Tree Planting in Indonesia: Trends, Impacts and Directions

Lesley Potter and Justin Lee
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Abbreviations and Glossary

BPN  Badan Pertanahan Nasional, lands titles office
BUMN  Badan Usaha Milik Negara, state-owned business enterprise
CIFOR  Center for International Forestry Research
CIRAD  Centre de Coopération Internationale en Recherche Agronomique pour le Développement, Centre for Cooperative International Agronomic Research for Development
CPO  Crude palm oil
DISBUN  Dinas Perkebunan, Estate Crops Service of the Agriculture Department
FELDA  Federal Land Development Authority of Malaysia
GAPKINDO  Gabungan Perusahaan Karet Indonesia, Indonesian Rubber Association
GTZ  Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH
HBD  HPH Bina Desa program, programme to improve relations between logging companies and villagers living within a forestry concession
HPH  Hak Pengusahaan Hutan, logging concession
HTI  Hutan Tanaman Industri, industrial timber or pulp plantation
HTI Swakelola  Self-management HTI, run by the provincial forestry service in Southeast Sulawesi
HTI trans  Industrial timber or pulp plantations including transmigrants
Hutan Kemasyarakataan  Forestry Department Social Forestry Scheme
Hutan rakyat  Community forest or smallholder commercial forest
ICRAF  International Centre for Research in Agroforestry
IDT  Inpres Desa Tertinggal, poor villages assisted with loans from the Presidential Fund
Inhutani  State Forest Company, now divided into six separate companies, Inhutani I through VI
IPK  Izin Pemanfaatan Kayu, permission from the Forestry Service to cut and sell wood from production forest site
Kanwil Kehutanan  Regional Forestry Office
Kemitraan (or) Partnership arrangement (for management of oil palm estates)
KKPA  Koperasi Kredit Primer Anggota, Prime Cooperative Credit for Members
Kredit Usaha Tani  Cooperative credit scheme between the Agriculture and Forestry Departments for tree planting
KUK-DAS  Kredit Usaha Konservasi Daerah Aliran Sungai, Smallholders’ Water Catchment Conservation Credit Scheme
NGO  Non-governmental organisation
NTFPs  Non-timber forest products
ODA  Overseas Development Agency (UK)
Ojek  Motor cycle and driver for hire
palawija  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  Perkebunan Inti Rakyat, Nucleus Estate and Smallholder Scheme (NES)
PIR trans  PIR transmigrasi, Nucleus Estate and Smallholder Scheme incorporating transmigrants and local people
PJPII  Pembangunan Jangka Panjang II, 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.
<table>
<thead>
<tr>
<th>Acronym</th>
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<tr>
<td>PRPTE</td>
<td><em>Peremajaan Rehabilitasi dan Perluasan Tanaman Ekspor</em>, Rehabilitation and Expansion of Export Crops Program</td>
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<tr>
<td>PTP</td>
<td><em>Perseroan Terbatas Perkebunan</em>, Estate company proprietary limited. While referring to all estate companies, ‘PTP’ is commonly used to refer to state-owned companies.</td>
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<tr>
<td>RAS</td>
<td><em>Reboisasi</em> program of the Forestry service encouraging smallholders to plant trees on the forest estate</td>
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<td>RAS</td>
<td><em>Rencana Pembangunan Lima Tahun</em>, Five Year Development Plan</td>
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<td>RTRWP</td>
<td><em>Rencana Umum Tata Ruang Wilayah Propinsi</em>, provincial land use plan</td>
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<tr>
<td>SFC</td>
<td>State Forestry Company</td>
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<td>SFDP</td>
<td>Social Forestry Development Project</td>
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<td>SRAP</td>
<td>Smallholder rubber agroforestry program</td>
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<td>SRDP</td>
<td>Smallholder rubber development project</td>
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<td>TCSSP</td>
<td>Tree crop smallholder support project</td>
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<td>TGHK</td>
<td><em>Tata Guna Hutan Kesepakatan</em>, forest land use classification</td>
</tr>
<tr>
<td>TSM</td>
<td><em>Trans Swakarsa Mandiri</em>, special projects allocating land to second generation migrants</td>
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<tr>
<td>Tumpangsari</td>
<td>Javanese word initially relating to the intercropping of teak with food crops; now used across Indonesia to refer to intercropping of young plantations</td>
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<tr>
<td>UPM</td>
<td><em>Usaha Petani Menetap</em>, permanent farming systems programme</td>
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<td>UPSA</td>
<td><em>Usaha Pelestari Sumber Daya Alam</em>, tree crop programme for environmental conservation</td>
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<td>WWF</td>
<td>World Wide Fund for Nature</td>
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This report was prepared for a consultancy for the Center for International Forestry Research (CIFOR) using funds provided by USAID. We are grateful for the generosity and hospitality of all those people met who shared with us their experiences and gave assistance. We would especially like to thank the following people: the professional and administrative staff of CIFOR in Bogor; Guy Patterson (McGill University); Rudijanto Utama (Yayasan Dian Tama); Fernando Potess (ISDP project Berbak National Park); Pak Idris Sardi (Yayasan Gita Buana); Pak Asrizal Malano and students of the Pusat Studi Lingkungan at Universitas Jambi and the staff and students of the Agriculture Faculty and Pusat Studi Lingkungan at Universitas Haluoleo in Kendari. At the University of Adelaide we are grateful for the help of Sue Murray, Chris Crothers and Tom Mann. Despite the considerable assistance we have received we emphasise that any errors of fact are the responsibility of the authors alone.

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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 ascendency, 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 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 pulpwod 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.
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 Ministry 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 32.6% 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). 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. 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 Indonesia 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 report 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. 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 reforest 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 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) 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). 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).
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).
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.

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).

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 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).

Map 2.1. West Kalimantan locations

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 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

<table>
<thead>
<tr>
<th>Land classification</th>
<th>Area according to RTRWP Bappeda Kalbar (ha)</th>
<th>% of total land area</th>
<th>Area of forest lands according to Min. of Forestry (ha)</th>
<th>% of total land area</th>
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<tr>
<td>1. Protected Areas</td>
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<td></td>
<td></td>
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<tr>
<td>a. Protected areas</td>
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<td>Water infiltration areas</td>
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<td>b. Nature reserves &amp; national parks</td>
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<td></td>
<td></td>
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<td>Nature reserves</td>
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<td>Marine park and other waters</td>
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<td>Mangrove</td>
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<tr>
<td>Total</td>
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<td>3,384,000</td>
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<td>2. Cultivated areas</td>
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<td>a. Forest</td>
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<td>Limited production forest</td>
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<tr>
<td>(sub-total)</td>
<td>(5,329,800)</td>
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<td>(5,821,000)</td>
<td>(39.7)</td>
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<td>b. Non-forest</td>
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<td>Wetland</td>
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<td>Housing, industry, etc</td>
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<td>(sub-total)</td>
<td>(5,544,000)</td>
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<tr>
<td>Total</td>
<td>10,873,900</td>
<td>74.1</td>
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</table>


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:
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 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
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. 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.

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.

**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 ‘cocochoa’. 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.

**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.

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
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

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
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
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* 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 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). 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). 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 400 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 RePPProt 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 occupied 2.5 ha 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.
Map 2.3. Sangau and Sintang change in forest land use classification, 1987-1996

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 prematurely 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 Mudiyono 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. Mudiyono 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. 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 Kunyi 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
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. 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 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 (Clauss 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 (Clauss 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 estates. 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 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.
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 Kunyi 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 Tumpangsari 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.
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).

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

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

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.

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).

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).
In this chapter we will examine the extent to which Jambi tree planting follows the patterns discovered in West Kalimantan. The analysis will be less detailed, concentrating particularly on areas where emphases are different. Initial fieldwork was carried out in Jambi in November 1997 with a follow-up to seek further information in February 1998.

### Regions, Population Change and the Smallholder Economy

Described not long ago as still an agricultural frontier (Rice 1989), Jambi is characterised by three very distinct regions (see Map 3.1):

1. the marshy coast with large areas of peat forest, especially in the Berbak National Park;
2. an intermediate flat-to-gently rolling region of rather poor soils, now with only isolated forest remnants; and
3. the higher foothills and slopes of the Barisan Mountains in the west (including the fertile volcanic valley of Kerinci), together with other hilly zones, especially along the northern and southern borders with Riau and South Sumatra.

Many of the forested hills and mountains are now officially included in conservation areas, such as the huge Kerinci Seblat National Park (*Taman Nasional Kerinci Seblat*, TNKS) which covers parts of four provinces, the Gunung Tigapuluh Protected Forest along the Riau border and the smaller Gunung Duabelas Biosphere Reserve, which lies entirely within the province. In terms of tree planting, the coconut/wet rice system established almost a century ago by Banjarese and later Buginese immigrants dominates the coast, merging westwards into an extensive district where smallholder rubber is still the most important land use, but is increasingly being replaced by oil palm. Logging...
concessions continue to operate in some of the upland production forests, while HTIs are reforesting parts of the logged-over sections. As in West Kalimantan, most of the logged-over lowland and rolling hilly areas are now subject to strong land use competition, with HTIs, rubber-planting squatters and oil palm estates all vying for control. The populous Kerinci valley, whose inhabitants are ethnically different from the majority Jambi Malays, specialises in smallholder cinnamon and coffee. New agroforestry schemes are in operation in the buffer zone of the TNKS, in an attempt to reduce encroachment on the park.

Population growth has been rapid in Jambi over the last four decades, with increased rates being consistently above and presently almost twice the national average. In this aspect the province differs from West Kalimantan, where population growth is slower. Although densities in both Jambi and its neighbour, Riau, at around 40 per square kilometre, are the lowest in Sumatra, they are well above those in West Kalimantan. One reason for the recent population growth is the government-sponsored transmigrant intake. Transmigrant settlement began in the tidal swamps in 1967, then during the 1970s and 1980s moved to the central plains and uplands. Current transmigrants (mainly from Java) regularly form around 4% of the population, although after five years they are no longer counted separately, their villages coming under normal administration. Special projects (Trans Swakarsa Mandiri or TSM schemes), specifically allocate land to second generation migrants. The extensive transmigration settlements thus provide long-standing Javanese enclaves, though some families trace their ancestry further back, for example to the original tea plantation in Kerinci, which began importing Javanese labourers in 1918. It was estimated in 1985 that almost 25% of the population originated outside Jambi (SUPAS 1985, quoted in Mubyarto et al. 1992: 32) and the proportion may be greater today. The upgrading of the Trans-Sumatra Highway, which crosses the western section of the province through the regency capitals of Bangko and Muara Bungo, has improved Jambi’s accessibility to other parts of Sumatra and to Java. Large numbers of spontaneous migrants have arrived by this route, becoming squatters along logging roads or working as rubber tappers. As many of these settlers remain unrecorded in provincial statistics, population growth rates in Jambi are probably higher than the official figures suggest (van Noordwijk et al. 1995).
Perennial tree crops, especially smallholder rubber (introduced in 1904), have long been more important than annual food crops in Jambi. One Dutch report noted ‘Djambi has been the leading residency in the exports of native rubber, but is the most backward in practically all other agricultural enterprises’ (Luytjes 1928: 27 trans.). A large proportion of the indigenous population still owns extensive areas of rubber land, most of it the highly diverse ‘jungle rubber’, but with trees which are old, often affected by termites or fungal disease and no longer very productive. Dependence on the daily harvest of rubber to meet basic purchased food requirements is nevertheless still high. With the exception of the Kerinci valley, land suitable for irrigated rice production in Jambi is quite limited.

Transmigration schemes established during the 1970s on Jambi’s poor soils quickly adopted mixed food and tree crop strategies. Schemes such as Rimbo Bujang (in Kab. Bungo Tebo established in 1975) provided 3 ha of land for rubber and settlers were advised to plant tree crops as soon as possible (Meyer et al. 1978: 101). In World Bank-sponsored Batu Marta, across the border in South Sumatra, 1 ha of rubber per family was planted by a government estate (PTP), then allocated to the settlers after six years, when it was ready to tap. Although initially quite ignorant of working rubber, settlers promptly abandoned their food crops, devoting all their energy to making as much money as possible from the rubber, while at the same time overtapping the trees. Although it is argued that this was a sensible strategy (Levang 1997), more recent PIR Trans schemes, associating private estates with transmigrant smallholdings of rubber or oil palm, now regulate behaviour more strictly. Transmigrant households must also gradually repay the costs of crop establishment. While there has been much criticism of earlier food crop schemes, the move to estate-based PIR Trans settlements fitted both the World Bank’s recommendation and the Indonesian Government’s decision to reduce spending on transmigration. The private sector (and the settlers themselves) was therefore encouraged to meet the costs (Rice 1989; World Bank 1992).

The Timber Industry, Forest and Land Classification

Recent information released by the provincial Forestry Department (Table 3.1) shows a major decline in the area designated as ‘forest estate’, when compared with earlier published figures. Since the early eighties, the classification of forest area by function has divided the Indonesian forest into three major categories: protection, production and conversion forest. In 1990, 55% of the province was legally ‘forest’, compared with 72.5% in 1980 (Mubyarto et al. 1990; BPS Jambi 1996). Now the forest area has been further reduced to 42% of the total, or 2.1 million ha. The category ‘conversion forest’ has been dropped altogether, and production forest reduced by more than 150 000 ha between 1995 and

Map 3.3. Jambi provincial land use plan

Source: Map drawn 1996 by Cartography Lab. Geography Faculty, Universitas Gadjah Mada, from “Peta Rencana Struktur Tata Ruang Propinsi Daerah Tingkat I Jambi, 1993”
Table 3.1 Jambi land classification

<table>
<thead>
<tr>
<th>Land classification</th>
<th>Area RTRWP (BAPPEDA) 1996 (ha)</th>
<th>% of total land area</th>
<th>Area of lands (ha) (Min. For.)</th>
<th>% of total land area</th>
</tr>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1995</td>
<td>1997</td>
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<tr>
<td>I. Protected Areas</td>
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<td>181 200</td>
<td>187 125</td>
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<tr>
<td>Peat areas</td>
<td>85 625</td>
<td>1.68</td>
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<td></td>
</tr>
<tr>
<td>Beach and riverbank</td>
<td>286 940</td>
<td>5.63</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Parks and Reserves</td>
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<td></td>
</tr>
<tr>
<td>National parks</td>
<td>545 000</td>
<td>10.68</td>
<td>602 900 (included)</td>
<td>617 890</td>
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<tr>
<td>Recreation parks</td>
<td>22 250</td>
<td>0.43</td>
<td>37 850</td>
<td></td>
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<tr>
<td>Research forests</td>
<td>3 400</td>
<td>0.07</td>
<td>3 000</td>
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<tr>
<td>Nature reserves</td>
<td>22 800</td>
<td>0.45</td>
<td>29 827</td>
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<td>Mangrove areas</td>
<td>6 500</td>
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<td>Total</td>
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<td>875 692</td>
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<td>II. Cultivated and human use areas</td>
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<td>a. Forest</td>
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<tr>
<td>Prodn forest (perm)</td>
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<tr>
<td>Prodn forest (ltd)</td>
<td>450 200</td>
<td>8.83</td>
<td>405 200 (incl.)</td>
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<tr>
<td>*(Total prodn forest)</td>
<td>1 320 700</td>
<td>25.89</td>
<td>1 429 245</td>
<td></td>
</tr>
<tr>
<td>*(Conversion forest)</td>
<td>454 466</td>
<td></td>
<td>1 275 700</td>
<td></td>
</tr>
<tr>
<td>Total forest estate</td>
<td>2 427 715</td>
<td>47.60</td>
<td>2 667 811</td>
<td>2 151 392</td>
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<tr>
<td>HPH Area</td>
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<td></td>
<td>979 630</td>
<td></td>
</tr>
<tr>
<td>HTI Area</td>
<td></td>
<td></td>
<td>240 275</td>
<td></td>
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<tr>
<td>Total</td>
<td></td>
<td></td>
<td>1 219 905</td>
<td></td>
</tr>
<tr>
<td>b. Non-forest</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>*Licensed estate crops area</td>
<td></td>
<td></td>
<td>504 047</td>
<td></td>
</tr>
<tr>
<td>Total Agric. and Non-Agric land</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>*(includes settlements, industries, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Human Use Areas</td>
<td>3 992 985</td>
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<td></td>
</tr>
<tr>
<td>Total Area of Province</td>
<td>5 100 000</td>
<td>100.00</td>
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<td>(from latest maps)</td>
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Sources: Pemda Tk I Jambi (1996); BPS Jambi (1996); Dinas Kehutanan Tk 1 Jambi 1997 (unpublished)

1997, while protected areas have increased. It is notable that over 500 000 ha have either been licensed or reserved for estate crops (Dinas Kehutanan Tk I Jambi 1997).

