CAN INDONESIA'S COMPLEX AGROFORESTS SURVIVE GLOBALISATION AND DECENTRALISATION? A STUDY IN SANGGAU DISTRICT, WEST KALIMANTAN[1]

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Introduction

The paper focuses on the intersections between commodity production and traditional agriculture in Sanggau district, West Kalimantan, which has in the past been famous for its complex agroforests, particularly its *tembawang*[2] or mixed fruit gardens. Commodity production takes the form of plantations of oil palm and *Acacia mangium* for pulp, together with improved (cloned) rubber. Both oil palm and pulpwood production are characterised by arrangements permitting smallholder management or out-growing under degrees of estate

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[2] The tembawang are diverse combinations of fruit and timber trees, usually including the illipe nut-bearing *Shorea* species, *tengkawang*. The most famous represent former longhouse sites which are up to 180 years old. Rare and endemic species of fruits such as durian are usually present. The gardens are generally communal, with multiple shared rights to their resources. Family tembawang, generally evolving from old rubber holdings, have more limited shared rights.

control, while improved smallholder rubber is grown in government-initiated block planting schemes.

Complex agroforests have been studied in several parts of Indonesia, most notable being the damar forests of Krui, Lampung (Torquebiau, 1984; Michon et al, 2000); the 'jungle rubber' forests of Sumatra and Kalimantan (De Foresta, 1992; Gouyon et al, 1993) and West Kalimantan's tembawang (Padoch and Peters, 1993; Padoch and Peluso, 1996). With increasing emphasis on large-scale commodity production, the status of such systems has appeared endangered. A warning was given a decade ago for West Kalimantan by Padoch and Peters (1993:174) and was echoed more generally for Indonesia by Potter (2001:317) and globally by Brookfield (2001:285-6). In a recent paper, Wiersum (2004:132) contends that such forest gardens, occupying an intermediate position between primary forests and plantations, will increase in future importance following the loss of the primary forest. He believes that they will be valued both for their contribution to production and their role in conserving biodiversity. Contrary to this view, field evidence from Sanggau indicates that the tembawang gardens have achieved the status of a cultural and political artefact, which is more likely to ensure their local survival than their economic output or conservation significance.

Works by Elson (1997) and Rigg (2001) have noted that Southeast Asia's rural areas are now thoroughly embedded in international markets, with commodity production edging out subsistence activities and increasingly mobile households drawing at least part of their income from non-farm sources. It may be argued that local outcomes are determined by global processes, especially since the impacts of the Asian economic crisis and the shifts in global commodity prices have been felt by every household. Yet actual farmer decisions, to be translated into specific land uses and household strategies, remain highly differentiated and dynamic, reflecting the detailed endowment of local environments, politics and cultures as well as individual decision-making. Analytical space continues to be maintained for "social agency and local diversity" (Whatmore, 1994:54).

The other major factor in the Indonesian context is decentralisation, instituted in 2001, through which the previously highly centralised and authoritarian state has devolved many of its powers to the district level. That process has presented opportunities for the re-assertion of the local, specifically the revival of adat or traditional forms of land tenure, village governance and social organization. Local 'sons of the soil' (*Putra daerah*), previously regarded as backward or marginal by Jakarta, can now assert more authority over local resources. The democratisation which has occurred since the fall of the Suharto regime in 1998, and the new power available to local communities has resulted in constant challenges to

the authority of large corporations, including oil palm plantations. Yet the challenges have taken place against a background of economic insecurity, which has both limited the options open to the actors and reinforced their need to secure their interests. Prominent individuals, such as adat leaders, have been concerned to cement their power bases at hamlet level. The "tension between advancing modernities and resistant traditions"(Rigg, 2001: 45) is strongly felt in these communities.

Under the Suharto regime, large companies (especially oil palm and pulp plantations) were favoured by all levels of government. Since reformation and decentralisation, one would expect district officials to support indigenous smallholder systems. However, local administrations, forced to raise much of their own revenue, are anxious to attract investment from large firms and to play down areas of conflict. Their task is now more complex as they seek to balance the demands of the various stakeholder groups. Village people have become more assertive in pursuance of their rights and tougher negotiators over land. In these activities they are likely to receive assistance from local NGOs who are antagonistic to plantation monocultures. In their work as plantation labourers, local people display some of the typical 'resistance' behaviours identified by Scott (1985) and Peluso (1992), quietly cheating the companies with petty larceny and absenteeism, as they cope with rapid change and continuing economic difficulties.

