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Tree Planting in Indonesia: Trends, Impacts and Directions

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Abbreviations and Glossary

BPN	<i>Badan Pertanahan Nasional</i> , lands titles office
BUMN	<i>Badan Usaha Milik Negara</i> , state-owned business enterprise
CIFOR	Center for International Forestry Research
CIRAD	<i>Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement</i> , Centre for Cooperative International Agronomic Research for Development
CPO	Crude palm oil
DISBUN	<i>Dinas Perkebunan</i> , Estate Crops Service of the Agriculture Department
FELDA	Federal Land Development Authority of Malaysia
GAPKINDO	<i>Gabungan Perusahaan Karet Indonesia</i> , Indonesian Rubber Association
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
HBD	<i>HPH Bina Desa program</i> , programme to improve relations between logging companies and villagers living within a forestry concession
HPH	<i>Hak Pengusahaan Hutan</i> , logging concession
HTI	<i>Hutan Tanaman Industri</i> , industrial timber or pulp plantation
HTI <i>Swakelola</i>	Self-management HTI, run by the provincial forestry service in Southeast Sulawesi
HTI <i>trans</i>	Industrial timber or pulp plantations including transmigrants
<i>Hutan Kemasyarakatan</i>	Forestry Department Social Forestry Scheme
<i>Hutan rakyat</i>	Community forest or smallholder commercial forest
ICRAF	International Centre for Research in Agroforestry
IDT	<i>Inpres Desa Tertinggal</i> , poor villages assisted with loans from the Presidential Fund
Inhutani	State Forest Company, now divided into six separate companies, Inhutani I through VI
IPK	<i>Izin Pemanfaatan Kayu</i> , permission from the Forestry Service to cut and sell wood from production forest site
<i>Kanwil Kehutanan</i>	Regional Forestry Office
<i>Kemitraan (or)</i>	Partnership arrangement (for management of oil palm
<i>Pola Kemitraan</i>	estates)
KKPA	<i>Koperasi Kredit Primer Anggota</i> , Prime Cooperative Credit for Members
<i>Kredit Usaha Tani</i>	Cooperative credit scheme between the Agriculture and Forestry Departments for tree planting
KUK-DAS	<i>Kredit Usaha Konservasi Daerah Aliran Sungai</i> , Smallholders' Water Catchment Conservation Credit Scheme
NGO	Non-governmental organisation
NTFPs	Non-timber forest products
ODA	Overseas Development Agency (UK)
<i>Ojek</i>	Motor cycle and driver for hire
<i>palawija</i>	Dryland food crops other than rice, such as corn
Perhutanda	Forest company run by the regional government of Southeast Sulawesi
Perum Perhutani	State Forestry Company
PIR	<i>Perkebunan Inti Rakyat</i> , Nucleus Estate and Smallholder Scheme (NES)
PIR <i>trans</i>	<i>PIR transmigrasi</i> , Nucleus Estate and Smallholder Scheme incorporating transmigrants and local people
PJPII	<i>Pembangunan Jangka Panjang II</i> , second long-term development plan
Plasma	The smallholder section of a PIR or nucleus estate; sometimes used to refer to the people participating who are working their small blocks under the guidance of the larger company
Pohon kehidupan	'Harvestable forest' a combination of fruit and other useful trees with cinnamon in the buffer zone of Kerinci Seblat National Park. The trees may be harvested, but not cut.

PRPTE	<i>Peremajaan Rehabilitasi dan Perluasan Tanaman Ekspor</i> , Rehabilitation and Expansion of Export Crops Program
PTP	<i>Perseroan Terbatas Perkebunan</i> , Estate company proprietary limited. While referring to all estate companies, 'PTP' is commonly used to refer to state-owned companies.
RAS	Rubber Agroforestry System
<i>Reboisasi</i>	Reforestation program of the Forestry service encouraging smallholders to plant trees on the forest estate
<i>Repelita</i>	<i>Rencana Pembangunan Lima Tahun</i> , Five Year Development Plan
RTRWP	<i>Rencana Umum Tata Ruang Wilayah Propinsi</i> , provincial land use plan
SFC	State Forestry Company
SFDP	Social Forestry Development Project
SRAP	Smallholder rubber agroforestry program
SRDP	Smallholder rubber development project
TCSSP	Tree crop smallholder support project
TGHK	<i>Tata Guna Hutan Kesepakatan</i> , forest land use classification
TSM	<i>Trans Swakarsa Mandiri</i> , special projects allocating land to second generation migrants
<i>Tumpang Sari</i>	Javanese word initially relating to the intercropping of teak with food crops; now used across Indonesia to refer to intercropping of young plantations
UPM	<i>Usaha Petani Menetap</i> , permanent farming systems programme
UPSA	<i>Usaha Pelestari Sumber Daya Alam</i> , tree crop programme for environmental conservation
WWF	World Wide Fund for Nature

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Foreword

The Center for International Forestry Research (CIFOR) commissioned the study on “Tree Planting in Indonesia: Trends Impacts and Directions” in June 1997. At that time, the first indications of an accelerated expansion of oil palm plantations in Sumatra and Kalimantan were emerging. The paper and pulp industry was also rapidly expanding its factory capacity, but the growth of industrial timber plantations to supply the raw material to feed these factories was far behind schedule. The Ministry of Forestry was supporting several programmes in which local people play a larger role in industrial tree plantations or benefit from state forests, while national NGOs and international centres like CIFOR and ICRAF were conducting experiments with smallholder tree production. It seemed an appropriate time to clarify the situation in the field and the interaction between tree planting and tree management programmes, possibly in competition with each other.

During the study and reporting period, Indonesia changed at a pace that has happened only two other times in the nation’s brief history. In August/September 1997, international attention was focussed on extensive forest fires, which were the result of people taking advantage of the ENSO-induced dry season to cheaply clear land on a large scale. Soon after, the country entered an economic decline which, by the end of 1997, had struck with full force. These two crises, at least partly attributed to misuse of government authority, led to political upheaval in the early months of 1998, and the resignation of President Suharto. While this Indonesian drama was unfolding, the importance and potential usefulness of this report changed accordingly.

In her review of this report, Judith Mayer comments: “[It] clearly explains how without significant re-thinking and reform, governance and economic forces will inevitably lock rural communities and regional economies ever more tightly into dangerous cycles of dependence on a limited range of commodities and livelihood options, and will increase the vulnerability of rural communities and regional resource bases to predictable threats of pests/disease, wildfire and other -natural- disasters.” In this era of reformasi there should be political opportunity for such reform. The Ministry

of Forestry has set up a team *reformasi* and a forum *reformasi*, the latter of which suggests that forestry concessions be managed by cooperatives in a way that logging benefits can accrue to local people. Ironically, development of agricultural export production is seen as one important solution to the crisis facing the Indonesian economy. This will provide a strong incentive for government officials to continue to allow the expansion of the oil palm industry. Because of high international demand for crude palm oil (CPO) and low production costs in Indonesia, oil palm is currently the most important of a limited range of commodities able to contribute to economic recovery.

One of the conclusions of this study, however, is that even a reformed Ministry of Forestry will not be sufficient to control tree planting trends. It is the regional government officials who play the significant role in what happens in practice. The message from this report needs to be brought to the attention of those regional governments because, as the study also notes, local groups are becoming more vocal and militant in defending their rights and opposing government programmes that do not adequately address their needs. It is hoped that this report will contribute to the realisation of the economic opportunities that tree planting programmes in Indonesia do offer for those who are directly affected, and to help in the revival the Indonesian economy.

We would like to thank Judith Mayer, Assistant Professor at the Department of Urban affairs and Planning, Virginia Polytechnic Institute and State University, and Harold Brookfield Visiting Fellow, Department of Anthropology, Research School of Pacific and Asia Studies, Australia National University, for reviewing the manuscript and providing insightful comments, and Yvonne Byron who edited the manuscript. The funding for this endeavour was provided by USAID under grant DAN 411-G-00-1063-00.

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Executive Summary

This report details the results of a consultancy carried out by the authors for CIFOR from September 1997 through February 1998. The aims of the project were as follows:

- 1) to identify tree planting activities currently prominent in Indonesia;
- 2) to seek reasons for their ascendancy, with specific reference to influential actors capable of favouring certain activities and holding back others; of particular interest were the activities of regional government agencies which were hypothesised to be more instrumental than central government policy *per se* in determining what actually took place on the ground;
- 3) to monitor the perceptions of local and transmigrant populations regarding the opportunities and constraints associated with particular tree planting options; and
- 4) to briefly examine the environmental impacts of dominant tree planting activities.

The tree planting activities identified for detailed discussion were: 'improved' smallholder tree crop production (under both government and NGO projects and as farmer initiatives); industrial timber and pulp plantations; and oil palm estates. Chapter 1 provides a general discussion of trends in these activities, under the headings 'sources of support', 'current implementation' and 'limitations to establishment'. Chapters 2, 3 and 4 present case studies of the three provinces selected for detailed analysis: West Kalimantan; Jambi and Southeast Sulawesi. In each of the case study areas a specific range of activities is examined to provide both comparison and contrast, while Chapter 5 outlines some general conclusions. Further statistics on oil palm are provided in Appendix A.

The chapter on West Kalimantan provides an in-depth analysis of the competition for land among oil palm estates, industrial forest plantations and smallholders in two regencies (Sanggau and Sintang). It begins with a discussion of the logging industry and its impact on indigenous Dayak communities, then identifies tree planting initiatives aimed at improving Dayak agriculture. These are subdivided into schemes operated by NGO and international organisations and government schemes. The former include ICRAF's rubber agroforestry system, the charcoal project of CIFOR with Yayasan Dian Tama, and the GTZ/Ministry of Forestry Social Forestry Development Project. The general conclusion is that such tree planting activities, whether government or non-government have had a limited impact over quite small areas. 'The problem facing these schemes is that by the time they are perfected they may

have nowhere to operate. At best they will exist on the periphery in isolated locations' (Chap. 2, p20).

Much more important are the activities that will displace Dayak agriculture, of which two basic types are identified: industrial timber and pulp plantations (HTI) and oil palm estates. The 'classical approach' taken by HTI companies is exemplified by the government company, Inhutani III, which has basically failed in negotiating its relationships with villagers, from whom it needs to acquire land. Promises to provide facilities have been consistently broken and intimidation has occurred at times. By contrast other HTI companies, such as the Finnish-Indonesian consortium Finnantara Intiga, have adopted a much more conciliatory attitude, providing villagers with many benefits and not attempting to coerce them. Unfortunately, such an operation is perceived as too expensive by regional authorities, and even Finnantara's partners have failed to support it. Oil palm companies are passing over the consortium in the struggle for land.

The second half of the chapter is devoted to an analysis of the oil palm industry, which is expanding rapidly in West Kalimantan. The regional government is crucially supporting the oil palm estates as they are seen as the best option to quickly generate both local income and regional economic growth. Oil palm companies are thus being permitted to clear logged-over concessions that should theoretically be classified as plantation forest or HTI. They are replacing smallholder rubber by persuading farmers to give up land in return for a small allotment of oil palm, which is planted according to company specifications and processed in the company mill. The various types of oil palm estates are described and their impact on local communities is examined in depth. The older government estates (PTPs) were more generous in their treatment of smallholders (allowing them 2.5 ha of land already planted to oil palm, a house and garden, while the company took an equivalent amount of land). They have been largely superseded by Perkebunan Inti Rakyat (PIR) schemes operated by private companies. When resuming 7.5 ha of land from villager households, the company keeps 2.5 ha for its nucleus estate, the villager receives 2.5 ha and 2.5 ha is made available to transmigrant settlers. Although credit is available, this must be repaid and the companies insist on heavy fertiliser application, which adds to the villagers' outlays. Although theoretically the oil palm plots will give good returns to their owners, yields on the older estates are showing premature decline and incomes are not as high as anticipated. The newest oil palm schemes are operated by self-funding companies who, it is feared, will have less reason to be as socially concerned as their predecessors, hence their impact on

local people will be less acceptable. Foreign capital (especially from Malaysia) is also being encouraged into 'eastern Indonesia', which includes Kalimantan. Although all new estates are supposed to have 'partnership' agreements with local people, this is a vague concept and the form of such arrangements is as yet largely unknown.

The Jambi chapter takes a broader sweep through that small province selecting similar activities for purposes of comparison with the situation already described in West Kalimantan. Again there are three basic emphases: smallholder activities (especially in a province with a long tradition of smallholder rubber); HTIs and their attempts to acquire land for tree planting after the decline of the logging industry; and oil palm, the biggest land consumer. Achieving good relations with farmers is especially important for the largest HTI, Wirakarya Sakti (WKS), because of the need to supply its large pulp mill with raw materials. It has thus engaged in private farm forestry (*Hutan rakyat*), with mixed success thus far. Experiments with oil palm include planting it out on peat, which adds greatly to the expense and to the risk of fire but is perceived as being necessary to counter future shortages of mineral soil. An interesting social experiment is the *Kemitraan koperasi*, or cooperative partnership scheme being undertaken in the Batang Hari regency. In that regency the oil palm estates are perceived as the ideal solution to problems of poverty among the Jambi Malay, the indigenous Kubu minority and resettled populations from the Kerinci Seblat National Park.

Most conclusions from the Jambi chapter are similar to those from West Kalimantan, especially in their identification of the systematic dispossession of local people from their land, which was initiated by the original forest classification and has been continued through the establishment of exotic monocultures on the converted forest estate. The favouring of oil palm over all other land uses by provincial authorities is seen as creating a dangerous imbalance in the development process.

Southeast Sulawesi, being much further to the east, has so far little oil palm (although it is coming). The discussion here revolves largely around the future of HTIs, especially the unique situation of the declining teak industry on Muna Island, estimated to be around 300 years old. In eastern Indonesia, HTIs usually involve slower growing and potentially more valuable timber, such as teak and mahogany, rather than pulpwoods. After attempts to overcome the problem of teak theft on dry and otherwise income-scarce Muna by means of a provincial government instrumentality, the decision has reluctantly been taken to devolve the management of this important resource to a State Forestry Company, such as Perum Perhutani. While this decision appears to

weaken the power of the regional administration and its control over the land, it retains this control on the mainland. The potentially high value of teak also offers unusual temptations that have threatened the total collapse of the industry. While smallholder tree planting of cocoa and cashew to a certain extent replaces rubber in these eastern districts, they will eventually face competition from oil palm. How well the oil palm will grow in areas with a much longer dry season is still to be ascertained.

The major findings are summarised in the concluding chapter, which considers the impact of the monetary crisis and updates the general information to mid-August 1998. Oil palm is seen to emerge as the winner on all counts, just as the IMF has endorsed further development of tree-based cash crops. Forestry is in retreat, a retreat symbolised by the naming of the new Minister, the Minister of Forestry and Estate Crops. Fires have further undermined some of the best Kalimantan forests, which now face increased pressures from the demands of the large firms operating logging concessions, plantation forests and oil palm estates. Newly impoverished populations are also turning in increased numbers to the extraction of forest resources. Indonesia is the world's cheapest producer of palm oil products, largely because of low labour costs. Future plantations are likely to want to cut costs even further, especially those estate companies being attracted from Malaysia. Huge markets for palm oil products, both local and international, will ensure the industry's future growth. Substituting much of the remaining tracts of Indonesia's biodiverse tropical forest and even the mixed cultivations of smallholders by oil palm monocultures, is not an environmentally happy prospect, but it is a prospect faced with equanimity, even eagerness by local administrations. While the pulpwood monocultures will also engage in the battle for land, the demise of many is likely, except in specific areas where they can attract smallholder growers. Big questions of continuity and sustainability of all these tree crops do remain, however, together with uncertainty surrounding the continued role of the smallholder as independent grower and producer of a variety of tree crops.

Developments since the fall of the Suharto administration, while encouraging more open discussion on government policy, and more activity on the part of local NGOs, so far do not indicate major changes in direction. Increased political freedom is coupled with economic stringency, which does not encourage new initiatives. The behaviour of the private oil palm companies is revealed (unsurprisingly) as profit-seeking above all with little concern for social issues, while local people are showing increased readiness to fight to retain their land.

