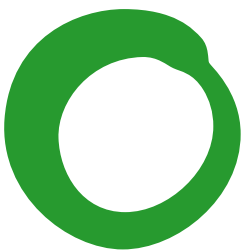




Greasy Palms

**The social and ecological
impacts of large-scale oil
palm plantation
development in Southeast
Asia**



**Friends of
the Earth**

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The social and ecological impacts of large-scale oil palm plantation development in Southeast Asia

March 2004

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In collaboration with Sawit Watch Indonesia and Joanna de Rozario

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Contents

GREASY PALMS	1
ACKNOWLEDGEMENTS.....	3
CONTENTS	1
LIST OF FIGURES	2
LIST OF BOXES.....	2
LIST OF TABLES	2
LIST OF TERMS AND ACRONYMS.....	3
ABOUT THIS REPORT	4
FRIENDS OF THE EARTH RECOMMENDATIONS.....	5
EXECUTIVE SUMMARY	7
A. INTRODUCTION.....	8
B. EXPANSION OF OIL PALM PLANTATIONS	11
C. DEFORESTATION.....	15
D. FOREST FIRES	18
E. POLLUTION.....	21
G. LAND RIGHTS AND SOCIAL CONFLICTS.....	25
H. SETTLERS AND SMALLHOLDER ISSUES.....	29
I. PLANTATION LABOUR.....	34
REFERENCES.....	38

List of Figures

Figure 1 : Total area of oil palm plantations established in Indonesia.....	11
Figure 2 : Annual rate of planting of oil palm in Indonesia (1990-2002)	12
Figure 3: Diversity in agricultural production in Peninsular Malaysia in 1985 and 2000	31
Figure 4: Advertisement in a PNG newspaper, June 2003, taken out by eight landowner groups in Madang province opposed to the Ramu Sugar oil palm project.	33

List of Boxes

Box 1: Oil Palm In Brief.....	10
Box 2: Oil Palm Expansion Plans	14
Box 3: Examples Of Forest Conversion Related To Oil Palm.....	16
Box 4: Human-Animal Conflict In Oil Palm Plantations	17
Box 5: Companies Accused And Sentenced Of Illegal Burning (1997-2003).....	20
Box 6: Palm Oil Effluent (Pome) Pollution Incidents.....	22
Box 7: Evidence Of Illegal Practices By Oil Palm Companies.....	23
Box 8: Clearance And Planting By Oil Palm Companies Outside Permit Boundaries	24
Box 9: Land Rights Conflicts In Sarawak, East Malaysia	26
Box 10: Landscapes And Commodities Replaced By Oil Palm – “Good” For Local People?.....	27
Box 11: Smallholder-Tiger Conflicts In Terengganu, Malaysia	32
Box 12: Labour Relation Inequities On Oil Palm Plantations In Indonesia	34
Box 13: Demonstrations Against Ptpn li	35

List of Tables

Table 1: Plantation area & estimated forest area cleared based on industry estimates (in Mha.)	15
Table 2: Forest and land conflicts in Indonesia recorded to July 2001	25
Table 3: Gross and net monthly income derived from independent corn farming vis-à-vis palm oil production in the PT Surya Lestari II PIR-Trans smallholder scheme.	30
Table 4: Examples of wages for oil palm plantation field workers in North Sumatra, 2002.....	35
Table 5: Examples of bargaining power of plantation workers vis-à-vis estate’s management in rural North Sumatra, 2002.....	36

List of Terms and Acronyms

Adat	Indonesian customary rights lands
ADB	Asian Development Bank
AMDAL	Environmental Impact Statement
APKINDO	Indonesian Plywood Association
APL	Land designated as Forest Lands for Other Purposes
ASEAN	Association of South East Asian Nations
BKPM	Indonesian Investment Coordination Board
BOD	Biological Oxygen Demand
CDC	Wholly-owned UK Government investment fund. Used to be known as Commonwealth Development Corporation
CELCOR	Centre for Environmental Law and Community Rights
CIFOR	Centre for International Forestry Research
CPO	Crude Palm Oil
EIA	Environmental Impact Assessment
FAO	UN Food and Agriculture Organisation
Felda	Federal Land Development Authority in Malaysia
FFB	Fresh Fruit Bunches of palm oil
GAP	Good Agricultural Practice
GOPNG	Government of Papua New Guinea
Ha	Hectare
Hak Guna Usaha (HGU)	Right of land exploitation in Indonesia
IOPRI	Indonesian Palm Oil Research Institute
IPH	Land clearing permit (Indonesia)
IPKH	Forest conversion permit (Indonesia)
Izin KBNK	Permit for the release of conversion forestland (Indonesia)
JVC	Joint Venture Companies
KKN	Corruption, Collusion and Nepotism
KKPA	Kredit Koperasi Primer Anggota – smallholder co-operative
KPA	Consortium for Agrarian Reform (Indonesia)
Mha	Million hectares
MoU	Memorandum of Understanding
MPOA	Malaysian Palm Oil Association
MPOB	Malaysian Palm Oil Promotion Board
NCR	Native Customary Rights
NE	Nucleus Estate Agro Enterprises
NES	Nucleus Estate and Plasma
NGO	Non-Governmental Organisation
NGO Walhi	Friends of the Earth, Indonesia
NOAA	U.S. National Oceanographic and Atmospheric Agency
OPIC	Oil Palm Industry Corporation
PAN	Pesticide Action Network
PEF	Permanent Forest Estate
Peninsular Malaysia	Hutan Simpan Sungai Paka, Terengganu State
PKO	Palm Kernel Oil
PKM	Palm Kernel Meal
PNG	Papua New Guinea
POME	Palm Oil Mill Effluent
PPB	Sabah based plantation company - Perlis Palm Oils Berhad
PPN	Indonesian State Bank - Permodalan Nasional Madani
Sawit Watch	“Oil Palm” watch (Indonesian Non Governmental Organisation)
Walhi	Friends of the Earth, Indonesia
WWF	World Wildlife Fund for Nature
WRM	World Rainforest Movement
YLBHI	Indonesian Legal Aid Foundation

About this report

The international trade in palm oil is a key driver of rainforest destruction and human rights abuses on a massive scale.

This report is one half of two research projects undertaken for Friends of the Earth in 2003 into the impacts of the palm oil industry in South East Asia, its links to the European market and the involvement of European companies in the palm oil trade.