Sanggau District

West Kalimantan's Sanggau district[3] is an ideal laboratory in which to test the resilience of the complex agroforests. The district covers a block of territory north and south of the Kapuas river, its northern boundary being the international border with the Malaysian state of Sarawak. The district is perceived as a strategic corridor, being traversed by both the important north-south highway connecting the provincial capital, Pontianak, with the Sarawak border, and also the major east-west road along the Kapuas river to Sintang and Kapuas Hulu. Internal roads, though problematic in the rainy season, are usually good enough to permit the transport of oil palm fruit to estate factories. Sanggau district includes the second highest population concentration in the province (502,000), although the town itself is small, with only 30,000 people and few industries (BAPPEDA, 2001). The riverine areas along the Kapuas have historically been well peopled, with the result that the natural forest cover has largely been removed, the landscape being a mosaic of trees, scrub, cultivation and occasional

[3] There are moves to subdivide Sanggau, creating new districts of Sekadau in the east and Meliau in the south. As fieldwork was done before the proposed subdivision, reference is to the district as it was in 2001.

grassland. Much of the area does not come under the Forestry Department's jurisdiction, but consists of a dense network of villages practising traditional Dayak agriculture. This has included both dry and wet shifting cultivation of rice[4], tapping of 'jungle rubber' (in which traditional rubber species are mixed with other trees, especially fruit trees), and harvesting of fruits and nuts such as durian and tengkawang. Traditionally, agriculture has been partly communal and partly privatised, with households holding rights in several parcels of land and private ownership of specific trees. To this varied landscape has recently been added quite extensive plantation development of both oil palm and acacia. Some of these developments have been in support of transmigrants, while others have included local people. Sanggau has both the largest area of oil palm in the province and the highest number of rubber smallholders (Disbun, Kalbar 2001).

Fieldwork was conducted in a number of villages or hamlets between November 2001 and February 2002. The period was a difficult one for farmers, as prices for palm oil products and rubber were both low, while the costs of purchased foodstuffs and agricultural inputs such as fertiliser were high[5]. Most of the previous detailed village research in Sanggau district had been conducted in the early 1990s. In addition to the studies in Tae in 1989-1990 by Padoch and Peters (1993), other work was done by Werner (1992) and Momberg (1992), researchers with the GTZ 'Social Forestry Development Project'. Working in 1993-4 in Ensibau village, Jangkang, Mayer examined village strategies to combat encroachment from a government forest plantation (HTI), while de Jong studied three remote settlements to the north of the 'plantation belt' between 1992 and 1995 (Mayer, 1996; de Jong 2002) (see map). Padoch has since provided a brief up-date of the situation in Tae, noting a move away from dry shifting cultivation towards wet rice (sawah) and increased privatisation of tenure (Padoch and Peluso, 2003:164-7).

Background to oil palm in Sanggau

[4] A wet swidden is known as *padi paya*; it involves sowing the rice in a swampy area after burning the grass or swamp forest. While some drainage may be attempted, there is not the careful water control associated with true wet rice or *padi sawah*, though the first may evolve into the second (Padoch, Harwell and Susanto, 1998).

[5] Local prices paid for rubber were about Rp2000-Rp2150/kg in the villages, while purchased rice cost Rp2600-Rp3000/kg, depending on its quality. Other essentials like a kilo of sugar cost Rp3,800 in the township of Bodok and Rp4,600 in a nearby village, while an ounce of coffee was Rp2,000 in Bodok and Rp2,500 in the village. Prices paid for oil palm fruit bunches by the factories were only Rp300-Rp325/kg, where 'break-even' rates were estimated to be Rp450/kg. Conversion rates of the Indonesian rupiah at the time were about Rp10,000 = USD$1.00

During the 1990s, Indonesian oil palm area and production increased very rapidly, at first predominantly from its historical base in Sumatra[6], then expanding to other provinces, including West Kalimantan. By the onset of the economic crisis in 1997, a high proportion of private oil palm estates were owned by Indonesia's four largest cartels, which were also heavily indebted to various local banks. A general contraction among producers brought a halt to local expansion but allowed Malaysian interests to buy up numerous estate properties (Potter and Lee, 1998; Casson, 2000). Since that time the industry has gradually recovered, but the new democratic political environment has meant that companies are forced to pay more attention to the demands of workers and villagers.

In 1990, oil palm in West Kalimantan was mainly represented by a few large government plantations. By 2000 the planted area in the province had grown seven fold, mainly through private estate development, to 311,247 hectares (Disbun Kalbar, 2001:41). According to the local planning office, 748,000 ha had been reserved or were intended for oil palm in Sanggau district (BAPPEDA, 2001). The area developed was only 152,000 ha., as bringing an estate to the point where the commodity is actually planted may take several years. Companies will often 'reserve' large areas of land, for which they are subsequently granted a provisional permit. Although they prefer to occupy forested lands, in much of Sanggau district companies must negotiate release of land from individual villages or hamlets[7]. Most important of the large oil palm estates are still the government properties of PTPN XIII, sections of which were established in 1979, especially in the Meliau area and at Parindu, to the west and southwest of Sanggau town (Perusahaan Negara Perkebunan VII, 1984).

As well as examining the relationships between villagers and one government estate, we compare the situation with a private company, Malaysian-owned PT Sime Indo Agro (PT SIA). Sanggau and the adjoining Sintang districts also provide sites for *Acacia mangium* plantations (HTI)[8] operated by the Finnish firm Finnantara Intiga. The economic and social impact of both oil palm and the HTI were discussed in an earlier paper (Potter and Lee, 1998), but that fieldwork was completed before the fall of Suharto and without detailed references to traditional agriculture. This paper will concentrate on the interaction between oil palm companies and village agriculture, with only passing mention of acacia.