CHAPTER 1

BACKGROUND AND TREE PLANTING TRENDS

Timber from Indonesia's dipterocarp forests has been an important source of non-oil revenue for the past 30 years. In the face of continued exploitation, however, and despite government rhetoric concerning the sustainability of the supposed 'selective logging' operations of concession holders, there is an acceptance that this resource could soon be exhausted. Indonesian policy makers have thus sought alternative, profitable uses for deforested and logged-over lands that can sustain their revenue-earning capacity.

Planting trees on degraded or cleared forest lands and on the private holdings of villagers living near remnant forests has been identified by the government and its advisers as one means of achieving its conservation and development goals. Consistent with this broad principle, the Forestry Ministry¹ ruled that all concessionaires must replant at least part of their leases with fast-growing trees. An attempt was also made to stimulate the interest of private and quasi-government companies in timber and pulp plantations on other degraded forest lands, scrub and grasslands. On cleared lands, or forest lands suited to conversion, the Agriculture Ministry actively promoted the establishment of estate crops, primarily oil palm and rubber, again to both private and quasi-government companies, sometimes with international assistance. Both the Forestry and Agriculture Ministries have encouraged smallholders to plant economically useful trees on their private holdings to strengthen their farming systems. In addition, the promotion of smallholder agroforestry schemes by international donor and research agencies has been accepted by the government.

Companies and smallholders, however, embrace tree planting selectively according to their perceptions of how this activity meshes with their own interests. They undoubtedly seek to manage their trees in a manner that is to their greatest personal advantage, though at times this may be suboptimal from the government's perspective. They may even engage in illegal tree planting, for example where their tree crops encroach on areas designated protected forest or national park. While some tree planting activities have needed initial or continued government or donor subsidy, others have been adopted spontaneously and over large areas, as smallholders and private companies take advantage of rising commodity prices or the ability to secure rights to land by the planting of trees.

The assortment of interests involved in the planting and promotion of trees, and the fluency of the economic and policy environment, has made the position on the ground both diverse and dynamic. It was against this background of political and economic uncertainty that we were invited by CIFOR to compile this report. We therefore sought information from a variety of secondary sources and from fieldwork in three provinces (West Kalimantan, Jambi and Southeast Sulawesi) between September 1997 and February 1998. Following our first draft report to CIFOR, we have subsequently sought to update our information to the middle of August 1998, but we are aware that the situation continues to change rapidly and we will undoubtedly be out of date with some of our findings by the time of publication.

The aims of the report are as follows:

1. to identify which tree planting activities are currently prominent in Indonesia;
2. to seek reasons for their ascendancy, with specific reference to influential actors capable of favouring certain activities and holding back others: of particular interest are the roles and influence of regional government agencies in determining what occurs on the ground, which at times appears to be at odds with central government policy;
3. to monitor the perceptions of local and transmigrant populations regarding the opportunities and constraints associated with particular tree planting options; and
4. to briefly examine the environmental impacts of dominant tree planting activities.

We commence with a general introduction to the major tree planting activities often suggested for development on lands designated as 'production' or 'conversion' forest. We detail their sources of support, the nature and extent of their implementation at the national level and general limitations believed to hinder their further spread. Attention then turns to the establishment and impact of these activities in practice. The discussion focuses on industrial timber and pulp plantations (*Hutan Tanaman Industri*, HTI), oil palm and smallholder rubber. While mentioning other smallholder tree crops, such as cocoa, cinnamon and cashew, we do not dwell on these at length, nor do we discuss coconut, except in passing. We use as case studies the situations in West Kalimantan and Jambi in the geographic west of Indonesia and Southeast Sulawesi in the east.

Tree Planting Trends in Indonesia

Industrial timber and pulp plantations

Sources of support

The creation of large-scale industrial timber and pulp plantations of fast-growing species on short rotations has been a policy goal of the forestry sector since the beginning of the Fourth Five-Year Development Plan (Repelita IV) in 1984. This aim was reiterated for both Repelita VI (1994-1999) and the second long-term development plan (Tantra and Hutabarat 1996: 82). Species used have been predominantly *Acacia mangium*, but *Pinus merkusii* and *Paraserianthes falcataria* (known locally as *sengon*) have also been tried, together with *Gmelina arborea* and the slower-growing teak (*Tectona grandis*) and mahogany (*Swietenia macrophylla*) in the drier areas (BPS 1997b: 11). The plantations would replace 'unproductive' forest vegetation (with a stocking of less than 16 cu m/ha), scrub or *alang-alang* (*Imperata cylindrica*) (Haeruman 1993).² The policy was motivated by the anticipation of a raw material deficit by the year 2000, due to expanding domestic and export markets (GOI/FAO 1990; Anwar 1993: 161). The theory was that HTIs would turn degraded forest areas into a valuable resource, supply and enhance the market for timber, pulp and paper and reduce pressure on natural forests (Davis 1989; Anwar 1993). They were also hoped to promote an image of 'sustainable forest management' in response to environmentalists' demands for an international boycott of tropical timber imports and a call for eco-labelling (Mayer 1996a: 149).

The government has offered companies willing to establish HTIs interest-free loans from the reforestation fund (*dana reboisasi*), created in 1980 from a reforestation tax levied on concessionaires (Haeruman 1993). These loans cover 32.5% of establishment costs and must be paid back in seven years. The government has also supported companies borrowing establishment capital from banks or other financial institutions and has allowed some to further minimise establishment costs by cooperating with a state forestry company (SFC) (Hasanuddin 1996: 15). Other incentives include low land taxes and the right to clear cut and sell any remnant vegetation on concessions (Haeruman 1993).

Apart from these incentives the government moved to encourage HTI establishment by making it a condition of logging approvals that concessionaires reforest logged-over areas (Potter 1996: 377). To accelerate the establishment of plantations, while also providing employment opportunities for transmigrants, the

Ministries of Forestry and Transmigration jointly introduced the HTI Trans scheme in 1992. The Government and its SFCs would provide 40% of the investment while the remaining 60% would be contributed by the private sector in a joint venture (Sudradjat and Subagyo 1993: 176). At the end of 1994 almost 39% of the area planted was in transmigration estates (BPS 1997b).

Current implementation

Estimates of forest land area in Indonesia vary from 92.4 million ha in Repelita VI documentation to 120.6 million ha according to the GOI/FAO National Forest Inventory (Sunderlin and Resosudarmo 1996: 1). HTIs are given priority on limited and permanent production forest land, totalling 60 million ha or around one-half of the designated forest zone (Anwar 1993; BPS 1997b: 216).

The establishment of HTIs has been slow. Ambitious plans commencing in 1984 to plant 1.5 million ha every five years and establish 4.5 million ha of plantations by the year 2000 have not approached fulfilment (Davis 1989; GOI/FAO 1990; MoF 1991). By 1989 only 4.5% (67 500 ha) of the target had been reached (Anwar 1993: 170). Admittedly there has been more success recently, particularly with pulp plantations of *Acacia mangium*. By late 1995, 520 000 ha had been established across the nation (Sunderlin and Resosudarmo 1996: 13).³ A Forestry Department spokesman claimed recently that 320 000 ha had been planted in 1996/97 (70 000 ha above the year's target) and that an additional 311 000 ha was planned for 1998/99 (*Media Indonesia* 27/2/98, 2/3/98). If all of these trees survive, this may bring the total HTI area to just over one million ha by the year 2000.

Limitations to establishment

It has been estimated that pulp and timber plantations will continue to be constrained by unstable and low prices respectively (Sunderlin and Resosudarmo 1996: 13). Private investors may also be deterred by a lack of processing facilities and the high cost of their construction. Even with fast-growing species such as *Acacia mangium*, HTIs do not begin to produce a return for 5-8 years. Investors may prefer to select commodities (such as oil palm) with a more rapid return, thus reducing interest payments on their establishment loans. Government incentives, particularly access to the reforestation fund, are considered unreliable. Potential companies have also found it difficult to obtain adequately sized land parcels in accessible locations (GOI/FAO 1990). Land limitations are related to resistance from local people that may not be alleviated without increased establishment costs. To overcome

problems with land, some HTI companies have begun implementation of a community forestry (*Hutan Rakyat*) scheme. A group of farmers will pool at least 50 ha of their land and grow the preferred tree crop for the company, with the latter providing all inputs and the eventual profits being shared. These schemes are active in Jambi, and will be discussed in more detail in Chapter 3.

Oil palm estates

Sources of support

Agricultural development of the provinces outside Java has consistently received special attention in the Indonesian government's five-year development plans. Emphasis has been on intensification through transmigration, the original food crop schemes being succeeded by plantations of estate crops producing both for export and the domestic market. While a number of different estate crops have been promoted, since 1990 the oil palm (*Elaeis guineensis*) has attracted the most attention.

The oil palm was first introduced to Indonesia in 1848, when four seedlings were planted in the Botanic Garden at Buitenzorg (Bogor). Progeny of these trees were transferred to Deli, North Sumatra in 1875, but it was not until 1911 that the first plantations were established. These were set up in Asahan, North Sumatra, and in nearby Aceh by a Belgian, the founder of the Franco-Belgian corporation SOCFIN, which still operates estates in the area (Hartley 1967: 15-17; Stoler 1985: 19)⁴ Dutch capital later became involved, with area and production expanding rapidly in the 1930s, so that in 1938 the combined exports from North Sumatra and Aceh were the highest in the world (Thee 1977: 31; Stoler 1985: 20). During the Dutch period, palm oil was produced only in large plantations: it was thus unlike rubber, which developed a strong smallholder base early.

Following Independence and the restoration of the estates sector, after 1968 the Indonesian government (with World Bank assistance) boosted the oil palm industry by making direct investments via state-run companies, PTPs (*Perseroan Terbatas Perkebunan*) (Larson 1996). The government's intention was to ensure adequate supplies of affordable cooking oil for domestic consumers, promote industrial development and boost non-oil exports (Tomich and Mawardi 1995). Smallholder involvement was initiated in 1979, perhaps following the example of Malaysia's Federal Land Development (FELDA) programme. Plantations were arranged around PIR/NES (*Perkebunan Inti Rakyat* or Nucleus Estate and Smallholder) schemes, with smallholders (known as *plasma*) cultivating 60-80% of

the plantation area and bringing their fruit for crushing to the company factory.⁵ From 1986 to 1995 greater private sector involvement was encouraged under the PIR Trans programme. The government-funded infrastructure facilitated land acquisition, sponsored smallholders (largely transmigrants), and provided credit to investors at concessionary rates for estate development, new crop planting and crushing facilities (Larson 1996). Established private estates run by four of the large Indonesian cartels are still operating mainly under this system.

In response to limitations on national revenues and the need to link credit more closely to market rates and conditions, in August 1995 the government scrapped its previous schemes and decided to focus its efforts on promoting oil palm development in eastern Indonesia⁶ under the PIR Trans KKPA scheme; that is, the nucleus estate and smallholder scheme (PIR) with transmigration involvement (Trans) based on Prime Cooperative Credit for Members (KKPA). The developer must create an oil palm estate using the PIR model and provide capital while a cooperative of (local) smallholders contributes land. Subsidised interest rates defray risks to investors associated with 'plantations' of groups of smallholders (Larson 1996). The government has also redirected its own state enterprises toward the east. In 1996 plans were announced for 14 state-owned plantation companies to establish 89 000 ha of oil palm plantations in Irian Jaya (Economist Intelligence Unit 1997a: 32).

In western Indonesia government subsidy was no longer offered or needed to attract private sector interest in oil palm plantations. Palm oil was in demand. It is the primary cooking oil in Indonesia and has been persistently in short supply over the past few years as consumption has grown with rising incomes (Economist Intelligence Unit 1997a: 32). It now accounts for 12% of global vegetable oil consumption (Ahsanal Kasasiah 1996). Its price has been relatively stable and competitive and Indonesian production costs continue to be the lowest in the world (Ahsanal Kasasiah 1996; Larson 1996: 7). Local Indonesian firms have been eager to set up entirely self-financed plantations, particularly in Sumatra and West Kalimantan, while foreign companies have shown considerable interest in participating. Such has recently been the influx of foreign capital that, in March 1997, foreign companies were said to have been allocated 2.2 million ha out of a total of 5.5 million earmarked for oil palm development (*Suara Pembaruan* 16/3/97). At that time a ban was announced on further foreign investment in oil palm in western Indonesia, meaning that Sumatra (but not Kalimantan) would be closed to all but Indonesian capital. This decision was reversed in January 1998 in

response to Indonesia's economic problems (*Oil World* 9/1/98) and the following month the industry was totally opened to foreign investors, who are now being actively encouraged. Malaysian interests are the most prominent, as they have difficulty finding adequate land for expansion at home and labour is more expensive there. To maintain smallholder involvement and protect the rights of local landowners, the government has emphasised that privately run estates should be based on a 'partnership' relationship with local people. The Minister of Agriculture, fearing that foreign plantations in particular may indulge in exploitative labour practices, has stated that in the future companies may have to prove the existence of such partnerships before they are granted permits (*Suara Pembaruan* 25/3/97).

Current implementation

A US Department of Agriculture report⁷ estimated that the total area planted to oil palm in Indonesia amounted to 2.2 million ha of which about 50% had not reached full production (Economist Intelligence Unit 1997b: 30). One-third of the total oil palm area has been established in the last five years while the area of other estate crops, such as rubber, has remained fairly static (BPS 1997a: 211). Most recent figures suggest that Indonesian investors control 2.4 million ha of oil palm, of which state-run companies possess 443 000 ha of older productive plantings, smallholders have 824 000 ha and private companies the rest, primarily new, immature plantations (*Jakarta Post* 12/6/98). Four Indonesian cartels – Sinar Mas, Astra, Salim and Raja Garuda Mas – are responsible for 68% of the 1.2 million ha of oil palm plantation owned by private firms (Cohen and Hiebert 1997; McBeth 1997).

Oil palm development will continue to be focussed on the 40 million ha of land available for conversion to cash crop cultivation in Indonesia's outer islands (Sunderlin and Resosudarmo 1996: 13). Government plans drawn up before the economic crash called for the plantation area to reach 5.5 million ha by 2000 (Cohen and Hiebert 1997: 28), and for Indonesia to be the world's biggest palm oil producer by 2005 (McBeth 1997). Unlike the position with the HTI plantings, these targets could still be achievable. Vast areas of land are already under licence for development and further reservations targeting oil palm approach 5.5 million ha. However, the pace of production in Malaysia, the present world leader, may accelerate in response to present high prices and increased demand.⁸

Limitations to establishment

The establishment of new oil palm plantations proceeded apace during 1997. Interest of investors, including some of Indonesia's wealthiest companies, remained high,

especially as export prices of crude palm oil (CPO) continued to climb. Output of CPO in Indonesia increased ten-fold over the 20 years from 1975 to 1995, from 0.4 million to 4.0 million tons. Predictions suggested a rise to 6.0 million tons in 1998⁹ and a further doubling by 2010 (Ahsanal Kasasiah 1996; *Oil World Annual* 1997). There is certainly scope for increased sales as markets expand, especially in other parts of Asia such as China and India. Constraints on continued growth in oil palm area are mainly related to access to land and capital, although investments by foreign firms could supply some of the latter.

Larson (1996) suggested that disincentives could emerge from market distortion caused by government intervention; the opposite effect was occurring in July 1998. The government has for some years levied an export tax on CPO producers to limit domestic prices and ensure supplies of cooking oil to the local market. For a few months after the crash of the rupiah in January 1998, exports of CPO were banned. The lifting of the ban saw the introduction of new export taxes of first 40%, then 60% of the value of the product. However, such a disparity existed between local and export prices that these taxes proved barely a disincentive to exporters, except insofar as they sought ways to avoid the tax and smuggle their product out of the country (*Jakarta Post* 21/7/98, and see more extended discussion in Chapter 5).

It is possible that in the long term the export market could be threatened by a campaign against palm oil run by the American Soybean Association (consumption may increase cholesterol) or by the reintroduction of import duties on palm oil products entering key European countries (ICBS 1997: 383). However, the ample alternative markets that appear to exist, especially in Asia, would tend to minimise such effects.