Research methodology into the impacts of palm oil included monitoring reports compiled by the Indonesian non-governmental organisation (NGO) Sawit Watch and interviews with community members and local activists. The Sawit Watch data had been gathered over a period of five years, based on field investigations, meetings with local community members, media reports and regular monitoring. The analysis of the European market focused particularly on the companies trading in palm oil in the UK, the Netherlands and Sweden as well as giving a general overview of the trade in oil palm and the growth of the European market.

This research is available in two reports:

- Greasy palms: the social and ecological impacts of large-scale oil palm plantation development in South East Asia (*original research: Eric Wakker, AIDEnvironment*)
- Greasy palms: European buyers of Indonesian palm oil (*original research: Jan Willem van Gelder, Profundo*)

A summary of the two research reports, *Greasy Palms – palm oil, the environment and big business* (*Friends of the Earth, 2004*) is also available.

These reports can be obtained from Friends of the Earth, 26 – 28 Underwood Street, London N1 7JQ
Tel: 020 7490 1555 or downloaded at

www.foe.co.uk/resource/reports/greasy_palms_buyers.pdf [chapters 4 - 6 available on request only]

www.foe.co.uk/resource/reports/greasy_palms_impacts.pdf

www.foe.co.uk/resource/reports/palm_oil_summary.pdf

Friends of the Earth Recommendations

The following recommendations have been reached following a consultation process between Friends of the Earth and stakeholder groups (including local communities, labour unions, NGOs) impacted by oil palm plantations. This process is still ongoing and further comments are welcome.

Section 1: General Principles

In general, for palm oil to be traded in at all, its production must fulfil the following minimum criteria:

1. No forest conversion for oil palm
2. There must be no use of fire for landclearing
3. Where palm oil has not been planted, conflicts with local communities must be resolved in a way that respects their rights before any expansion of palm oil plantations can take place.
4. Conflicts with local communities on existing plantations must be resolved and the rights of those communities must be respected.
5. Companies engaged in oil palm production, investment or processing must obey the UN Norms for Multinationals on human rights and labour conditions, and obey national and international human rights and labour laws.
6. Companies operating palm oil plantations must minimise their impact on the environment through good management practices. These should include (but not be limited to):
 - obeying all relevant Government regulations e.g. on emissions of waste-water.
 - use of integrated pest management
 - significant reduction in the use of pesticides and transparency in the amount of pesticides used
 - recycling of POME
7. Companies must establish a mechanism for airing the complaints and redressing the problems of impacted communities, workers, farmers and other affected stakeholders.

Section 2: Demands to specific bodies

a) To European governments

Friends of the Earth calls on the governments of European countries to recognise the importance of this issue and to introduce legislation which regulates the behaviour of European companies involved in the palm oil trade. Specifically:

1. To move on from the outdated and discredited paradigm that corporate *irresponsibility* can be addressed solely through voluntary agreements.
2. To make changes to the legal framework in which European companies operate so that financial obligations are counter balanced by social and environmental concerns. Specifically, they must introduce:
 - **Mandatory Reporting** – requiring all UK companies to report annually on the impact of their operations, policies, products and procurement practices on people and the environment both in the UK and abroad
 - **New legal duties on directors** - to take *reasonable* steps to reduce any significant negative social or environmental impacts
 - **Foreign Direct Liability** – to enable affected communities abroad to seek damages in the UK for human rights and environmental abuses resulting directly from the policies, products and procurement practices of UK companies or their overseas subsidiaries
3. To strongly support actions by the governments of producer countries (such as the government of Indonesia) to ensure that European companies obey the national law in those countries, and to ensure that those who do not do so are prosecuted.
4. To take a lead role in reviewing the social and environmental impacts of the international commodity trade and questioning the commodity based development model. To ensure that intra-national agreements (e.g. Memorandum of Understanding signed between UK and Indonesian governments) formulated with the aim of protecting the environment and human rights are not negated by the actions of European governments in host countries.

b) To the industry in Europe

Friends of the Earth calls on all companies involved in palm oil production, investment, processing or food retailing:

- To take immediate steps to ensure that they only used palm oil which conforms to the minimum criteria laid out above

Specifically:

- to work together closely with other stakeholders in the supply chain
- in all cases the first step must be to trace their palm oil from source to end use
- to establish a measurable timetable by which supplier estates can meet the minimum criteria for palm oil production. To take significant steps towards implementing the criteria within three years.
- to engage with initiatives within the sector which take genuine steps towards promoting responsible production of palm oil – e.g. by participating in the Round Table on Sustainable Palm Oil.

c) To European consumers:

1. To write to representatives of their national government about palm oil, urging that legislation is introduced which requires company to trade only in responsibly produced palm oil
2. To write to local supermarkets asking, what, if any, policies they have on palm oil, whether they are enforced, and whether they can identify the source of their palm oil

d) To the Indonesian Government

Friends of the Earth demands that the Indonesian government undertakes the following actions with immediate effect:

1. A moratorium must be placed on any new permits for oil palm plantation expansion, to be in place until the Indonesian government implements Decree no.9 (Natural Resources and Land Reform Decree) of the General Assembly for Indonesia.
2. There must be an immediate evaluation of all permits given for palm oil. The evaluation should investigate:
 - Whether companies really used the land in the way they stated they would (e.g. in the case of logging/ oil palm companies, whether the companies did develop oil palm plantations as they said they would, or whether they just logged the forest).
 - Whether or not companies expanded outside the boundaries of the concession areas they were granted.
 - Whether companies issued with oil palm permits planted oil palm within the time limit stated on the licence.
 - How much land has been converted as a result of the issuance of oil palm permits and how much land has been abandoned.
3. The Government must facilitate the resolution of conflicts on oil palm plantations.
Particularly:
 - Prior informed consent with local communities is needed before any further land conversion takes place.
 - Communities impacted by palm oil must have open access to company representatives and the government in order to negotiate their position,
 - Communities impacted by oil palm must have open access to the necessary information about the impacts and future expansion plans of oil palm companies.
4. Central government regulations on palm oil plantations and Indonesian labour laws need to be reformed so that the reliance of the oil palm sector on daily labourers is ended. Every employee on a plantation must have a contract and basic labour rights, including (but not limited to):
 - The right to form independent labour Unions
 - The rights for women workers to have maternity leave
 - The right to a living wage without working overtime
 - The right to work without fear of violence
 - Bonuses for workers in proportion to company profits
5. The Government must enforce regulations making the use of violence by companies against the people illegal.