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[6] Oil palm became established on plantations in North Sumatra and Aceh in 1911. Area and production expanded during the 1930s, the Dutch East Indies becoming the world's leading producer by 1938.

[7] Generally the negotiating unit is a hamlet, or sub-village, rather than an official 'village'. The land-holding unit, descendants of a few families who had originally cleared the forest in a particular location, has been the hamlet or *dusun*.

[8] HTI (*Hutan Tanaman Industri)*, are planted industrial forests. Many HTI in Sumatra and Kalimantan are pulp plantations, designed to provide raw material for new pulp and paper plants, also established in the 1990s.

Most of the central area of the district is occupied by oil palm estates in various stages of development, together with acacia plantations and transmigrant settlements. It appears surprising that Dayak villages could survive as part of this mosaic, yet survive they do, and with a variety of livelihood strategies, despite the competition for land. The pressure imposed by the companies also varies. The older government estates initially cleared large areas and paid little or no compensation for destruction of 'fruit trees' on village lands. They have been forced to make belated accommodations with newly vocal villagers. Private companies have adopted different arrangements, with each sub-village a particular bargaining point. The negotiations between the stakeholders have increased official awareness of the tembawang gardens, which occasionally become the focus of violent land disputes[9].

The critical factors influencing farmer behaviour have been tenure and control over land (communal, extended family or household); the influences of particular adat (customary) leaders and other village elite; and economic outcomes, both immediate and anticipated. As resources become scarcer, parents are concerned for the future of their children, keeping their land or specifically their family tembawang as the most tangible form of bequest, or putting smaller areas of oil palm in their children's names. Some villagers, convinced that their future lies with oil palm, have allowed the felling of productive rubber and tembawang, while others have resolutely refused such requests. Some gardens may be surviving only because company pressure has not yet reached them.

The fascination of foreign researchers with the highly biodiverse tembawang gardens is not necessarily replicated in local attitudes. To gauge the relative importance of the tree-based systems one needs to examine their position in relation to the total agricultural mix and its economic opportunities. All recognise that tembawang provide many items for household subsistence. However, for saleable commodities, such as durian and tengkawang, harvests are variable and unpredictable[10]. The forest gardens are at best a supplementary source of income, although windfall harvests are highly appreciated. Selling the tengkawang trees for their timber may be perceived by their owners as a better alternative[11].

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[9] One jurisdictional dispute between two village heads over a cleared tembawang led to the destruction of computers and files in the office of PTPNXIII, whose contractor had done the clearing. The outcome was a huge adat fine levied on the village head who had organised the 'demonstration'.

[10] The tengkawang trees, like other dipterocarps, flower and fruit in accordance with El Nino drought cycles, which occur approximately every five years. Durian also fruit irregularly, but will normally give some sort of harvest each year.

[11] Though marketing tengkawang wood is supposedly illegal (Peters, 1996:236), the trees are in demand as *meranti* timber and used in furniture (two cubic metres bring up to Rp200,000).

Sanggau is the leading rubber district in West Kalimantan, with twice the number of small farmers cultivating rubber as oil palm. Seedlings are planted in fallows after a crop of upland or dry rice, together with useful fruit and timber trees. The resulting mixed secondary forest provides a low rubber yield per hectare, but the trees are long-lived and hardy. Government projects to supply higher-yielding rubber clones have operated in the district for twenty years, while newer farm-based research trials have been conducted by the International Center for Research in Agroforestry (ICRAF). There has been considerable interest in clonal seedlings, but reliable planting materials are often unavailable or too expensive. Clonal rubber is confined to a few villages able and willing to supply enough land for a block planting (generally of at least 50 ha), together with a handful of innovative farmers elsewhere.

Farmers have traditionally put much emphasis on rice-growing, both dry and wet swiddens being common and a large number of different varieties used. One important aim of rice production has been the making of wine (*tuak beras*) an important component of Dayak social culture. Wet rice (*sawah*), with permanent bunds and good water control, is not common; existing fields are generally rain-fed, with one crop per year. The recent clearing for oil palm has brought rats into the rice fields and declining yields: farmers see rice growing as uneconomic, though they continue to plant it for cultural reasons.

The fluidity and variability of the present scene are encapsulated in a series of short case studies of selected villages or hamlets. Given the quite uniform nature of the environment, the differences in land-use patterns reflect the choices made by the actors, both individually and collectively, as they negotiate both tradition, as it currently survives, and the representations of 'modernity' which are available. Strong individuals, both from the estates and among village leaders, attempt to influence households in one direction or another. Despite the persistence of communal traditions, decisions are largely taken at the individual or household level, with some individuals willing to defy the general trend in their particular area.

Village Studies

Lape and Sanjan: accessible villages resisting oil-palm

These village 'snapshots' first examine the position of two settlements which, for different reasons, have resisted the blandishments of plantations and fully retained their tembawang. They specialise in non-oil palm commodities: wet rice and durian in one village and improved rubber in the other.