It would appear that the Forestry Department is finally acknowledging reality. ‘Conversion forest’ has long since been converted to other uses, while logged-over production forest is rapidly changing status so that its replacement with estate crops may proceed, where that has not occurred already. A World Bank report on tree crops, discussing the Sumatra series of the maps produced by the Regional Physical Planning Program for Transmigration (RePPProT), noted that extensive areas originally designated as protection or production forest were in fact under tree crops, and should be reclassified. In Jambi, 335 100 ha were identified as suitable for new transmigrant tree crops (World Bank 1992). The 1996 Provincial Land Use Plan (Rencana Tata Ruang Wilayah Propinsi, RTRWP) is now based on the RePPProT maps. According to observers, it is still unrepresentative of what actually happens, but this is not surprising given the rapidly changing situation, especially with regard to estate crops.
There are many similarities between West Kalimantan and Jambi in their historical experiences with smallholder rubber and the broad outline of the modern tree planting situation, but one difference is the size of the forestry component in Jambi. Although there are still about 12 active logging concessions in the province (as against 24 in 1995 and 30 in 1992), most recent comparable published figures indicate production levels at about 37% of those in West Kalimantan (BPS Jambi 1996; BPS Kalbar 1996). Timber production fell dramatically (by more than 50%) in both the central regency of Batang Hari and the northwestern district of Bungo Tebo between 1994 and 1995 (BAPPEDA Tk II Bungo Tebo 1996; Batang Hari Dalam Angka 1996).

In Sarolangun Bangko (Sarko) regency, which has about 1/3 of the area under concession, there have also been recent declines, though more moderate (Dinas Kehutanan, Sarko, November 1997). The official provincial figures have continued to show overall increases, at least until 1995, for both raw logs and plywood, but increasingly these supplies of timber are coming from logs salvaged in land clearing activities (BPS Jambi 1996).

**The Timber Industry and Indigenous Dispossession**

The impact of the timber industry on the rubber smallholders along the Batang Hari river and the shifting cultivators and rubber producers of the upland logging districts is well illustrated in two small books by a research team from Gadjah Mada University (Mubyarto et al. 1990, 1992). These studies provide useful background to the present volume, as they deal with what were considered pressing forestry conflicts at the time of writing. The first looks at the question of ‘illegal logging’ by local people within the forest estate. The second considers the HPH Bina Desa programme (HBD), an attempt by government to improve relations between the logging companies and villagers resident inside a concession, while encouraging their transition from swidden to permanent agriculture.

**The rubber smallholders along the Batang Hari**

In 1990 Jambi was described as one of the favoured provinces in Sumatra. Environmental riches still existed because development had been based on smallholder rubber rather than large estates (Mubyarto et al. 1990: xv). Batang Hari regency, centre of the ancient Jambi sultanate and heartland of the Jambi Melayu people (Andaya 1993), in 1988 had almost 30% of its area under tree crops, predominantly rubber, compared with around 20% in the province as a whole (Mubyarto et al. 1990: 60). Large rubber plantations existed around Jambi city, but most of the rest was smallholder production (Map 3:2). Rubber-producing villages were especially concentrated along the Batang Hari river, where the complex agroforestry system included wet rice, coconuts and mixed fruit trees. Further from the river, lands described as secondary forest and scrub (the predominant vegetation) may also have been under rubber.

Wood and wood products eclipsed rubber in total exports by value from about 1979, as a result of a boom in timber production and low rubber prices in the 1980s. These low prices induced the rubber smallholders to rest their trees and adopt their usual alternative economic strategy; collecting forest products. Unfortunately such products were located on lands already leased to logging concessionaires, with whom there was constant conflict. From *seeking* forest products (*mencari hasil hutan*), the peoples’ activities were labelled as *stealing* forest products (*mencuri hasil hutan*) (Mubyarto et al. 1990: 85). Nevertheless, the presence of the concessions broke down village isolation, while the wood-based industries provided employment for some; Batang Hari regency, being close to Jambi city, had its share of these industries, including 6 plywood factories and 26 sawmills.

**Concessionaires and smallholders in the uplands**

In the second book, the location shifts to the upland concession areas, where again smallholders planted rubber, but also produced food crops by rotating swiddens over a large communally owned block. Their system resembled that of their Minangkabau neighbours in West Sumatra, from whom many were descended. The clearing of forest land for cropping was frowned upon by both the government and the concessionaires, and people found themselves labelled enemies of the forest. Under pressure from the logging companies the lands available for food crop production became limited, forest products disappeared, and streams were polluted and frequently in flood. The loggers in their clumsiness destroyed rubber cultivation, fruit trees and crops; compensation paid to villagers by PT Mugi Triman Intercontinental between 1985 and 1991 totalled almost 6 million rupiah (Mubyarto et al. 1992: 52). The researchers found a typical comment from the people in three upland districts was that the HPH were ‘thirsty for land’ (*haus lahan*) (Mubyarto et al. 1992: 40). In Sarolangun-Bangko regency, PT Serestra, one of the few to begin a HTI project, encouraged villagers under HPH Bina Desa to participate by providing seeds for pulp trees such as *sengon* (*Parasenianthes falcatoria*) and *sungkai* (*Peronema canescens*), together with improved rubber. There was little consultation, however, and people had only a hazy idea about the purpose of a HTI. Mubyarto concluded that the programme was far too ‘top down’ and unrelated to peoples’ pressing needs. In general, the loggers described themselves as not yet
ready to assist local agriculture, although there was some improvement in facilities, such as provision of roads and buildings. They were also reluctant to employ locals in forest work. PT Serestra, for example, drew 87% of its employees from Java and only 8% from Jambi. One HBD village was selected as the site of a plywood factory, but 73% of those employed came from outside the regency (Mubyarto et al. 1992: 142). While the purpose of HBD was supposedly ‘in situ development’, little of that took place. In Tanjung Jabung regency, concession land was already being converted to other uses. One of the villages selected for assistance was next to a new oil palm estate, while another had its lands resumed for a transmigration project.

The Kubu people and land use change
Aboriginal forest dwellers, the Kubu (Anak dalam) and Orang Rimbo still endeavour to maintain a hunting and gathering existence in what is left of Jambi’s dwindling forests. They try to stay away from all government programmes, including schools for their children and medical services, although a few have allowed themselves to be resettled. The Kubu were granted special settlement rights in the Gunung Duabelas Biosphere reserve and the Gunung Tigapuluh National Park, but local NGOs who have attempted to check their welfare are pessimistic that they can maintain their traditional lifestyle much longer. Once extensive buffers of production forest, which allowed them to increase their hunting range beyond the protected areas, have been converted to HTI or estate crops. Even the national parks and reserves are not free from seekers of timber and forest products, and the animals are disappearing. The Orang Rimbo, who live along the upper reaches of rivers such as the Batang Hari, have similar problems. These aboriginal groups will shortly resemble their counterparts in Peninsular Malaysia, such as the Senoi, whose small areas of forest are surrounded on all sides by oil palm (Brookfield et al. 1995: 128; fieldwork, Pahang, April 1997). At a conference last December between WARSI and BAPPEDA in Jambi, it was suggested that the Kubu would be better off resettled on an oil palm plantation, preferably one of those in Batang Hari regency (Suara Pembaruan 28/12/97).

Tree Planting Schemes Based upon Existing Smallholder Agriculture

Improving the quality of smallholder rubber
The usual government block planting projects have been tried in Jambi, with similar results to those in Kalimantan. The PRPTE schemes, while attempting to rehabilitate 51 000 ha of smallholder rubber between 1979 and 1984, managed to cover 29 000 ha, of which 55% failed (Mubyarto et al. 1992:20). Later projects have also touched only a fraction of the planted area.

Figures from the Estate Crops Division covering the period 1985 to 1995 reveal only 23 000 ha of successful establishment of improved varieties, while the area of smallholder rubber is more than 500 000 ha (BPS Jambi 1996). However, many new private smallholder plantings (and perhaps a high proportion of the small plots burned during the 1997 dry season) have resulted from the activities of spontaneous migrants, some of whom are former transmigrants from Lampung. A proportion are squatters, cultivating lands opened along abandoned logging roads; others work as labourers for a while, then purchase rubber land from locals and proceed to replant it with improved stock (van Noordwijk et al. 1995: 25-6, 50). In Bungo Tebo regency, new rubber plantings have been increasing by 5000 ha per year, though it was believed that this rate would soon slow down, as land was becoming scarce (Ketua BAPPEDA Bungo Tebo personal communication, 19/11/97). Provincial rubber yields have increased over the past two years and are somewhat higher than national yields, but at around 600 kilograms per hectare they remain below optimum.

Rather than become involved with government schemes, many rubber smallholders have preferred to acquire their planting materials as needed from private nurseries. The Division of Estate Crops is in the process of establishing small nurseries for bud-grafted material in various regions, although it is not known whether such materials are widely available (Kompas 6/9/97). Most farmers use only small numbers of seedlings because they find it difficult to extend their gardens. Those who have only 2 or 3 ha of land cannot take more than a small section (usually the oldest trees) out of production at any one time. Even those owning larger amounts of land have problems in establishing the better varieties under ‘jungle
rubber’ conditions, especially protecting them from wild pigs. This question has been taken up by ICRAF at its research site in Rantau Pandan (Bungo Tebo). While emphasising the diverse nature of the complex agroforests created by the traditional rubber growers (de Foresta 1995: 168), the ICRAF researchers have recognised the need for farmers to increase the productivity of their rubber. The two most important questions concern the types of clonal materials best suited to the conditions, and the effect of their introduction on biodiversity (van Noordwijk et al. 1995: 91). These are not easy tasks, nor are quick answers likely to be found. This ICRAF research comes under the ‘Alternatives to Slash and Burn (ASB)’ umbrella, and is a Rubber Agroforestry System or RAS project similar to those in Kalimantan. Conscious of the general indifference of government authorities to the benefits of traditional rubber smallholdings, the researchers saw some recognition of the peoples’ role in managing forest in the willingness of the Forestry Department to establish a community forest (Hutan Rakyat) on part of the communal food cropping scrubland. Planting materials were provided to 50 farmers, enabling them to plant durian, cinnamon, sengon and surian (Toona sinensis) (van Noordwijk et al. 1995: 44).

However, despite a 2-year stay by ICRAF researchers and the construction of a trial rubber smallholding, villagers did not see anything changing as a result of the project. The decision has been made to convert some of this same community land (at least 1000 ha, much of it under Imperata) to an oil palm estate. A private company will run the estate, with the farmers retaining and working a portion of the land (one-third to the company, two-thirds to the village) or sharecropping it with others. Their 40-year old rubber gardens would not be affected. The village head noted that only 30% of the village households actually owned rubber trees (though some of these families had extensive holdings); the rest were employed as tappers. Villagers interviewed were enthusiastic about the oil palm idea, seeing it as a way of increasing incomes, especially as the Imperata lands no longer produced much food (fieldwork, November 1997). However, it is unlikely that any oil palm company would be content with a mere 1000 ha of admittedly unproductive land. At least 6000-10 000 ha are usually needed for a minimum sized estate (Dinas Perkebunan, Jambi, interview 14/11/97). Although replanting the old rubber should be easier once the oil palm lands come into production and people have an additional source of income, whether this will in fact happen is an interesting question.

Controlling cinnamon in Kerinci
The cool Kerinci valley (800 m elevation) is one area in Jambi where smallholders produce little rubber, concentrating their efforts on growing robusta coffee and cinnamon trees (Cinnamomum burmani) for their bark. The population of the valley, which is entirely surrounded by the Kerinci Seblat National Park, is almost 300 000. With such a large number of people in close proximity to the park, the maintenance of the buffer zone and the prevention of further encroachment have become the main targets of government policy, especially since the boundary demarcation in 1992. In that year 15 000 families were estimated to be living within the park boundary (Aumeeruddy and Sansonnens 1994). Because the cinnamon trees are cut down in order to harvest the bark, and are at their best when between 10 and 25 years old, long rotations are practised by growers, together with coffee, fruits and timber trees. However, in the last few years of these rotations, monocultures of cinnamon are typical. Wet rice lands are available on the flat valley floor, so the trees are not competing with the principal food-growing area. Selective cutting of cinnamon trees is recommended, but the traditional system is to fell all at once, then plant upland food crops for one or two years while cinnamon and coffee are re-established. An urgent need for cash will also encourage farmers to fell large numbers of trees (fieldwork, Lempur village, 16/11/97). Such cinnamon harvests can lay bare large areas of steep land, exposing the slopes to severe erosion until a crop cover is re-established. Many examples of scarred slopes were observed in the field. Official figures give 22 300 ha of ‘critical land’ in the regency, some of which is being reforested with Pinus...
merkusii (discussion, Dinas Perkebunan, Kerinci, 17/11/97). Government programmes have focussed on planting a ‘harvestable forest’ (Hutan kehidupan), a range of 11 other trees which must be mixed with cinnamon in the buffer zone area. These are trees which may be harvested, but not cut, such as orange, kemiri (candle nut), durian, avocado, aren (sugar palm) and pinang (areca nut) (discussion at National Park Office, Sungai Penuh, 17/11/97).

International organisations such as the Worldwide Fund for Nature have also been active, studying the traditional agroforestry. They have discovered that complex agroforestry systems (pelak), with a number of legume, fruit and timber trees, have emerged in areas under population pressure with limited land, in which coppicing of cinnamon trees is practised and the long rotations no longer exist. Coffee and rubber may be other major crops (Aumeeruddy and Sansonnens 1994). Although it has been suggested that such local traditions be used to construct a sustainable buffer zone, these ideas do not seem to have been taken up by park authorities. A more radical and often preferred alternative has been to decrease the population within the buffer zone by means of resettlement. While the original plan was to move entire villages, this did not eventuate (Alamsyah Braksan 1992). However, a number of families were assigned to oil palm plantations in Batang Hari regency (some hours’ travel to the east) as local transmigrants. The villagers who worked on the tea plantation, descendants of Javanese labourers recruited during Dutch times, owned no land so were keen to accept the offer of 2 ha of oil palm. Local Kerinci people were not so happy and many returned. The experiences of one of these ‘resettlers’ will be recounted as part of the discussion on oil palm.

**Tree Planting Schemes which Displace Smallholder Agriculture**

**Industrial timber and pulp estates (HTI)**

With a few exceptions, timber estates have been quite slow to establish themselves in Jambi, allowing squatters to occupy logged-over land and oil palm companies to establish their claims to the former concession areas. There were eight HTIs in 1994 compared with 26 in West Kalimantan (BPS 1997b), and nine appeared in a recent local list (Dinas Kehutanan Tk I Jambi 1998). The most important is Wirakarya Sakti (WKS), part of the Sinar Mas group, which operates a pulp plant with a capacity of 430 000 tons per year at Tebing Tinggi, upriver from Jambi’s port of Kuala Tungkal (Sonnenfeld 1996; Ir Daniel, WKS, interview 17/2/98). The plant is currently operating at 70% of capacity, with all its wood supplies being drawn from land clearing operations for oil palm, HTI and other purposes, mainly on former forest concessions. Much of this wood is secured through the state forestry company, Inhutani V, which takes over worked out concessions to reforest them, and has the right to sell the timber. WKS, which arrived in the area in 1989, has a concession of 50 000 ha in the area of Tanjung Jabung near the factory, much of it planted to Acacia mangium. A further 70 000 ha adjoining block has been applied for, but not yet granted. The company estimates that it will need about 250 000 ha of timber-bearing land in order to keep the mill supplied in the future, and has been energetically pursuing a ‘partnership’ or commercial farm forest (Hutan Rakyat) arrangement with local farmers, who are providing land for planting Acacia mangium. These activities only began in 1996/7, with 56 000 ha surrendered to date by farmers who will grow trees in a 50/50 partnership with the company, which bears all the costs. It is officially stated that farmers must form themselves into a cooperative and together supply a minimum of 50 ha of land, preferably within a reasonable radius of the pulp mill. However, the most recent map of the company’s lands and the Hutan Rakyat shows large numbers of scattered small parcels, some occupying as little as 2 ha. A planned expansion along the lower reaches of the Batang Hari, on the other hand,
is in three large blocks totalling 72 000 ha. On a smaller scale are factories focussing on sengon (Paraserianthes falcataria), such as PT Pesut in Batang Hari regency. This enterprise is also offering a ‘partnership’ arrangement with farmers, on a 60/40 basis to the farmers’ benefit, while the company again bears all costs. Although the plywood factories belonging to PT Pesut and PT Sumatera Timber Utama Damai (STUD) will take sengon timber, farmers interested in growing it regard the marketing situation as rather uncertain.

The intense competition for land between HTI interests and those of oil palm noted in West Kalimantan is equally strong in Jambi. Recently logged forest land is now largely taken up, so both the HTIs and those seeking further oil palm development are trying various techniques to gain access to farmers’ land, usually old rubber gardens and secondary regrowth. While oil palm appears to have largely won the battle, the Deputy Director of WKS believes that farmers are especially interested in commercial farm forestry in land-rich localities, where they can afford to wait for the trees to grow. The Forestry Department also claims that growing acacia is simpler for the farmers, especially as, unlike oil palm, the company meets all the costs (Ir Daniel, WKS; Pak Frans, Dinas Kehutanan, Tanjung Jabung).