Executive Summary

1. Palm oil in Southeast Asia feeds millions, employs over a million and generates billions in dollar income for the private sector including producers, trading companies, financial institutions and retailers.
2. In the process of creating this value, the production of palm oil brings about serious environmental and social impacts. Apart from rampant deforestation, dozens of people have been killed in land tenure and labour related conflicts and hundreds of deaths can be attributed to the environmental impacts of oil palm expansion. This expansion destroys ecosystems and wildlife in the worlds' most biodiverse regions. It also destroys indigenous peoples' way of life, self-determination and culture.
3. Set to become the world's most produced, traded and consumed edible oil, considerable expansion of the oil palm plantation area is expected in the next two decades.
4. This growth will occur mostly in Indonesia, rather than Malaysia. Less predictable are future developments in Papua New Guinea and other parts of the world.
5. Oil palm development contributes to deforestation both directly and indirectly. Not all oil palm plantations are planted in forest areas, many have replaced community forest gardens and agricultural lands. The loss of biodiversity in forest areas converted is dramatic and irreversible.
6. Land clearing for oil palm development by the use of fire has resulted in enormous ecological, social and economic cost. Burning continues to take place in Indonesia.
7. Oil palm estates are commonly developed without the required legal approvals and/or outside the approved areas with little regard to legal requirements.
8. Oil palm may be, due to its scale, be the most polluting rural industry in Southeast Asia. Soil erosion, spills and dumping of Palm Oil Mill Effluent (POME) are especially problematic. Pesticide use poses a real health risk to (predominantly female) plantation workers all over the region.
9. The plantation sector is the most conflict ridden economic sector in Indonesia, and probably also in Malaysia. Most conflicts result from land tenure issues and the weak legal protection afforded to local communities. In Papua New Guinea (PNG), where local communities have stronger legal protection, problems arise when landowners do not have enough relevant information to come to decisions.
10. Smallholder schemes may appear to be more socially responsible than large-scale privately operated plantation estates, but such schemes are not necessarily beneficial to smallholders and local communities and in many cases lead to conflict between local communities and companies.
11. Plantation labour is generally poorly paid, highly dependent on the employer in all aspects of life and regularly exposed to danger and unhealthy working practices. Inequities between various types of labour (day labour vs. permanent workers, men vs. women) are widely reported.

A. Introduction

Palm oil is currently the world's second most consumed edible oil, and is set to overtake soy in less than a decade as the world's most consumed oil. As such, palm oil provides and will provide vital nutrition for millions of people. In European markets, palm oil has a huge range of uses – from shampoo to chips to frozen foods to cosmetics.

In terms of productivity per unit area, oil palm is comparatively efficient. Per hectare, yields can be 10 times higher than those of its main competitor in the market place, soybean. The industry employs millions of people and generates billions of dollars in turnover for private companies as well as vital government revenue in key producer countries such as Malaysia and Indonesia. The macro-economic contributions of the oil palm sector are honoured by the appearance of the oil palm tree on the Indonesian Central Bank's Rp. 1,000 coins.

Having acknowledged these advantages, this report explores the other side of the coin: the social and ecological cost of oil palm plantation development. These costs, which are often hard to express in hard currency terms, include tropical forest destruction, biodiversity losses, illegal practises, land rights conflicts and human rights violations, labour disputes, unfair treatment of smallholders, the collapse of indigenous cultural practises and exposure of vulnerable local economies to capricious global market forces.

The oil palm industry and those who facilitate its development (governments, investors, retailers etc.) presently face a hugely complex set of negative environmental, social and economic impacts tagged to the rapid expansion of oil palm plantations throughout Southeast Asia.

Some recognition of the need to address these issues is emerging, largely owing to campaign work undertaken by NGOs in Western Europe and their partners in Southeast Asia in the past few years. For example, the Swiss retail company Migros has adopted a standard for responsible palm oil production having its suppliers independently audited for performance and palm oil flows from plantation to supermarket carefully screened. In 2001, the four biggest Dutch commercial banks adopted policies aimed at avoiding negative environmental and social impacts relating to their activity in the oil palm sector. Other companies too, such as CDC and Unilever, claim to have developed policies that aim to promote more responsible production of palm oil. In 2003, a broader group of industry stakeholders (Unilever, Golden Hope, Malaysian Palm Oil Association) began to organise an international Palm Oil Roundtable in collaboration with WWF.

The Statement of Intent to which Round Table participants sign up that states in its preamble that (point 6):

"Not all palm oil is being produced sustainably at present, and there is a risk that expansion of oil palm plantations could be running counter to sustainable development in various parts of the world."

Statement of intent, Roundtable on Oil Palm (November 2003 version)

Even such a weak recognition of the problem is to be welcomed – but sadly, the actual on-the-ground impacts of these private sector initiatives remains negligible at present. This is in part because the plantation model of development contains a strong incentive for companies to ignore negative environmental and social impacts in the drive to produce ever more product and in part a result of an inherent power imbalance between local communities and the companies which drive the process.

The crude ways in which governments give the oil palm industry access to vast tracts of forest to expand and the aggressive ways in which companies take over land that forms the corner stone of local communities' livelihoods and culture is a key concern of civil society groups in Southeast Asia. There is, however, little willingness in the sector to seriously address this concern. During the Palm Oil Roundtable meeting in August 2003, it became painfully clear to NGO-representatives how little industry and government are prepared to enter into dialogue with those communities who have seen their land and their resources taken away by oil palm companies. Out of 190 Roundtable participants, only seven people subscribed to a working group on land rights issues, suggesting a reluctance to engage with the issue.

Another reason why real improvements in plantation development and management remain invisible to the public is that many companies are not able to determine the ultimate source of their products or because they are not willing to make such information public. In such a complex trade, it is easy for companies to abdicate responsibility and purchase palm oil with little or no awareness of how it is produced. Similarly, financial institutions are extremely reluctant to reveal information about the activities and performance of their debtors.

As the evidence of poor management practises, violent conflict, forest destruction and impoverishment of local communities grows, questions arise as to whether the palm oil industry is indeed capable of effective self-regulation. There is a fear that the industry will get stuck in well phrased policy commitments which do not lead to real and visible change – and a growing awareness of a need for governments, at the consumer and producer level, to take action to force change.

Box 1: Oil palm in brief

Oil palm (*Elaeis guineensis*) originates from the natural forests of Central Africa. Its first 'commercial' use was to feed slaves. Oil palm remains an important staple crop for many Africans today. In Nigeria, oil palm cultivation is an integral part of the daily life of millions of people and it remains a key part of West African culture. It is intercropped with cassava, yam and maize and 80% of production comes from dispersed smallholders who harvest semi-wild plants and use manual processing techniques.