The people of Lape village cling tightly to its land resources, though no longer making the most economic use of them. The village is close to Sanggau town along an asphalt road, with one quarter of its households working as civil servants or retired. Lape specialises in rice production and fruit selling, though once famous for its rubber. Old tembawang gardens (former longhouse sites) cover 318 hectares and are accessible to all. Other gardens, passed down by inheritance, are under joint family ownership[12]. Useful trees include *petai* (*Parkia speciosa*), *langsat* (*Lansium domesticum*), *manggis* (*Garcinia mangostana*), *rambutan* (*Nephelium* spp) and *durian* (*Durio zibethinus*) plus many lesser known species. Once individually owned rubber trees are no longer productive, the land may either be cleared and replanted, or left for at least fifty years to become a new tembawang. There is an extensive but depleted community forest reserve, providing access to some wood for house building, together with fungi, leafy greens and medicinal products. Most timber originates from re-growth scrub, though smaller family-owned forest reserves also exist. A few hectares of *Imperata* grassland remain unused.

A previous adat leader had allowed people to clear tembawang as long as they paid a fine. Fines and penalties (*tail*) are still exacted from those who fell trees without permission. These include durian (six tail*)* and *tapang*, the honey tree (twelve tail). As well as traditional clay cups (*mangkok*) people fined have to provide meat, either chicken or pig, and often *arak* (rice liquor). If the fine is three tail they will have to pay Rp350,000 to Rp420,000, which includes the cost of 25-30kg of pig meat and is worth more than a month's wages. Most families owned four to five hectares of mixed rubber garden from which they were able to tap three to five kilograms of rubber per day. Yields have dropped since the late 1980s and the village no longer depends primarily on its rubber. Farmers have expressed interest in improved varieties but these have not yet been tried: it is difficult when holdings are scattered and multiple claimants to land have to be consulted.

Lape possesses quite extensive wet rice fields. Plots are individually owned and produce sufficient to cover household needs, with yields four times as high as the dry (*ladang*) types. Numerous local rice varieties are planted, especially *mungo pulut,* used for wine, while improved types include IR64, Cisadane and PB5[13]. In an interesting mix of older and newer traditions, weedicides and hand tractors were used to prepare the wet rice fields, while a *gawai* ceremony marked the harvest, presided over by the *temunggong* or adat chief.

[12] Traditionally the family member inheriting the parents' house upheld the adat laws within the descent group, all of whom must approve any tree felling on family land (Momberg, 1992).
[13] This was the only study village in which 'Green Revolution' rice varieties were successfully grown.

Tembawang are valued but there are few markets for the more exotic species. The tengkawang harvest in 2002 was the first since 1997, so caused some excitement, with everybody collecting the nuts and village traders handling large quantities. Durian also sold well, especially to people from Kuching (Sarawak) who paid higher prices and bought fruit by the carload. That activity brought an income of Rp500,000 to Rp1 million to more than 100 women from Lape.

People are prepared to try new commodities provided that they can retain their land. They do not like either oil palm or acacia, and twice rejected overtures from the government oil palm plantation, which abuts one village boundary. The current KKPA scheme[14] was not perceived as fair or attractive. It was observed that people were becoming 'coolies' on their own land. However, in 1998 a teacher bought twenty hectares of former rubber gardens, which he planted with oil palm. He has begun selling fruit to PTPN XIII, the first in Lape to do so. Oil palm was restricted here because so much land was held under common property arrangements. Private sales can nonetheless take place and the teacher's experience as an independent producer will be closely watched.

Clonal rubber was introduced in 1982-3 to the nearby hamlet of Sanjan[15], which has been able to improve its rubber output, yet retain most of its old tembawang. Gardens lie along the river: the oldest, which go back eight to nine generations, share rights with the adjoining hamlet of Nyondang, although the latter was accused in the past of unsanctioned tree-felling (Momberg, 1992). Some farmers have intercropped their clonal rubber with mixed fruit trees in the traditional style, even using pineapples as a cover crop, although such mixtures were forbidden by the original project, and yields are lower than in monocropped rubber. Tengkawang trees are excluded from such systems, as they are too competitive with rubber and must be specially planted in older, unproductive gardens. Sanjan is a specialised rubber-producing village, being able to sell about a ton of latex per day. Apart from the 'windfall' of tengkawang, people are not very active in marketing other fruit; neither do they expend much time and effort in rice-growing, except when they are replanting or expanding their rubber holdings. As in Lape, Sanjan farmers will not join any oil palm project, because they would have to give up too much land. The oil palm company PT SIA is perceived as a useful source

[14] This scheme, with local settlers on private estates, utilises farmer co-operatives to handle necessary credit arrangements. Farmers must provide seven and a half hectares of land in return for two hectares of planted oil palm. They work as labourers on the estate during its development phase and are trained in oil palm production.

[15] This was done through a government financed Smallholder Rubber Development Project (SRDP). Sanjan was also one of the centres for the GTZ social forestry project, which assisted rubber development.

of fertiliser, which is re-sold illegally in Sanjan after being distributed by the company to its participating farmers.