In order to study the impact of both the HTI and oil palm on the nearby villages, both local and transmigrant, three different villages near Merlung were visited in November 1997. A small sample of farmers was interviewed by students from the University of Jambi (UNJA) as part of this project.

Dusun Mudo is a transmigration settlement near WKS. The people, 100 families from Yogyakarta and East Java, arrived in the district in 1992; current population is around 400. The farmers, 11 of whom were interviewed, each owned 2 ha of land, one of which was already tenured. They described their main occupation as rubber farmers, and they have 1 ha of clone rubber, but as that is not yet bearing they must find other ways of earning a living. Most were labourers or merchants before coming to Jambi. Since the HTI began planting in the district in 1994, most now work for the company also. They use the tumpangsari system to plant Acacia mangium trees, growing upland rice underneath the trees for one or two years until canopy closure. They work one week as day labourers on the estate for 5000 rupiah per day, the other week for themselves. Rice yields are poor (400 kg/ha) as the hilly soils are not very fertile. The transmigrants have a few fruit trees in their house yards, but no more room to expand. They state that land is very limited in the district now, the company having claimed it all. Some have tried growing other crops such as corn in their yards, but complain of depredations from wild pigs. Most agree they are part of the HTI, but several also say they feel very restricted and bound by the company. The labouring work (they weed and clean up the area) they find doesn’t pay enough. One good thing that the company did, however, was to improve the connecting road off the main highway into their settlement. This enables them sometimes to also work for other estates in the district, including PT Gatra (oil palm). One older farmer (aged 53) was very opposed to working for the company. He did not want to be restricted, preferring to plant more rubber. He said ‘Sistem perkebunan mengikat petani: upah sering tidak tepat pada waktunya. Gaji tersendat-sendat’. (‘The estate crops system ties the farmer: you are not paid at the agreed time. The wages are static.’) Another worked as a day labourer for 10 000 rupiah per day, but complained again that the wage was not reliable. He also wanted to plant more rubber, which he said was easy to sell; he was looking to buy more land from local people. He could receive assistance to plant acacia if he wanted to, but he preferred rubber.

In Tanjung Tayas village (also partly a transmigration settlement, of around 700 people drawn from various parts of Java), a group of locals were interviewed (11 farmers), with more widely varying experiences. Some had joined the transmigration scheme and were able to work as labourers or grow acacia like the people of Dusun Mudo. In this settlement, transmigrants had rather more land (3.5 ha), again including 1 ha of rubber. Those who had not become local transmigrants had up to 14 ha. Some of the latter group criticised the estate, complaining that it had taken all the land. If they grew trees they had nowhere to produce food. They were especially annoyed about the empty lands of the estate, not yet planted. They wanted some of those lands released so the village people could plant trees on them. Others were worried about planting acacia, not sure how much they would be able to sell it for, eight years hence. One or two complained that there was in fact little assistance given to plant this new crop. They were happier with rubber, which was easy to manage and market. A number were in fact growing acacia as part of the Hutan Rakyat (50/50 share crop) scheme. Official statistics confirm that Tanjung Tayas village has agreed to release 654 ha for the scheme, of which 235 ha have been planted. The theory is that after an 8-year contract, farmers would make 4.5-5 million rupiah per hectare. It seemed, however, that many people were uncertain about whether they should join. Very few young local men were able to find employment with the company, which had a policy of recruiting its plantation labourers directly from Java. Some were still collecting wood and other products (probably illegally) from the forest. Otherwise they were engaged in the usual range of activities, selling, fishing, growing vegetables and of
course rubber under the most recent scheme of assistance by government to plant new rubber (P2WK). The lands in Tanjung Tayas are rolling to steep and most infertile, so rice yields, as in Dusun Mudo, are very low.

With the huge demand for raw material from its pulp plant, it is obviously in the interests of WKS to keep local people ‘on side’. However, the responses indicate that it has so far not been very successful in doing this, mainly because of the amount of land it has already resumed. Local people find it harder to get employment with the company than do Javanese, a tendency that has been noted before in the attitudes of the logging companies. It is interesting that the transmigrants themselves, although as a group more content to have a steady job and own a piece of land, are not entirely unanimous about the benefits of plantation work. The major difficulty facing the company’s public relations efforts is the unknown likely value of acacia in eight years’ time. People are familiar with rubber, and anxious to have high-yielding trees, but acacia is new and the eight-year waiting time is perceived as too long.

Another large cartel, the Barito Pacific group, through their subsidiary, PT Industries Forest Asiatique (IFA), has a 300 000 ha concession in the Tigapuluh Mountains (near the Riau border) in which it is also planned to establish an Acacia mangium plantation. A British ODA team is engaged in a variety of field trials with villages inside the concession. They have control over 136 000 ha of the HTI land, and are trying to demonstrate that natural forest regeneration will work, and that it can be mixed with the exotic. A Brazilian technique being tried is harvesting in strips, in which there are alternate strips of Acacia mangium (or other exotics – some Brazilian trees are also being trialled) and natural forest, so that biodiversity is maintained and pest attack reduced, but a reasonable profit is also made. As in the West Kalimantan case of Finnantara Intiga, it will be interesting to see whether these new ideas are acceptable to both private and government sources. The HTI company is also interested in the sociological work being done by the ODA project, to analyse the people’s systems of forest management and collection of forest products, so that ‘illegal logging’ may be better understood and some compromise reached on use of the resources by both groups (Luis Betancur personal communication, 20/11/97).

**Oil palm estates**

From an area of only 6000 ha and one estate in 1986 (Barlow 1991) and 44 000 ha in 1990, oil palm has expanded quickly to reach 185 934 ha in 1996 (Dinas Perkebunan Jambi 1997) and approaching 200 000 ha today (discussion, Dinas Perkebunan, 14/11/97). What is more remarkable is the area over which permits have been granted which is waiting to be developed, amounting to thousands of hectares, about 270 000 in Bungo Tebo alone. Most of this new area was licensed in the last three years (Kantor Bupati, Kab. Bungo Tebo 1997). A large part of it was previously under smallholder rubber, most of the rest under logged-over production forest. If and when all this oil palm comes into production, it will change completely the face of Jambi so that the province will resemble parts of North Sumatra, or Pahang in Malaysia. As in Malaysia 20 years ago, such transformations bring enormous social and environmental upheaval.

![Photo 10. Newly planted oil palm estate on converted forest land, Bungo Tebo, Jambi.](image)

As explained in Chapter 2, the industry is characterised by particular kinds of institutions which are gradually evolving. The older PTP (government-run) plantations are not of great importance in Jambi, although one or two continue to exist (PTP VI). The influence of North Sumatra is still felt, especially as a source for planting material. The best seedlings are supplied by two of the older plantations (PT Nusantara), Marihat and Pabatu near Pematang Siantar. More significant are the private estates, most of which follow the PIR Trans model; a number have come into production in the past three or four years. The large estates representing the powerful Indonesian conglomerates, such as PT Sari Aditya Loka (Astra group) and PT Krisna Duta Agroindo (Sinar Mas) are partly of this type, but hold additional private plantation land outside the transmigrant scheme. An important third group, also private, are the most recent. These are the kemitraan or ‘partner’ estates. Although it has been mentioned in Chapter 2 that the arrangements for such partnerships tend to be as yet unclear, in Jambi’s Batang Hari regency some experimentation is going on with special examples of such estates, tied closely to village cooperatives.
Most of the Jambi estates are located on the plains and rolling lands, with rather infertile mineral soils. The Indonesian Oil Palm Research Institute claims that the estates in Sumatra are making use of non-productive secondary forests growing on soils of low to very low fertility status. On these lands they say oil palm estates decrease erosion hazards, improve soil fertility and reduce the damaging effects of shifting cultivation by turning farmers towards permanent production (Adiwiganda et al. 1996). There is complete non-recognition of smallholder rubber in this kind of statement. Whitten et al. (1987), in their Ecology of Sumatra, while also unappreciative of smallholder rubber, compare oil palm plantations unfavourably with those of rubber in terms of animal and bird populations. Squirrels, rats and their predators, snakes, are the only species which can survive in the oil palm environment. Planters expect to use large amounts of fertiliser, and indeed the productivity of the oil palm largely depends on the fertiliser application. A new venture has been to open oil palm estates on the peat swamps, both coastal and further inland, where even more fertiliser is required.

In this section we will look briefly at four case studies: a current PIR Trans estate, with transmigrants; a similar estate a few years ago, when the respondent was resettled from Kerinci, but returned; a recently established estate in the coastal deep peat; and a cooperative kemitraan estate, using the new model developed in the regency of Batang Hari.

A PIR Trans estate

Twenty farmers were interviewed in Desa Jaya Kusuma, Kec. Tungkal Ulu; they were from the Merlung district, most being transmigrants. The estate, PT Indosawit Subur, was planted in 1992; when it became productive in 1995, it arranged to build a factory, a necessity as all prices have risen accordingly. Observers in West Kalimantan suggested a 100-300% increase in fertiliser and chemical costs occurred in January 1998 (Kompas 24/1/98).

Life is becoming more difficult for farmers in PIR Trans schemes, both transmigrant and local, with the drop in production caused by the drought and smoke of late 1997 followed by the precipitate decline of the rupiah, and all prices have risen accordingly. Observers in West Kalimantan suggested a 100-300% increase in fertiliser and chemical costs occurred in January 1998 (Kompas 24/1/98).

Resettlement

The resettled farmer and his family moved from Kerinci in 1992 to a PIR-Trans oil palm plantation in Batang Hari regency. There were 12 families from his village (Lubuk Pauh), among 300 families from the district. When they arrived, they were told that the palms would be ready to harvest in 1.5 years, but they had to wait more than four years, during which they could only work as labourers. Although he had a salary, his wages were small. After four years, still with no harvest, several families could no longer afford to stay. He calculated that only 30% stayed, usually those of Javanese ancestry. They all looked for labouring work on other estates too, and anything else they could find. Another criticism was that with oil palm, responsibilities were not clearly specified. His wife also worked each day, gathering the fruit into piles, cutting branches, and earlier was involved with him in the land clearing and burning. That was heavy work and included carrying wood, something
Much more fertiliser has to be used under the deep peat conditions, and the productivity is lower. Farmers are predicted to receive around 200,000 rupiah per hectare per year, which is one-third lower than on mineral soil. In the 1997 season yields dropped further because of the drought and fires. The estate was one of the centres of burning during the height of the fire problem in Jambi in September 1997 (see Maps 3.4 and 3.5). Fire entered the deep peat as a result of land clearing to open a new section and then burned fiercely for weeks. The presence of multiple layers of wood below the surface sustained the burning. The manager defended the choice of location, suggesting that there will soon be no mineral soil areas left in Jambi, so extension onto the peat will be the only possibility. Conditions for workers on this estate are more difficult than in others visited. When asked how they felt when first seeing the area, one replied simply: ‘afraid’. This estate, in Batang Hari regency, is part of a group coming under the ‘cooperative partnership’ banner, discussed in the next section.

Photo 11. Peatlands cleared by fire and planted with oil palm, Batang Hari, Jambi.

Photo 12. Fertiliser ready for use at Batang Hari. Oil palm estates on peatlands need more fertiliser than those established on other soils.

women in Kerinci never had to do. ‘Disana banyak tenaga, hasil sedikit.’ (‘There you had to labour hard for a small return.’) He tried everything, including fishing, but could not make more than 30,000 rupiah per month. Back home in Kerinci, where they had their own fertile piece of land, their returns were much better. Eventually the family received compensation and were able to go back to their former home in the buffer zone of Kerinci Seblat National Park.

A peat swamp estate
PT Bahari Gembira Ria is trialling oil palm production in an area where the peat is over four metres deep. Although there is another estate attempting to work shallower peat with some success, the conditions in the deep peat area appear to be testing the limits as far as profitable production is concerned. The estate began in 1989 but has taken longer than usual to bring some of the land into production, as long, deep canals had to be constructed. Studies of the initial costs of setting up an estate on peat soil have suggested that it is 54% more expensive than on mineral soil (Daswir et al. 1989).

The mainly local transmigrants (some from South Sumatra) have been working on the estate for five years, and received their allocation of land early in 1997. Fortunately, the housing area for those who live on the estate is on the mineral soil, so the problems of water supply for washing and bathing are not so pressing.

A model ‘partnership’ (kemitraan) estate
This scheme, specifically designed to overcome poverty by using local farmers in a cooperative framework, termed PIR Koperasi Pola Kemitraan, has been worked out by the Bupati of Batang Hari, Saman Chatib. A specially designed village cooperative (Koperasi Unit Desa, KUD) and farmer groups (kelompok tani) are involved in the organisation. Farmers retain two-thirds of their land, planting 2 ha to oil palm, and contribute one-third to the estate in return for general management of the production and provision of credit, which comes from the government’s KKPA scheme. Those who have
plenty of land give up the same proportion and the balance is then redistributed to the landless. After surrendering their land and spending four years working on the estate learning how to manage the crop (during which the land remains in the name of the group and the KUD), farmers assume responsibility for their 2 ha and are free to sell their fruit wherever they wish. At this time there are seven estates and ten KUDs involved, and 30 000 workers from many villages designated as poor (Pemda Tk II Batang Hari 1997; fieldwork, Jambi, November 1997) (see Map 3.4). The Bupati has examined smallholder schemes in Malaysia and Thailand and sees the cooperative partnership as a version of the Malaysian FELDA. He is very confident about the superiority of oil palm over rubber in improving the incomes of the farmers, which he believes should reach 1 440 000 rupiah per year. In a subsequent (rather exaggerated) newspaper interview he produced figures to demonstrate that although oil palm occupies about 50% of the estate crop area in Batang Hari, it provides 95% of estate crop production (*Suara Pembaruan* 16/12/97). The rubber, he suggested, was too old to really produce any more. While this scheme appears to be the most ‘farmer friendly’, one wonders about the element of compulsion here. Is this a scheme to draft the poor into the plantation labour force? Has the scheme really been adopted by all those estates? Two HTIs, WKS and PT Pesut are also counted as belonging because of their *Hutan Rakyat* share-cropping programmes, which began in Batang Hari in December 1996. Another query concerns the role of the KUD. This institution does not have a good record in managing village inputs, so special care would need to be taken to ensure its proper functioning in this system.

A visit to the showpiece estate, PT Gatra Kembang Paseban, provided some answers. The manager stated that he saw the scheme as a way of transferring knowledge and technology to the farmer. PT Gatra began land clearing in 1992, with the oil palm being planted in 1994. The first production became available 30 months after planting so was still quite low, but enough to plan for a factory in 1998. The price of oil palm is more stable than rubber and, in this case, the farmers retained their other income sources (provided they had land to begin with). The land is now all taken up and as the estate is near a protected forest, it cannot be expanded any further. The manager had an interesting comment on the oil palm cobras, which, although they control rats, might have been considered a pest. He observed that they provide a useful source of income, being sold live to travelling Chinese merchants, who use the snake’s body for traditional medicine and sell the skins. Real pests he considered to be the *ulat api*, the fire caterpillar which attacked the leaves, and the wild pigs which came from the old rubber forest.

Discussions with farmers, members of an all-male *kelompok tani* who were working together as a harvesting team, indicated that many had come from a
nearby village in which a rubber improvement scheme had failed. They turned to the oil palm as a solution and were in general happy with it, although production was down because of the drought; they used to send three truckloads a day to the factory at Indosawit, but this was now two. When asked about the gender division of labour, they replied that the light and heavy tasks were separated, with women doing the light work such as weeding. Further probing revealed that their wives worked only occasionally with the oil palm, generally preferring rubber. Some farmers were still trying to improve their rubber – one who had joined a Tree Crop Smallholder Support project was now tapping the improved trees after receiving his seedlings through the scheme six years ago. Others were using their extra land to grow sengon. The advantage of sengon over acacia was that it could be cut after five years and sent to a plywood factory but, like others, they were not yet confident of the buying system. They said that oil palm was better, as one was paid immediately. The price was standard and people could understand it, much more than the rubber price. When the question of compulsion was raised, the reply was that nobody was forced to join. A household could declare its land an ‘enclave’, but only 5-10% had actually done this. It was obvious that the pressure to conform would be quite severe. One piece of enclaved land, from where a family operated a warung (food stall) in the middle of the estate, was described as a real nuisance because of the wild pigs harboured by the rubber forest. Land values in the district had risen from 1000 rupiah per hectare before the oil palm arrived, to the present 300 000 rupiah per hectare, so farmers with large holdings were very tempted to sell. In a final comment, the farmers admitted that, although they put their oil palm land in their children’s names, they did not want them to be estate workers; they would prefer them to be doctors.