Given the low costs of production, high export prices and continuing world demand, the industry is predicted to recover quickly and continue to expand. More critical is the question as to whether political change in the new Indonesia (perhaps after the elections in 1999) will alter current policy favouring the spread of cash crops, especially oil palm. This question will be taken up at the end of the report, following the analysis of the case studies in Chapters 2, 3 and 4.

'Improved' smallholder tree crop production: government and NGO projects

Sources of support

Indonesian smallholders have traditionally grown stands of trees as part of diverse farming systems. The

government and international agencies have instituted many schemes over time aimed at intensifying this activity to improve living standards and reduce dependence on shifting cultivation. There is no doubt that much smallholder tree planting has the advantage of preserving biodiversity while at the same time allowing human harvesting of the products. This is especially true of traditional rubber forests and complex agroforests specialising in fruit trees and other useful species (Michon *et al.* 1992; Dove 1993; Padoch and Peters 1993). Government agencies tend not to recognise the positive aspects of traditional systems, concentrating instead on monocultural estate models which have become all pervasive (de Jong 1997).

The Indonesian Agriculture Ministry has been active for many years in attempts to improve smallholder tree planting. Initially, it provided extension, improved planting materials and limited credit to individual households, while at the same time establishing modern marketing bodies. Due to the limited success and coverage of this approach it then focussed on large-scale schemes planting tree crops such as rubber in contiguous blocks, of which the PIR/NES schemes were just one example. More recently, the Agriculture Ministry has encouraged smallholders to develop smaller blocks with concentrated extension from the estate crops directorate, under a scheme known as the Rehabilitation and Expansion of Export Crops program (PRPTE, *Peremajaan Rehabilitasi dan Perluasan Tanaman Ekspor*) (Barlow and Tomich 1991). This scheme offers credit to smallholders prepared to organise themselves into groups to develop their own plantations. Each household normally contributes 2 ha of land on which they plant coconut or rubber (de Jong 1997: 191).

Since the first Five-Year Development Plan (1969-74), the former Forestry Ministry has encouraged smallholders to plant trees on the forest estate through its reforestation programme (*reboisasi*) and on their private land through 'regreening' (*penghijauan*). These programmes normally operate on a short-term basis with the Forestry Ministry providing funds and materials for one season of planting and two to three seasons of maintenance. Smallholders merely provide the labour; they obtain no rights to the trees planted under reforestation projects and limited rights under regreening.

A newer programme for 'stabilisation of shifting cultivation' (*Usaha Petani Menetap*, UPM) aims to convert upland swidden fields and *Imperata* grasslands to permanent crops, especially rubber and fruit trees. Farmers whose fields are steeply sloping come under a

variant known as UPSA (*Usaha Pelestari Sumberdaya Alam*), and must construct terraces before planting their trees. Participants in both these schemes receive inputs for 0.5 ha, a hoe, planting materials and fertiliser. While establishment of tree crops will give farmers rights to the land, only local rubber varieties are used, which take 15 years to become productive as against six years for clone rubber, while production levels are only one-third as high (FAO 1997).

In addition to its traditional reforestation activities, the Directorate General for Reforestation and Land Rehabilitation recently instituted a variety of 'social forestry' programmes. These also give smallholders ownership over trees planted and the right to sell products harvested. The trees are established using credit from the Forestry Ministry administered by a distributing bank. The social forestry credit schemes include both the Smallholders' Water Catchment Conservation Credit scheme (KUK-DAS, *Kredit Usaha Konservasi Daerah Aliran Sungai*) and the Smallholders' Forest Credit scheme (*Kredit Hutan Rakyat*). Smallholders are offered credit of up to 2 million rupiah per hectare, at 6% interest per annum, to establish trees on their own land outside the forest estate. They must work with a business partner who administers the loan and form a farmers' group with their neighbours so that a total area of 900 hectares is planted (DJRRL 1996, 1997; MoF 1997).

The Forestry Ministry has also initiated a social forestry scheme (*Hutan kemasyarakatan*) encouraging smallholders to plant trees on production forest land so that a buffer zone is created around protection forests. Seventy per cent of the trees planted are for timber while the remainder are fruit trees which smallholders may harvest but not cut (Drs Budi Hardjo personal communication, Oct. 1997). National Park authorities, for example in Kerinci Seblat National Park (TNKS) in Sumatra, have similar schemes to promote useful trees (*pohon kehidupan*) among the inhabitants of the buffer zone around the park perimeter. The Forestry Ministry is also engaging in cooperative credit programmes with Agriculture (*Kredit Usaha Tani*) to encourage farmers to plant timber species with agricultural crops (Ir. Dadan personal communication, Sept. 1997).

Promoting improved tree planting systems amongst smallholders has been the dominant *modus operandi* for many international development and research agencies across Indonesia. Soil and water conservation techniques involving fast growing tree legumes, such as *Leucaena* sp. and *Calliandra* sp., have been promoted to stabilise and intensify upland agriculture in drier regions. There has also been detailed and extensive

research into traditional agroforestry systems and projects aimed at their promotion and intensification. It is common for international agencies to cooperate with local NGOs or industry groups (such as tree crop processors, e.g., GAPKINDO, the Rubber Association of Indonesia) when promoting improved smallholder tree planting.

Implementation

Indonesia's independent smallholders produce a wide variety of tree crops. Improved planting, characterised by an abundance of mostly small-scale projects, often concentrates on the intensification of existing tree gardens or is intended to be a stimulus to smallholders to expand their traditional activities spontaneously. These characteristics make it difficult to calculate the area of trees resulting from such intervention, but it is likely to be relatively small.

Reforestation and afforestation promoted by the Forestry Ministry have consistently planned to revegetate an average of about 150 000 ha of land per annum in the 1990s and considerably larger areas in the past (BPS 1997a: 217). In the last two years more than 90% of the area planned for reforestation was realised (BPS 1997a: 218), but trees planted under these programmes often do not survive more than one or two seasons. In the newer schemes such as UPM and UPSA, the rubber trees have not yet come into production. Weed control and fire are serious problems in all such projects. Social forestry activities are still recent and are not widespread.

Limitations to establishment

Attempts to intensify smallholder tree planting have been limited by a shortage of funds and technical expertise (Barlow and Tomich 1991). Credit schemes have required considerable organisation and commitment of resources (especially land) on the part of smallholders, and hence have been difficult to access. Insistence by the Division of Estate Crops (*Dinas Perkebunan, Disbun*) that they are interested only in blocks of 50 ha or more is often not appropriate for individual small farmers (FAO 1997). Moreover, receiving credit has not helped smallholders when extension services or materials are simply not available in their communities. Failure of many improved tree planting activities has resulted in smallholders being unable to repay their credit advances (Barlow and Tomich 1991).

'Improved' smallholder tree crop production: farmer initiatives

Sources of support

Tree crops are an essential component of diverse, smallholder farming systems, often being the primary

source of cash income. While expansion and adjustment of traditional systems has occurred due to direct intervention as described above, it has more commonly taken place through the initiative of smallholders themselves, in response to some change in their external environment. Rubber smallholdings in particular, though affected by variation in international commodity prices, allow farmers flexibility in applying labour, with more tapping when prices are higher and the resting of trees when a downturn occurs. During the recent cocoa boom, rising prices stimulated farmers to extend their traditional tree planting activities and introduce new species (Jamal and Pomp 1993). They also planted more trees when confronted with competition for land from either new land users or other smallholders (Mayer 1996a: 83; Sunderlin and Resosudarmo 1996: 7). Jamal and Pomp (1993: 93) argue that smallholders' access to land and their communications with other farmers, informing them of changes in the value of tree crops, have far more influence on their willingness to innovate and plant trees than credit or the existence of formal land title.

In some areas where traditional rubber gardens are dominant, farmer entrepreneurs are setting up village nurseries of improved planting material, especially bud-grafted and improved seedling rubber, which is then made available at greatly reduced cost to local consumers who want to improve the quality of their trees. Such planting stock is both handled by traders and sold in local town markets during the rubber planting season, October-January. Barlow studied several such nurseries in North Sumatra and Riau, noting that those in North Sumatra were almost all operated by Javanese descendants of plantation workers (1995: 7). In South Kalimantan similar nurseries exist in Kabupaten Tapin, usually run by Javanese transmigrants who, with the help of traders, supply materials to markets as far afield as Samarinda. Prices for bud-grafted stock were a fraction of those available from the government's Estate Crops Division (*Disbun*).¹⁰ Government sources in Tapin were not happy with these developments, citing lack of quality control, and sought to limit them by licensing one village to produce all improved bud-grafted and seedling rubber (FAO 1997). It seems unlikely that this initiative, once started, will lose momentum, as access to reasonably priced high quality planting materials improves farmers' options, while not reducing their freedom to decide if, when and how much they will replant.

Implementation

In 1996 smallholders owned 3.6 million ha of coconut trees, 2.9 million ha of rubber, 1.1 million ha of coffee, 760 000 ha of oil palm and a little more than 410 000 ha of both cashew and cocoa trees (BPS 1997a: 212). They

produced from these trees almost all of Indonesia's coconut/copra output, 75% of the country's natural rubber and 95% of the coffee (BPS 1997a: 213-14, Sunderlin and Resosudarmo 1996: 7). Over the last five years smallholders have expanded their stands of estate trees slowly yet steadily. The most rapid increases were in oil palm (BPS 1997a: 212), primarily in connection with new nucleus estates. When the multitude of planned oil palm projects come on stream, continued growth in area may be expected. However, while many farmers have eagerly moved into oil palm in the last two or three years, some dissatisfaction has begun to appear, as it has become clear that rapid fortunes are not being made, that the work is heavy and other social adjustments are required. In some cases (where this is still possible) farmers have returned to their traditional systems; in other cases they have resolutely refused to join the schemes, they and their lands remaining an 'enclave' of secondary forest amid the monoculture of the estate. These aspects will be discussed in more detail in the case studies that follow.

Limitations to establishment

Smallholder readiness to plant trees or extend traditional holdings is influenced by resource scarcity, absence of technical knowledge, market disincentives, policy disincentives and sociocultural norms (including a smallholder belief that existing stands of trees meet their requirements and do not need further extension). In the case of the ubiquitous 'jungle rubber', it has also been pointed out that as well as keeping weeds under control, the rubber forest includes many other useful species. Wood for cooking and house construction, fruit trees, medicinal plants and rattans are some of the additional products harvested from these forests, along with the rubber. Replacing the rubber trees with high-yielding varieties often implies a monoculture which may not meet these other needs (de Foresta 1992; deJong 1997).

Structure of the Report

The general introduction to tree planting schemes outlined in this chapter will be followed by a more detailed analysis in the provinces of West Kalimantan (Chapter 2), Jambi (Chapter 3) and Southeast Sulawesi (Chapter 4). Each of these chapters will emphasise different aspects of the three categories of schemes identified here, notably tree and pulp plantations, oil palm estates and smallholder schemes. The West Kalimantan case study is the most detailed and sets out many of the major features of our argument, concentrating especially on the struggles between competing interests over land and the instrumental involvement of regional authorities in land use decisions,

which have generally favoured oil palm. The relationships between both HTI plantations and oil palm estates and local people are also examined in some detail. This theme is also taken up in the Jambi chapter, after identifying the similarities and differences between the two provinces. Attitudes of both local and transmigrant populations to HTIs and specific kinds of oil palm development are examined through studies of particular estates, while some unique features of indigenous tree planting schemes are also discussed. Southeast Sulawesi, though different again in physical attributes and as yet having little oil palm, is found to possess similar attitudes among regional administrators favouring estate crops. This chapter is particularly a study of the vicissitudes of the teak industry on Muna Island and its HTI. Finally, Chapter 5 seeks to summarise the major findings and updates the general discussion in the light of more recent tumultuous events, at least as far as August 1998.

Endnotes

¹ In March 1998 the name of this Ministry was changed to 'Ministry of Forestry and Estate Crops, reflecting the changed emphasis of the organisation.

² The amount of this tax varies according to type of tree. It is set between US \$12 and \$16/cu m, paid in rupiah (*Jakarta Post* 27/6/98).

³ As often happens, there are some differences in the published figures. The Bureau of Statistics report devoted to HTIs gave just over 1 million ha as the area planted by the end of 1994 (BPS 1997b: 11).

⁴ SOCFIN manages its oil palm plantations in Indonesia under an Indonesian subsidiary company called PT SOCFIN Indonesia, also known as PT SOCFINDO

⁵ There were a number of variants of the PIR schemes during this period. PIR *Berbantuan* became PIR *Swadana* in 1980, which was then divided into PIR *Lokal* and PIR *Khusus*. These schemes were all heavily subsidised by concessionary credit and state budget allocations (Arief and Nugroho 1995: 126; ICBS 1997: 100).

⁶ This definition of eastern Indonesia includes the four provinces of Kalimantan, consistent with the Indonesian government's 1990 concept of *Kawasan Timur Indonesia* (KTI).

⁷ The date of this report was not given, but it presumably refers to 1996. Estimates of productive area for 1997 vary between 1.44 and 1.50 million hectares (ICBS 1997: 154-5).

⁸ Appendix A includes a range of figures describing Indonesia's oil palm boom in more detail, including growth in area and production over time, the location of estates, typical establishment costs, the amount borrowed by oil palm companies, world prices and returns to producers and consumption trends.

⁹ Figures released at the end of July 1998 suggest a figure of 5.1 million tonnes as a more likely total for the year (*Jakarta Post* 24/7/98).

¹⁰ A government-produced clone plant sold for Rp 1500, whereas prices at village nurseries ranged from Rp 200 (without polybag) to Rp 750-1000 (with polybag). Barlow's study, conducted in 1991, indicated less difference in the Riau example, between the prices for budded stumps in government and private nurseries. However, improved seedlings were a much cheaper option, and apparently mainly produced by the private nurseries.

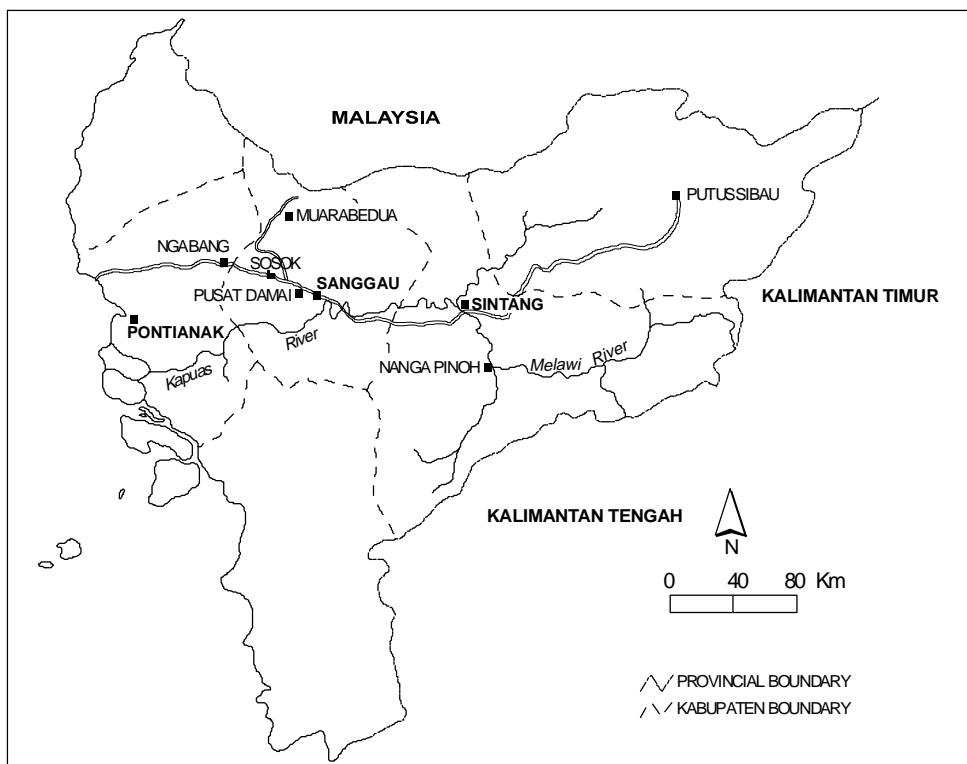
CHAPTER 2

FROM SHOREA TO CPO: SHIFTING THE IMBALANCE IN WEST KALIMANTAN

This chapter describes how tree planting trends observable at the national level translate to the local situation, in this case the province of West Kalimantan, with specific examples from two of its regencies, Sanggau and Sintang (see Map 2.1). Observations presented here derive from fieldwork conducted for this

In 1995 West Kalimantan produced 1.4 million cu m of round logs, mostly *Meranti* (*Shorea* spp.) and exported one million cu m of plywood and other wood products to a value of US\$ 489 million (BPS Kalbar 1996: 319-320; BPS 1997c: 11). This output is extremely valuable to the regional economy, constituting 70% of the

Map 2.1. West Kalimantan locations



study in September and October 1997 and from material accumulated during previous visits to the province by the authors.