Oil palm was first introduced into Southeast Asia in the nineteenth century, but it was not until the 1960s that large-scale monoculture development took off in Malaysia and not until the 1980s that it took off in Indonesia. Economies of scale demand that an oil palm plantation is at least 4,000 hectares (ha) in size (6 by 6 km) in order to be able to feasibly operate a Crude Palm Oil (CPO) mill that processes the Fresh Fruit Bunches (FFB) from the plantation estates. In Southeast Asia an average individual plantation company manages a plantation area of 10,000 – 25,000 ha. These companies are mostly part of larger agribusiness holdings, with plantation estates ranging from 100,000 to 600,000 ha in several provinces and countries. These holdings in turn usually belong to business conglomerates that are active in various other sectors, such as agriculture, forestry, telecommunications, banking and construction.

In Indonesia and Malaysia, plantations are primarily developed in state-owned forestlands. This means that plantation companies are either granted the rights (concession) to convert an area into an estate for a limited time (Indonesia, Malaysia) or that they will own the land after conversion (Malaysia). In Papua New Guinea, plantations are developed mostly in customary rights land and require local communities to agree to so-called lease-lease back arrangements. Smallholder or outgrower schemes may seem more socially responsible on the surface, but they are generally closely tied to commercial companies.

To establish the plantation, the company will begin constructing roads, setting up a nursery and removing any standing vegetation, including tropical rainforest, which generally brings about a dramatic loss in local biodiversity. Labour is often brought in from other regions and a nursery is set up as soon as possible. Women and sometimes children are often engaged as unpaid labourers. The palms are productive from 3 years after planting onward until the plantation is replaced 20-25 years later.

B. Expansion of oil palm plantations

Between 1990 and 2002 the global planted oil palm area increased by 43% to 10.7 million hectares (Mha). Most of this growth occurred in Indonesia and Malaysia.

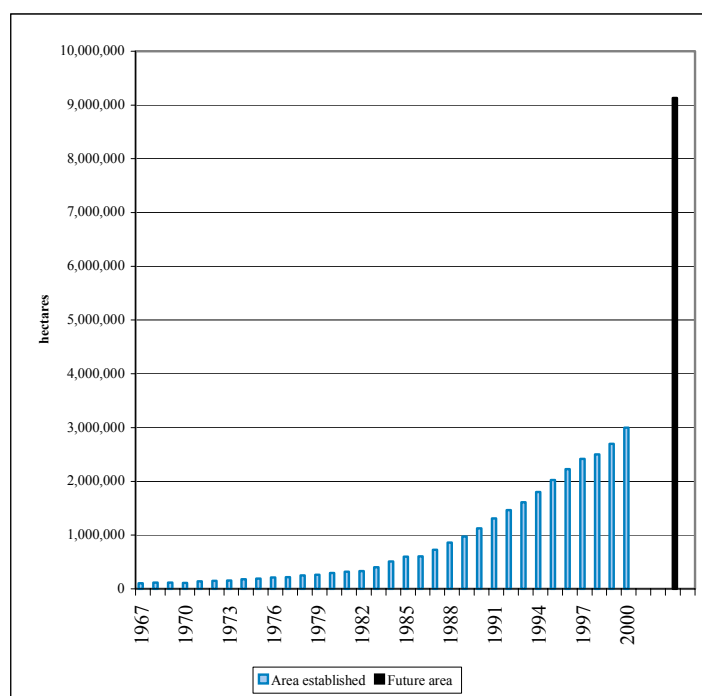


Figure 1 : Total area of oil palm plantations established in Indonesia.¹

B.1 Indonesia

Between 1990-2000, the total area planted with oil palm almost tripled from 1.1 to 3 Mha in 2000 (Figure 1). In the 1990s, the annual planting rate averaged 190,000 ha per year, with a peak in 1997/98 before dropping to approximately 75,000 for the remainder of the decade. In the past two years, oil palm companies have more financial room to manoeuvre than during the 1997-1999 financial crisis, and many have therefore resumed their expansion plans. In 2002, the total mature oil palm plantation area reached 3.5 Mha.² The planting rate is estimated to have reached 240,000 ha in 2002 (Figure 2).³

The growth in area actually planted does not represent the total area that is opened up for oil palm in Indonesia. According to Indonesian Oil Palm Research Institute (IOPRI) estimates 18 Mha of land in Indonesia are suitable for oil palm plantations.⁴ By 1996, the Indonesian government had set aside around half such an area of forestland for oil palm development: 9.13 Mha of which 5.56 Mha is in the Moluccas and Papua.⁵ (see Figure 1 for a comparison of recently developed oil palm area as opposed to the area set aside for future use).

Prior to the financial crisis, the Government of Indonesia processed hundreds of applications from companies interested in developing oil palm plantations. 1992-2002, the Indonesian Investment Coordination Board (BKPM) approved 453 new oil palm investment projects, with a total area of 7.2 Mha. As of 2002, only 7.5% of these new investments were actually planted.⁶ Despite this extremely low realisation rate, the Indonesian government continues to process and issue new permits. Early in 2003 the Indonesian Agriculture Ministry announced it had licensed 74 companies to open new oil palm plantations covering an additional 672,977 ha.

The Ministry claims that with the additional new oil palm plantations, Indonesia's CPO production is expected to outstrip Malaysia's in two to three years' time.⁷

Considering the low realisation rate of approved projects, the Ministry's expectations may be considered to be overly optimistic. However there is little doubt that ultimately some 9 Mha of new (as of 1996) oil palm plantations will be established in Indonesia because the investment proposals for most of this area have already been approved. Assuming recent planting rates, the total area of oil palm plantations in Indonesia is set to increase to 11.2 Mha in 2020.