Batang Hari regency is more advanced than other parts of Jambi in the transformation of smallholder rubber to oil palm, though large areas still remain under rubber. The regency also has producing oil wells and, like parts of the coast, is becoming more industrial. Its central location near Jambi city means that other occupations are becoming available for the population, and yet many people, especially those in flood-prone riverine villages, still live in poverty. Under these conditions the oil palm alternative may appear a reasonable option. However, the farm household’s total income is predicated on some members being able to earn extra money outside the plantation. In particular, many wives will still tap rubber, leaving the oil palm to their husbands. If they are only tapping old trees, they need a large area of land to receive much return. Such land is now subject to pressure from other interests and its increasing value will tempt the family to sell, resulting in a greater reliance on oil palm alone. Considerable areas of land have also passed into the hands of absentee landlords resident in Jambi city who hire others to work it. There is no doubt that people still retain a great interest in rubber and would like to find ways of making their trees more productive. It was revealed in September 1997 that a Malaysian company

Map 3.5. Fires in Jambi on October 19th, 1997

Source: http://www.fs.fed.us/eng/indofire/js
was negotiating to set up a factory in Jambi processing rubberwood from old trees; this could provide a financial incentive to allow farmers to replant with improved stock (Kompas 6/9/97). The kemitraan koperasi estates are an interesting attempt at social engineering but they should not be seen as a panacea to solve all local problems, including the future of minorities like the Kubu. Only time will tell whether the model is sustainable and replicable elsewhere.

There is no doubt that the burgeoning oil palm industry will also be tested by happenings over the next two or three years. Not only must Indonesia battle with the financial crisis, which means severe cost rises for both large and small producers, but production will take some time to recover from the 1997 conditions. Another El Niño drought would certainly put pressure on those at the margin. The industry is still so new in much of the Niæo drought would certainly put pressure on those at the margin. The industry is still so new in much of the

Summary

In this chapter we have looked at tree planting schemes in Jambi, a province with a strong tree planting tradition. It provides an ideal laboratory in which to examine the current land use transformation and the activities of the various stakeholders involved, especially the interplay between central and local interests and policies. One objective has been to assess the impact on farmers, both local and transmigrant, of the tumultuous upheavals that are taking place. As in the previous chapter, one of the strong themes has been that of dispossession of the local inhabitants, as their lands have been classified by the Forestry Department, then occupied by logging interests, followed by plantation monocultures of pulp and oil palm. In the case of Kerinci the demarcation of the National Park boundaries has affected many lives in bungled attempts at resettlement. Another common theme has been the rejection of local agricultural systems, especially the despised ‘jungle rubber’ in favour of oil palm, and of local labour in favour of Javanese. Outside organisations such as ICRAF and WWF have sought to work with and modify traditional systems, while retaining their beneficial aspects, but have been seen as marginal by provincial and regency authorities, anxious to speed the pace of change. One fears that ODA might well join them, although these experiments could provide critical alternative models in the more open climate of the Indonesia of the future. Meanwhile the locals themselves have adapted to the changes, seizing the available opportunities and attempting to marry the old with the new. This has so far been possible as many are still ‘land-rich’, but the high prices available for such lands now tempt owners to sell to outside interests. The experiments in Hutan Rakyat by the pulp HTI and in ‘cooperative partnership’ by oil palm firms in Batang Hari are predicated on people continuing to own extra land. In Jambi there remains a strong desire to tap rubber, where possible of the high-yielding variety; many continue to prefer rubber to oil palm, despite the lure of estate wages. It is sobering to recall that as late as 1990, the province was considered to still hold environmental riches, largely because estates were undeveloped there. Now one may see huge swathes of empty and burnt out land, awaiting the oil palm. The extension of estates onto the deep peat soil is ecologically disturbing and economically risky, but an indication of the push for land which now consumes the province. The Javanese transmigrants, both assisted and spontaneous, so far have been able to be accommodated by the local population. They are also looking beyond the estate and seeking to buy land. The limits to this process and to continuing accommodation may soon be reached as locals resent their disadvantage. For groups such as the Kubu, the end to traditional lifestyles is approaching fast.

While there are many similarities between tree planting activities in Jambi and the Kapuas basin of West Kalimantan, each has particular features which make it a useful case study in its own right. We now turn to an ecologically very different area, Southeast Sulawesi. This little known province is more distant from the centres of power in the geographical west of Indonesia, but has its own unique tree planting experiences.

Endnotes

1 A detailed vegetation map published in 1986 described much of the area as ‘logged-over forest’ interspersed with ‘shrubby secondary forest’ – in fact smallholder rubber (Laumonier et al. 1986). The vegetation patterns of Batang Hari regency based on the 1986 map are presented in Map 3.2.

2 The Orang Kerinci are descendants from immigrant Minangkabau from West Sumatra. Minangkabau movement into upland Jambi has taken place for centuries.

3 In the fertile Kerinci basin, densities are 69/sq km.

4 Maps of agreed forest classification (Tata Gunta Hutan Kesepakatan) had been drawn up by authorities in each province in the early 1980s. They were superseded by the more accurate series of the Regional Physical Planning Program for Transmigration (RePPProT) at the scale of 1:250 000, the principal aim of which was to identify large blocks of preferably tree crop land suitable for transmigrants.
Map 3.3 presents the revised land use classification (RTRWP) for Batang Hari regency.

There was apparently one oil palm estate.

Discussions with the NGO WARSI - Warung Informasi dan Konservasi - Bangko 15/11/97).

Peremajaan Rehabilitasi dan Perluasan Tanaman Ekspor

Such as SRDP (Smallholder Rubber Development Project and TCSSP (Tree Crop Smallholder Support Project).

The park was established in 1982, but some of its boundaries were at first uncertain. Demarcation was completed 10 years later. Forty per cent of the park lies in Jambi.

The areca nut apparently produces a good vegetable dye, which is in demand for export.

While any area of village land given over to tree planting may be termed ‘Hutan Rakyat’, the lands commissioned by the pulp mill are a more specialised form of village tree planting, therefore have been described as ‘commercial farm forestry’.

This information was drawn largely from interviews on 17/2/98 and 18/2/98 with Ir Daniel, WKS; Ir Tjetjep, Dinas Kehutanan Tk II, Muara Bulian; and Pak Frans, Dinas Kehutanan Tk II Tanjung Jabung.

Comments were made about a sawmill operated by the company: if you wanted your wood to be processed there, you had to have connections, and money had to change hands.

The Bupati of Batang Hari recently estimated that there are already almost 160 000 ha under oil palm in that regency (Suara Pembaruan 16/12/97). However, only half of that area would be productive, or even planted. In an interview with the Bupati in mid-November I was told 80 000 ha were under production.

Fieldwork in North Sumatra uncovered a racket in village-produced seedlings, purporting to originate from Marihat, but selling for one-quarter the price and less productive. These are sold along roadsides in Riau and Jambi. It is not known to what extent such materials may have an impact on production levels.

Again the assistance is acknowledged of students from Universitas Jambi in compiling these data during November 1997.

‘Poor’ villages are identified as such using various criteria and are eligible for special loans (INPRES Desa Tertinggal, IDT).

In another newspaper interview following floods in the Batang Hari regency, Pak Saman suggested that he was organising to move the population from the villages along the river and place them on oil palm estates (Suara Pembaruan 5/12/1997).
Tree planting in Indonesia’s eastern provinces varies greatly from activities in the geographical west. Different species dominate in line with the generally drier conditions. Company-owned tree estates are rare due to the climate, often rugged topography, poor infrastructure, distance from markets and the small, dispersed nature of the local population. Smallholders are responsible for most tree planting but their stands of trees cover a limited area, also due to the prevailing conditions. Smallholders are often more attracted to livestock rearing, making use of savannah lands and the easier transportation of cattle to market.

Despite the differences in local conditions, national policies promoting tree planting have led to the same government-initiated programmes familiar in Sumatra and Kalimantan being attempted in Sulawesi. While these programmes have been forced to adapt to local circumstances, their relationships with provincial authorities and their resultant impacts are similar to those occurring elsewhere.

This example from Southeast Sulawesi illustrates the nature and impact of industrial timber plantations (HTIs) in the east. HTIs in these provinces remain more strongly committed to timber production than pulp. Their organisers also emphasise the significant contributions they can make both to environmental conservation, especially the protection of existing water and forest resources, and to villager welfare, by providing temporary crop lands and employment opportunities.

In reality there is considerable dissatisfaction with the performance of HTIs to date and scepticism about their future value, even though Forestry officials are claiming they can save the unique and economically valuable teak forests of Muna island from overexploitation and illegal felling. Again there is tension between Forestry officials, attempting to uphold the policies of their central Ministry, and officials of the provincial government who work under a different set of priorities. The provincial government and smallholders do not view HTIs as being in their interests. They both prefer the exploitation of forest resources and their replacement with estate crops.

Southeast Sulawesi: Population and Economy

Southeast Sulawesi is a small, undeveloped province which has struggled to attract outside attention. Historically the two islands off the south coast of the mainland peninsula, Muna and Buton, were the centre of population and activity (see Map 4.1). The sultanate of Wolio (or Buton) was located at Bau Bau on Buton island, an important stopping-off point for ships travelling to and from the spice islands of Maluku. At that time the mainland peninsula was sparsely populated, occupied by the Tolaki people on the east coast and the Mekongga in the west around Kolaka. Isolated tribes resided in the mountainous north.

After Southeast Sulawesi was declared an independent province in 1964 the provincial capital was built at Kendari, marking a shift of economic activity and political power to the mainland. While Muna and Buton still have the highest densities in the province, Kendari is now the most populous regency and Kendari and Kolaka are experiencing rapid population growth of around 4 and 5% per annum (BPS Sultra 1996: 82). As is the case with West Kalimantan and Jambi, much of this growth has been due to transmigration from Java and Bali. In the last 10 years alone 59 000 formal transmigrants have been relocated to Southeast Sulawesi (BPS Sultra 1996: 73). There are also considerable numbers of Bugis and Bajau people living around the coasts. The province as a whole now has a population of 1.46 million living at a density of 38 people per square kilometre, which is similar to that of Jambi (BPS Sultra 1996).

Southeast Sulawesi’s economy remains small. There is a large government sector, very little manufacturing and only modest trade (Kristanto et al. 1989: 569). Central government grants make up a large percentage of regional expenditure. Nickel and fish constitute 99% of international exports (BPS Sultra 1996: 286). Most of the population, however, earns its livelihood from subsistence-oriented smallholder agriculture. They engage in dryland swidden farming of rice, corn and cassava, supported by the exploitation of forest products or fishing and the management of estate trees and livestock (cattle and poultry). Yields of both food crops and tree crops are low because of infertile soils, limited use of inputs and minimal maintenance. Farmers keep their food crops for household consumption and sell tree crops and forest products for cash. Crops sold are traded with other islands. Seventy-eight per cent of inter-island exports from Southeast Sulawesi are estate crops, mostly grown by smallholders. They include cashew, copra, cotton, kapok and cocoa (BPS Sultra 1996: 286).
Another 10% are forest products, primarily sawn timber and rattan (BPS Sultra 1996: 303).

Low and unpredictable rainfall, small population and shortage of extensive tracts of flat land have deterred agricultural estate development. Until recently, the only large-scale projects included areas of irrigated wet rice funded by the transmigration programme and international donors, and a nucleus estate and smallholder unit growing cotton, developed by PT Kapas Indah Indonesia (Kristanto et al. 1989: 574).

**Forest Conversion and Intensified Agriculture: Estate Crops Versus Industrial Forests**

Considering the province’s physical resources and the dependence of most people on farming, Southeast Sulawesi’s government sees agriculture as the leading sector for the achievement of economic growth in the second long-term development stage (PJPII, *Pembangunan Jangka Panjang II*) (Pemda Tk I Sultra 1994: 31). Its regional development plan gives top priority to intensification of agriculture, especially tree crops, followed by agroindustry and then mining (Laode Abd. Rauf personal communication). Underlying this development will be improvements in transport infrastructure.

To achieve its goals the government is inviting private and state-owned companies to establish estates and plantations (Pemda Tk I Sultra 1994: 43). These are intended to create permanent production systems which generate revenue for the province and provide villagers with employment, reducing dependence on what is perceived to be environmentally unsustainable shifting
cultivation. The government is also doubling efforts to encourage smallholders to intensify their own estate crop plantings.

This strategy will have important impacts on Southeast Sulawesi’s forest lands. The province’s small population and small-scale agriculture have left much of the land under forest cover, primarily lowland forests growing on limestone and ultrabasic soils or in swamps (Whitten et al. 1988: 32). Forest land use classifications are shown in Table 4.1.¹ Agricultural intensification and plantation development will require the conversion of lower-value forest areas while those of high conservation importance will hopefully be protected.

Conversion is already under way. While much of the forest resource does not justify exploitation, valuable stands of ebony and teak are being logged. Three logging companies have concessions over the forests in the far north of the peninsula, near the borders with South and Central Sulawesi. The teak forests of Muna island and south Kendari are logged by a corporation run by the regional government (Perhutanda) which employs villagers as cutters. Villagers in south Kendari also set up their own businesses, receiving permission from the regional government to cut and sell logs from sites intended for conversion. Most of this wood is processed in local sawmills, in either Kendari or Raha (the capital of Muna regency). There are no plywood factories in the province.

Estate and plantation activities established on converted lands differ according to prevailing ecological conditions. On the wetter west side of the peninsula around Kolaka, both a private and a state company (PTP XXIII) have set up cocoa estates, the latter using the PIR Trans model. Smallholders (often migrants from South Sulawesi) are also converting forest lands in the mountainous north of Kolaka regency to small-scale

### Table 4.1. Forest land use classifications, Southeast Sulawesi

<table>
<thead>
<tr>
<th>Forest land use classification</th>
<th>Area (ha) according to BPS 1997a</th>
<th>% of total land area</th>
<th>Area (ha) according to BPS Sultra 1996</th>
<th>% of total land area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protection forest</td>
<td>421 000</td>
<td>11.1</td>
<td>1 061 270</td>
<td>27.8</td>
</tr>
<tr>
<td>Park and recreation forest</td>
<td>273 000</td>
<td>7.2</td>
<td>272 599</td>
<td>7.1</td>
</tr>
<tr>
<td>Limited production forest</td>
<td>827 000</td>
<td>21.7</td>
<td>419 244</td>
<td>11.0</td>
</tr>
<tr>
<td>Non-convertible forest</td>
<td>669 000</td>
<td>17.5</td>
<td>281 531</td>
<td>7.4</td>
</tr>
<tr>
<td>Convertible production forest</td>
<td>699 000</td>
<td>18.3</td>
<td>212 121</td>
<td>5.6</td>
</tr>
<tr>
<td>Total</td>
<td>2 889 000</td>
<td>75.7</td>
<td>2 246 765</td>
<td>58.9</td>
</tr>
</tbody>
</table>


Photo 13. The natural forest has been cleared for teak and *tumpangsari* on this HTI *swakelola* site in Northern Muna
cocoa plantations. Often this conversion is without
permission. In the far north of Kendari regency two
private oil palm companies have been granted
concessions covering 40,000 ha and have commenced
land clearing. They will develop their estates under the
PIR Trans KKPA scheme (ICBS 1997: 126). On the
peninsula’s eastern side, in Tinanggea, south Kendari,
there are state-run cashew plantations, and extensive
private and state-run sugarcane plantations are planned.

The potential impacts of these developments are
demonstrated by a sugarcane plantation in south Kendari
run by the private company PT Sumber Madu Bukari
using a PIR model. This estate is to be established on
25,000 ha of ’state’ land (tanah negara) presently
vegetated by secondary forest (68%), scrub (26%) and
Imperata cylindrica grassland (6%) (PT Sumber Madu
Bukari 1996). In recognition of the fact that nearby
villagers previously made use of these ’state’ lands, the
company has offered to pay them compensation for some
of the land resumed and to set aside 5000 ha as a plasma
estate. The plantation will have a permanent workforce
of 1293 people and also employ a further 12,000 as
temporary and full-time labourers. Local people, while
appreciating the employment opportunities on offer,
have held lively protests arguing that the compensation
delivered to villagers is significantly less than the amount
promised. This action has slowed the plantation’s
progress.

The expansion of estates on Southeast Sulawesi’s
mainland peninsula appears to accompany declining
government support for industrial timber plantations
(HTIs) in this area. HTI development is still recent and
limited in scale but actually commenced before many
of the estate programmes. PT Barito Pacific has a 36
300 ha concession that it commenced planting two years
ago, growing mostly teak (Tectona grandis) and pine
(Pinus merkusii). Another company, PT Guhara
Lestarindo Cellulose is planting Acacia mangium on a
concession of 17,000 ha in Kendari regency. The most
extensive area of HTI is being planted by the local Forest
Department, under what it has termed HTI Swakelola
(self-management). Commencing in 1989, the HTI
Swakelola has two units, one in South Kendari of 30
000 ha, and the other in the northern part of Muna island,
covering 35,400 ha (Dinas Kehutanan Tk I Sultra 1996:
1). Funded by the Reforestation Fund (8.7 billion rupiah
from 1989 to 1996) the HTI Swakelola is planting only
teah.