Timber, Land Classification and Population Change

West Kalimantan is one of Indonesia's significant timber producers and much of the province is classified as forest land (Table 2.1). From a total land area of 14 680 700 ha, the Ministry of Forestry estimates 9.2 million ha (63%) falls within the forest estate (BPS 1997a: 216). Of this land, 5.8 million ha is classified as production forest. Forty-five private logging concessionaires have exploitation rights over these production forest resources, or over 40% of all land in the province (BPS 1997c: 1-3).

province's total international export earnings. Timber products have dominated the region's exports by about this margin since the early 1980s (Siahaan and Daroesman 1989: 539).

At present the timber industry continues to maintain, and even increase, its export earnings by pushing deeper and deeper into the forested mountains that skirt the province. In the wake of this exploitation, however, there is conflict, as competing groups lay claim to the lands that the loggers have exposed. They are engaged in what could be termed an arboreal 'arms race', seeking a tree planting technology that they hope can be marketed as the best option for resource replacement, and hence secure rights over land.

Rapid population growth in West Kalimantan has compounded competition for land. The province has 3.6

Table 2.1. West Kalimantan land classification

Land classification	Area according to RTRWP Bappeda Kalbar ¹ (ha)	% of total land area	Area of forest lands according to Min. of Forestry ² (ha)	% of total land area
1. Protected Areas				
a. Protected areas				
Protection forest	1 721 700	11.7	2 047 000	13.9
Peat areas	199 500	1.4		
Water infiltration areas	180 200	1.2		
b. Nature reserves & national parks			1 337 000	9.1
Nature reserves	926 200	6.3		
Marine park and other waters	29 300	0.2		
Mangrove	175 500	1.2		
Recreation park	564 400	3.8		
Total	3 806 800	25.9	3 384 000	23.1
2. Cultivated areas				
a. Forest				
Limited production forest	2 754 400	18.8	2 989 000	20.4
Permanent production forest	2 039 700	13.9	1 323 000	9.0
Conversion production forest	535 700	3.6	1 509 000	10.3
(sub-total)	(5 329 800)		(5 821 000)	(39.7)
b. Non-forest				
Wetland	700 000	4.8		
Mining lands	244 100	1.7		
Other uses	1 899 900	12.9		
Dryland	2 500 000	17.0		
Tourism	50 000	0.3		
Housing, industry, etc	150 000	1.0		
(sub-total)	(5 544 000)			
Total	10 873 900	74.1		
Total West Kalimantan	14 680 700	100.0		

Source: 1. Pemda Tk I Kalbar (1997); 2. BPS (1997a: 216).

million people (1995 Intercensal population survey) living at a density of 25 persons per square kilometre (BPS 1997a: 47). This is relatively low by Indonesian standards but high on West Kalimantan's poor and severely leached soils. Annual population growth averaged 2.46% from 1971 to 1995 (BPS 1997a: 48). Historically, the indigenous Dayaks controlled the lands of the interior. Chinese migrants have made forays into agriculture but they, like the Malays, have largely lived in the coastal areas or along the major rivers. More recently significant numbers of free migrants and transmigrants have arrived from all over Indonesia including Sumatra, Java/Madura and Sulawesi. They have often moved into the interior to take part in estate-based agricultural intensification projects. These developments are challenging the dominance of the Dayak agricultural system which has been weakened

by forestry legislation to facilitate logging and by the lack of secure tenure on most Dayak land.

Dayak Agriculture – Dispossession and Reaction

The Dayak agricultural system includes hill and often swamp rice swiddens and the establishment of tree crop gardens, commonly *tembawang*¹ and rubber gardens. Fresh durian fruit and durian products have recently become competitive with rubber and provide a good seasonal income where access is available to the Pontianak market. However, rubber has had a more fundamental role throughout most of the present century, especially in more remote districts. Rubber does not compete with swidden rice production but complements it by providing cash income when needed (Dove 1993:

142). Smallholder rubber has regularly provided about 25% of West Kalimantan's export income, second only to timber (Siahaan and Daroesman 1989: 538; BPS Kalbar 1996: 319-20). Most smallholders grow 'jungle' (unimproved) rubber in low-yielding, extensively managed gardens which resemble secondary forest.

Dayak livelihood activities constitute the most extensive land use in West Kalimantan. Actively cultivated land is relatively limited but when tree gardens and fallowed lands under natural regrowth are included, together with lands used for hunting and collecting (grassland, woodland and forest), the area used is vast. Official land use statistics do not give an accurate indication of the area utilised by Dayaks because they fail to differentiate which groups (smallholders, transmigrants, companies) are involved in each land use. Dayaks constitute one-third of the province's population and a higher percentage of the rural population. Other land users often complain that they have difficulty accessing land in West Kalimantan because it is almost always claimed by local Dayak groups, even though it does not appear to be utilised or occupied.

The expansive use of land in West Kalimantan by Dayak agriculture and the vast area granted to forestry activities has resulted in much overlap between Dayak and official forest lands and concessions. Many Dayaks have had their land placed within the forest estate and find themselves living alongside (and sometimes participating in) logging activities. The low intensity of their livelihood system (which results in minimal long-term vegetation change and leaves few markers of ownership) and the low density of their population has made it difficult for them to resist such intrusions.

In remote regions this disturbance may be only temporary. After areas are logged, although the vegetation is degraded the local communities usually regain sole possession of the land to use as they wish. Logging activity can also benefit them by providing short-term employment, opening land for swiddens and giving them access to chainsaws for land clearing. Overall, however, the effect of logging activities and of being included in the forest estate is negative for Dayak communities. Aside from immediate impacts, in the long run it serves to weaken Dayak land ownership and facilitate dispossession.

Dayak communities rarely have formal titles from the Indonesian government for their agricultural lands. At best they have customary title which can stave off claims made by other villagers but does not prevent seizure by the state. The inclusion of their lands in the forest estate further weakens this customary right to land. Dayaks may be granted use rights, but any hope of receiving

formal ownership is extinguished, especially on production or conservation forest areas. Giving land a forest classification also invites various conservation, agricultural and plantation forestry developments. These developments represent a final, physical dispossession, completing a process started and made possible by the symbolic, legal dispossession initiated by the forest classification system.

Logging activity is crucial in the transfer of Dayak lands to other users. By harvesting timber, loggers reduce the quality of existing forest on a piece of land. This can result in its reclassification from production to conversion forest if the stock of timber is reduced and not replaced. A request from the provincial government to the Minister of Forestry and Estates, if approved, will allow the land to be cleared for agriculture. Alternatively, the threat of logging and then conversion may result in the forest being classified as a protected area. While usually (but not always) preventing logging, such a classification can also lock out traditional Dayak users.

In response to this threat of dispossession, Dayaks have initiated strategies to fortify their claims to land. Villagers have observed they have stronger claims where they grow trees bearing agricultural products (such as rubber or fruit). Trees can signify permanent land use and hence ownership, thereby preventing appropriation by companies and other villagers (Dove 1993: 142; ICRAF 1994: 9). Failing this, trees at least serve as a basis for compensation should the land be cleared or converted to another use (Peluso no date: 8). While competition over land is not the only factor behind the expansion of smallholder tree crop gardens onto lands that would previously have been left fallow, there is most likely a strong association (Sunderlin and Resosudarmo 1996: 7).

Tree Planting Activities Based around Existing Dayak Agriculture

Government support for 'modernising' smallholder tree planting

While the government's greatest efforts have gone into estate development, agencies in West Kalimantan have worked to intensify smallholder tree planting, consistent with the programmes described in Chapter 1. The former estate crops division of the Agriculture Department (now with Forestry) initiated activities under the Smallholder Rubber Development Project (SRDP), the Rehabilitation and Expansion of Export Crops Programme (Indonesian acronym, PRPTE) and the Tree Crop Smallholder Support Project (TCSSP). Such programmes have had some success but have not resulted in the widespread dissemination of improved rubber varieties amongst

smallholders, hence have done little to improve their lot (ICRAF 1994: 7; Blowfield 1995: 7). These schemes have been mainly concerned with agricultural intensification and in fact have been the pioneers of conversion and extinguishment of the traditional Dayak agricultural system. They have not been intended to fortify Dayak livelihood.

In practice, however, these activities have had limited coverage and minimal impact in West Kalimantan. They have not been responsible for most of the smallholder tree planting that occurs and they have not helped the vast majority of villagers increase yields. Social forestry schemes from the Forestry Department, for example, have only been implemented in a small number of locations in areas of no more than 25 ha each (Dadan personal communication). Most smallholder tree planting has been spontaneous. The government has had, at best, an indirect role in promoting this tree planting by adding to smallholders' feelings of insecurity over their tenure. Direct government support is dwarfed by assistance given to companies and their large-scale tree planting activities, which are disruptive and bring considerable change to Dayak communities. The government appears to support smallholder tree planting only in the margins, either in remote areas where other developments do not occur or on small plots in house gardens where again they will not impinge on larger schemes.

Improving traditional tree planting: experiments by NGOs and other groups

Other interested parties are aware that the Dayak agricultural system will not survive land appropriation and conversion merely by extending the area of traditional tree gardens. Motivated by sympathy for the Dayak plight, or by the potential contribution their system could make to environmental conservation and/or raw materials supply, these parties have encouraged indigenous villagers to adopt improved tree planting systems

SRAP Rubber Agroforestry System

Helping Dayak smallholders to improve their traditional rubber growing practices has been one method of increasing their incomes, thereby securing their economic welfare and political independence. Specifically targeting adoption by smallholders, the Rubber Association of Indonesia (GAPKINDO), the International Centre for Research in Agroforestry (ICRAF), the Indonesian Rubber Research Institute and the Centre for Cooperative International Agronomic Research for Development (CIRAD) are cooperating on a Smallholder Rubber Agroforestry Project (SRAP). The purpose is to develop means for incorporating improved planting materials into smallholders' traditional rubber gardens.

SRAP organisers accept that jungle rubber gardens have a number of advantages. The mixtures of crops grown together with rubber provide a diverse income consistent with smallholder labour capacity. The gardens are also environmentally benign; they protect soil fertility, prevent erosion and have a relatively high level of biodiversity (Sivanadyan and Norhayati 1992; ICRAF 1994). The purpose of the SRAP is to leave the traditional rubber gardens essentially as they are, but increase their productivity by replacing jungle rubber trees with improved planting material. The improved rubber garden they term a rubber agroforestry system (RAS). The key to the research effort is to identify a variety of higher-yielding rubber that will grow in the heavily shaded, highly competitive and minimally tended jungle garden.

RAS research is occurring in both Kalimantan and Sumatra (see Chapter 3). One of a number of pilot projects has been set up in the regencies of Sanggau and Sintang in West Kalimantan (Budiman 1995: 159). Farm trials, established around 1995, are experimenting with management strategies for higher-yielding rubber varieties, nursery techniques, rice intercropping and cover crops (Penot 1997). These trials remain very small scale, with widespread adoption of the scheme most likely quite some time away. It is dependent on the development of a sufficiently appealing RAS.

The appeal and eventual spread of the RAS will depend on who it is intended to serve. Obviously the agencies involved in its formation have their own interests in the scheme. ICRAF is interested in improving agroforestry systems particularly for the purpose of achieving a balance between production and environmental conservation. GAPKINDO, an organisation representing rubber processors and exporters, has an equally pressing need for the system to succeed. Rubber in Indonesia is losing favour as an estate crop, increasingly seen as appropriate to smallholders only (Tan no date: 6). It is becoming more likely that ageing rubber estates will be replanted with more productive alternative crops. GAPKINDO is concerned that smallholders produce rubber inefficiently, generating on average just 593 kg/ha annually, as compared to private estates and government estates that produce 1065 kg/ha and 1311 kg/ha respectively (Budiman *et al.* 1994). They also produce low quality rubber, due to the prevailing marketing method, which increases processing costs. For GAPKINDO, the RAS is part of a strategy that will prompt smallholders to produce a substantial, reliable supply of high quality rubber to service their industries.

For the RAS to be adopted widely it will have to win the support of government as well as smallholders

themselves. Government officers would most likely be indifferent. Judging by their emphasis on economic growth they would tend to give preference to alternative land uses which are high-input and involve external investors. The RAS is based on balancing increased production with environmental benefits. This trade-off reduces short-term economic returns, so may not have wide appeal.

Smallholder interest in the RAS will be difficult to court as well. The existing system for growing rubber, developed by smallholders themselves, best serves their interests at present. They want a flexible system that is low risk, provides some cash income when needed, secures land and is not too demanding of their limited labour capacity. If the RAS does not appeal to officials, then it may not protect smallholders' land from appropriation by large-scale government supported schemes, one of the main reasons for planting rubber trees at present. On the other hand, there may be instances where smallholders' traditional rubber gardens are experiencing serious productivity decline, threatening even the modest incomes that they currently earn. If such situations exist in West Kalimantan, then smallholders may be eager to adopt the RAS.² It is still in the experimental phase, being trialled on small plots owned by farmers. When and if the scheme gets to a stage where it could be implemented on a broader scale it may not be the first choice for either government officials or smallholders. It is most likely that it will take hold in remote locations around the periphery of the province where farmers are dependent on rubber and have few alternatives.

Yayasan Dian Tama/CIFOR – testing Vitex pubescens
A similar research activity aimed at attracting smallholders to a form of tree planting based on the priorities of organisers is being conducted by a local non-government organisation, *Yayasan Dian Tama*, in cooperation with the Center for International Forestry Research (CIFOR). *Dian Tama's* general approach has been to give smallholders information about marketing opportunities and capital. Its organisers have specialised, however, in the running of a charcoal manufacturing plant in Pontianak. In the past *Dian Tama* bought coconut shells from copra-producing farmers to make charcoal briquettes called '*cococha*'. These were packaged in Jakarta and exported, mostly to Europe. Continued success resulted in the business being offered more contracts than it could supply, including some from Japan. Organisers were constrained by a shortage of raw material. Coconut producers did not provide sufficient quantity and they tended to withhold supply to boost prices. *Dian Tama* was often forced to pay these high prices to meet contracted shipment dates.

In response *Dian Tama* has sought alternative sources of supply. It identified a local tree *Vitex pubescens* (*Leban*) as having potential after initial tests on farmer plots around Pontianak. To conduct further tests *Dian Tama* needed funds but these were not forthcoming from international donor agencies. CIFOR offered funding, but at the same time applied its own conditions to the testing. In line with its research agenda, CIFOR asked that the trees be tested on degraded lands vegetated with *Imperata cylindrica*. *Dian Tama* consequently sought appropriate locations in four regencies and commenced on-farm trials with smallholders whose participation was heavily subsidised. *Dian Tama* organisers did not conduct trials on the lands of their suppliers of coconut shell because they were not interested in diversifying their crops.

The development of this tree planting alternative will benefit smallholders if it provides them with a valuable crop for use on *Imperata* lands. Of course the activity has been developed in response to the immediate needs of the organisers which again may not correspond with those of smallholders. Indeed those smallholders currently providing coconut shell to *Dian Tama* will presumably suffer from price declines and possibly lose this outlet altogether if *Vitex* is planted over wide areas. Nevertheless, at present the activity remains experimental and, considering competition for 'critical' lands by established entities with proven technologies, if the technology is not ready for adoption soon smallholders may have nowhere to plant *Vitex*. At best it may become a diversification option for tree planting businesses.