Melobok village, Meliau: site of an early government oil palm plantation

PTPN XIII began its operations in 1979 and now has 40,000 hectares of company-worked land spanning three sub-districts (Meliau, Tayan and Kapuas). During the development of these core plantations, which had no smallholder component, the government compensated only those few households with individual legal titles. Much of the employment on the core estate areas went to transmigrants: work available for local people was limited to day labouring, where the wage of Rp7,500 was barely enough for survival.

Tembawang gardens as well as fruit groves were destroyed when the plantation was developed and large fruit trees and rubber gardens were lost to fire in 1997. No older tembawang gardens remain, only younger replanted fruit gardens. Melobok village has one common area where everyone may access fruit resources, but there do not appear to be family-based tembawang. The village economy was previously based on shifting cultivation and jungle rubber, and both upland rice and rubber remain important. The rubber is old, however, and much is now untapped. Many types of upland rice are grown, but experimentation with improved varieties failed when the crops were eaten by birds. In mid-1997, villagers in Meliau sub-district held demonstrations, erecting barriers and preventing the factory from operating for eleven days. The primary complaint was the destruction of tembawang gardens and fruit groves by the plantation. As a result of the demonstrations, people were able to demand assistance to develop their own oil palm gardens using the KKPA model. Under the scheme, there will be between 800 and 900 hectares of oil palm to be divided between five villages in the Gunung Meliau plantation area. The inhabitants of Melobok had little land left to offer, as so much had already been consumed. Any land provided to the company will be converted to oil palm on a 1:1 ratio, instead of the usual 7.5:2. After clearing, people receive Rp175,000 per two hectares per month as a type of management fee. Those without land will work as labourers in the development of the gardens (they are paid the same inadequate daily rate of Rp7,500 and are guaranteed between 23 and 25 days work a month). With the estate responsible for 70 per cent of income in this area, people are committed to oil palm. They have nonetheless used their new found negotiating 'muscle' to finally secure a better deal from the government company.

Five hamlets and the Malaysian company, PT SIA

The company arrived in 1995 and began planting in 1998, concentrating its activities northwest of Sanggau in Parindu sub-district. In its attempts to obtain sufficient land for a viable holding, PT SIA

Table 1: The hamlets and the company

Hamlet	Oil palm	Tembawang	Rubber	Rice	Comments
Engkayu	All but four households accepted: PT SIA will get 43% of land.	Reduced, but 300 ha remain, no further clearing.	'Jungle' type, not tapped much (low prices). A few trials of clonal types (ICRAF).	Ladang, some paya. Rat attacks decimated yields	Not enough land given to the company
Semadu	Two independent oil palm co-ops. Few farmers linked to PT SIA.	Reduced, but not as heavily as Engkayu. Fruit sold locally.	'Jungle' type, still tapped by 1/3 of households	Same as above	The perils of 'going it alone'; affected by economic crisis
Sengoret	Many joined company. Younger generation prefer oil palm to rubber.	Some remain, seen as insurance for future.	Government clone rubber, block planting. Much land sold. Rubber partially replaced by oil palm.	Most households still retain some rice.	Land use here highly competitive. Not enough for the company.
Ensoyong	Rejected PT SIA when rubber prices high	Excellent, much variety, though some land being cleared for dry crops.	Clone rubber from NGOs, but lack follow-up. Planting materials suspect.	Ladang and paya	Poor condition of houses; incomes presently low.
Kopar	Headquarters of company; many work there. All have plots of oil palm, which replaced grassland.	One half of village land (400 ha), mostly family-owned: clearing forbidden. Tengkawang trees fenced.	Some jungle rubber remains.	Continue to work paya lands, though this uneconomic.	Only remaining long-house in district.

identified ten hamlets as the focus of its negotiations, five of which were examined during this research. Their situation is summarised in table 1. The discussion will elaborate on some of these observed differences. It will focus on the four 'typical' commodities of the area: oil palm, tembawang fruits, rubber and rice.

Oil palm and the five hamlets

The company may be considered successful in its negotiations with Kopar, Engkayu and to some extent, Sengorat, but it has made little headway with either Semadu or Ensoyong. Semadu was originally the most oil palm oriented, with 70 per cent of its households opting for independent planting before the arrival of the company. Unfortunately the resulting two co-operatives both had funding problems, especially after the economic crisis, which resulted in the demise of one. The other organisation, Goda Berjaya, was barely limping along, unable to afford the levels of fertiliser which would secure a good yield, and obtaining a minimal profit for most of its participants. Goda Berjaya had been operating since 1994 with people from both Engkayu and Semadu. Working collectively, the group cleared and planted forty hectares of *alang-alang*[16] land with oil palm, using both private and bank credit, and began to harvest the fruit in 1997. Two members split from the original group in mid-2001 as they disagreed with the work ethic of the majority. The independents achieved eight tons of oil palm per month from their two hectare gardens, selling the fruit to PTPN XIII. One estimated his average monthly return as Rp1,003,000, clear of transportation, credit and insurance costs. The remaining nineteen farmers continued to harvest and transport communally, but there was little incentive for anyone to work hard, as yields were pooled collectively and incomes divided. Because they did not manage the gardens well and could afford little fertiliser, their yields were only about one ton per hectare per month. On average those farmers might only make a monthly profit of Rp150,000 to Rp200,000. Their lack of legal tenure over the lands was a great impediment, as further bank finance might otherwise have been forthcoming.