The prospect of further HTI expansion on the mainland
peninsula is unlikely, however, given the shift in favour
of tree crop estates. Forestry officials in Southeast
Sulawesi say that the regional government tends to
allocate production forest lands to estate uses rather than
HTIs (which are their theoretical use in areas classified
as permanent production forest). These lands are prized
by all groups because being formally state land they are
easier to acquire from local people. It is very difficult
(or at least costly) to get villagers to relinquish Imperata
lands and tree gardens to which they lay strong claims.
The pro-estate/anti-HTI bias is illustrated in the experience of PT Guhara Lestarindo Cellulose. They were originally allocated a concession near Kendari city in a forested production forest zone, but villagers and local officials objected saying it would threaten the area’s water supply. Guhara was forced to relocate and was given a new site in Tinanggeea. Before they could commence operations, however, their new concession was revoked and subsequently given to PTP XIV to grow sugarcane. Guhara requested an 80 000 ha concession to develop its pulp plantation but has only been awarded 17 000 ha. Its whole operation is now in jeopardy after it lost many trees to fires in the dry season of 1997. Its original concession, from which it was banned for environmental reasons, is now being sought by an oil palm company which is reported to have a good chance of getting approval. Even where HTIs have so far been successful they will not expand. The south Kendari unit of the HTI Swakelola has planted almost all of the land in its concession, on schedule and below budget with reportedly good survival rates, but there are no plans for it to expand further.

Bias against HTIs amongst regional government officials stems from their view that land is better used by cash crop estates because they generate more substantial profits more quickly and also provide longer-term employment prospects for villagers. The officials are also suspicious that purported HTI companies are often more intent on using their cutting permits to exploit the existing timber resources of a site rather than develop a productive plantation (Laode Abd. Rauf, personal communication). They say this results in the loss of forests that are already producing rattan and timber and their replacement with unproductive wastelands. In their opinion it is better that HTIs be used for the rehabilitation of grasslands, in much the same manner as reboisasi.2

The HTI, Provincial Interests and the Teak Forests of Muna

The one location where the HTI is still seen to have an important role in Southeast Sulawesi is on the island of Muna. There are two reasons for this. First, Muna is drier than other parts of the province, making it less attractive to estate companies. Second, the existing teak forests, which date back at least 300 years, are of economic importance to the government and of considerable cultural and historical significance to the province. At present poor management of these forests risks their permanent loss. It is hoped that developing HTIs will rehabilitate and reduce pressure on the forests that remain.

Conditions on Muna and the contribution of teak

Conditions on Muna island are amongst the most difficult in Southeast Sulawesi. The predominantly agricultural population must contend with relatively low rainfall and infertile limestone soils. Soil permeability limits supplies of surface water. Farmers make swiddens of dryland rice, more often corn and cassava. Their yields are low. Land shortages compound their problems. Muna has a population density of 54 persons per square kilometre, much higher than the provincial average of 35. Exacerbating the situation is the fact that 49% of Muna’s land area is declared state forest and is officially off-limits to farmers (BPS Sultra 1996: 242). In response to these difficulties Muna people often leave their island, migrating temporarily or permanently to Kendari, Maluku, South Sulawesi and as far as Malaysia.

Muna’s teak forests have provided relief from these harsh conditions. They have traditionally been a source of fertile land for conversion to swiddens and of timber for sale and household consumption. Prior to this century the Sultan of Buton prohibited ordinary citizens from cutting teak, reserving it for royal purposes. Such prohibitions were not strong in Muna: its government was perceived as disorganised, its population independent (van Hasselt 1909). Visiting Muna early this century, van Hasselt reported that clearing of teak forests for ladang gardens was rife and had been so for some time, from the number and age of tree stumps. Larger trees were ringbarked, while smaller ones were used to make heavy fences and houses, with much wastage. Farmers ignored Imperata cylindrica fields that they had created previously. Forests around the centre of Muna were under the greatest pressure. Unless this exploitation was stopped he anticipated that the island’s teak forests would be lost. At that time he estimated the teak forests to cover approximately 45 000 ha mainly in the sparsely populated north of the island, although this figure is doubted by Muna’s current Bupati, Saleh Lasata (1997: 45). The situation was considered one of such gravity that in 1909 the Dutch civil administration and the self-government prohibited all further felling.4

Past and present mismanagement of the teak forests

Despite continued prohibitions on farmers cutting teak, it is estimated that only 8339 ha of this valuable forest now remain on Muna (Hasanu Simon 1997: 74). Muna’s current Bupati points to heavy exploitation by the Dutch from 1911 and by the Japanese during the World War II as causing much of the loss (Saleh Lasata 1997: 43). Considerable damage seems to have been inflicted since Independence, however, and the situation is becoming more desperate as the end of the forests is in sight. In
1968, management of the teak forests was transferred to the provincial government in Kendari from the regency government in Muna. Both governments have consistently been more concerned to generate income from the forests than conserve them. Over time they have initiated various ‘management’ plans giving permission for third parties to cut and sell teak timber, with much of the profit returning to regency and provincial coffers. All of these schemes have resulted in substantial overcutting (Hasanu Simon 1997).

In 1986, in response to continuing forest decline, the provincial government established the Forest Exploitation Authority (Badan Otorita Eksploitasi Hutan). This body was intended to be an improved institution that would more effectively (and hopefully sustainably) exploit and market forest products, including teak, and provide forestry extension to farmers (Sarijanto 1997: 6). A public company, PD Perhutanda, was set up to harvest and sell teak and other forest products on Muna and throughout the province. Perhutanda was directly responsible to the Authority which in turn answered to the Provincial Income Office in Kendari. The company and its managing agencies were vested with greater real power over forest management than either the Provincial Forestry Office (Kanwil Kehutanan) or the Forest Department (Dinas Kehutanan).

Formation of the Forest Exploitation Authority has not helped the problem, however, as forest destruction has continued unabated (Hasanu Simon 1997: 84). Provincial Forestry officials are highly critical of PD Perhutanda (perhaps reflecting their own powerlessness), suggesting that the rate of forest loss has increased under its administration. Destruction is driven by the priority to generate income, with little emphasis being placed on forest maintenance, in which the company has no expertise.

Perhutanda’s method of operation is to market timber from natural teak forests and teak planted by villagers outside the protection forest zone. In theory wood is cut from private lands and sites intended for conversion to permanent forestry use (such as HTI Swakelola) and agriculture. Much of the natural teak forest in the northwestern district of Kambari was felled and sold by the company to make way for an agricultural intensification project developing wet rice for transmigrants. Perhutanda contracts individual farmers or small businesses to cut timber, paying them just 7000-15 000 rupiah per cubic metre according to village sources. The company then sells the timber for around 300 000-400 000 rupiah per cubic metre to three sawmills on the island which were set up shortly after Perhutanda itself in 1987. Perhutanda enters into contracts with these companies to provide them with a guaranteed quantity of timber at agreed intervals. Forestry officials contend that Perhutanda is under pressure to continue harvesting teak beyond sustainable limits because of demands from its principals in the provincial government and from the owners of the sawmills (mostly ethnic Chinese) with whom it has contracts.

The existence of Perhutanda and the sawmills is also believed responsible for indirectly contributing to illegal felling of teak trees. Teak theft is an old practice on Muna but is reported to be at dramatic levels now (Hasanu Simon 1997: 85). Most illegal cutting is by villagers. ‘Stealing’ and selling teak wood (and other woods such as fig and mangrove) is an essential source of village livelihood, especially in the dry season when they cannot grow food crops. During surveys conducted in two villages in Muna’s north, more than half of the households interviewed readily admitted that they sold teak without Perhutanda approval. Cutting is done by males who have various techniques for avoiding detection. In two to four weeks during the dry season they normally cut and roughly process one cubic metre of timber that they sell for between 100 000 and 200 000 rupiah. Over the season they may earn a maximum of 600 000 rupiah, a good income which is supplemented by cashews sold by other members of the family. Perhutanda’s overcutting is said to be responsible for an increase in theft by villagers, prompting them to make what they can from the forests before Perhutanda finishes them off.

While cutting is done by villagers, and occasionally by teak (and mangrove wood) ‘raiders’ from South
Sulawesi and other islands, they are encouraged to engage in this practice from above. Numerous officials and villagers were heard to make reference to a ‘syndicate’ responsible for organising theft. While details of such a group are unknown, the sawmills on Muna allegedly ask villagers to cut wood for them without Perhutanda’s knowledge. Teak sold under such arrangements is transferred for about 150,000 rupiah per cubic metre, meaning mill owners get wood more cheaply and villagers earn greater returns than they would if dealing via Perhutanda. Villagers are also contracted to cut teak for buyers in Bau Bau on Buton island and in South Sulawesi.

Southeast Sulawesi’s forestry agencies have apparently been rendered powerless to stop this overexploitation. For example, the provincial Forest Department awards timber cutting licences to contractors wishing to cut for Perhutanda. This theoretically gives it the power to control the number of cutters and the rate of exploitation. In reality, however, it merely rubber stamps whichever contractors are sent to them by Perhutanda. Both organisations are under the control of the Governor in Kendari. Consistent with the Governor’s priorities, the Forest Department must fall into line with Perhutanda’s directions. As the staff of Perhutanda in Muna say, ‘If the Forest Department does not agree with the way the Governor is managing the forests, then the provincial head of forestry can be changed on the Governor’s order’. The relevant legislation (Undang-Undang Pokok Pemerintahan di Daerah No. 5 of 1974) purportedly asserts that all government departments are the (assistants) of the Governor.

Forestry agencies have also toiled fruitlessly, with police and local officials, to apprehend unlicensed teak cutters and traders in the field. Their efforts are hampered by poor coordination between agencies and a shortage of resources and manpower which makes monitoring the forests along the entire coastline of northern Muna a difficult task. Even when they do encounter thieves they are often ill-equipped to apprehend them. Raiders from South Sulawesi, in particular, travel in bands numbering tens of men and willingly use violence to avoid capture. Moreover, the existence of the ‘syndicate’ undermines the morale of forestry officials. Officials on Muna question who should be punished for teak theft; the companies that request the wood, the government officials who turn a blind eye and accept bribes, or the villagers just searching for a living? The situation is further complicated because forest protectors commonly have family connections with forest exploiters. One forestry official in Raha said nobody from the provincial forestry office in Kendari wanted to be posted to Muna because it was believed impossible to protect the teak forests from theft.

The only constructive role left for the Forest Service has been rehabilitation. Since 1980 they have attempted (under the reboisasi programme) to reforest grassland areas with teak, but unfortunately have had little success due to fire. They have also tried to take pressure off forest areas, by encouraging villagers to plant cashew trees on their private land under the regreening programme. From 1989 they commenced replanting teak under HTI Swakelola. This has been more successful than reforestation but much slower than HTI developments elsewhere. Of the 35,400 ha intended for planting on Muna, only 1,600 ha has been realised (Dinas Kehutanan Tk I Sultra 1996: 14).

A new plan: cooperation with a State Forestry Company

To date the provincial and regency governments have encouraged open exploitation of Muna’s teak forests with little concern for sustainable management. Local forestry agencies have been moved aside and a business enterprise permitted to dominate. There is now a realisation, however, that the forest area is in critical decline and a new approach is needed to maintain a productive forest industry. At a conference held in Kendari early in 1997, the Governor, the Bupati of Muna and forestry officials and experts from Kendari, Muna and Java, acknowledged the problem and discussed a strategy for better management.

At stake is an industry described as a mainstay of Muna’s economy. From 1992/93 to 1996/97 the forestry sector on Muna (mostly through teak exploitation) provided 52% of the total wealth generated within the regency (Departemen Kehutanan Tk I Sultra 1997: iv). Over the same period it generated 2210 million rupiah for Muna’s government from taxes and fees (Saleh Lasata 1997: 51). Forty per cent of the income received from teak sales on Muna goes to the regency government and 60% to the provincial government, with one-third of that 60% being channelled to Jakarta. Timber production (mostly teak) has increased under Perhutanda. Production for the last five years totalled more than 24,000 cubic metres; this does not include informal timber cutting by villagers (and other ‘thieves’), which must generate considerable income.

Muna’s teak forests also have considerable historical and cultural importance to many people in Southeast Sulawesi, especially the educated elite. Origins of the teak trees have long been debated. Dutch colonialists speculated that they were natural, while others said they were brought from Java by a trader from Maluku (Saleh Lasata 1997: 42). It is now widely believed that the first Islamic king of Tiworo in Muna’s northwest was given teak trees by the Sultan of Demak in Central Java.
when he made a pilgrimage to the sultanate in the sixteenth century (Adurrauf Tarimana 1997: 65; Hasanu Simon 1997: 81; Sarijanto 1997: 5). Upon returning to Muna he decreed that farmers should replant their lading with teak after cultivation, leading to its rapid spread (Hasanu Simon 1997: 81). Whether true or not, this story’s popularity reveals the immense significance of Muna’s teak forests to the modern inhabitants of Southeast Sulawesi. Muna’s teak is a living reminder of their historical connection with the centre of Islamic religion (Demak) and the centre of power (Java) in the Indonesian nation. This is a source of immense pride for a strongly religious people living in an undeveloped and neglected province who are conscious of the need to establish their place and identity in the modern state.

To preserve these benefits, participants at the Kendari conference agreed in principle to adopt a new approach to forest management which has some radical differences from the current system. Of most significance is a decision (yet to be finalised) to break the power of Perhutanda and invite one of the state forestry companies, either Perum Perhutani or Inhutani, to come to Muna and manage the forests in a cooperative relationship with Perhutanda and local forestry offices. Perum Perhutani is the favoured candidate. Its experience in teak management in Java is highly regarded in Southeast Sulawesi and company representatives were invited to describe their methods at the conference. It was agreed that one of these SFCs should take over and greatly expand teak HTIs as the basis for improved forest management.

Cooperating with a SFC is radical for Southeast Sulawesi’s government because it will result in the loss of autonomy over the resource. They will lose control over management direction and have to further divide income earned. The government appears resigned to the change, confessing they have neither the expertise nor, more importantly, the capital to finance the forest rehabilitation required. Local forestry agencies are supportive of the proposed policy although they will have no control over the activities of a SFC and will most likely remain on the sidelines. On the other hand, losing autonomy over the resource at this time may not overly concern Southeast Sulawesi’s government. They have exploited the forests fully in recent years and it is smart policy to now get central government money and expertise to set up a plantation-based industry in their place. Inviting a State Forestry Company to Muna may hence have less to do with conserving the remaining forests and more to do with creating a new ‘cash cow’ when the natural teak is finished.

Methods for reducing theft are the other major component of the improved forest management strategy. The government has set up a multi-agency team to investigate and prevent teak theft. Supervision will be more rigorous and those caught stealing will receive heavier penalties (Saleh Lasata 1997: 58). Forest boundaries will also be delineated more clearly. To reduce villager dependence on theft they will be encouraged to ‘participate’ in reforestation activities. As well as providing alternative income this is intended to develop feelings of ownership over the programme and make them feel responsible for its success. Other alternatives will also be developed, such as the further expansion of smallholders’ cash crops, especially cashew (Departemen Kehutanan Tk I Sultra 1997: iv).

The regency government’s willingness to address Muna’s forest loss is commendable. There are real doubts, however, surrounding the ability of the chosen strategy to succeed. Of greatest concern is the emphasis placed on SFC-managed HTI as the core forest management technique. The track record of Inhutani and Perum Perhutani in other provinces does not instil confidence. Moreover, the performance of HTI Swakelola on Muna so far, even when combined with the development of smallholder cash crops, suggests that this technique may be unable to provide farmers with a viable alternative livelihood capable of reducing their dependence on forest exploitation.

**Villager experience of HTI Swakelola on Muna**

Villager involvement in HTI Swakelola is similar to classical HTI projects throughout Indonesia. Villagers wishing to participate in the project are primarily
involved in plantation establishment. Each participating household is given a 2 ha plot to maintain. They clear the site and then plant and maintain teak trees for two years. In return they are formally entitled to 264 200 ripuiah each year (Dinas Kehutanan Tk I Sultra 1996: 17). They may also intercrop the juvenile teak trees for the first year after land clearing. It is estimated by the Forestry Service, perhaps over-optimistically, that they may earn up to 5 tons of dryland rice, 1.2 tons of corn and 300 kg of other vegetables from this tumpangsari activity (Dinas Kehutanan Tk I Sultra 1996: 17).

Villagers may also be given permission to sell timber cut from the site they are managing. After two years villagers stop maintenance and the trees are left to grow. They get no other benefits from the project. They do not get ownership rights over any of the land or trees. Only teak and other commercial timber species are planted. There are no fruit trees that they may harvest.

A random survey of forty households in two villages involved in HTI Swakelola in northern Muna revealed almost unanimous dissatisfaction with the activity. Some villagers did accept the project had advantages. They most often cited the chance to undertake tumpangsari activities and grow dryland rice, which was particularly good for those with no land. They also made reference to the wages and opportunity to sell timber cut during land clearing. Most villagers said, however, that the project’s disadvantages outweighed its advantages or that it had no advantages for either them or their village (Table 4.2).

From the villagers’ perspective the programme is unpopular because it does not provide them with a long-term productive livelihood, and by consuming much of the land within the village boundaries it limits their options for establishing alternative livelihoods. Every respondent in the two villages said there was not enough land in the village for them to expand their agricultural activities. The HTI exacerbated this shortage, generating resentment. Villagers also dislike the project’s environmental impacts. HTI Swakelola is usually sited on existing forest which is cleared before planting. This destroys a productive resource for villagers, forcing them to travel further to harvest forest products. Destroying existing forest also threatens water resources. This impact was more pronounced with HTI Swakelola in South Kendari, where 35% of respondents in two South Kendari villages said that springs had gone dry since the natural forest was cleared. Poor management of HTI concerns villagers because nothing may be left in place of the natural forests.