GTZ/Ministry of Forestry - Social Forestry Development Project

The Social Forestry Development Project (SFDP), organised for the German agricultural development agency, GTZ, together with the Indonesian Forestry Department, emphasises tree planting, forest management and social organisation activities in a clear attempt to fortify traditional Dayak livelihoods and conserve the forest. Commencing in 1992, the SFDP operates on a site falling across eight adjoining villages, and containing a core area of about 40 000 ha in the far north of Sanggau regency. It includes 12 000 ha of forest that was once granted to a logging company but never felled.

The primary aim of the SFDP is to prompt smallholders to manage their natural forest sustainably. They are assisted to manage and market non-timber forest products (NTFPs), reforest areas cleared for agriculture and afforest critical lands around the forest edges. The well-integrated project also promotes a number of

activities intended to lessen pressure on the forest. These include improved rubber production and marketing, better methods for food crop and livestock production, and savings schemes intended to generate capital for local business initiatives. The programme also has infrastructure, education and primary health components and emphasises social reform to incorporate greater participation in decision making (SFDP 1997: 5). SFDP's own survey of participants conducted in 1996 suggested that the project had benefited them considerably. Participants said they had experienced improved economic conditions (although the survey acknowledged this may have resulted from better rubber prices rather than the project itself) and were glad for associated improvements in roads and primary health care. They also expressed satisfaction with the reforestation and savings and credit activities (GTZ/MoF 1996). Comparing their 1996 survey results with a baseline survey conducted before the project commenced, SFDP organisers asserted that the proportion of 'rather poor' people in the project area had declined from 76% to 46% (GTZ/MoF 1996).

Despite this success, however, there has been weakening support for the SFDP from the government (apart from officials specifically assigned to the project from the provincial forestry department, who remain enthusiastic). Project organisers have calculated that to manage the forest truly sustainably and generate satisfactory incomes for villagers, they must be granted the right to harvest and sell timber from the forest, as well as NTFPs. A number of years ago organisers applied to the Forestry Minister for the right to log the forest falling within the project area on a selective and sustainable basis. When this request was continually refused they requested permission to log a small 500 ha plot only, for the sake of experimentation. While private logging companies have been granted access to 40% of the province's land area this community-based project has been refused its modest request. Organisers fear that without this permission the SFDP will be unable to deliver genuine development to smallholders.

SFDP organisers are also concerned by the infringement into its project area by Inhutani III, the state forestry company responsible for setting up industrial timber plantations. The regional government gave a verbal agreement to SFDP organisers that they could expand their activities over a total area of 102 250 ha to incorporate entirely the lands of the eight villages they were already working with. It now seems the government has ignored this pledge and instead formally granted the land to Inhutani III. This is another severe restriction on the development of the SFDP, which indicates that its spread will not be facilitated despite its success.

The SFDP is presently extending its influence over a large area, particularly in comparison to schemes such as the RAS which remain largely experimental and very small scale. There are various factors, however, working against the programme's survival, expansion and replication. First, the sustainability of the approach is threatened because permission for the community to log the forest is not likely to be forthcoming in the near future. Timber companies would be expected to use their influence over forest policy to lobby against such permission, perhaps fearing that it would create a precedent that could jeopardise their access to forest areas. Secondly, it will be difficult to expand existing activities because surrounding lands have been granted to other users. Finally, the technologies developed by the project will be hard for individual smallholders to replicate without some kind of external assistance. At present it is almost impossible for small-scale community-based agroforestry schemes to obtain bank loans to finance such innovation.

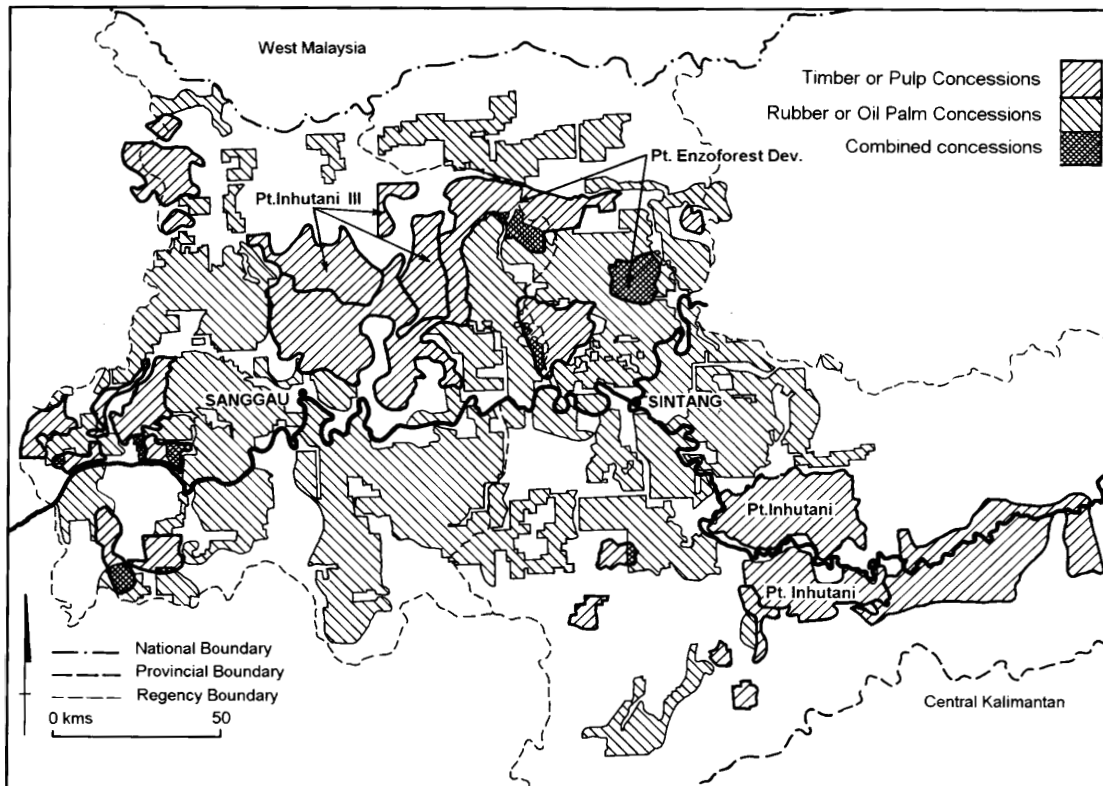
The improved tree planting activities described above are mostly recent initiatives that remain very small scale. They have had localised impacts and have experienced little diffusion beyond their areas of initial implementation. Their continuation remains dependent on the support of organisers. Technologies promoted stem from organisers' priorities and their views of what is best for smallholders. The schemes have technical merit and the potential to improve the smallholder economy and political autonomy. Smallholders themselves, however, may fail to see the potential benefits. Government support also remains equivocal. The problem facing these schemes is that by the time they are perfected they may have nowhere to operate. At best they will exist on the periphery in isolated locations. Other tree planting activities that completely displace traditional Dayak agriculture are already experiencing rapid growth, primarily industrial timber and pulp plantations and oil palm estates. The emergence, impacts and tensions between these two competing land uses will have most influence on the future landscape and social fabric of West Kalimantan.

Tree Planting Activities that will Displace Dayak Agriculture

Industrial timber and pulp plantations

Twenty-six private HTI companies exist in West Kalimantan (BPS 1997b: 3). There are more than 5 million ha of production forest to which they may gain access, once it has been logged. The extensive concessions granted to these companies in the regencies of Sanggau and Sintang are shown in Map 2.2. In Sanggau regency, seven HTI companies had concessions over 288 065 ha of land or 16% of the regency's total

Map 2.2. Location and area of HTI concessions and of oil palm and rubber concessions in Sanggau and Sintang



Source: From a map compiled by BPN West Kalimantan, using data from West Kalimantan's RTRWP and the Forestry Department's HTI Trans & HTI murni maps

land area in 1996 (Pemda Tk II Sanggau 1996). The three major companies are PT Inhutani III, PT Finnantara Intiga (a joint venture between Finland's Enso-Gutzeit Oy, Inhutani III and Gudang Garam) and PT Sinar Kalbar Raya with concessions over 101 000 ha, 100 000 ha and 72 315 ha respectively. Most of this land, however, is not yet planted. Companies have often proposed extensive tree planting targets but only realised modest areas. In 1995 HTI companies in Sanggau planted just 22% of the area they planned and increased this to 48% in 1996 (Pemda Tk II Sanggau 1996). Smaller companies have reported greater success in meeting their targets. Inhutani III in particular has often set grand targets but failed badly to realise them (Pemda Tk II Sanggau 1996). The companies intend to plant primarily *Acacia mangium*, as well as other *Acacia* species, plus some *Pinus*, *Paraserianthes* and *Eucalyptus*, together with improved rubber, for both wood and latex.

HTI operations in Sintang regency are similar to those in Sanggau. The same species are planted and companies often fail to meet their targets. There are eight HTI companies in Sintang (Akcaya 4/10/97) with Inhutani III and Finnantara Intiga again dominating operations. Finnantara Intiga has about 100 000 ha in

the north of the regency while Inhutani III has a 100 000 ha concession in the south, on both sides of the Melawi river. In south Sintang four other HTI companies control a total area of just 25 000 ha and all are engaged in *HTI trans* programmes (Sasrudin M Sattin personal communication). So far, HTI activities appear to have been less disruptive in Sintang than in Sanggau. This may be because of Sintang's greater area and lower population density (about 13 persons per square kilometre as opposed to 26 in Sanggau, [BPS Sanggau 1996; BPS Sintang 1996]). The intrusion of HTI activities is also more recent.

HTIs: the classical approach

As the figures above suggest, Inhutani III is the biggest HTI operator in the two regencies. Its plantations in Sanggau were intended to fulfil much of the provincial Forestry Department's long-term goals for timber plantation development in West Kalimantan (Mayer 1996a: 144). The area under Inhutani III's control is boosted by lands previously granted to logging concessionaires which revert to the government because the concessionaire fails to rehabilitate them adequately after logging. Inhutani III's method of operation could be described as the classical HTI approach. The regional government grants a concession to the company which

theoretically excludes all other development activities. It must then consult and negotiate with local people living on that land before it commences operations. Company staff are accompanied by officials from local and regional government agencies when they conduct their discussions in villages. Villagers are promised that the company will construct new roads, bridges, public offices and religious facilities for their use when it commences operations. They are also promised employment opportunities (usually as unskilled labour for land clearing and plantation maintenance) and they are given a one-off payment by the company for the use of their land (about 35 000-40 000 Rp/ha) (Bamba 1996: 21).³

The way this classical approach has worked in practice, however, has generated much controversy. Inhutani III has been criticised widely for the real nature of its consultations with local landowners. While technical problems are common, mishandling of relations with locals is seen as the primary reason for the company not realising its planting targets. In the village of Empurang and in Jangkang district, in Sanggau, instances of coercive land negotiations, unfair labour practices, broken promises, harassment and intimidation of villagers by company staff and military and civil officers have been documented (Bamba 1996; Mayer 1996a). In Empurang in 1992 the failure of Inhutani III to keep a promise to build villagers a road, the commencement of work without consultation, intimidation by soldiers, and the felling of trees and high quality forest reportedly generated resentment that eventually led villagers to burn down the company's base camp and plantation (Bamba 1996: 22-4). Rather than negotiate fairly, Inhutani III has been inclined to buy the support of village heads and petty officials and then use their authority to coerce other villagers into participation. When villagers refuse they are branded obstructers of development, told they are occupying their traditional lands illegally, refused employment on the project and further harassed by military and intelligence officers (Mayer 1996a: 198).

Problems with the type of approach used by Inhutani III compound general problems that afflict HTI projects. A major concern has been that companies merely seek HTI concessions so they can gain permission to cut and sell the existing timber on the land (WALHI and YLBHI 1992: 29; Hasanuddin 1996: 14). These companies often do not intend to reforest. They access valuable tree stands by contracting consultants to make fraudulent assessments understating timber quality. The funds they receive for reforestation, it is asserted, they divert to higher-yielding investments (Mayer 1996a: 156). It is common in Indonesia for new plantations to be established at the expense of the natural, closed forest (Dudley *et al.* 1995: 9). Misuse of the reforestation fund

and extraction of timber from natural forest by HTI companies was the subject of a crackdown in 1994 by then Forestry Minister Djamaludin. Unfortunately since that time little is said to have changed.

Monoculture tree plantations are also accused of creating various environmental problems. Low biodiversity, loss of habitat, soil erosion, acidification and nutrient depletion, water table and water quality changes, modified ecology, agrochemical use and increased pest and disease attack are some of the detrimental environmental impacts feared (WALHI and YLBHI 1992: 32, Dudley *et al.* 1995: 13-14). WALHI and YLBHI (1992: 33) warn that the very popular *Acacia mangium* is plagued as a seedling by 19 species of insect. HTI projects also isolate local people from forest areas and fail to provide the range of goods and services to which they formerly had access.

Problems experienced with HTI projects worry their patrons in two ways. They represent direct inefficiencies but they also have an indirect impact, eroding the popular support for the projects at all levels, from local to international. Creation of a bad image threatens their continuation in the future.

HTIs: revised approaches

In response to mismanagement and problems associated with the classical HTI approach two types of revised approach to HTI development have emerged in West Kalimantan. Most conspicuous is the 'integrated HTI system' announced by Finnantara Intiga for use on its 300 000 ha concession stretching across northern Sanggau and Sintang. In a plan announced in mid-1994, Finnantara Intiga proposed to take over the management of much of Inhutani III's concession in Sanggau and get it back on track (Mayer 1996a: 193). Finnantara's plans were to plant 100 000 ha with *Acacia mangium*, *A. crassicarpa* and *Eucalyptus pellita* over eight years from 1996/97 to 2003/4 (PT Finnantara Intiga no date). This would supply 500 000 tons of raw material for a pulp mill to be built in the future, presumably when the plantation was well established.

More significant are the environmental and social elements of the programme, intended to attract local people and improve the image of HTI at all levels. Finnantara has made a commitment not to log natural forest and only revegetate truly degraded lands, willingly relinquished by villagers. They also intend to minimise the use of chemical pesticides and herbicides and instead rely more heavily on manual labour. The core of their approach is the package of benefits offered to villagers willing to participate. Villagers giving land to the project will retain control over 25% of that land, developed at the company's expense. Five per cent will be planted

Photo 1. PT Finnantara Intiga's *Acacia mangium* plantation in Sintang, West Kalimantan. The plantation is established around copses of trees valued by smallholders



Photo 2. Closely spaced rubberwood plantation, owned by PT Lahan Cakrawala, Sintang, West Kalimantan



with improved rubber, 10% with multipurpose trees (to meet subsistence needs and boost biodiversity) and 10% of the pulp trees will be for the villagers' benefit. They are also compensated for land leased by the project, promised infrastructural developments and given assistance to set up credit and loans organisations and to intensify their agriculture, through *tumpangsari*⁴ activity and the development of wet rice (PT Finnantara Intiga no date). Finnantara is thus trying to buy involvement with a generous package rather than rely on coercion. Extension is to be wide ranging and villagers are not to be pressured but left to join when they want. It is acknowledged that this approach will be more time-consuming.

Another alternative to the classical approach is the growing of rubber trees for both rubberwood and latex by HTI companies in conjunction with transmigration. At present only one HTI company is undertaking such diversification in West Kalimantan, PT Lahan Cakrawala, on an 8000 ha site in south Sintang. Lahan Cakrawala is a subsidiary of Inhutani III and the logging company PT Esra Djuliawati. The site is a former logging concession exploited by Esra. The company commenced planting improved rubber clones in 1992 and the trees will soon be ready for tapping. Latex will be processed at a crumb rubber plant built at the site. After 15 to 30 years the company will commence harvesting rubberwood which will be processed in Sanggau and then exported, primarily to Europe. It is a high-input, intensively managed system, especially for the first two years, requiring extensive use of fertiliser, herbicides and cover crops. The estate is managed by Malaysian consultants and is financed by the reforestation fund, the transmigration programme and

private investors (fieldwork, Lee, September 1997 and Lim personal communication).