Ensoyong resembled Sanjan in its preference for rubber, even though the cloned varieties available from NGO sources were not necessarily reliable. The village head of Engkayu, noted for his advocacy of PT SIA, suggested that Ensoyong farmers had rejected the company when rubber prices were high, but were now perhaps regretting that decision. They were experiencing financial problems while waiting for their rubber to mature. None of the other three villages had originally opted for oil palm, but they had come around to accepting the 'deal' offered by the company. Kopar, in particular, had been persuaded by new

road construction and by the employment opportunities available at the company headquarters. One couple in Engkayu argued that by working for the company, they could earn Rp300,000 per month, while rubber tapping generated at most Rp200,000. In Sengorat, people were even ignoring their mature clone rubber trees and concentrating on oil palm, stating that they preferred such work. The four households in Engkayu who refused to give up land for the company found themselves regarded as backward, troublemakers or simply foolish. They in turn accused the company of squeezing as much as possible out of local farmers and village leaders of receiving bonuses to sign up the entire village.

PT.SIA had initially stated that it had enough funds to develop 20,000 hectares of oil palm, but it had only been able to plant 8,300 hectares by February 2002 and there were problems with supplies and fertiliser stocks. Officers employed to check work in the field had little authority to enforce proper practices. Responsible villagers who had joined the scheme were concerned about the poor quality of work done and its affect on their subsequent production. The workers, supposed to be employed between 7am and 2pm, sometimes walked off the job after 9am. This was called being *absen* and was a widespread practice, yet nobody had been sacked. It was argued that workers would be more responsible if they were penalised with adat sanctions. When they eventually take control of their two hectares, farmers will have to repay between Rp26 and Rp28 million in credit, an impost which many will find difficult, but which they seem to have overlooked in their eagerness to receive the company's wages.

The company realised that few villagers were in fact delivering 7.5 ha of land. Most were trying to receive the same benefits with a smaller land donation, and in villages such as Segnoret, so much land had already been sold that it appeared impossible for quotas to be met. Attempts were made by the company to pay for only 26% of the fruit harvested, which represented the proportion contributed by the farmers. The latter demonstrated and were paid the full amount, but from a company perspective the situation was not sustainable. The manager of PT.SIA was threatening to take the matter to court, which was unacceptable to Sanggau officials keen to promote the district's potential for investors and developers.

The position of the tembawang

All five villages had retained some tembawang, although except for Ensoyong, the gardens were reduced in size and had become depleted of valuable species. Sanctions against further clearing of complex agroforests existed especially in Engkayu and Kopar, where adat leaders were strong and could enforce penalties more readily. The decline in resources seemed to be felt particularly in Engkayu, which had a wider range of penalties for unsanctioned tree felling than Lape. The fines varied from 0.25 tail for

[16] Alang-alang is *Imperata cylindrica* grassland, a land type more easily given up to oil palm than

tengkawang[17], one tail for the locally endemic orange durian *pekawai* (*Durio kutajensis*) and three for ordinary durian (half the size of the durian fine in Lape). As in Lape there was a twelve tail fine for destroying a honey tree (*Koompassia excelsa*). The fine for *tampoi merah* (*Baccaurea ramiflora*), at six tail was the second most severe as the fruits are used to make wine (*tuak tampoi*). A host unable to serve guests alcohol will feel great shame, hence the large penalty for destroying the trees. The situation with respect to *adat* fines has been changing, however, with some flexibility in the sanctions imposed, depending on the size and maturity of the trees and the history of their yields. Although they collected tengkawang, nobody in Engkayu specialised in producing fruit, because of its unpredictable yields and low prices. One of the villagers who had resisted joining the company sold pekawai durian in the nearby towns, which would bring between Rp25,000 and Rp40,000 per day. He also sought forest vegetables and river fish, but few wild vegetables remained with so much land cleared. People were forced to buy vegetables from outside, a previously unheard-of situation. For non-conforming farmers like these the day-to-day income was unpredictable.

While the western part of Kopar (largely *alang-alang* and unused) had been converted to oil palm, the eastern part, up to 400 hectares, had been retained. It consisted of a series of tembawang, mostly family owned, with old rubber, durian, nyatoh, cempedak, petai, and tengkawang as well as other forest fruits and timber resources. People were allowed to collect fallen fruits, but they were not permitted to gather from the trees unless they owned them. Areas of tengkawang were often closed off with bamboo or fenced so as to deter would-be gatherers. In the past people had tried to convert tembawang gardens to dry rice or vegetables, but such conversions were now banned. The adat head did not want to promote the clearance of tembawang while other sources of income were available. However, areas of unproductive old rubber could be cleared and replanted. When in 2001 a villager illegally cleared two hectares of tembawang in a neighbouring hamlet, the Kopar head was called in to help resolve the dispute as he was a senior adat figure. The offender was sanctioned 12 tail or about 2.4 million rupiah, while the land was replanted with rice and fruit trees and returned to its owner.