Judging by this experience, expanding HTI under the management of a SFC will merely make life more difficult for ordinary villagers, unless a significantly different model is developed that provides them with a greater share of benefits over the long term. The HTI will prevent them from accessing new land for agriculture and, together with greater policing, will further limit their ability to harvest timber from the forest. There will hence have to be great efforts to intensify agriculture on farmers’ existing holdings, not only to improve their living standards but also to make up for the substantial income lost from their inability to harvest timber.

The alternative livelihood persistently emphasised is the intense management of estate crops, mainly cashew trees on Muna. As a result of agriculture and forestry department programmes in the past, all households with land in the survey villages currently possess some cashew trees. Each household has somewhere between 50 and 100 trees, usually planted at about 10 by 10 m spacings on approximately 0.5-1 ha of land. This is often all the land a household possesses, apart from that being used to grow food crops and the house garden. These cashew trees may reliably produce somewhere between 200 and 400 kg of fruit per season, sold for about 1500-2000 ripuiah per kilogram. A household can thus earn about 300 000-800 000 ripuiah per year from

<table>
<thead>
<tr>
<th>Disadvantages of HTI Swakelola</th>
<th>Percentage of respondents*</th>
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<tr>
<td>Reduces land available for farming (especially for young families)</td>
<td>28</td>
</tr>
<tr>
<td>Provides only temporary income</td>
<td>15</td>
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<tr>
<td>Poorly maintained after establishment</td>
<td>15</td>
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<tr>
<td>Destroys existing forest when established</td>
<td>13</td>
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<tr>
<td>Poorly planned and supervised</td>
<td>8</td>
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<tr>
<td>Villagers get no rights of land or tree ownership</td>
<td>8</td>
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<tr>
<td>People from other villages are used to maintain</td>
<td>5</td>
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<tr>
<td>Increases distance one must travel to harvest forest products</td>
<td>5</td>
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<tr>
<td>Wage promised was not equivalent to the wage received</td>
<td>5</td>
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<tr>
<td>Wild boar hide in the teak</td>
<td>5</td>
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<tr>
<td>Reduces water flows and dries up springs</td>
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* 40 villagers were asked whether they thought the project had any disadvantages and if so what were the main ones. Some respondents offered just one major disadvantage, while others gave two or three.

Source: Survey conducted in November 1997 by staff of the Agriculture Faculty, Universitas Haluoleo, Kendari, for this research.
their cashew trees. If farmers are prohibited from cutting teak, which currently earns them up to 600 000 rupiah per season they will have to double their earnings from cashew trees, if that is the only long-term alternative livelihood available.

It appears, however, that increasing production from cashew groves without increasing the area planted will be extremely challenging. Villagers already cite numerous problems with cashew trees. The quantity and quality of yield is highly variable from year to year, being extremely sensitive to minor variations in management and climate, particularly wind and drought. The leaves and fruit are also highly susceptible to pests and disease. The government is hoping to lessen these problems by introducing a hybrid variety of cashew from Sri Lanka. The attitude of farmers towards cashew tree management is also a constraint. They are unfamiliar with intensive management techniques and in the past have often only shown interest in cashew planting because of government extension and as a means of claiming land (Yap et al. 1992: 24). Further, this is perhaps an indication that productivity can be improved if farmer attitudes can be changed. Villagers may have had no incentive to manage cashew trees seriously yet because of the ease of cutting and selling teak. With stricter penalties cashews may become a more attractive option.

**Other reasons for pessimism**

Underlying the problems inherent with HTI programmes in Southeast Sulawesi, and indeed throughout Indonesia, is poor communication between government officials, company staff and local people. This prevents the development of HTI programmes that are consistent with local peoples’ priorities while remaining in accord with those of the company. It also impairs the ability of companies to promote programs amongst local people even when intending to be of assistance.

Discussions at a HTI site in northern Muna provided a perhaps unrepresentative but telling example of this problem. A villager acting as foreman for the project, when asked, said that the major problem in the village was a shortage of land belonging to villagers. He complained that all of the land was owned by the state, mostly classified as forest land, and even land used for food crops could be claimed by government programmes in the future. This uncertainty meant villagers were discouraged from planting estate trees and developing their village. No more than five minutes after this statement a government official appeared and proceeded to give his view. He said the major problem in all rural areas was that too much land was in the possession of villagers. The government had no right over this land and so could not develop it because the villagers owning it were uninterested and did not appreciate the importance of development. For the length of time the official spoke, the foreman sat silent. Regardless of who actually controls the land, the real problem was this silence. The government rarely seeks and does not value the views of villagers. When it does seek their viewpoint, it is only for the purpose of changing those views or to illustrate the reasons why the government’s plan is superior. As government officials do not listen, villagers do not communicate; instead they passively resist the government’s clumsy initiatives.

A final reason for pessimism is the performance so far of Perum Perhutani in another eastern Indonesian province, East Nusa Tenggara (NTT). All of the problems experienced by HTI Swakelola in Southeast Sulawesi are replicated in NTT where Perum Perhutani has been working since 1991, together with a provincial company and local forestry agencies. The company, intending to plant a massive 332 500 ha with mostly timber trees (Tectona grandis, Gmelina arborea, Swietenia macrophylla, Eucalyptus urophylla), has not managed to provide villagers with sustainable livelihoods, has generated considerable resentment by taking their land and natural forest resources and has communicated poorly (Pellokila no date). It has used government officials and the military to coerce compliance from villagers, subjecting them to terror and imprisonment as they try to retain control over their lands and resist a programme that they perceive will not benefit them (Pellokila no date). With this track record there can be no confidence that the State Forestry Company will be able to introduce an enlightened form of HTI in Southeast Sulawesi.

**Summary**

Southeast Sulawesi’s provincial government is attracting state and private companies willing to set up estates as its top development priority. This is consistent with Repelita VI aims and trends occurring in other provinces. In the face of this policy HTI projects have been sidelined. They are not favoured by provincial government planners who prefer to give estate companies the opportunity to convert forest lands rather than hand them over to permanent timber production by HTI. The one exception is on Muna which is unattractive to estate crop companies and where preservation of the teak forests is important. The performance of HTI Swakelola so far, however, reveals that this type of project jeopardises the ability of villagers to obtain an adequate livelihood in a land- scarce
environment. SFCs operate in essentially the same manner and so it is unlikely that they will stop the degradation of Muna’s forests because local people will remain dependent on these resources. HTIs have been given a reprieve from provincial extinction on Muna but they are ill-equipped to perform the task asked of them.

Endnotes

1 As often occurs there is considerable variation in the forestry data depending on the source. In this instance the data provided by BPS Sultra 1996, reporting that about 60% of Southeast Sulawesi’s land area is forest zone, is more widely accepted. These data are derived from the RePPProT studies, as already presented for West Kalimantan and Jambi.

2 Reboisasi is a program controlled by the Forestry Service to reforest degraded lands in the forest estate. The program is described in Chapter 1.

3 Including sale to the Dutch East India Company in the seventeenth and eighteenth centuries, although not on a regular basis.

4 The self-government of the area was the administration of the Sultan of Baubau on Buton island, which operated in a semi-autonomous fashion during part of the Dutch period.
CHAPTER 5
GENERAL CONCLUSIONS

The boom in demand for oil palm nationally and internationally is attracting the interest of wealthy investors and regional governments in West Kalimantan and Jambi, as well as in other provinces, especially Sumatra and Kalimantan. They are conspiring to speed the spread of private oil palm estates, which has already had a great impact on competing land uses and traditional landowners at the local level. Even in Southeast Sulawesi, which may be thought of as distant from the main centres of action, oil palm is establishing itself and attitudes favour estate tree crops.

The emergence of oil palm is to the detriment of other land uses, including other tree planting activities. In both Jambi and West Kalimantan, the regional governments’ approaches are not balanced, and a disproportionate quantity of resources, especially land, is being made available to this one activity. The belief is that oil palm plantations will allow the regions to reach their goal of economic growth in the shortest possible time, eliminate poverty, and provide suitable sites for relocation of displaced populations. Other large-scale activities have difficulty securing sufficient land to be sustainable and smaller-scale activities must find their place around the periphery. In this sense the country risks becoming too dependent upon this one crop. The regional economy could be destabilised if the price of palm oil falls or the productivity of these huge areas of young oil palm cannot be sustained. Oil palm estates cannot support the range of interest groups pursuing traditional activities and maintaining diverse natural resources which characterised the previous occupation of these lands.

Projects run by foreign organisations are generally encouraged, as there is status involved in attracting foreign attention, the possibility of extra resources being injected into local areas and lucrative counterpart positions becoming available. But smaller-scale scientific studies are not perceived as having much bearing on the broader picture, especially when they advocate a change in attitudes to local smallholders which runs counter to official entrenched stereotypes. While recent political changes have brought enhanced freedom of expression in Indonesian urban society and increased activity of local NGOs on behalf of marginalised people, it is doubtful whether changes in attitudes have penetrated far into the regions, where old hierarchies and mindsets remain largely intact. One may hope that the models provided by independent outside research will indicate alternatives which may be taken up by these NGOs and other lobby groups in their push for reform. Lobbying at regional level would appear critical if change in land policy is to be achieved. Unfortunately present economic imperatives are more likely to justify conservatism, at least in the short term.

In the past, the economies of both West Kalimantan and Jambi, as representing the wider regions of Kalimantan and Sumatra, were heavily dependent upon logging. This exploitation was controlled by the powerful and provided few direct benefits to ordinary citizens. In fact, when local people attempted to exploit forest products in their usual ways to sustain their economies, the result was often confrontation. Oil palm estates seem to come from the same stable of land uses and have inherited similar characteristics. That oil palm is now of interest to companies with existing investments in logging and timber plantations reinforces this view. The effects of oil palm estates upon local people, however, may be more insidious. With some exceptions, these estates do not appear to provide smallholders with sustainable livelihoods. They also consume vast areas of land, making it more difficult for people to seek alternative income sources. In this way oil palm represents the final dispossession of villagers’ land which began with the arrival of the logging companies. This developmental climax was made possible by legal, environmental and social conditioning that occurred throughout the New Order period. The forest classification system provided the legal basis, while logging degraded the natural forest, speeding the need for it to be ‘rehabilitated’.

Years of top-down extension have rendered locals essentially passive recipients, at least superficially. Where resistance has occurred it has tended to be covert (such as redirection of fertiliser intended for oil palm to
annual crops), as local people reacted to the relatively benign intrusions of the older generation of estates. However, as was pointed out in the West Kalimantan example, the private companies are beginning to copy the tactics of the classical HTI plantations and subject villagers to intimidation and bullying in order to secure their land. Since the economic crisis and the change of government, local people have begun to fight back more overtly, their efforts being supported by a consortium of local NGOs, including the influential WALHI (Wahana Lingkungan Hidup Indonesia, the Indonesian Forum for the Environment) through their new ‘Sawit Watch’ initiative. One may cite the example of the campaign against PT Perkebunan Torganda, a company with holdings in North Sumatra and Riau, after a serious confrontation in South Tapanuli (North Sumatra) between villagers and company employees attempting to plough village land for oil palm (WALHI 14/8/98).

Contempt for local livelihood systems has also been demonstrated by the widespread tendency to use transmigrant labour in preference to local wherever major projects have been established. This overlooking of the possible contributions of local people and the special treatment given to transmigrants has created wide resentment, especially where religions and cultures of the two groups are far apart, as evidenced in the 1997 Dayak uprising against Madurese in West Kalimantan.

If the current imbalance in regional development is not addressed there is a risk of further social upheaval. To date many villagers have willingly participated in oil palm projects. To a large extent, however, this willingness has come from positive perceptions of the more development-oriented, generous and World Bank-backed PIR model. The cooperative version of the ‘partnership’ model, as being developed in Jambi, seems also to be aimed at assisting local people, but continues to perpetuate patronising and ‘top-down’ approaches which limit their freedom to make their own decisions. Modern estates are not backed by the World Bank or the resources of central government departments, but by Indonesian and Malaysian conglomerates.

In Peninsular Malaysia the FELDA schemes, set up to relieve poverty among rural Malays during the 1970s, eventually devolved responsibility to local farmers. They were, however, expensive; having achieved their political and economic objectives, they have been largely replaced by pure plantations using a hired labour force. The second generation of FELDA settlers has left the land to work in industry, while the estate labour force consists mainly of immigrant Indonesians. When Malaysian estate interests move into Indonesia to plant oil palm, they will not be interested in recreating FELDA schemes, or any other kind of land settlement. Neither they, nor their Indonesian conglomerate counterparts, are moving into oil palm with any social objectives. The relative production costs, estimated before the financial downturn at US$150 per ton in Indonesia, as against US$200+ per ton in Malaysia, largely explain their interest (SWA, July 1997). The approval which the IMF has given to oil palm in its most recent rescue package for the Indonesian economy lies in its support for unconditional foreign investment and expansion of exports, among which tree-based cash crops figure largely. But what kind of oil palm plantations are most likely to be established in these times of economic crisis? In his survey of the most efficient sections of the industry, Larson (1996: 33) quoted a cost figure in 1993 of $127 per ton for SOCFINDO estates in North Sumatra. It is interesting to read Stoler’s description of the reduction of labour costs on SOCFINDO’s estates between 1967 and 1977. Plantation oil palm has the lowest labour intensity of any estate crop. What is more, it allows temporary, rather than permanent workers to be employed (Stoler 1985: 167). Future directions for the industry may well follow this path. Even when ‘partnerships’ with local people are officially stated to exist, there is uncertainty as to what the arrangements will actually be. A minimum of local participation appears often to be the aim, which would quickly erode any remnant villager support.

The economic crisis is likely to result in some ‘shake out’ in the industry, with elimination of speculators and marginal producers, together with delays in bringing into full production some properties already partially developed. The change of government and continuing political and financial uncertainties have also delayed the arrival of some of the foreign investors. However, the
indications are that interest from Malaysia remains strong. Given the low Indonesian production costs and continuing world demand, the industry is predicted to recover quickly from any financial setbacks and all indications are that the expansion recommended by the IMF will take place.

This situation is likely to exacerbate the problems of local people. It was recently admitted that subsidised fertilisers earmarked for small farmers (especially food crop growers) had ended up instead with plantation companies. Most of the misconduct in distribution (through collusion with state fertiliser company officials) was said to have occurred at regency level and in the warehouses of village cooperatives (Jakarta Post 10/6/98). Meanwhile, small-scale oil palm producers already in PIR-type schemes (and forced to buy fertilisers from their ‘parent' companies) find that their input costs have escalated enormously, but wages have not increased.

A further demonstration of the attitudes of the plantation companies concerns the problem of domestic supplies of cooking oil, now mainly derived from palm oil. Record exports of palm oil in June-November 1997 (up 80% over the previous year), led to a sizeable reduction in Indonesian stocks (Oil World 28/11/97). The poor season, with drought and smoke affecting crops, also brought reduced yields. World palm oil prices rose in the first quarter of 1998 after Indonesia placed a ban on exports, following the run down of stocks and increased local demand (Oil World 9/1/98, 20/3/98). The ban was lifted in April and new export taxes introduced (up to 40% on CPO). Unfortunately this move has not led to the stability desired, as the continuing disparity between local and world market prices has encouraged firms to export the bulk of their palm oil products. Widespread smuggling has been reported, especially from Sumatra, by companies attempting to avoid the tax (Jakarta Post 21/7/98). Even a lifting of the export tax to 60% of the value, which took place in early July, appears to have had only minimal effect on availability of local supplies. As long as the rupiah remains at its present low levels, exports will still be more profitable than domestic sales, with or without smuggling (Jakarta Post 7/8/98).

One example, from an officially listed company, reveals the kinds of profits possible as a result of the financial crisis. PT Astra Agro Lestari, a subsidiary of PT Astra International, posted a profit of 29 billion rupiah in the first quarter of 1998. Of its almost 200 000 ha of productive plantations, 92% are in oil palm. The company explained that many of its dealings were in dollars, so the fall in the rupiah had not affected it greatly; it had also benefited by the high international price of CPO. Given the export ban in force during that quarter, one can only conclude that much of the product must have been smuggled overseas, even though the company claimed that only 5% of its crude palm oil was exported (Suara Pembaruan 24/7/98). As the Jakarta Post pondered in a recent editorial: ‘It was most puzzling to note how the domestic market remained short of stock during the first four months of this year even though the blanket export ban was still in effect... with an annual output of more than six million metric tons and a domestic demand of only about 3.5 million tons, the country actually has an exportable surplus of more than two million tons...The potential profit had become so big, as a result of the 80 per cent devaluation of the rupiah, that the temptation to smuggle, through collusion with local officials, was hard to resist’(Jakarta Post 7/8/98).