The core labour force for establishment and maintenance of the estate comes from 150 transmigration families located at the site. These transmigrants, together with another 150 local families (the traditional landowners), have been given a house, a food crop garden and access to a diverse fruit tree garden. They do not receive ownership rights over estate trees and hence most of their income will come from labouring on the estate. Depending on the job performed they can earn up to 3500 rupiah per day. The company is sensitive to the feelings of traditional landowners and will not disturb grave sites or established *tembawang*. Villagers will be given training on how to tap the clone rubber trees in a manner that will not reduce their value as rubberwood.

Initial reports suggest many villagers are positive towards these revised HTI programmes. Finnantara Intiga's package has attracted interest from many villagers, especially in Sintang regency, including villages falling outside the concession. Where Finnantara has commenced work there are no stories of villager dissatisfaction or resentment as in the past. Similarly, there have been no public expressions of dissatisfaction from villagers involved with Lahan Cakrawala. The Malaysian consultants assert that they too have been approached by villagers outside the concession area asking for employment and for a similar project in their villages (Lim personal communication).

Nevertheless, despite the considerable effort put into designing these revised approaches, and positive reactions so far, there are doubts surrounding their future

viability. Lahan Cakrawala's approach does not pretend to be as environmentally and socially sensitive as that of Finnantara Intiga. It is more unashamedly a commercial enterprise. While it is perhaps more likely to be commercially successful, it also runs a greater risk of alienating villagers in the future. Project organisers indicate that to date they have had to recruit (very willing) labour from surrounding villages because of the demands of estate establishment. After establishment, however, there will be significantly less labour needed (Lim, personal communication). How villagers react to this will be important, particularly for the 300 families relying on estate employment for their livelihood. Availability of job opportunities will also depend on which product the estate intends to give priority. Villagers seem to view a rubberwood estate more favourably than a pulp or timber plantation because of the opportunity to work tapping the trees before they are ready for felling. For the company to get a high price for their rubberwood trees, however, the trees must not be damaged by poor harvesting techniques. This is a real risk if they are tapped by an unskilled labour force. While Lahan Cakrawala is training villagers in proper tapping techniques, it is not known how much tapping they will in fact allow on their valuable asset. Furthermore, the rubberwood trees are planted at 2 metre by 3 metre spacings so that they will be straight; whether they will be suited to latex production at such density is also debatable.

Even greater uncertainty surrounds the future of Finnantara Intiga's project. Finnantara has given priority to developing a package that will appeal to villagers. Such compromise, however, comes at a price. In signalling to local people that it will bargain, the company could encourage villagers to push the limits of its goodwill in directions it cannot afford. It must perform a careful balancing act as concessions to villagers minimise the profits received by other stakeholders. The company is now facing the real risk of losing the support of its commercial and business partners and government decision makers. As argued by Mayer (1996b), the imperatives of a modern commercial pulp company may simply be irreconcilable with the environmental and social concessions proposed by Finnantara.

Finnantara is effectively trying to buy the use of villagers' land and hire their labour, by fair means rather than foul, for their business enterprise. In such circumstances it is only rational that villagers should try to maximise the price received. The relinquishment of land has not been rapid; villagers use their option to carefully consider the company's offer and then try to get a better deal (Finnantara estimates that they may only establish 50 000 ha of plantation in their present

Photo 3. *Acacia mangium* eaten by grubs on PT Finnantara Intiga plantation, Sintang.



concession). Local people communicate across village boundaries and share information about what they can get from the company. They are experienced at waiting to strengthen their position, as with the withholding of rubber when prices are low (R. Utama personal communication). When villagers eventually do offer land they again seek to maximise their personal advantage. They surrender small areas of their worst land to get the benefits of the project, but retain the traditional bases of their livelihood. This is problematic for the company which loses economies of scale by having a plantation segmented into numerous small, dispersed units (often only about 100-200 ha per village).⁵ In more isolated, less commercially astute villages, Finnantara also risks entrenching an existing dependency culture. Today's baubles could become a snowballing burden that the company is eventually unable to meet, leading to villager disappointment capable of derailing the project.

There is already evidence that in trying to meet villagers' demands the project is losing attraction for other stakeholders who are crucial to its continuation. There is a widely held perception that Finnantara's project is '...very, very, super high cost' (Haryono personal communication). These costs, the slowness of land relinquishment and the continued reluctance of anybody to build a pulp mill is giving Finnantara's Indonesian

stakeholders cold feet. Finland's Enso, which is controlling the company's day-to-day operation and driving the integrated HTI approach, is persevering but its Indonesian partners are having second thoughts. Neither Inhutani III nor Gudang Garam are said to have made their contributions (received from the reforestation fund) to the project's costs, even though work is well under way. Enso is carrying the entire burden (Adjers personal communication). It is speculated that the Indonesian partners, more familiar with outright exploitation of resources and people, may be directing capital received from the reforestation fund into investments attracting quicker profits. Inhutani III's lack of commitment to the approach is particularly worrying. To the confusion of the project's Finnish consultants, Inhutani III is setting up a new HTI plantation using the classical approach on a concession bordering that of Finnantara Intiga (Adjers personal communication). This is at a time when Finnantara is seeking to expand its concession because the land granted to it at present is either still forested or farmers wish to retain it for private uses.

Finnantara is also losing the crucial support of the regional government. When it commenced its project the company received the Governor's approval to cancel existing oil palm, rubber and logging concessions overlapping its concession area. It now seems the company has fallen out of favour. Government officials in Sanggau expressed frustration at the slowness of Finnantara's progress and its unwillingness to utilise land in its concession which was still under tree cover. They believe this land is underutilised and argue that if Finnantara is not going to use it they will make it available to other developers (Setiman personal communication). In many ways Finnantara is suffering for the moral code it has adopted. Indonesian staff of the company say they are also losing support because the Finnish organisers refuse to sanction the payment of informal fees to government officials, as is the wont of competing ethnic Chinese businessmen. The company's commitment to using less chemicals also finds it desperately seeking a suitable local species for pulp as its stands of *Acacia mangium* are ravaged by pests.

For Finnantara the consequences of losing government support are already biting deep. The company cannot get the extra land it needs to develop its plantation in the sensitive manner desired. The situation is worsened by the 'land grab' currently gripping all of West Kalimantan and land speculators who are exacerbating the land shortage. Speculators are submitting bogus land development proposals, usually mythical oil palm estates, to win concessions over large areas (Adjers personal communication; Mangan personal

communication). Upon receiving their concession they do not intend to set up an estate but instead try and sell their right to genuine developers. They can try to trade the land for two years before their lack of activity on the site means it must be returned to the government for reallocation. Government protection over Finnantara's existing concession has also been revoked. In various sites in both Sanggau and Sintang, oil palm companies are approaching villagers living within Finnantara's concession and signing them up to take part in nucleus estate projects. In two locations they have already commenced land clearing. Finnantara's renewed appeals for protection have fallen on deaf ears. Map 2.2 shows the formal area of overlap between oil palm and HTI concessions, including that of Finnantara. Informally, even more of their concession is under siege.

Finnantara Intiga has been punished for being concessionary to local people. It has disenfranchised its business partners and government decision makers. This threatens to dry up its supply of capital and, more importantly, land. The reformed HTI approach has failed to regain the support and faith of policy makers; instead there is a new golden child, oil palm. While this estate crop is not new, oil palm investment is now booming in West Kalimantan, consistent with national and international trends. The problems with Finnantara's approach together with the emergence of oil palm could signal the end for large-scale pulp plantations. Pulp production may also be exiled to the periphery of provincial development. In an act perhaps revealing desperation, Finnantara is said to be discussing with the adjacent Social Forestry Development Project (SFDP) the possibility of its villagers growing pulp trees for the company.

Oil palm estates

Oil palm has emerged as the dominant tree crop for planting on estates in West Kalimantan. Rubber trees, most planted by smallholders, covered an area of 444 426 ha in 1995. Oil palm was the next most extensive tree crop on 183 082 ha (Pemda Tk I Kalbar 1997).⁶ The estates were usually a combination of nucleus (pure plantation) and *plasma* (smallholder) sections. The latter always exist as part of the wider organisation and have access to the company's factory, as palm fruit must be processed within 24 hours when harvested. Approximately 175 private businesses have now been granted permission to set up oil palm estates but only 56 of these have actually commenced planting and land clearing (Mangan personal communication). While a number of these businesses may be land speculators the likelihood that many are *bona fide* means the area of oil palm estates will increase dramatically in the near future. The provincial government has set a target of 500 000 ha by 2003 (*Suara Pembaruan* 25/2/98). The area of

land under oil palm and rubber estate concessions is also shown in Map 2.2.

Oil palm estates were initiated in West Kalimantan by the state-owned enterprises, PTPs (*Perseroan Terbatas Perkebunan*). Their activities were centred around Ngabang in Pontianak regency and Parindu in Sanggau regency. PTPs had established 71 771 ha of oil palm throughout the province by 1995 (BPS 1996a: 189). Sixty-six per cent of this area is not yet productive. Trees which have reached maturity are producing just over four tons of CPO per hectare per annum, or about 100 000 tons in total (BPS 1996a: 189, 216). Reform of the PTPs in recent times has placed all state-run oil palm estates under the control of one company, PTP XIII (PT Perkebunan Nusantara XIII). Consistent with the government's preference for private companies to take over oil palm development, new concessions are no longer given to the PTPs. There will still be further expansion of PTP XIII's oil palm estate, however, as it plants the extensive areas of land still undeveloped in its existing concessions.

Private investors and companies are now the primary force driving oil palm growth. In centrally located, not too remote regencies such as Sanggau and Ketapang there is a rush by companies to set up oil palm estates. Reportedly there is a land shortage, meaning not all proposals can be accommodated. Companies have also turned to the regencies of Sintang and Kapuas Hulu, which until now have been considered relatively remote. Many of the private companies setting up in oil palm appear to be subsidiaries of larger conglomerates with diverse interests, including logging. At the national level two of the primary pulp and paper producing conglomerates, Raja Garuda Mas and Sinar Mas, also have vast oil palm interests (Sonnenfeld 1996). The prospect of quick profits and the relatively limited establishment capital needed appears conducive to attracting companies with these backgrounds. Five Malaysian enterprises have also signed agreements for joint ventures with private Indonesian companies to set up plantations and processing facilities in West Kalimantan.⁷

PTP estates have consistently been established around PIR/NES schemes (*Perkebunan Inti Rakyat* or Nucleus Estate and Smallholder scheme). Private companies in the past usually set up PIR Trans schemes including transmigrants. West Kalimantan had more companies involved in the PIR Trans programme than any other province and planted the largest area of land under this programme (ICBS 1997: 112). It is no longer government policy to compel private companies to set up PIR estates, but companies must still build a

'*kemitraan*' relationship (partnership) with local people within their concession. The estate must provide them with benefits. Most companies still choose to establish both nucleus and farmer-owned plasma estates but the package offered to local people is not as comprehensive. For example, under traditional PIR schemes smallholders participating in the project would have their living costs met for one year by the company. Concessions of this type have been abolished in modern schemes. This change is still very recent, however, and most existing companies have commenced and are committed to continuing PIR schemes.

Oil palm estates: crucial support of regional government

The role of government in facilitating the rapid expansion of oil palm estates cannot be underestimated. Access to land determines the success of all tree planting developments. As mentioned with reference to industrial timber and pulp plantations, government agencies with the capacity to grant this access now favour oil palm estates.

In theory, central government sanctions may be applied to control the operations of oil palm companies, if these are seen to be detrimental to the national interest. Land clearing practices of such companies incurred the greatest criticism from the Ministers of Forestry and Environment during the smoke/haze disaster of mid-late 1997. Many oil palm companies had their land clearing permissions (IPKs) revoked, 29 in West Kalimantan alone (*Akcaya* 16/9/97, 4/10/97), although these were subsequently restored. The Forestry Ministry (now somewhat ominously named the Ministry of Forestry and Estates) should also be able to seriously arrest the spread of oil palm companies by limiting access to land. It is that Ministry which gives the final permission for forest lands, the greatest reserve of land in Indonesia, to be converted to agricultural use. However, the Forestry and Environment Ministries, despite their high profiles, have limited projection into the provinces and cannot enforce their will. The support of influential agencies in the regional government is more important and that is where oil palm estate managements concentrate their energies.

At the provincial and regional levels, oil palm development is strongly favoured by the offices of the Governor, the *Bupatis* (regents) and the Regional Development Planning Board (BAPPEDA, *Badan Perencanaan Pembangunan Daerah*). These agencies have the power to grant land and ease passage for the developments of their choice through the complicated regulatory processes. They prefer oil palm because they perceive that commodity as helping them to quickly

achieve their vision of provincial development, which has at its core economic growth (Muis Ishak personal communication; Setiman personal communication; Pemda Tk I Kalbar 1997). It is estimated that oil palm estates are most likely to attract private investment, generate local employment and export income and stimulate the creation of downstream industries within the region. There are already six CPO (crude palm oil) processing plants in Sanggau alone and it is hoped that a margarine factory will eventually be built. It was promised in 1997 that new oil palm plantations in Sanggau would receive a road link to the existing highway system, no matter where they were located in the regency. The most important assistance, however, has been access to land. Regional government officials are facilitating the rapid expansion of oil palm plantations by fast-tracking the acceptance of proposals and by making production forest land available. After concessions have been granted they also help the companies convince local people to surrender land and take part in project activities.

For production forest lands to be converted to agricultural uses, a request must be put to the Governor's office which in turn seeks permission from the Forestry Minister. The Governor's office routinely undertakes this task every five years when it draws up the provincial land use plan (RTRWP, *Rencana Umum Tata Ruang Wilayah Propinsi*). The Forestry Minister's decision is based, amongst other considerations, on the quantity of commercially exploitable timber on the production forest land. When that is estimated by an approved consultant to be less than 16 cu m/ha, conversion is normally agreed to and the Forestry Department's map of forest land use is amended accordingly. In reality, however, the regional government grants oil palm companies access to production forest lands regardless of the Forestry Minister's decision. Companies are normally allowed to commence land clearing before the Forestry Minister's approval is given and that approval is easily and often manipulated by deliberately misleading assessments of the quality of the forest vegetation by consultants interested in receiving further work from companies. Even when the Forestry Minister refuses to allow conversion, land clearing often continues regardless. The Forestry Ministry has limited presence in these regions where the power of Governors and *Bupatis* dominates. The latter give priority to economic growth and may consider social issues but rarely share the Ministry's environmental concerns. There is also little doubt that oil palm companies, backed by wealthy investors with considerable personal influence, have the capacity to cultivate favour with local officials. Map 2.3 shows how present forest land use classifications differ from those recorded in the RePPP series of 1987; it is an indication of the extent to which production forest land has recently been reclassified.