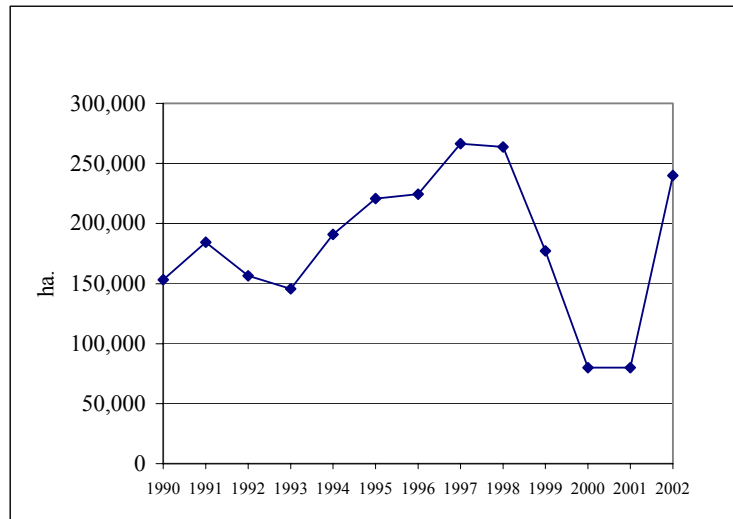


Figure 2 : Annual rate of planting of oil palm in Indonesia (1990-2002)⁸

Although pressing environmental and social issues are yet to be addressed in the area approved for development, a key question is whether and when the Indonesian government will slow down and stop any further approvals of new large-scale oil palm investment projects. The total area set aside for oil palm is an expansion target rather than a ceiling to expansion (in the early 1990s, a similar target of 5.5 Mha was set, which was dropped and replaced by the 9.13 Mha mentioned above).

It is highly likely that the Indonesian government, either at national or local level, will bow to the massive interest of the private sector to engage in the oil palm business as well as to the ambitions of local governments who, along with decentralisation policies, were empowered with great land use decision making powers in 2001.

Private sector interest in expanding the plantation sector remains at least as strong as it was prior to the Asian financial crisis. In a letter dated 22 May 2000, the Indonesian Ministry of Forestry and Estates stated that no less than 1,896 investors had applied for permits to develop plantations in an aggregate area of 30,167,594 ha.⁹ Most of these applications involve oil palm development. It appears that the government has once again bent to facilitate the overwhelming private sector interest in Indonesia's forestlands. According to the latest revisions of permanent forestlands, not officially published, the area of convertible forestland has increased from 8 Mha in 2000 to 14 million in 2002.¹⁰

Motivated by greater autonomy, many district and provincial governments have in recent years announced schemes to develop vast new areas for oil palm in their areas. For example, the governor of Jambi aims to develop 1 Mha of oil palm plantations in the province compared to 300,000 ha established at present.¹¹ The oil palm area of North Sumatra is set to increase from some 750,000 ha at present to 1 Mha.¹²

In West Kalimantan, the plantation area is set to expand from 338,000 in 2002 to 3.2 Mha.¹³ The governor of East Kalimantan plans to expand the planted area of 70,000 in 2002 to no less than 2.1 Mha.¹⁴ Meanwhile, Papua has plans to develop some 2.8-3 Mha of oil palm plantations as opposed to the 58,000 ha actually realised in 2002.¹⁵ If these plans are indeed realised and these trends are extrapolated to other provinces, the Indonesian NGO Sawit Watch estimates that the total area opened up for oil palm may reach up to 18 to 20 Mha nation wide.

Although the Ministry of Forestry still has a final say in the release of forestlands for conversion into oil palm or other estate crops and it is committed to no longer issue forestland release permits, its powers are

declining along with the income generated by the formal forestry sector. Furthermore, there are many loopholes in the Indonesian law that help to get forestland released for other purposes, such as oil palm development.¹⁶ Thus, with decentralisation, a new dynamic in Indonesia's land use has emerged where nationally set targets and limitations do not reflect reality on the ground. There is no reason to believe that the area previously set aside for oil palm development, assuming that it represented a ceiling to expansion in the first place, will not be stretched again to facilitate the apparently ubiquitous investors' interest in oil palm, or in Indonesia's forest resources.

B.2 Malaysia

In Malaysia, the oil palm plantation area expanded from 1.7 Mha in 1990 to 3.37 Mha in 2002. Much of this expansion was realised in Sabah where the oil palm plantation area expanded from only 1% of the State's territory in the 1980s to 11% in 2002 (over 1 Mha).¹⁷ Malaysia's land and labour costs are considered increasingly prohibitive for further expansion of the oil palm area: Indonesia out-competes Malaysia in terms of labour cost by five times and in cost of land by four times, thereby making it the cheapest producer of palm oil in the world.¹⁸ Thus, well over 100 Malaysian companies entered Indonesia's oil palm industry where they gained access to an estimated 1.5 Mha.¹⁹

The Malaysian Palm Oil Promotion Board (MPOB), a governmental promotion body, furthermore provides technical assistance and advice to a range of countries - from Vietnam to the Philippines, Ecuador and Brazil - to develop oil palm plantations. Malaysian companies either opened these inroads or followed them after the Malaysian government had paved the way. Whereas the MPOB argues that each of these countries are in need of development and income, indigenous communities and Southern NGOs are deeply concerned about the spreading of oil palm monocultures throughout the tropics.²⁰

The 8th Malaysian Plan (2001-2005) calls for 365,249 ha (about 6 times the size of Singapore) of new agricultural development, primarily in Sabah and Sarawak.²¹ At present, Sarawak has 380,000 ha of oil palm estates and this is expected to surge to 500,000 ha by 2008.²² However, others report plans of the Sarawak State government establishing 1 Mha of oil palm while expansion in Peninsular Malaysia and Sabah have not yet stopped either.²³ In Peninsular Malaysia, the Malaysian Plan stipulates that 42,870 ha/yr of forest will be converted, basically until the remaining State Forest (conversion forest) of 340,000 ha in 2000 is exhausted.²⁴ Most of this conversion will probably be associated with oil palm development.

B.3 Papua New Guinea

The development of the oil palm sector in PNG has been less dramatic compared to Indonesia and Malaysia. However, the mature area of the PNG oil palm plantations almost doubled from 46,000 ha to 73,000 ha between 1990 and 2000. Since the mid-1990s there has been a dramatic expansion of the oil palm area in PNG. Domestic interest has already revived and, as in both Malaysia and Indonesia, increasing foreign investment can be expected in the coming years. Senior Government officials announced plans for expansion of oil palm plantations in nearly every province in PNG²⁵ (see Box 2):