The position of rubber

While there have been efforts to maintain the tembawang against pressures from oil palm, neither rubber nor rice have fared as well. Rubber has largely remained untapped in Engkayu and Kopar, with farmers only tapping the trees if they needed to purchase goods from the shops. About thirty households in Semadu still tapped rubber as their primary income source, but most worked with oil palm. In Sengoret the clonal rubber program began in 1987.

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others.

[17] There are apparently few sanctions against cutting tengkawang, which cash-short villagers will often sell to generate urgently needed funds.

Twenty households (40 ha) followed the government-sponsored Smallholder Rubber Development Project (SRDP), which assisted families with planting materials and fertilisers for five years. The land was severely restricted: project organisers wanted contiguous blocks, which was impossible for those lacking land in the proposed area. At one clonal rubber garden, a young couple were tapping the family trees. They only did this in their spare time, though they admitted that it was best to tap as regularly as possible otherwise the yields would drop. Both worked at PT.SIA for a maximum of 24 days per month and were paid Rp13,000 per day. They preferred to work with the company as it was much easier than tapping rubber. Another farmer had provided PT SIA with more than thirteen hectares of productive mixed rubber garden (yielding between five and ten kilograms a day). He regretted that decision but did it to give his children a future source of income from oil palm. He believed clonal rubber to be a profitable commodity if the gardens were well maintained, but considered that the trees did not last as long as those of jungle rubber.

One of the largest landowners in Sengoret was an agricultural extension officer, who had moved there because land was cheap, only Rp40,000 to Rp60,000 per hectare. Before the oil palm company arrived, many people in Sengoret had already sold land, either privately or to the government for the clone rubber project. The extension officer had clone rubber gardens with a number of improved species. He reasoned that if farmers had a combination of both oil palm and clonal rubber then they would be better off, as both commodities had strengths and weaknesses. He had joined the oil palm scheme and provided almost fifteen hectares of land, but he noted that market price fluctuations would create problems for local growers who reduced their options. However, he believed that PT.SIA's presence had led to intensification in farming practices, being more of a catalyst for change in the region than any government agency.

In 2000 a representative from the Dayak Adat Council provided 64 participating farmers in Ensoyong with fertiliser, clonal rubber seeds, and weedicide. However, there was no guarantee that the seed stock used in this initiative was true clonal rubber and not simply cloned jungle rubber seedlings, a common substitute. The farmers have received little follow-up information. An implication of such low-level projects is that farmers will be discouraged with unsatisfactory latex yields. If they are only generating between three and five kilograms per hectare they may be tempted to clear the rubber gardens for oil palm, particularly if they see neighbouring hamlets developing and progressing under monocultures.

The position of rice

Most farmers grew rice using swidden methods, with numerous upland varieties. Before rats began to affect production it had been possible to harvest one and a half tons of rice per hectare, but with the development of oil palm there seemed little time or energy for people to plant, tend and harvest rice crops. In 2000 the rice harvest was reasonable, whereas in 2001 there was virtually no harvest and by February 2002 much had already been destroyed. Although she had earlier welcomed the company, one woman in Engkayu now felt the price had been too high: after the land clearance, rats had decimated their rice crop. Rice harvests in the past had been sufficient for seven months, but now there was only two months' supply, making it scarcely worthwhile to plant and tend the fields. It was also considered no longer rational for people to plant rice in Kopar as yields were very low, though some continued for cultural reasons, notably tuak production. When time and other inputs were estimated, the Kopar head believed he would lose 50% of the money he had invested in the crop. Most people had up to one hectare of land under *padi paya* while a few continued with dry swidden.

Conclusion relating to the five hamlets

A modified multi-cropping system seems to be emerging, with oil palm largely replacing rubber and rice, but with certain areas of tembawang being allowed to remain. Unless further tree planting takes place, however, as was happening in Meliau, the tembawang portion of the multi-cropping system would become fossilised and be likely to gradually disappear.

General Discussion

Among the eight villages studied, only three had tembawang which remained almost intact: Lape, Sanjan, and Ensoyong . All villages had economic problems, though these were most severe in Melobok, the community with the longest experience with oil palm and the largest land losses to the plantation. Those in Parindu sub-district which had accepted SIA were in an intermediate position, managing to retain some tembawang and rubber gardens, yet receiving a reasonable income from working for the company at wages well above the rates at PTPN XIII. Households had the option of choosing between activities, with Segnorat appearing best placed, as it already had clone rubber, though it was severely land short. However, when the planting is finished, labouring jobs on the estate will be reduced and the responsibility for growing oil palm will revert to the villagers, together with the need to repay the company's credit. There are far-sighted farmers in the region, who anticipate future difficulties and plan to overcome them. Others simply adjust to new situations as best they

can, though no longer prepared to remain passive in the face of injustice. The continuation of adat sanctions still appears strong: it does seem to be one influence which is respected where otherwise rules are flouted. The decline of rice-growing was keenly felt by those affected, and such an important cultural activity was set to continue on a limited scale, despite its economic irrationality.