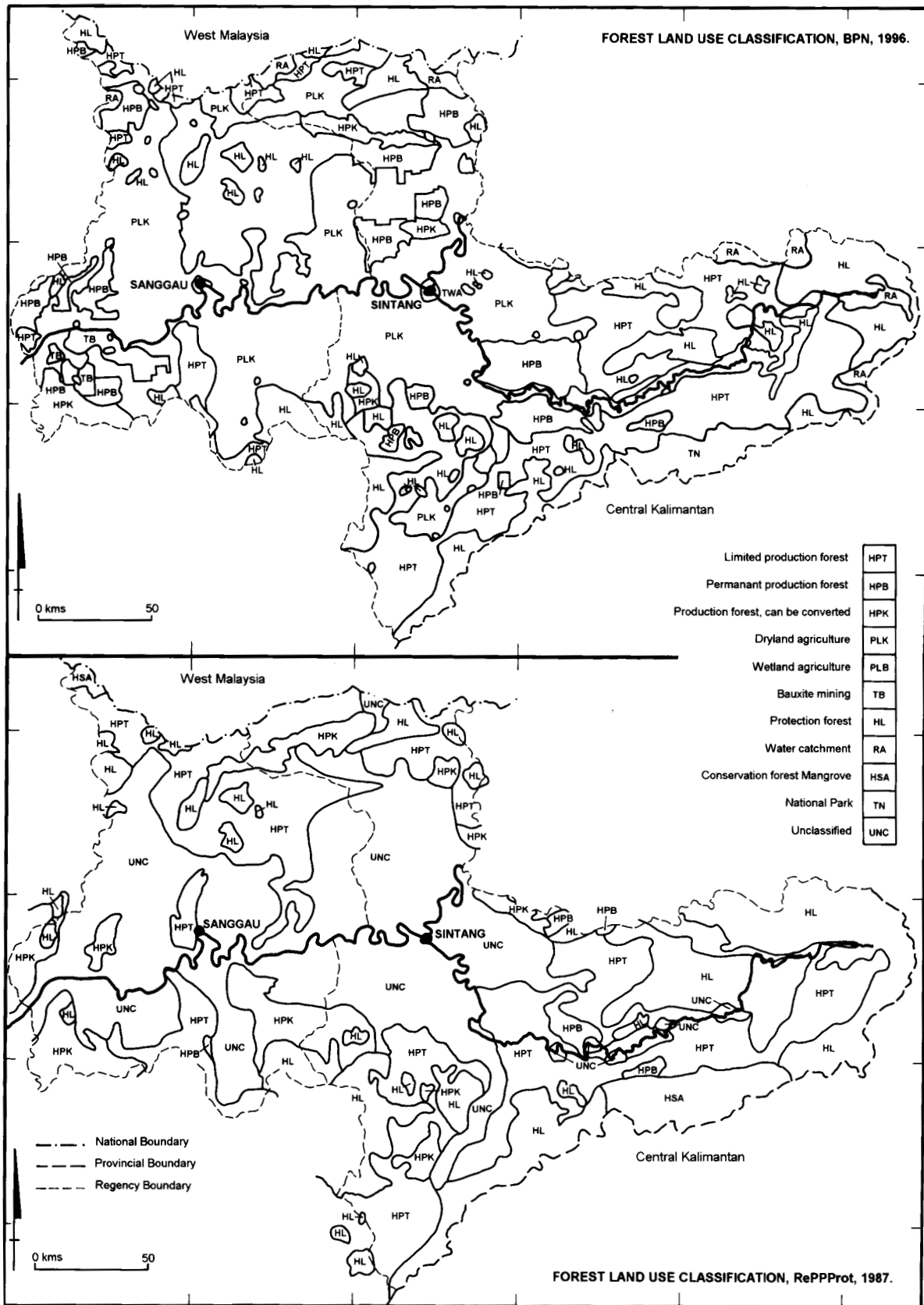
Oil palm estates: impact

The further rapid expansion of oil palm estates in West Kalimantan is an inevitability. Expansion can already be witnessed on the ground, market demand remains good and wealthy investors and companies continue to show strong interest. State companies (PTPs) will continue to expand the planted area of their existing concessions but their activities are being overshadowed by the newly emerging private companies. Given this certainty it is crucial to assess the impacts of oil palm estates on local people from current evidence.

PTP oil palm estates were the first in West Kalimantan, set up in 1982 with funding from the Indonesian government and the World Bank. They placed greater emphasis on villager development than commercial profitability. Participating Dayak smallholders relinquished 5 ha of land to the company. The company's nucleus estate occupied 2.5 ha of this land while the other 2.5 ha was returned to the farmer, complete with a house, house garden and land already planted with oil palm trees. Villagers had to pay back to the company the costs of establishing their estates, plus interest at 6% per annum. They commenced making payments when their trees started to become productive at 3 to 4 years of age. As villagers were contracted to sell all their fruit to a company factory built at the site, a payment towards this debt was automatically deducted every time fruit was received (normally 30% of its value). When the debt was paid off villagers received a certificate from the lands titles office (BPN, *Badan Pertanahan Nasional*) verifying that they owned the plasma estate. During the establishment phase villagers were paid for labouring on the estate and they received a living allowance for one year. The company also provided them with extension and materials (on credit) and established schools, health centres, roads and research facilities. Not all villagers followed the programme and even those who did continued to farm rice swiddens and tap jungle rubber gardens. Mudiyono *et al.* (1992) estimated that farmers kept, on average, 50% of their land for traditional agriculture.

The PIR Trans schemes, set up by private companies with support and funding from the transmigration programme, work along similar lines. Commencing in the late 1980s, these schemes required participating Dayak landholders to relinquish 7.5 ha of land to the company. The nucleus estate again occupies 2.5 ha, the villager surrendering the land has a 2.5 ha plot established on credit and the remaining 2.5 ha is given to a transmigrant family complete with estate and house. Dayak households are offered the same package as that given to transmigrants but often do not take up the option of having a house built on their behalf at the plasma estate, preferring instead to remain in their traditional

Map 2.3. Sangau and Sintang change in forest land use classification, 1987-1996



Source: From BPN West Kalimantan provincial office 1996 and RePPProt 1987.

kampungs. Households may surrender twice as much land and receive two plasma plots and they do not have to join up immediately. They may wait until the project is well under way on the land of their neighbours before becoming involved. Like the PTP schemes farmers must pay back the establishment cost of the plasma estate before receiving a certificate over the land and they must sell fruit only to the company. Villagers can again be employed on the nucleus estate but there is no money for living costs nor the construction of public facilities for the benefit of the traditional landowners.

Private companies commencing projects today are self-funding. They do not receive funds from international donor agencies, the transmigration programme or any other government source. The government's PIR KKPA scheme (*Kredit Koperasi Primer Anggota*) is intended to help companies setting up PIR schemes to access bank credit, but few companies see the need for this assistance. Only one company in West Kalimantan (in Ketapang) is making use of the scheme and that is purportedly because it can draw funds from a sister company, the Bank Bumi Daya (Mangan personal communication). Being financially independent, companies are now free from the commitment to use the nucleus estate model. As the entrance of these companies is still very new (most expansion is by companies awarded their concessions some time ago, using the old schemes) it remains to be seen exactly what model they will develop. Early indications are that they will adhere to a basic PIR scheme, inviting villagers to surrender 7.5 ha of land as for PIR Trans but then take 5 ha for a nucleus estate and still give only 2.5 ha back to villagers for plasma. There is doubt whether villagers will be given other benefits. Other companies are expected to develop entirely company-owned estates with no plasma component (made possible by converting forest land with no previous claimants). These schemes will only involve local people as labourers. The government has emphasised that all estates must establish a 'partnership' (*kemitraan*) relationship with locals, but this is a broad, unenforceable concept which does not specify standards that must be followed by companies.

The impacts of these three different models will vary greatly. It is generally thought that local people were better off under the earlier schemes, with recent ones inclined to be more exploitative. It is too early, however, to assess fully the impacts of schemes introduced recently. An accurate picture can only be obtained for PTP and PIR Trans schemes. The following discussion details general impacts from these two established approaches, identifies specific differences between different types of estates and refers to the likely effects of the most recent private schemes.

The economic benefits of oil palm estates are supposed to be their strong point but estate organisers, villagers and independent observers are divided over their performance on this criterion. From the perspective of the organising companies it might be presumed the estates were economically advantageous. Product demand and price have remained high on national and international markets and, at least to the end of 1997, new investors were queuing to set up operations. There has been some concern that continued establishment of new estates could lead to an oversupply and eventual price decline. While there is no sign of this at present, such a perception could reduce the quality of estates now constructed, encouraging them to be more exploitative of resources and less interested in long-term regional development.

The organisers of the PTPs feel more immediate concern. PTP Nusantara XIII is struggling to compete economically with the plethora of private companies now in operation (Sipayung personal communication). Compared to modern estates they have a smaller company nucleus in relation to the smallholder component, making them more reliant on farmer production. Unfortunately, farmer management has not been as intensive or high yielding as they would like, reducing their supply of raw material and income. Their trees appear to be declining in yield prematurely⁸ and they are struggling to stay afloat. The World Bank (1992) observed that PTP oil palm and rubber estates generally have serious economic problems. They are burdened by excessive debt service obligations and at the time of the Bank's report over-ran their costs by an average of 42%. Production costs on PTP estates were estimated to be 15% higher on average than private estates. To overcome these problems the World Bank recommended that PTPs should be freed from the responsibility of smallholder development.

There is even more division over the economic benefits of oil palm estates to individual households, particularly Dayak households whose traditional livelihood systems have been disrupted by the estates' arrival. A study by Mudiyo *et al.* (1992) of the impacts of PTP estates around Parindu and Ngabang concluded that, despite a number of social problems associated with the change from a traditional to a purely commercial orientation, overall Ribun Dayaks who participated in the programme were better off economically. Mudiyo *et al.* based this assessment on their belief that the existing shifting cultivation system was unsustainable, generated less income and led local people into remote locations in search of land (which added to their commuting time and disadvantaged children's education). They asserted that under the traditional system farmers worked in their swidden fields for nine months of the year and then spent

the other three tapping rubber, where they earned an income of between 60 000 and 90 000 rupiah per month. In comparison they observed that in 1991, farmers working plasma estates earned between 100 000 and 180 000 rupiah per month throughout the year. A less comprehensive study by Bunyamin *et al.* (1990) interviewed 100 villagers working plasma estates in five locations and found that the vast majority earned up to 200 000 rupiah per month in 1990. This was substantially more than they had earned in their previous occupations as rubber tappers, company workers and farmers, and more than those living in the same villages who had not joined the scheme.

Indeed it is often asserted that the incomes earned from working a 2 ha plasma estate are substantial in relative terms and easily enough to support a family (Mangan personal communication; Durr personal communication). An economist of the Sintang-based oil palm company PT Sinar Dinamika Kapuas (SDK) estimated that farmers in 1997 could earn 700 000-800 000 rupiah per month from a plasma estate with palms aged 6 years, and up to 1 million rupiah per month after 13 years when the trees were at their peak (Fulbertus Amre personal communication, supported by Mangan personal communication). The increased variety of employment opportunities for the land-poor was also praised (Mudiyono *et al.* 1992). In 1997 labourers on SDK's nucleus estate earned on average 4700 rupiah per day. On the estate of the private company PT Multi Prima Entakai (MPE) they earned around 4000 rupiah per day and more for harvesting which depended on the speed of work (up to 7000 rupiah per day). There were also opportunities for villagers to labour on other farmers' plasma estates. This paid better, either 10 000 rupiah per day or at harvesting time about 30% of the value of the harvest.

Villagers qualified these economic benefits, however, and were less enthusiastic about the improvements they were supposed to have experienced. Villagers spoken to were careful not to be too critical of the schemes. In PTP villages in the Parindu district, Dayak villagers repeatedly asserted that since the company arrived their living standards had improved and they had earned cash which helped educate their children. In SDK villages the reaction was still complimentary but much more reserved, with a Dayak village head saying that since the company's arrival in 1990 living standards in the village had '...rather increased' (*agak meningkat*), a culturally disparaging use of the adjective. Villagers revealed, however, deep dissatisfaction with many aspects of estate management which reduced the economic benefit they received and bodes ill for the future. Foremost is that most plasma estate owners in 1997 were earning considerably less than the estimates

described above. In PTP villages in Parindu farmers said that they used to earn between 500 000 and 800 000 rupiah per month but now only received a maximum of 300 000 rupiah per month. This was supported by smallholders in two MPE villages who said that families could make 300 000 rupiah per month if all went well, but sometimes received as little as 150 000 rupiah. Villagers working PTP plasma said this decline came about because their trees were producing less fruit. Even though they were only about 15 years old and supposedly at their peak (they remain productive until 30 years in theory), the trees were much less fertile than at 6-8 years.⁹ Lower production in MPE villages may be a result of the trees being still immature (they were planted in 1989/90), or perhaps just slow to fruit.

Villagers also complained about the lack of work available for day labourers on the nucleus estate. This work is highly sought after and difficult to obtain. While there is normally much work in the establishment phase, it dries up when this is completed. Companies often use Dayaks for land clearing, believing they are experienced with this activity, but then substitute transmigrants for ongoing, day-to-day maintenance and harvesting (Daliman personal communication). On PTP XIII's estate they employed transmigrants, originally brought to the area for a food crops project that collapsed, believing them more reliable in attending and keeping regular hours (Sipayung personal communication). Dayaks involved with the SDK project complained that when they did get work on the estate they received a maximum of about 15 days per month, restricting their income to 70 000 rupiah. They said the estate closed on Fridays and Saturdays, but Sunday was a work day. As Christians they wished to attend Church on Sunday and so could only work on the estate for a maximum of four days per week. In the village of Sungai Kunyit the Dayak residents did not believe that the MPE oil palm estate, which has consumed large amounts of land, employed enough local people. There was a high rate of unemployment, especially among young people educated to senior high school level who did not wish to work as labourers. Job opportunities for school leavers on the estate were very few. The estate employed some young men but most young women preferred to leave the village for Sanggau to work in the plywood factory of PT Esra Djuliawati. Women do work on the nucleus estates but most of the higher-paid jobs, such as harvesting, are more suited to males.

Smallholders were also concerned by the costs associated with their plasma estates that ate into the profits received. They said the debt they owed to the company for estate establishment was often much greater and took longer to pay off than anticipated. It is normally predicted that debts should be paid off two years after

Photo 4. On PTP oil palm estates throughout Indonesia ageing trees are becoming difficult to harvest and declining in productivity.



the trees come into production. Most farmers in PTP villages have now completed payment of their debts but it took from three to seven years. In MPE and SDK villages, whose projects both commenced around 1990, many farmers have yet to close their debts. PTP villagers in Parindu incurred a final debt of between 4.5 and 6.5 million rupiah. Villagers participating in MPE's programme say they have incurred debts of up to 18 million rupiah including interest payments. Such a debt burden greatly reduces the incomes farmers earn from their trees in the early years. This is of concern given that this may well be their most productive age (according to evidence from PTP XIII's estate), perhaps because of intensive management and high fertiliser use during the establishment phase. Farmers also complained that the private companies made deductions automatically, with no record of how much these payments were and how much they still owed. They could not predict when the land would revert to their ownership; it was only when they had closed the debt that they could estimate accurately how much they had paid. They were suspicious that this was a ploy to take more than was really owed.

Fertiliser is another cost. It is also part of their contract that villagers must purchase fertiliser from the company, the cost of which is again automatically deducted from money owed for their fruit. Fertiliser is crucial to the growth and yield of the palm. All companies want to ensure farmers use fertiliser to maintain their supply of raw material. When their trees were mature, farmers

with a 2 ha plot on the PTP XIII estate had to buy seven 50 kg sacks of fertiliser every six months at a cost in 1997 of 25 000 rupiah per sack. (Immature trees had earlier used double that amount.) They were unhappy that they were forced to continue to make this payment regardless of the declining productivity of some of the trees.

Villagers participating in both the MPE and PTP XIII estates argued that the price they received for their fruit had changed little since establishment and had been more likely to drop than increase. PTP XIII villagers said the company gave them just 180-196 rupiah per kilogram of fresh fruit, a low price that had not increased since establishment. They complained in September 1997 that the deflation of the rupiah and the drought had already raised rice prices at the local market by 100 rupiah per kilogram and increased the price of fertiliser. The price of their oil palm fruit had not risen correspondingly. They said the price of oil palm needed to be about 300-350 rupiah per kilogram before they could make a decent living.¹⁰

Therefore, the experience of villagers is generally that while PTP and PIR Trans oil palm estates have provided them with cash income in the past, which allowed them to modernise their living styles, they are now increasingly dissatisfied with the economic returns and see the situation worsening in the future. They have also been disadvantaged by the opportunity cost of these oil palm developments which have consumed large areas of land which was previously their own to use as nucleus and transmigrant estates. This has reduced the alternative incomes available, for example from swiddens and non-timber forest products, and reduced the land available to their children. In response to the declining profitability of oil palm estates, however, villagers are already adopting a number of survival strategies. These are most evident around the long-established PTP estates.