The increasing dominance of estate crops has important implications for those involved with forestry. Of great significance has been the relative decline of industrial timber and pulp plantations (HTI), which can be attributed in part to the rise of oil palm. In order to survive in the face of local, national and international pressures, some HTI companies have devised ways to be conciliatory towards local people. Those who allocate capital and land, however, have scorned this approach. They have merely turned to oil palm which, since it has been taken over by private conglomerates, has appeared more likely to give investors and regional officials the short-term profits that integrated HTI is no longer prepared to provide. In Southeast Sulawesi the same preference for estate crops over HTIs, especially in the production forest, has been noted on the part of the regional government. The only exception appears to be the teak forests of Muna island. There the current arrangements with the provincial Forest Exploitation Authority, through its company PD Perhutandak, have tended to increase teak theft and overcutting. A proposal to invite one of the State Forestry Companies to manage the forests in a classical HTI system, will mean the loss of provincial control over a lucrative business. But even State Forestry Companies have been allowed to diversify into oil palm. Inhutani III, which suffered considerable losses in 1997 due to forest fires, plans to develop 60 000 ha of oil palm on some of its 300 000 ha of forest concession in West and Central Kalimantan (Suara Pembaruan 23/6/98).

It must also be recognised that the former Ministry of Forestry was never very influential in determining real land use on the ground. While the Ministry had undoubted legal control over large tracts of Indonesia’s land area, in reality, because of the way Forestry offices were set up in the provinces, power over its implementing agencies rested with the Governor. As Daryadi and Nasendi (1995: 9) observe:

‘The Provincial forest services (Dinas Kehutanan) are responsible for implementing directives with respect to programmes and project activities, but their authority derives from the Governor under another
Ministry, i.e. Ministry of Home Affairs. Outside the capitals, they are isolated, lacking support facilities, and unsure of their responsibilities. And at no level is there clear accountability. Inevitably, tensions arise and personalities become important in decision making and implementation.'

It had been hoped that the smoke/haze crisis of late 1997 would result in recognition that the Forestry and Environment Ministers needed to have their powers increased to avoid similar disasters in the future. Events immediately following the disaster indicated that this would not happen. The former Forestry Minister, Djamaludin Suryohadiokusumo, and former State Minister for the Environment, Sarwono Kusumaatmadja, had been praised by environmentalists for their forward thinking approach and tough stance towards exploitative business activities. Djamaludin in particular backed ecolabelling, blocked inappropriate developments on state forest land and variously tried to scrutinise, sanction and slow the activities of pulp, logging and oil palm companies (van Klinken 1997). All of Djamaludin’s efforts failed, however, as influential businessmen relied on their political connections at the central and regional levels to ignore his protestations.

In response to the smoke/haze disaster Djamaludin acted characteristically. In early October he released a list of 176 plantation, timber and construction companies and transmigration schemes suspected of large-scale burning; most of these were oil palm companies (van Klinken 1997). It was hoped that the extent and public nature of this disaster would result in the prosecution of these companies, an act that would have finally shown the Forestry Ministry’s teeth. It was not to be. Soon after Djamaludin’s announcement, the number of companies on his list was reduced by 30. By the end of November the IPKs (permission to cut wood) of only 66 companies had been withdrawn, and most of these were later restored. No logging companies had their 20-year concessions revoked and there were to be no public investigations of plantation owners (Vidal 1997). Politically well-connected companies were unscathed and allowed to continue operations, while El Niño took the blame

The Ministry of Forestry was not an influential policy maker or a force for change, but rather an instrument wielded by those with real power at the central and regional levels, together with their business partners, to control and extract profit from the nation’s resources. The Ministry was used and in the end it too was disadvantaged. Forestry as such has now lost its key position, as indicated by the renaming of the Ministry as the Ministry of Forestry and Estates. Such a name change acknowledges the new reality of the widespread clearing of logged-over production forest for estate crops, especially oil palm.

While permission from the Minister of Forestry has previously been needed to reclassify the land, it is not clear whether such permission will still be required. In any case it was generally regarded in the provinces as easy to obtain. While there had been occasional examples of the forestry department fighting back, refusing permits for companies to begin clearing on the grounds that they were simply stealing timber, such cases were infrequent.

It is still uncertain whether the new minister (who is not a forester, but trained in agriculture) will be able to institute major changes in the organisation and control of the forest estate. Some licences have been cancelled and an inventory of existing licensees is currently under way. At the IMF’s insistence a system of auctioning new concessions will be introduced. It has been suggested that under such a system the concentration of concessions in the hands of a few large consortia might be reduced, giving cooperatives of local people more chance to gain concessions. While such an ownership change has also been called for by NGOs, it is unclear how the auction system might operate, or how the local cooperatives would be financed. Meanwhile, it has been recognised that the economic crisis is likely to lead to greater pressure on the forests. Pressures will come from continued need for timber supplies as plywood demand begins to pick up, from conversion to estate crops (currently more lucrative than timber), from new forest-based mining projects and not least from impoverished local and outside people moving into the forests to seek both food and saleable products (CIFOR 1998).

There has been some hope that reform of the functions and powers of Indonesia’s bureaucracy might come out of the recent political changes resulting from the economic crisis. There have been calls for greater government and business accountability to restore investor confidence in the economy. Unfortunately, such reform will probably be restricted to the financial and banking sectors. When it comes to the exploitation of resources and production of commodities it is the natural environment and traditional landowners that tend to be the victims of poor accountability, not wealthy international investors. It is more likely that economic need will be rationalised as justifying the most ‘efficient’ use of the land resource, rather than the mix of uses essential to fulfil the needs of a just society.

Endnotes

1 Transmigrants returning from work on an oil palm estate in Irian Jaya were killed by OPM militants, an indication of the dangers inherent in extending these transmigrant-based estates into areas where the government’s control is seriously contested and the Javanese are not welcome.


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LIST OF PEOPLE MET

West Kalimantan (Sept/Oct 1997)
Baba Saiful Barkah - Assistant Unit Manager Sintang, PT Finnantara Intiga, Sintang
Bacrun Nurjadi, Ir - Ketua, Bidang Kehutanan, Fak. Pertanian, Univ. Tanjungpura, Pontianak
Bamba, J - Institute of Dayakology Research and Development, Pontianak
Budiman, MA - Badan Pertanahan Nasional, Land use planning and mapping project, Pontianak
Dadan, Ir - RLHK and formerly SFDP, Provincial Forestry Department, Pontianak
Daliman, T - LBBT, Pontianak
Donatus Rantan, Drs - Assistant Director, Yayasan Dian Tama, Pontianak
Durr, M - Economist, SFDP, Sanggau
Fulbertus Amre - Economist, PT Sinar Dinamika Kapuas, oil palm company, Semuntai
Goran Adjers - Training Manager, Planning Director elect, PT Finnantara Intiga, Pontianak
Haryono - Site manager, PT Multi Prima Entakai, oil palm company, Semuntai
Lim - Site manager, PT Lahan Cakrawala, Sintang
Mangan, HL - Kep. Bidang Tata Usaha, Dinas Perkebunan Tingkat Dati I, Pontianak
Mudiyono, Prof. Dr - Ketua, Lembaga Penelitian, Universitas Tanjungpura
Muis Ishak, A - Assisten II Bupati, Ekonomi, Pemda Tingkat II, Sanggau
Nazmi, Ir - Dinas Kehutanan Tingkat II, Sanggau
Nurjanah Anwar Saleh, SH MH - Fakultas Hukum, Universitas Tanjungpura
Rudijanto Utama, Ir - Director, Yayasan Dian Tama, Pontianak
Sasrudin M Sattin, Ir H - Forestry Department KPH, Sintang Selatan
Setiman - Ketua BAPPEDA, Tingkat II, Sanggau
Sipayung, Ir W - Administrator, PT Perkebunan Nusantara XIII, state oil palm co., Parindu
Sugiman - Yayasan Swadaya Dian Khatulistiwa, Pontianak
Sutrismo, Dr L. - Sekretaris, Lembaga Penelitian, Universitas Tanjungpura
Staff of World Wide Fund for Nature, Pontianak
Staff of PRC Foundation, Pontianak
Village head, village leaders and farmers - village of Bali, Sanggau
Village head and village leaders - village of Batubuill, Sanggau
Village head and farmers - village of Sungai Kunyit, Sanggau
Village secretary - village of Tapang Semadak, Sintang

Amrie Ramli Ir. - Kep. Dinas, Dinas Perkebunan Tingkat I, Jambi
Asrizal Malano - Pusat Studi Lingkungan, Universitas Jambi
Daniel Sri Wirahono - Forestry Affairs Dept., PT Wirakarya Sakti, Jambi
Dedi - Dinas Kehutanan, Jambi
Dikin Laudji - PT Wana Perintis (HTI Trans), Sarko
Fernando Potess - Project Manager, ISDP project, Berbak National Park
Frans Randipau - Kep. Dinas, Dinas Kehutanan Tingkat II, Tanjung Jabung
Helmi - PT Krisnaduta Agroindo, Sarko
Idris Sardi - Yayasan Gita Buana, Jambi
Ketua Kelompok Tani - PT Gatra Kembang Paseban, Kec. Mersam
Luis Betancour - Indonesia-UK Tropical Forest Management Programme
Manager - PT Bahari Gembira Ria, Kec. Kumpeh Ulu, Kab. Batanghari
Manager - PT Gatra Kembang Paseban, Kec. Mersam, Kab. Batanghari
Machmud Simpoha - Adviser, Indonesia-UK Tropical Forest Management Programme
Mastam Bustaini - Fakultas Pertanian, Universitas Jambi
Rosiyani - Fakultas Pertanian, Universitas Jambi
Rowland I. - Indonesia-UK Tropical Forest Management Programme
Salim Ir. - Sekretaris, BAPPEDA, Jambi
Saman Chatib - Bupati, Kabupaten Batang Hari
Staff - Dinas Kehutanan Tingkat I, Jambi
Staff - Dinas Kehutanan Tingkat II, Sarko
Staff - Dinas Perkebunan Tingkat I, Jambi
Staff - Dinas Perkebunan Tingkat II, Kerinci
Staff - Kanwil Kehutanan, Jambi
Staff at log pond - HTI Tanjung Johor, Desa Jelatan, Kab. Sarko
Staff - Kantor BAPPEDA, Tingkat I, Jambi
Staff - Kantor BAPPEDA, Tingkat II, Bungo Tebo (Bute)
Staff - Kantor BAPPEDA Tingkat II, Kerinci
Staff - Kantor BAPPEDA Tingkat II, Sarolangun Bangko (Sarko)
Staff - Kantor TNKS, Kerinci
Staff - Forest Ranger post, TNKS Gunung Tujuh, Kerinci
Students - PSL, Universitas Jambi
Thomas Alpa Edison - Yayasan WARSI, Bangko
Tjetjep Ir. - Dinas Kehutanan Tingkat II, Muara Bulian
Villagers - Desa Lubuk Pauh, Kayu Aro, Kerinci
Village head’s wife and villagers - Desa Lempur, Kerinci
Village head and villagers - Desa Muara Buat, Rantau Pandan, Bute
Workers - PT Gatra, Mersam and PT Gembira Ria, Kumpeh Ulu

Southeast Sulawesi (Oct. 1997)
Abdul Gafar - Head, Govt. and Administration Branch, Provincial Forestry Office, Kendari
Bahrun Ir A. - Lecturer, Agriculture Faculty, Universitas Haluoleo, Kendari
Budi Hardjo, Drs - Kepala Bagian Tata Usaha, Provincial Forestry Office, Kendari
LaNdimasa - Kepala, Dinas Kehutanan, Tingkat II, Kendari at Unahaa
Laode Abd. Rauf, Prof Dr H. - Ketua Bappeda Prop. Dati Sulawesi Tenggara
Manan, Ir A - Head, Pusat Studi Lingkungan, Universitas Haluoleo, Kendari
Sudjud, Ir - Kepala, Dinas Kehutanan, Tingkat I, Kendari
Sukarya, NG - Dinas Kehutanan, Tingkat I, Kendari
Syahrir, Ir - Dinas Kehutanan, Tingkat II, Kendari
Staff of Perhutanda, Tingkat II, Muna
Yusuf P. Bulo - Kabid Penelitian, Bappeda Prop. Dati Sulawesi Tenggara
Village head and villagers at Buke village, Tinanggea district, Kendari
Village head and villagers at Lahaji village, Kusambi district, Muna
Village head and villagers at Langkumapo village, Napabalano district, Muna
Village head and villagers at Rambu-Rambu village, Lainea District, Kendari
Village head and villagers at Tangkumaho village, Napabalano District, Muna
Village head and villagers at Watumeeto village, Lainea District, Kendari

Others
Aruan, Dr A - CIFOR, Bogor
Budiman, Dr AFS - GAPKINDO
Byron, Dr N. - CIFOR, Bogor
Cossalter, Dr C - CIFOR, Bogor
de Foresta, Dr H - ICRAF, Bogor
de Jong, Dr W - CIFOR, Bogor
Poeloengan Dr Z - Vice Director, Indonesian Oil Palm Research Institute, Medan.
Ruiz Perez, Dr M - CIFOR, Bogor.
Werner, S - Faculty of Environment and Society, Technical University of Berlin.
APPENDIX A
DATA ON INDONESIA’S OIL PALM SUB-SECTOR

Area and Production

Oil Palm Area by Producer Category

Palm Oil Production by Producer Category

Source: Directorate General of Estates (1996)
Location of oil palm estates

Oil palm area by province and producer category, 1996

<table>
<thead>
<tr>
<th>Province</th>
<th>Smallholders</th>
<th>Government Estate</th>
<th>Private Estate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>North Sumatra</td>
<td>109,316</td>
<td>250,354</td>
<td>215,320</td>
<td>574,990</td>
</tr>
<tr>
<td>Riau</td>
<td>162,103</td>
<td>66,497</td>
<td>262,358</td>
<td>490,958</td>
</tr>
<tr>
<td>West Kalimantan</td>
<td>136,068</td>
<td>28,596</td>
<td>46,741</td>
<td>211,405</td>
</tr>
<tr>
<td>South Sumatra</td>
<td>99,700</td>
<td>22,305</td>
<td>84,677</td>
<td>206,682</td>
</tr>
<tr>
<td>D.I. Aceh</td>
<td>34,238</td>
<td>25,668</td>
<td>107,606</td>
<td>167,512</td>
</tr>
<tr>
<td>Jambi</td>
<td>101,766</td>
<td>7,060</td>
<td>38,483</td>
<td>147,309</td>
</tr>
<tr>
<td>West Sumatra</td>
<td>35,319</td>
<td>3,552</td>
<td>82,283</td>
<td>121,154</td>
</tr>
<tr>
<td>South Sulawesi</td>
<td>21,725</td>
<td>4,360</td>
<td>29,703</td>
<td>55,788</td>
</tr>
<tr>
<td>South Kalimantan</td>
<td>0</td>
<td>0</td>
<td>53,997</td>
<td>53,997</td>
</tr>
<tr>
<td>East Kalimantan</td>
<td>24,656</td>
<td>7,683</td>
<td>9,035</td>
<td>41,374</td>
</tr>
<tr>
<td>Lampung</td>
<td>2,509</td>
<td>13,233</td>
<td>22,203</td>
<td>37,945</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>0</td>
<td>1,417</td>
<td>35,505</td>
<td>36,922</td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>6,576</td>
<td>0</td>
<td>23,183</td>
<td>29,759</td>
</tr>
<tr>
<td>Irian Jaya</td>
<td>9,200</td>
<td>5,676</td>
<td>5,640</td>
<td>20,516</td>
</tr>
<tr>
<td>West Java</td>
<td>7,240</td>
<td>4,757</td>
<td>4,727</td>
<td>16,724</td>
</tr>
<tr>
<td>Central Sulawesi</td>
<td>6,900</td>
<td>0</td>
<td>6,902</td>
<td>13,802</td>
</tr>
<tr>
<td>Total: 4 provinces</td>
<td>757,316</td>
<td>441,158</td>
<td>1,028,363</td>
<td>2,226,837</td>
</tr>
</tbody>
</table>

Note: Oil palm areas were planned for Southeast Sulawesi and Maluku in 1996; land clearing operations had commenced. There were no plans for oil palm estates in NTT, NTB, East Timor, Bali, Central or East Java.
Source: Directorate General of Estates (1996: 7)

Costs

Labour wages in Indonesian, Malaysian and Thai oil palm estates, 1996 (US$/day)

<table>
<thead>
<tr>
<th>Description</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Thailand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Wage</td>
<td>1.04</td>
<td>4.08</td>
<td>4.00</td>
</tr>
<tr>
<td>Direct Overhead</td>
<td>0.51</td>
<td>1.89</td>
<td>-</td>
</tr>
<tr>
<td>Indirect Overhead</td>
<td>0.25</td>
<td>1.89</td>
<td>0.42</td>
</tr>
<tr>
<td>Housing Costs</td>
<td>0.26</td>
<td>0.34</td>
<td>0.61</td>
</tr>
<tr>
<td>Total</td>
<td>2.06</td>
<td>8.20</td>
<td>5.03</td>
</tr>
</tbody>
</table>

