1970s and 1980s.
11. Regulation of the Minister of Forestry No. 46/2009, about the Issuing of Extraction Permits for Timber and Non-Timber Products.
12. Dove (2012, p.211) holds that these premises are that NTFPs are resources that local people may be allowed to exploit, but that they are resources that no one but local people would want to exploit, rendering them non-valuable forest products.
13. This figure is based on a rattan price of 1500 rupiah (\$0.11) per kilogram and farmers' estimation that, on average, a couple can harvest 70 kilograms of rattan per day. However, yields vary depending on individual skills and the condition of the rattan.
14. In 2013, while 85% of all households in Sapan owned a rubber garden, only 5% of them were able to tap the young trees. However, in Dahanen, 52% of all households owned a rubber garden, and in 22% of them, the trees could already be tapped. These gardens mainly stemmed from the 1970s and were frequently mixed with rattan. More recently, further rubber gardens were set up following a ban on logging in 2006, and the World Wide Fund for Nature supported the promotion of rubber as an alternative livelihood option. In Sapan, people received seedlings through a project of the local forestry office.
15. Many of the children's drawings in Sapan showed anticipation of a future with rubber gardens.
16. In Dahanen, kinship is likewise recognised bilaterally, but given the influence of Muslim tradition, male children frequently receive a larger share than their sisters.
17. While 'future generations' refers to unspecified generations in unspecified places and times (Persoon and van Est, 2000, p.18), the notion of *anak-esu* (children and grandchildren) is likewise neither temporarily nor spatially bounded to the two following generations of children and grandchildren.
18. Increased demand for rattan over past decades has not been without consequences for the world's rattan resources. Wild rattan stocks, which meet about 90% of demand from the international rattan industry, are dwindling at an increasing rate (Dransfield and Manokaran, 1994, p.11). In his analysis of the status of rattan resources, with special emphasis on Asia due to its market share, Vantomme (2003, p.414) maintained that scarcity of quality cane was a problem in different parts of Asia and that the difficulty of resource supply had never been more evident. In view of decreasing wild rattan resources, local people's traditional rattan cultivation and the knowledge associated with it are becoming increasingly important, not solely for meeting global demand, but also for developing rattan as a sustainable plantation crop (Siebert, 2012, p.85).
19. In 2013, 100 kilograms of finished rattan was worth less than 2 grams of gold.
20. King's assertion has been criticised for not showing on which 'empirical or authentic ideological evidence' the assumed environmental wisdom is predicated (Persoon and van Est, 2000, p.18). With reference to Dove's (1998) account of emic conceptions of sustainability, Persoon and van Est (2000, p.18) further remark that the term 'sustainability' is not used by those concerned or may be conceptualised differently.
21. It is important to stress that not all NGOs engaged in the revitalization of rattan as a sustainable livelihood pursued the plan to replace existing gardens with rattan plantations.