An extreme reaction for some villagers in Ngabang and Parindu to the hardship caused by the oil palm estate is to abandon their homes, migrate to other districts where they have family and establish a traditional livelihood all over again (Daliman personal communication). Others have chosen a different strategy. They are adapting their use of oil palm, refusing to develop it intensively but instead employing it as a supplementary crop in a typically extensive semi-traditional livelihood system. Villagers with PTP XIII's plasma estate near Bodok in Parindu are using the fertiliser that they must purchase from the company, not on their oil palm but on permanent and semi-permanent paddy and dryland food crop gardens. Households commonly divert two of the seven sacks received to food crops, which may

allow them to harvest 1-1.5 tons of rice per season. Villagers are also spending more time working food crop gardens and establishing and tapping rubber trees. They may spend as little as two days per week on their oil palm plasma, essentially harvesting whatever fruit is growing but doing no other maintenance. This is a rational response for villagers. With the price of oil palm static and that of rice increasing it makes sense to devote more resources to food crop production. With the reduction in land area available because of the estate, farmers cannot increase the size of their rice fields or look for new fertile land for swiddens. It is logical to use the fertiliser forced on them by the company to achieve yield increases. Moreover because the trees are prematurely yielding less fruit and because their great height now makes them difficult to harvest, it is sensible for farmers to divert their labour to food crop production. There may also be a cultural motivation in this reaction; Dayak villagers feel more comfortable being masters of their own destiny with an assortment of productive assets in their fields and baskets of rice in their homes. They are uncomfortable with the commercial and market dependency foisted upon them by the estates. Of course with reduced fertiliser use and maintenance the oil palm trees will become less productive, forcing the farmers to look for other sources of income. In this manner their reaction may be a self-fulfilling prophecy.

This incorporation of oil palm trees into a semi-traditional mode of production may have important consequences for the future management of oil palm estates in West Kalimantan. It is not in the interests of the company to have low-yielding plasma estates. They consume land within the company's concession but do not produce the maximum available return of raw materials. Companies would not be expected to tolerate this situation for long. Already PTP XIII is lobbying the government for permission to increase the size of its nucleus estate in relation to plasma when it plants as yet undeveloped areas of its concession (Sipayung personal communication). PTP XIII administrators say this is to achieve parity with new private estates but they also acknowledge that it is because they are concerned by the lack of production from plasma estates. Therefore, the plasma estate model which has been perceived as fair by villagers, officials and development specialists alike, risks being abandoned if it remains unproductive. As the alternative is probably a shift to 100% company-owned estates, this is not in the interests of smallholders.¹¹

If companies respond to villager concerns about current economic impacts, the basic model currently used may still be retained. Villagers have advised company organisers of their complaints and made suggestions for

improvement. Farmers in Sungai Kunyit have formally protested to MPE management about low prices. In the past local villagers have cooperated with the company to stop transmigrants from selling their plots and allowing wealthy individuals to create private plasma monopolies. In Tapang Semadak, villagers believe their problems getting work on the SDK estate could be relieved by the development of other estates in surrounding villages and districts. This will reduce the number of outsiders coming to their community for work and will provide them with more varied opportunities. Finally villagers may be happy to allow the establishment of entirely private estates if they are also permitted to set up their own, totally independent, small-scale oil palm estates. Some smallholders are eager to do this but at present they cannot obtain credit and they need permission to set up small scale processing plants as occur in Sumatra. Government officials do not support this concept saying it could lead to theft of oil palm fruit (Mangan personal communication). In short, villagers have ideas and are willing to compromise further so long as some action is taken. The future of the current estate system will probably depend on the corporate culture of oil palm companies and their willingness to negotiate fairly.

Aside from economic impacts of oil palm projects there are also an array of sociopolitical and environmental impacts. Economic impacts are most important because they are what villagers themselves seem to value most. From a villager perspective, so long as economic benefits are tangible and immediate, sociopolitical and environmental upheaval may be tolerated to a degree. Probably the most severe sociopolitical impacts now being encountered arise from the methods by which new oil palm companies force their programmes on often unwilling villagers. It seems that in the past these problems were not so severe. The stories of the promotion of older PTP oil palm estates do not compare to those surrounding HTI programmes for example. Perhaps this was due to acceptance of the generous, World Bank supported package on offer.¹² A survey conducted for the SFDP in 1991 said rubber and oil palm estates were '...extremely attractive' to farmers (Claus 1991: 72). They were not worried by the debt incurred and thought they had enough land. They were most interested in the labour opportunities offered by PIR oil palm (Claus 1991: 72). It must also be said that many villagers do appear eager to accept the more recent new style oil palm estates. Farmers in Sintang regency in particular are often welcoming. They are land rich, struggle to manage large areas of *Imperata* grassland and already their young people leave their villages in search of employment on estates in other districts. They often give the impression of being keen for any

development (although opponents of oil palm estates say this eagerness only exists because villagers are ignorant of the estates' disadvantages [Bamba personal communication]). Despite these exceptions, however, the desire of oil palm companies to expand rapidly in land-scarce locations appears to have led to the reactivation of a system previously used to force villager acceptance of logging activities and HTI plantations.

It is said farmers are manipulated and coerced into participating in projects. They are given false expectations and made promises which are not kept. Civil and military officials and village leaders are bribed so that they will support the company's cause and place pressure on villagers. This pressure is more likely, at least initially, to be careful psychological manipulation rather than confrontational intimidation and force. The company and its agents accuse reluctant villagers of being anti-development and disloyal to the nation. Villagers have been accustomed to be passive recipients and succumb to this type of coordinated pressure. They agree to take part in the projects, at least outwardly. Villagers normally respond to any problems encountered with open, peaceful communication, to be followed by passive resistance strategies if problems are not addressed.

The other major social impact of all oil palm estates is the changing labour arrangements that they force upon participants. Villagers, depending on age and gender, have had to take on new responsibilities with the potential to affect their welfare and status in the community. There is no absolute consistency in the way villagers organise their labour to accommodate work on oil palm estates but of those estates visited there did tend to be general trends. Dayak villagers normally form themselves into groups to work on each other's plasma estates on a rotating basis. Men and women from each household work together on their estates. Men tend to do the heavy work, cutting the fruit from the palm and carrying bunches of fruit to the road, while women do lighter work, spraying, weeding, fertilising and collecting individual fruits that have fallen off the main bunch. In Parindu, however, women do carry heavy bunches of fruit on their backs in large woven baskets from beneath the palm to the roadside collection point. Dayak adults rarely work on a regular basis on the nucleus estate for wages, especially if they have their own plasma estate. They are more likely to spend spare time in traditional activities such as rubber tapping, hunting and swidden farming. Women spend more time on swidden plots than men but this is not new. Since the arrival of logging companies, Dayak men have only helped with land clearing and harvesting on swidden sites, leaving the time-consuming tasks of planting and

Photo 5. Villagers returning home after harvesting oil palm from their plasma estate, Sanggau, West Kalimantan



weeding to women while they work for wages (Mudiyono *et al.* 1992: 74).

The aged (over 50 years) tend to find the work on oil palm estates too arduous. Those with their own plasma estates and no children pay others to maintain their plots. They are inclined to tap rubber trees, their own and those belonging to others. The youth help their parents on plasma estates but they are also likely to work for wages on the nucleus estate. Young males in particular like this work. They are paid by the amount of fruit they harvest and so the strong and energetic can earn good wages. Young men say they prefer working on oil palm estates rather than tapping rubber because they do not have to rise so early in the mornings. Estate working hours are from 7 am to 2 pm. Young women are less inclined to work on the nucleus estate. The majority of the nucleus estate workforce is said to come from transmigrant families who do not have established rubber gardens or land for swiddens. Transmigrant women are also more likely to maintain their plasma estates themselves, while their men leave the village in search of better paid work.

The implications of these new work arrangements do not seem to be particularly disruptive for Dayak adults owning plasma estates. As revealed above, they tend only to harvest oil palm trees and not spend inordinate amounts of time maintaining them. Women are maintaining swiddens single-handedly but they have been doing that traditionally. Young men have a more reliable source of income which reportedly frees them from parental authority and can lead to social problems (Mudiyono *et al.* 1992). Young women and land-poor Dayaks may be more disadvantaged. Finding work on the nucleus estates is difficult or too arduous and the estate's presence makes it even more difficult for them to obtain their own land.

Photo 6. Oil palm fruit ready for collection, Sanggau



The involvement of transmigrants in oil palm projects is a social impact in itself. The presence of transmigrants has led to social envy on the part of the local population. There is dissatisfaction from locals who want work on the nucleus estate but cannot find it because they perceive transmigrants to be already occupying all the positions. At the time of establishment there were also protests that a greater number of transmigrant families received housing and development assistance than Dayak families. Eventually, to placate the locals, it was decided that for every transmigrant family that received the package one Dayak family should also be accommodated. At this time there were also strong protests when Dayak villagers and transmigrants were administratively placed in the same village units, sometimes with a transmigrant village head. This problem has also been addressed but despite such efforts residual resentment is still sensed.

Such resentment sometimes boils over into open conflict, as occurred between Dayaks and Madurese in early 1997. While the initial source of the problem was far from the areas under discussion here, it became of urgent importance when Madurese blockaded the main road between Sanggau and Pontianak and killed some Dayaks travelling along that road. Dayaks from the entire Kapuas basin became involved, killing Madurese indiscriminately and insisting they should leave the province (Parry 1998). In this particular conflict, Javanese transmigrants, the vast majority, were not molested. As a group the Javanese are not considered pugnacious and they usually maintain reasonable relationships with the Dayaks. Cultural and religious differences are nevertheless considerable and there is always the possibility for conflict to occur.

Environmental impacts are the final concern with oil palm estates. Villagers are not preoccupied by such

impacts but educated outsiders consider them extremely important. Justifiable, although little studied, concerns relate to the overuse of fertiliser and other chemicals and the consequent effects on water quality, the fact that the estates are monocultures with low biodiversity and their supposedly detrimental effects on soils (Bamba personal communication; D.Rantan personal communication; MacKinnon *et al.* 1996: 558-60). Estates also increase water flow in the wet season and reduce it during the dry season in contrast to natural forest (MacKinnon *et al.* 1996: 644). Reducing the amount of land available to smallholders, particularly if the estates are not productive, also forces them to place greater pressure on lands outside the estate. With the removal of their natural forest, villagers in Sungai Kuyit had turned to cutting down *tengkawang* trees from their fruit tree gardens to obtain timber for house construction. Of course, oil palm estates are more likely to be perceived to have detrimental environmental impacts when they replace natural forest. If they are established on genuinely degraded lands they can be portrayed to have environmental benefits (see Adiwiganda *et al.* 1996 and further discussion of their argument in Chapter 3).

Oil palm estates: conclusion

Oil palm plantations are the most popular estate-based tree planting activity in West Kalimantan. They have achieved widespread distribution because they are favoured by private investors and the regional government, two interest groups with considerable influence in determining real land use. By using the PIR model these estates have also been accepted by Dayak smallholders who, as a group, continue to own considerable amounts of non-forest land. Private investors and the regional government now want to expand oil palm estates further so they can achieve their respective objectives. They have already allocated much of the province's land area to oil palm companies.

The challenge in the future will be maintaining Dayak support for these schemes, which will not be easy. Companies have revealed an intention to establish lower-cost estates with less direct assistance to local people. This is at a time when existing oil palm developments are not providing the economic benefits to Dayak groups that were expected and when many Dayaks are showing declining interest in the schemes with their market dependency and company monopoly. There are many issues associated with oil palm developments that need to be resolved before they are expanded further. Of prime importance is their economic sustainability for villagers who have surrendered large areas of land and considerable autonomy for the supposed benefits offered by the estates. Their yields, however, are already declining. This bodes ill for the future because no mechanism has been set in place for plasma estate rehabilitation. Farmers cannot afford to rehabilitate their own gardens. There is a real chance that they will have to sacrifice further autonomy merely to keep their gardens operating.

Companies must be responsive to these issues. They must encourage dialogue and practise fair negotiation. Failure to do so could result in the type of reactions which until now have more commonly confronted industrial timber and pulp plantations. Unfortunately, oil palm companies are showing less sensitivity towards local people than they have done in the past and have a greater inclination to rely on a forceful and intimidatory approach. While the government has called for partnership relationships between companies and smallholders, this is an ill-defined concept that is currently unenforceable.

Summary

In this chapter we have discussed two basic types of tree planting schemes: those attempting to work with Dayak agricultural systems, making them more productive; and those that are displacing Dayak agriculture. Neither government schemes, which have concentrated on intensifying smallholder rubber, nor a variety of experiments funded by NGOs and outside organisations, have so far succeeded in providing sustainable and attractive alternatives to existing systems. While some of the experiments are still in their early stages, they might soon find they no longer have land on which to operate.

More important are tree planting schemes already displacing Dayak agriculture, which include industrial timber and pulp plantations (HTIs) and oil palm estates. Considerable detail is provided of the ways in which

the HTIs secure land from villagers and the disputes likely to arise from the 'classical' approach to this question, as exemplified by the State Forestry Company Inhutani. Finnantara Intiga, on the other hand, is attempting a more integrated approach that provides real benefits to participating farmers. Such an approach is slow and expensive so that the company now finds itself rejected by most stakeholders and is losing out in the competition for land with oil palm interests.

The second half of the chapter is devoted to the burgeoning oil palm estates, exploring chronologically the various types of estate/smallholder combinations that have developed and the reaction of farmers to their perceived opportunities and constraints. It is argued that oil palm estates do not have the ability to provide sustainable livelihoods for smallholders, and will likely seek to minimise their future involvement, thus completing the dispossession of Dayak farmers. It is argued that far too much land has been and is being devoted to this commodity, which is threatening to replace large areas of both production forest and smallholder agriculture. Oil palm has been strongly supported by both regional authorities and large cartels but their exclusive preference for this one commodity is causing the overall development of West Kalimantan to become unbalanced.

Endnotes

¹ *Tembawang* are highly diverse and many-layered gardens occupying old Dayak longhouse sites in the Kapuas basin of West Kalimantan. They usually contain fruit and *tengkawang* trees (*Shorea* sp.) yielding an alternative to cocoa butter. Similar indigenous multicrop gardens, known by other names, are found in many locations across Indonesia.

² The position of rubber smallholders was not explored in the field: see comments on the corresponding scheme in Jambi (Chapter 3).

³ This normally gives the company a right to use the land for 45 years. Many villagers, however, consider that the company has bought the land and do not expect to regain its use.

⁴ *Tumpang Sari* is a system whereby local people are permitted to combine the planting of estate trees with their own short-term food crops. It resembles the *taungya* system of Burma.

⁵ This problem is encountered also in the *Hutan rakyat* schemes being implemented in Jambi.

⁶ The latest available statistics from the Directorate General of Estates (1996: 7) suggested that there were 211 405 ha of oil palm in West Kalimantan in 1996.

⁷ Pahang Estate Development Corp with PT Bakrie & Brothers; Austral Enterprise with PT Ponti Makmur Sejahtera; Lam Soon Bhd with PT Bakrie & Brothers; Golden Hope Overseas Plantation Sdn Bhd with companies of the Benua Indah Group; and Suka Chemical Bhd with PT Kalimantan Oleo Industry (ICBS 1997: 88).

⁸ PTP XIII's Parindu estate is producing at only 60% of its capacity and its Ngabang operations at 30% (Sipayung personal communication).

⁹ Hoshour (1997) also reported that on transmigrant oil palm estates in Riau, Sumatra, oil palm trees became non-productive after 12 to 15 years.

¹⁰ If smallholders receive only about Rp 190/kg for their fresh fruit it verifies that their likely gross income is only about Rp 250 000 per month from their 2 ha plots. Figures from the Directorate General of Estates (1996: 35) show the average yield of CPO from smallholder

estates in West Kalimantan is 1,818 kg/ha/yr. ICBS (1997) suggests that 230 kg of CPO is produced from 1000 kg of fresh fruit. This means West Kalimantan smallholders produce, on average, 15 808 kg of fresh fruit per year on a 2 ha plot, which would be worth about Rp 3 million per year or Rp 250 000 per month.

¹¹ The World Bank's 1992 recommendation that PTP estates should be allowed to operate as purely commercial enterprises and not have to be responsible for smallholder development can be seen as a reaction to this productivity decline and an influential source of support for the changes requested by the companies. As a response to the current economic crisis, the government has announced that some PTP estates will be privatised (*Jakarta Post* 16/4/98).

¹² Although at the time villagers did raise material concerns with the company regarding compensation for land, the contractual nature of the work, the size of wages and the quality of housing (see Dove 1986).