Box 2: Oil Palm Expansion Plans

- In October 2001 the government endorsed a proposal from **Ramu Sugar** in PNG to set up an 8,000 ha oil palm plantation in Usino-Bundi in Madang province. About 6,500 ha would be operated by Ramu Sugar and the other 1,500 ha by smallholders.²⁶
- In April 2001, the PNG Agriculture and Livestock Minister, Muki Taranupi, announced plans for tax incentives in the oil palm sector designed to encourage growth and boost production.²⁷
- In August 2001 the governor of the East New Britain province, which currently has no oil palm plantations, announced that the province would start to encourage the establishment of oil palm plantations. The provincial government plans to convert a large area of land in the Open Bay area of North Baining for this purpose.²⁸
- In August 2001 the governor of Morobe province presented a pre-feasibility study on a 30,000-hectare oil palm project on the border of the Morobe and Gulf provinces. The project would cost some 200 million kina (US\$58 million) to develop. However, project viability will depend heavily on the development of road infrastructure in the area, as it is very remote, economic activity is almost non-existent and basic services such as health and education are very primitive. To improve accessibility, a route near the plantation area for the planned Trans-Island Highway section connecting Lae with Kerema and Port Moresby may be chosen.²⁹
- In August 2001 the presently dissolved Oil Palm Industry Corporation (OPIC) in PNG announced that the World Bank is planning a nation-wide oil palm project funding in 2004. At that time the World Bank was conducting feasibility studies in oil palm growing provinces to ascertain the viability of the project.³⁰
- In June 2002 OPIC announced that a large number of new oil palm projects could be developed in PNG within the next 5 to 10 years if current feasibility studies on proposed projects are completed and approved by the government. The studies cover at least 10 new projects under the PNG Agro-Industry Development Program: in Sandaun, East Sepik, East New Britain, Madang, Gulf, Central and Morobe provinces where oil palm is yet to be introduced.³¹ The Asian Development Bank (ADB) provided a US\$5.9 million loan to the Smallholders Nucleus Estate Agro Enterprises (NE) feasibility study. The Government of PNG (GOPNG) had already made public announcements that the ADB feasibility study is to facilitate oil palm projects and earmarked the following areas to be studied:
 - Bewani and Aitape integrated oil palm projects in the Sandaun Province
 - Vailala oil palm project in the Gulf Province
 - Ramu Valley oil palm project in the Ramu Plains in the Madang Province
 - Sepik Plains oil palm project in East Sepik
 - Open Bay oil palm project in East New Britain
 - Amazon Bay integrated oil palm project in the Abau District in Central Province
 - Morobe-Gulf border integrated oil palm project in the Morobe & Gulf provinces
 - Arowe oil palm project in the South Eastern part of West New Britain, and
 - Collingwood Bay oil palm project in Milne Bay & Oro provinces.³²

A key competitive advantage of PNG, which explains the interest from foreign investors, is the fact that the country is among the ACP countries, which have a preferential trade agreement with the European Union (EU). This means that CPO exports from PNG to the EU are exempt from 6% import tax that the EU raises on CPO imports from other countries, including Indonesia and Malaysia.³³ The CPO export from PNG is thus 100% directed at the EU with the UK, Italy and the Netherlands being the main markets. Furthermore, because PNG is a relative newcomer in this industry, its oil palm plantations are planted mostly with highly productive seedlings from Malaysian nurseries. On a country-level, PNG therefore records the highest CPO production level per hectare (4.2 tons) of all production countries.³⁴

B.4 Other countries

Apart from Malaysia, Indonesia and PNG, oil palm projects are developed in many other countries including the Philippines, Vietnam, Cambodia, Thailand, Burma, India, Solomon Islands, Kenya, Tanzania, Congo, Cameroon, Nigeria, Liberia, Guinea, Ghana, Cote d'Ivoire, Guyana, Brazil, Colombia, Ecuador, Nicaragua, Costa Rica and Mexico.

C. Deforestation

C.1 The role of oil palm expansion

The original habitat in most areas suitable for oil palm is lowland evergreen tropical rainforest. These forests support the highest biodiversity of any terrestrial ecosystem, with those of equatorial Southeast Asia among the richest.³⁵ For example, while Indonesia only covers 1.3% of the globe's land surface, its forests are home to around 10% of all species of flowering plants, 17% of all species of birds, 12% of all species of mammals, 16% of all species of reptiles, and 16% of all species of amphibians.³⁶ PNG covers only 0.3% of the Earth's surface but holds 5% of the globe's biodiversity.³⁷ The forest areas that are cleared for oil palm development often provide habitat for well known keystone species, such as the orang utan, Sumatran tiger, elephant and rhinoceros, and the world's largest butterfly, the Queen Alexandra Birdwing. In large part owing to their rainforests, Indonesia, PNG and Malaysia are among the world's ten most megadiverse countries. As a result of this biological richness, these forests provide a livelihood to indigenous communities including the Asmat in PNG, the Dayak in Kalimantan and the Senoi in West Malaysia. With the demise of the rainforest, their livelihoods are set to alter dramatically.

Southeast Asia's lowland rainforests remain under pressure from heavy logging and conversion of the land to other uses. According to UN Food and Agriculture Organisation (FAO) statistics, Indonesia's forest cover declined by 13 Mha (12%), Malaysia by 2.4 Mha (12%) and PNG by 1.1 Mha (4%) in the 1990s alone.³⁸ The role of oil palm in this forest loss is not well documented, but available industry data provide some insights. According to the Indonesian Palm Oil Research Institute (IOPRI) only 3% of all oil palm plantations are established in primary forests as opposed to 63% in secondary forest and bush.³⁹ According to the Malaysian Palm Oil Association (MPOA), 66% of all estates have been converted from rubber and cacao and the rest were established in logged forests.⁴⁰ These figures imply that in the years leading up to the end of 2002, some 3.26 Mha of forest were cleared in Indonesia and Malaysia (Table 1). So, according to industry data, 48% of all currently productive oil palm plantations involved forest conversion. If the IOPRI and MPOA estimates are applied to the additional area that both countries aim to develop into oil palm then another four Mha of forest is in the process of being cleared in both countries.