In terms of biodiversity and its maintenance, the germplasm of the tembawang appeared to be reasonably intact in a few villages, though items were being depleted. Tengkawang harvests there were, thanks to El Nino, but tree numbers had been markedly reduced as their timber was in demand. Critical shortages of timber species for construction purposes, and of forest vegetables were beginning to occur. Most of the comments about other fruits available indicated that they were consumed and valued locally, but could not be relied upon as a supplementary source of income.

As argued by de Soto (2000), the farmers of Sanggau district may hold resources, but they are unable to produce capital. Their joint rights in many pieces of land restrict their ability to rationalise their holdings and improve their incomes, for example as independent clonal rubber producers. A serious struggle was taking place between the advocates of a communal, more traditional lifestyle, and those preferring a freer, more individualistic approach. Padoch has already noted the tendency in Tae hamlet for greater individual tenure, while debate was keen in villages such as Lape, which could see the restrictions of the communal approach. Communal efforts to work oil palm co-operatives without secure credit through legal tenure, as in the Semadu case, led to failure in one example and minimal profit in the other, as management was reduced to a low level. Because of the nature of their farming activities, many smallholders appear to substitute one income source for another, rather than try to maximise or improve all. There were examples of individualism and ambition, which broke clear of the mould, though sometimes at the expense of their fellows. Such individuals were able to plan in a more farsighted way for the future and to take an independent stand, even though castigated as trouble-makers.

What was perhaps most interesting in this study, and most heartening to supporters of the complex agro-forests, was the fact that the tembawang were being specifically retained, though apparently largely for their symbolic significance rather than their economic or environmental value, despite the inroads of oil palm. They were seen to represent tangible symbols of the history of a community grounded in its landscape, what Mayer (1996) has called “landscape capital”. They were also symbols of the continuing power of adat chiefs, whose ability to impose expensive sanctions for unauthorised tree-felling was feared and respected. Where the tembawang had been destroyed, as in the case of Melobak village, they were being replanted. A small beginning, perhaps, but an assertion that they were perceived as still significant in ensuring a sustainable resource base and cultural continuity for the next generation.

The complex agroforests may survive in some form, if village leadership continues to promote them and local people to value them, even if only as a kind of insurance for the future. At least from our observations in 2002, the oil palm companies were struggling to win the battle of the minds, although the contribution of SIA to local incomes was appreciated. The continuing rural crisis, in which low global commodity prices were coupled with high costs of purchased food and agricultural inputs, was placing communities under severe stress. They may not have wanted to accept oil palm, but were finding they had little option. Unfortunately the forms of protest adopted to express resistance to the company, such as absenteeism, poor maintenance of the trees and selling off the fertiliser, would rebound on the future owners, who had not only to make a living from their two-hectare plots, but also to repay the costs of their establishment.

The likely impact of decentralisation is still unclear. Although there has been talk of a revival of adat in villages, the exact form that this might take seems uncertain. In West Kalimantan, wracked by inter-ethnic violence in 1997-1998, solidarity among Dayak groups is strong, and local NGOs offer support.[18] It was in fact a protest by Dayak groups against the conversion of community managed land to oil palm which led eventually to the formation of AMAN, the nationally based Alliance of Adat Communities, which is growing in strength (Bamba, 2000; Moeliono, 2002). While NGOs tend to be antagonistic toward oil palm plantations, local attitudes are more ambivalent, and many would see the industry as useful and important for local economies. The situation remains highly complex and continues to evolve.

This case study has attempted to identify the complex processes operating at local level in Indonesia, representing the struggles between local and global interests, between the demands of modern industry, notably oil palm plantations, and the aspirations of villagers. The latter seek to reconcile tradition and modernity, to obtain future security for their children and improve current family welfare. It would appear that preservation of the tembawang as an element of the livelihood mix, ranks highly, to the extent that a new accommodation is being found to enable both the traditional and the modern to co-exist.

Postscript

Since 2001 the prices of oil palm fruit and rubber have risen considerably, much to the delight of farmers. Rubber is experiencing a minor boom (up to Rp5,750 per kg), while oil palm continues to be favoured by the local administration. Two questions have created local controversy, notably the replanting of sections of the PTPN XIII plantations, with extension of their leases, and the Plantation Bill (RUU Perkebunan),

[18] The Pancur Kasih Foundation was established in 1981 by Dayak teachers in Pontianak to work towards better conditions for Dayak communities. It has since set up several NGOs, credit unions and a bank (Bamba, 2000)

which is designed to remove obstacles to investment in oil palm such as local disruption of plantation activities and to facilitate the conversion of forest[19]. This improved environment for commodities does not augur well for the future of the tembawang, which may have a more difficult struggle to survive than had previously been predicted.

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[19] The plantation bill has already been under discussion since 2002, but is likely to become law this year. See, for example, *tempointeraktif*, 9th Feb 2004, 'RUU Perkebunan ditargetkan selesai Oktober'; *Jakarta Post*, Feb. 11, 2004 'Prioritizing plantation bill's aim'; June 10, 2004, 'Farmers rally en masse against bill…'; Discussion on replanting the older plantations may be found in the *Pontianak Post* , 23 May 2004 ' Setuju Peremajaan Sawit' and 5 June 2004 'Replanting sawit kurang libatkan masyarakat'

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