Source: ICBS (1997: 146)

Average cost of establishing oil palm estates and amount borrowed

<table>
<thead>
<tr>
<th>Province</th>
<th>Average establishment cost (million Rp)</th>
<th>Average amount borrowed</th>
<th>Percentage of cost</th>
<th>Percentage of companies surveyed</th>
<th>No. of foreign companies</th>
<th>Percentage of cost borrowed by foreign companies (avg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Kalimantan</td>
<td>189,914</td>
<td>148,005</td>
<td>78%</td>
<td>18 of 26</td>
<td>0 of 1</td>
<td>2</td>
</tr>
<tr>
<td>East Kalimantan</td>
<td>164,486</td>
<td>125,356</td>
<td>76%</td>
<td>11 of 14</td>
<td>3 of 7</td>
<td>nil</td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>128,915</td>
<td>98,696</td>
<td>77%</td>
<td>8 of 10</td>
<td>2 of 6</td>
<td>nil</td>
</tr>
<tr>
<td>South Sumatra</td>
<td>112,285</td>
<td>86,191</td>
<td>77%</td>
<td>14 of 22</td>
<td>nil</td>
<td>3</td>
</tr>
<tr>
<td>Total: 4 provinces</td>
<td>148,900</td>
<td>114,562</td>
<td>76.9%</td>
<td>51 of 72</td>
<td>5 of 14</td>
<td>5</td>
</tr>
</tbody>
</table>

Notes:
1. For companies investing in the Indonesian oil palm subsector between August 1995 and mid-1996. At the time when this data was collected most of the companies were still seeking funds, most domestically.
2. Data from before the economic crisis at a time when US$1 was approximately equal to Rp 2500.
3. PMDN = private domestic companies, receiving no direct government subsidy
4. PIR Trans KKPA = private domestic companies reliant on government subsidy, via the primary cooperative credit scheme.
Source: ICBS (1997)
Prices and returns

World market price for palm oil, 1987-1996*

<table>
<thead>
<tr>
<th>Year</th>
<th>Crude Palm Oil</th>
<th>Palm Kernel Oil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>353</td>
<td>437</td>
</tr>
<tr>
<td>1988</td>
<td>463</td>
<td>525</td>
</tr>
<tr>
<td>1989</td>
<td>524</td>
<td>479</td>
</tr>
<tr>
<td>1990</td>
<td>280</td>
<td>334</td>
</tr>
<tr>
<td>1991</td>
<td>333</td>
<td>414</td>
</tr>
<tr>
<td>1992</td>
<td>290</td>
<td>403</td>
</tr>
<tr>
<td>1993</td>
<td>406</td>
<td>448</td>
</tr>
<tr>
<td>1994</td>
<td>524</td>
<td>633</td>
</tr>
<tr>
<td>1995</td>
<td>648</td>
<td>681</td>
</tr>
<tr>
<td>1996</td>
<td>522</td>
<td>732</td>
</tr>
</tbody>
</table>

*Prices in Rotterdam for CPO Sumatra and PKO Malaysia

Indonesian share of production

Development of world crude palm oil production, 1991-1996 (000 tons)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Malaysia</td>
<td>6,141</td>
<td>6,371</td>
<td>7,402</td>
<td>7,222</td>
<td>7,810</td>
<td>8,059</td>
<td>5.77</td>
</tr>
<tr>
<td>Indonesia</td>
<td>2,658</td>
<td>2,970</td>
<td>3,421</td>
<td>3,860</td>
<td>4,200</td>
<td>4,746</td>
<td>11.53</td>
</tr>
<tr>
<td>Nigeria</td>
<td>646</td>
<td>633</td>
<td>645</td>
<td>640</td>
<td>650</td>
<td>660</td>
<td>0.44</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>280</td>
<td>275</td>
<td>320</td>
<td>290</td>
<td>290</td>
<td>295</td>
<td>1.38</td>
</tr>
<tr>
<td>Colombia</td>
<td>253</td>
<td>205</td>
<td>323</td>
<td>350</td>
<td>388</td>
<td>380</td>
<td>8.56</td>
</tr>
<tr>
<td>Thailand</td>
<td>234</td>
<td>260</td>
<td>297</td>
<td>315</td>
<td>360</td>
<td>374</td>
<td>9.68</td>
</tr>
<tr>
<td>PNG</td>
<td>180</td>
<td>202</td>
<td>222</td>
<td>224</td>
<td>223</td>
<td>228</td>
<td>6.22</td>
</tr>
<tr>
<td>Other</td>
<td>1,082</td>
<td>1,128</td>
<td>1,173</td>
<td>1,233</td>
<td>1,279</td>
<td>1,388</td>
<td>3.58</td>
</tr>
<tr>
<td>Total</td>
<td>11,474</td>
<td>12,044</td>
<td>13,803</td>
<td>14,134</td>
<td>15,200</td>
<td>16,130</td>
<td>6.83</td>
</tr>
</tbody>
</table>

Source: Oil World Annual 1996, processed by ICBS (1997)
Consumption, domestic and global

Growth of the consumption of palm-oil based cooking oil in Indonesia, 1987-1996

<table>
<thead>
<tr>
<th>Year</th>
<th>Total population (million)</th>
<th>Per capita consumption (kgs/yr)</th>
<th>% growth per year</th>
<th>Total (tons)</th>
<th>% growth per year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>172</td>
<td>4.97</td>
<td>-</td>
<td>855 784</td>
<td>-</td>
</tr>
<tr>
<td>1988</td>
<td>175</td>
<td>5.28</td>
<td>6.24</td>
<td>923 736</td>
<td>7.94</td>
</tr>
<tr>
<td>1989</td>
<td>177</td>
<td>5.50</td>
<td>4.17</td>
<td>977 460</td>
<td>5.82</td>
</tr>
<tr>
<td>1990</td>
<td>179</td>
<td>5.56</td>
<td>1.09</td>
<td>997 464</td>
<td>2.05</td>
</tr>
<tr>
<td>1991</td>
<td>182</td>
<td>6.82</td>
<td>22.66</td>
<td>1 241 240</td>
<td>24.44</td>
</tr>
<tr>
<td>1992</td>
<td>185</td>
<td>9.30</td>
<td>36.36</td>
<td>1 723 290</td>
<td>38.84</td>
</tr>
<tr>
<td>1993</td>
<td>189</td>
<td>9.47</td>
<td>1.83</td>
<td>1 790 770</td>
<td>3.92</td>
</tr>
<tr>
<td>1994</td>
<td>192</td>
<td>10.33</td>
<td>9.08</td>
<td>1 985 426</td>
<td>10.87</td>
</tr>
<tr>
<td>1995</td>
<td>195</td>
<td>10.39</td>
<td>0.58</td>
<td>2 029 167</td>
<td>2.20</td>
</tr>
<tr>
<td>1996</td>
<td>198</td>
<td>11.23</td>
<td>8.08</td>
<td>2 226 909</td>
<td>9.74</td>
</tr>
<tr>
<td>Average</td>
<td>10.01</td>
<td></td>
<td></td>
<td>2 932 665</td>
<td>11.76</td>
</tr>
</tbody>
</table>

Source: Oil World Annual 1996 as represented in ICBS (1997: 186)

Development of CPO consumption by consuming industry in Indonesia, 1991-1996

<table>
<thead>
<tr>
<th>Industry type</th>
<th>CPO consumption per year (tons)</th>
<th>Change¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooking oil</td>
<td>1 302 308</td>
<td>1 498 554</td>
</tr>
<tr>
<td>Bath &amp; laundry soaps</td>
<td>43 840</td>
<td>56 960</td>
</tr>
<tr>
<td>Margarine</td>
<td>178 077</td>
<td>195 440</td>
</tr>
<tr>
<td>Oleochemical</td>
<td>155 349</td>
<td>174 531</td>
</tr>
<tr>
<td>Total</td>
<td>1 679 574</td>
<td>1 925 485</td>
</tr>
</tbody>
</table>

Note: ¹ Change = Average annual change %/yr
Source: ICBS (1997: 225)

Growth in the world consumption of five major vegetable oils, 1990-1996

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Soybean oil</td>
<td>Volume</td>
<td>000 ton</td>
<td>15,840</td>
<td>15,716</td>
<td>16,727</td>
<td>17,844</td>
<td>18,713</td>
<td>19,610</td>
<td>19,779</td>
<td>19,779</td>
</tr>
<tr>
<td></td>
<td>Annual increase</td>
<td></td>
<td></td>
<td>0.78</td>
<td>6.43</td>
<td>6.68</td>
<td>4.87</td>
<td>4.79</td>
<td>0.86</td>
<td>3.81</td>
</tr>
<tr>
<td>Palm oil</td>
<td>Volume</td>
<td>000 ton</td>
<td>11,301</td>
<td>11,602</td>
<td>12,243</td>
<td>13,259</td>
<td>14,530</td>
<td>14,712</td>
<td>15,492</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Share %</td>
<td></td>
<td>14.09</td>
<td>14.08</td>
<td>14.54</td>
<td>15.35</td>
<td>16.30</td>
<td>15.93</td>
<td>16.24</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual increase</td>
<td></td>
<td></td>
<td>2.67</td>
<td>5.53</td>
<td>8.29</td>
<td>9.59</td>
<td>1.24</td>
<td>5.30</td>
<td>5.44</td>
</tr>
<tr>
<td>Sunflower oil</td>
<td>Volume</td>
<td>000 ton</td>
<td>7,955</td>
<td>8,383</td>
<td>8,223</td>
<td>7,746</td>
<td>7,696</td>
<td>8,495</td>
<td>8,953</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual increase</td>
<td></td>
<td></td>
<td>5.39</td>
<td>1.91</td>
<td>5.81</td>
<td>0.64</td>
<td>10.38</td>
<td>5.39</td>
<td></td>
</tr>
<tr>
<td>Rapeseed oil</td>
<td>Volume</td>
<td>000 ton</td>
<td>8,730</td>
<td>8,847</td>
<td>9,459</td>
<td>9,274</td>
<td>9,623</td>
<td>10,368</td>
<td>11,332</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Share %</td>
<td></td>
<td>10.89</td>
<td>10.74</td>
<td>11.23</td>
<td>10.74</td>
<td>10.79</td>
<td>11.22</td>
<td>11.88</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual increase</td>
<td></td>
<td></td>
<td>1.34</td>
<td>6.92</td>
<td>1.95</td>
<td>3.76</td>
<td>7.74</td>
<td>9.29</td>
<td>4.52</td>
</tr>
<tr>
<td>Coconut oil</td>
<td>Volume</td>
<td>000 ton</td>
<td>3,054</td>
<td>3,222</td>
<td>2,895</td>
<td>2,935</td>
<td>3,072</td>
<td>3,189</td>
<td>3,132</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Share %</td>
<td></td>
<td>3.81</td>
<td>3.91</td>
<td>3.43</td>
<td>3.40</td>
<td>3.44</td>
<td>3.45</td>
<td>3.28</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual increase</td>
<td></td>
<td></td>
<td>5.52</td>
<td>10.14</td>
<td>1.37</td>
<td>4.68</td>
<td>3.79</td>
<td>1.79</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Note: ¹ Growth % = Average annual growth %/yr
Source: ICBS (1997: 229)
Projected world palm oil production and consumption, 1996-2005

<table>
<thead>
<tr>
<th>Year</th>
<th>Production (000 tons)</th>
<th>Consumption (000 tons)</th>
<th>Surplus/Deficit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>15 915</td>
<td>15 492</td>
<td>423</td>
</tr>
<tr>
<td>1997</td>
<td>17 003</td>
<td>16 335</td>
<td>668</td>
</tr>
<tr>
<td>1998</td>
<td>18 214</td>
<td>17 224</td>
<td>990</td>
</tr>
<tr>
<td>1999</td>
<td>19 511</td>
<td>18 161</td>
<td>1 350</td>
</tr>
<tr>
<td>2000</td>
<td>20 900</td>
<td>19 149</td>
<td>1 751</td>
</tr>
<tr>
<td>2001</td>
<td>22 388</td>
<td>20 297</td>
<td>2 091</td>
</tr>
<tr>
<td>2002</td>
<td>23 982</td>
<td>21 512</td>
<td>2 470</td>
</tr>
<tr>
<td>2003</td>
<td>25 689</td>
<td>22 806</td>
<td>2 883</td>
</tr>
<tr>
<td>2004</td>
<td>27 519</td>
<td>24 175</td>
<td>3 344</td>
</tr>
<tr>
<td>2005</td>
<td>29 478</td>
<td>25 625</td>
<td>3 853</td>
</tr>
</tbody>
</table>

APPENDIX B
DATA ON APPLICATIONS FOR FOREST CONVERSION, 1995

Applications for the release of forest land for agricultural use, as of June 1995

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of applications</th>
<th>Percentage of total applications</th>
<th>Area (ha)</th>
<th>Percentage of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sumatra</td>
<td>723</td>
<td>62.98</td>
<td>9 396 000</td>
<td>60.03</td>
</tr>
<tr>
<td>Kalimantan</td>
<td>288</td>
<td>25.09</td>
<td>4 760 000</td>
<td>30.42</td>
</tr>
<tr>
<td>Sulawesi</td>
<td>75</td>
<td>6.53</td>
<td>665 000</td>
<td>4.25</td>
</tr>
<tr>
<td>Maluku</td>
<td>33</td>
<td>2.87</td>
<td>236 000</td>
<td>1.51</td>
</tr>
<tr>
<td>Irian Jaya</td>
<td>23</td>
<td>2.00</td>
<td>591 000</td>
<td>3.78</td>
</tr>
<tr>
<td>West Nusa</td>
<td>6</td>
<td>0.52</td>
<td>2 000</td>
<td>0.01</td>
</tr>
<tr>
<td>Total</td>
<td>1 148</td>
<td>100</td>
<td>15 650 000</td>
<td>100</td>
</tr>
</tbody>
</table>

Note: These applications seek the release of both conversion and non-conversion forest land.
Source: Direktorat Tata Guna Hutan, Direktorat Jenderal Inventarisasi dan Tata Guna Hutan, as recorded by Sumahadi (1995).

Applications for the release of forest land to agricultural use, applications agreed in principle and land already released, per province, as of June 1995

<table>
<thead>
<tr>
<th>Province</th>
<th>Outstanding applications</th>
<th>Applications agreed in principle</th>
<th>Forest land already released</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Area (ha)</td>
<td>No.</td>
</tr>
<tr>
<td>Aceh</td>
<td>115</td>
<td>1 086 518</td>
<td>57</td>
</tr>
<tr>
<td>North Sumatra</td>
<td>113</td>
<td>1 072 460</td>
<td>31</td>
</tr>
<tr>
<td>Riau</td>
<td>240</td>
<td>4 246 076</td>
<td>126</td>
</tr>
<tr>
<td>West Sumatra</td>
<td>54</td>
<td>336 693</td>
<td>31</td>
</tr>
<tr>
<td>Jambi</td>
<td>62</td>
<td>685 212</td>
<td>35</td>
</tr>
<tr>
<td>Bengkulu</td>
<td>30</td>
<td>134 495</td>
<td>12</td>
</tr>
<tr>
<td>South Sumatra</td>
<td>78</td>
<td>1 469 008</td>
<td>16</td>
</tr>
<tr>
<td>Lampung</td>
<td>31</td>
<td>365 235</td>
<td>9</td>
</tr>
<tr>
<td>West Kalimantan</td>
<td>62</td>
<td>1 265 125</td>
<td>22</td>
</tr>
<tr>
<td>East Kalimantan</td>
<td>104</td>
<td>1 820 271</td>
<td>37</td>
</tr>
<tr>
<td>Central Kalimantan</td>
<td>75</td>
<td>1 149 973</td>
<td>27</td>
</tr>
<tr>
<td>South Kalimantan</td>
<td>47</td>
<td>524 758</td>
<td>23</td>
</tr>
<tr>
<td>North Sulawesi</td>
<td>15</td>
<td>94 272</td>
<td>2</td>
</tr>
<tr>
<td>Central Sulawesi</td>
<td>31</td>
<td>305 018</td>
<td>9</td>
</tr>
<tr>
<td>Southeast Sulawesi</td>
<td>5</td>
<td>74 800</td>
<td>3</td>
</tr>
<tr>
<td>South Sulawesi</td>
<td>24</td>
<td>191 289</td>
<td>18</td>
</tr>
<tr>
<td>NTB</td>
<td>6</td>
<td>1 777</td>
<td>3</td>
</tr>
<tr>
<td>Maluku</td>
<td>33</td>
<td>236 314</td>
<td>11</td>
</tr>
<tr>
<td>Irian Jaya</td>
<td>23</td>
<td>590 992</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>1 148</td>
<td>15 650 286</td>
<td>484</td>
</tr>
</tbody>
</table>

Note: These applications seek the release of both conversion and non-conversion forest land.
Source: Direktorat Tata Guna Hutan, Direktorat Jenderal Inventarisasi dan Tata Guna Hutan, as recorded by Sumahadi (1995).