Table 1: Plantation area and estimated forest area cleared based on industry estimates (*in Mha.*)

	Oil palm plantation area (2002)	Share of oil palm plantations involving forest conversion	Forest area cleared for oil palm (to end 2002)	Total oil palm area target / allocation (2003)	Additional area to be established	Additional forest to be cleared
Malaysia	3.67	33%	1.21	3.74	0.07	0.02
Indonesia	3.10	66%	2.05	9.13	6.03	3.98
PNG	0.07	n.a.	n.a.	n.a.	n.a.	n.a.
Total	6.77	48%	3.26	12.87	6.10	4.00

(n.a. not available)

These data are generally consistent with those given in other sources.⁴¹ However, it should be noted that the industry estimates may not fully reflect the reality. Casson (2003) for example notes that the Malaysian government and industry claim that most of Malaysia's oil palm plantations have replaced rubber, coconut and cacao plantations (see above). The total area planted with these crops declined by 431,000 ha, 249,500 ha and 160,700 ha respectively in the 1990-2002 period, or 842,000 ha altogether. Meanwhile, the oil palm area increased by 1.6 Mha.⁴² This indicates that some 758,000 ha of forest has been converted to oil palm. Thus 47% of all oil palm expansion involved deforestation. Based on similar calculations, 87% of Malaysia deforestation from 1985-2000 can be attributed to oil palm expansion.⁴³

In Indonesia, actual planting rates lag well behind allocations by the government. Of the 7.2 Mha released during the 1990s, only 530,000 ha (7.5%) were actually planted in 2002.⁴⁴ This is in part because of the monetary crisis of 1997-2002, during which time few companies could afford to obtain credit to commence their planting programs. Another factor is that many "oil palm" companies are interested in the timber stands rather than in realising their plantation projects. Around 70-80% of the new oil palm projects are allocated in production forests with a high forest stocking which provides a pre-start up bonus in the form of sale proceeds from the timber stands.⁴⁵ The value of standing timber in a forest area may reach up to US\$2.100/ha.⁴⁶ After taking the timber stand, many companies abandoned the project altogether. For example in West, Central and East Kalimantan and Riau the provincial governments accused more than 200 companies of neglecting their concessions and not being serious about developing estates. Many of these companies were to have their licenses revoked.⁴⁷ In the province of Jambi around 800,000ha of forest cleared to set up oil plantations was abandoned.⁴⁸ In Landak district, West Kalimantan some 300,000 ha have been neglected.⁴⁹

Box 3: Examples of forest conversion related to oil palm

Field observations indicate that many oil palm plantations in Indonesia and East Malaysia are planted in areas that were clearly forested immediately prior to conversion to plantation.

- In Sembuluh, Central Kalimantan, at the time of writing PT Kerry Sawit Indonesia (subsidiaries of the Sabah-based plantation company **Perlis Palm Oils Berhad (PPB)**) is about to start field operations after the company obtained the concession rights from a Hong Kong based investor. One of the four subsidiary companies holds the rights to develop 17,200 ha of land. Within the area, there is still some 7,500 ha of forest and forest gardens that local community members desperately wish to see protected against conversion. The forest area is one of the last in the area of Lake Sembuluh that is completely surrounded by oil palm estates.⁵⁰ PPB has a responsible reputation in Sabah, where the company left a “buffer zone” of forest in the Tabin Game reserve.⁵¹ It is not known if the company will be as sensitive to conservation priorities in Indonesia.
- In Muara Wahau, East Kalimantan, a **PT SMART (Sinar Mas)** subsidiary converted some 2,500 ha of primary forest into oil palm plantations. The lowland forest in the PT Matrasawit area used to provide habitat for the orangutan, an endangered and protected species in Indonesia.⁵²
- In Riau, Sumatra, a subsidiary of the Indonesian **Indofood Sukses Makmur group** (PT Gunung Mas Raya) is in the process of clearing peat-swamp forest, part of which may be outside the concession boundaries. If this is the case, it will be in contravention of the risk policy of one of the group's main investors, ING from the Netherlands, which has a policy of not financing illegal forest conversion.⁵³
- Satellite map analysis undertaken by the Indonesian NGOs Sawit Watch and Friends of the Earth Indonesia (Walhi) found that around Lake Sentarum National Park in West Kalimantan, the oil palm plantation area grew by 91,000 ha over a period of only six years, from a mere 3,000 ha in 1994 to 94,000 ha in 2000. Meanwhile, according to newspaper reports, the total forest area decreased by 205,000 ha, from 528,300 ha to 323,000 ha.⁵⁴ Sawit Watch has mapped out the oil palm companies that have cleared virtually all forests surrounding Lake Sentarum National Park. Several of these companies abandoned their operations once the timber stand was removed.
- Around Mount Meratus in South Kalimantan, some 43,000 ha of forest have been converted into plantations since 1994, enlarging the total area of plantation from 86,000 ha to 129,000 ha. The forest areas surrounding Mt. Meratus meanwhile shrunk by 350,000 ha, from 1,337,000 to 987,000 ha.⁵⁵
- Map and anecdotal evidence strongly suggests oil palm plantations have been developed within a number of other national park buffer (low intensity use) zones as well including Tanjung Puting National Park, Bukit Tiga Puluh National Park and Gunung Leuser National Park.⁵⁶
- In Pahang, West Malaysia, a 6,000 ha block of High Conservation Value Forest in the Permanent Forest Estate was cleared after the ruling political party in the State and the country, UMNO, was given rights to take timber from the area. On paper, **Ladang UMNO Pahang** should be about 4,000 ha but satellite images suggest that the area cleared was closer to 6,000 ha. The operation was never subjected to an Environmental Impact Assessment (EIA), despite government regulations stipulating that any project beyond 500 ha should have an EIA. Instead, the land had been divided into 10 separate smaller plots. The Kuantan Department of Environment was unable to explain how the approval was given despite almost 90% of the area being Permanent Forest Estate (PEF). This forest was the home of rhinos, tigers, honey bears, gibbons, tapirs, and panthers as well as endangered ramin trees. By mid 2003, the area remained unplanted with oil palms.⁵⁷ UMNO is the leading political party in Malaysia. The logging concession was granted in 1998, one year before the General Elections of 1999.
- In Hutan Simpan Sungai Paka, Terengganu State (Peninsular Malaysia), 3,899 ha with lowland and highland dipterocarp forest in the Permanent Forest Estate are being converted into oil palm at time of writing in 2003, under the approval of PAS, the leading Islamic party in the State. Sungai Paka Forest Reserve lies on the slopes of the Eastern Highlands of Peninsular Malaysia. Being isolated from the Main Range, the flora and fauna of the area contain various endemic species. The state of Terengganu is famous for its big mammals, including tigers, elephants and seladang (a huge wild ox).⁵⁸
- In Sabah, East Malaysia, new oil palm plantations are being developed from forestland in the Labuk-Sugut district, Tongod, as well as in Kinabatangan and lower Sagama. Forest conversions have led to a string of environmental problems such as flooding (where palms are planted in floodplain land), soil loss and river sedimentation.⁵⁹
- In Alotau, Milne Bay, Papua New Guinea, a member of the OPIC found that landowners were enticed to give their forested land to the UK Government-owned company **CDC**⁶⁰ for advance payments of royalties in the form of a Toyota truck. This advance would be recovered from a royalty over a 30 year lease back period. An area of well over 3,000 ha was clearfelled by mechanical clearing by use of a caterpillar after the merchantable logs were taken from the forest.⁶¹
- In Oro Province, Papua New Guinea, oil palm plantations have encroached upon the habitat of the world's largest and endangered Queen Alexander Birdwing butterfly. This species is endemic to the plains in Oro Province. Further expansion of oil palm in Oro Province will increase the risk of extinction of this butterfly species.⁶²

C.2 Impacts of forest conversion

Much of the forestland cleared to make way for oil palm plantations has been previously logged and may be viewed by outsiders as “degraded” and therefore valueless. This, however, is to ignore the often critical ecological, socio-economic and cultural functions such forestland has for local communities.⁶³ The global significance of the forest destruction in terms of biodiversity and climate change should not be underestimated - but it is the local communities who most immediately feel the impact of its destruction. They depend on these forests, often managed under the community's traditional law, for their subsistence and cash income, as well as for cultural and religious practises. Deforestation completely overhauls their entire way of life.

Those “degraded” forests converted for oil palm furthermore often still provide a habitat for an array of species, which is destroyed when the forest is logged and replaced by oil palm. Research has shown that an oil palm plantation can support only 0 – 20% of the species of mammals, reptiles and birds found in primary rainforest.⁶⁴ Those species that are able to survive in the new environment of the plantation frequently come into conflict with humans in and around the plantations. Workers and villagers encounter elephants, orang utans, tigers, porcupine and wild boar for some time after forest clearing. The results are often serious and sometimes fatal (see box 4).

Box 4: Examples of human-animal conflict in oil palm plantations

- Elephants which are either starved by the removal of the forest habitat, or disturbed by increased human activity, have the potential to destroy hundreds of hectares of young oil palms in a single night. In Lampung in 1998, angry elephants killed two people during such a raid. In January 2003, Riau, hundreds of villagers took refuge after a herd of at least 30 wild elephants ran amok after losing their habitat in Rambah Hilir district. The elephants devastated about 1,000 hectares of oil palm plantations and rice fields belonging to local people. According to WWF Indonesia, losses due to elephant damage of oil palm plantations and timber estates in Riau alone reached about US\$100 million per year. Usually, the elephants are captured and sent off to 'training centres' but sometimes they are killed. In June 2002, 17 elephants were found dead with signs of poisoning at the border with North Sumatra. The authorities suspect farmers poisoned the elephants after the animals invaded their palm oil plantations.⁶⁵
- Fatal conflicts also occur between plantation workers or villagers and tigers throughout West Malaysia and Sumatra. In the first half of 2003, seven tigers were caught in Riau alone, and one man was killed in an oil palm estate in Siak.
- In the past decade, the orang utan population in Kalimantan declined by as much as 50%, falling to around 25,000, in large part due to the loss of habitat (80% loss in the past 20 years). Up to one-third of the Indonesian orang utan population is believed to have died during the 1997-1998 forest fires.⁶⁶

C.3 Papua: the next frontier?

Currently, 96% of all oil palm plantations in Indonesia are located on the islands of Sumatra and Kalimantan. In order to give the islands East of Java ‘their equal share’ of oil palm, the Indonesian government began to direct investors to West Papua. The Habibie government gave permission to 28 Indonesian private companies to open large-scale oil palm plantations in the province after having put in place a number of incentives. These include long-term licenses (99 years) and access to a maximum of 100,000 ha per company (as opposed to 40,000 ha in other provinces).

Information from the Indonesian NGO Sawit Watch indicates that around 2.8 Mha in the districts of Jayapura, Manokwari, Sorong, Merauke, Yapen Waropen, Nabire and Timika have been reserved for oil palm plantations so far. In the first four districts, some 343,000 ha have been allocated to oil palm companies (including Sinar Mas, PTPN II, Siringo-ringo, Korindo and others). However, of the area allocated to these companies, only 11% (40,000 ha) has been planted. Whilst currently actual realisation of oil palm projects is slow, this may change in future. The region has some 7.4 Mha of forestland set aside for conversion; 2.8 - 3 Mha of which may be developed into oil palm.⁶⁷

D. Forest Fires

D.1 The 1997-1998 fires revisited

Wildfires are not a common natural phenomenon in tropical rainforest regions. Yet, in 1997-98, fires raged throughout rural Indonesia, affecting no less than 6% of the country's total landmass. These fires brought about a thick unhealthy smog which covered large parts of Indonesia, Malaysia, Brunei and Singapore for at least three months. Looking back, Indonesia's former Minister of Environment Emil Salim stated:

"The damage inflicted by these fires and haze was terrible. Wildlife, natural habitats, and ecosystems in the worst affected areas were devastated beyond recovery. There were also heavy losses felt more directly by people, including damage to health from months of breathing heavy smoke-haze, losses to businesses forced to shut down for weeks or months by the haze - which interrupted transport, choked air-breathing machines, and disrupted work schedules - and destruction of farms, plantations, timber and other natural resources. Huge quantities of carbon dioxide and other greenhouse gasses were released from burning were released into the atmosphere. For every fire-setter who gained some short-term economic benefit from burning as a quick, dirty and cheap way to clear land or obtain forest resources, countless others paid a heavy toll in loss of income, bodily injury, and environmental destruction."⁶⁸

A report by the Centre for International Forestry Research (CIFOR) tagged the economic cost of the 1997/98 fires and haze at US\$ 2.3-3.5 billion, not including the costs of carbon release which may have amounted to as much as US\$ 2.8 billion. CIFOR furthermore estimated that the fires affected 11.7 Mha of land, half of which was forestland. Only 7% of the area burnt was grassland. CIFOR furthermore estimated that 447,000 ha of estate crops were burnt in 1997-1998.⁶⁹

D.2 The role of oil palm companies

Assessments showed that, depending on the region and time of year, 46%-80% of larger Indonesian fires in 1997-1998 occurred in plantation company concessions, around three-quarters of which were oil palm plantations.⁷⁰ Although it is notoriously difficult to prove, there is little doubt that within these areas, most fires were lit by company staff or locals paid by the company. Land clearing accounts for almost 20% of the costs of preparing an oil palm plantation and burning forests and debris from clear felling, as opposed to mechanical clearing and stacking, is still widely considered to be the most practical, quickest and cheapest clearing technique.⁷¹ So-called "zero-burning techniques" are US\$50-150/ha more expensive than burning.⁷² Arson, resulting from conflicts between communities and plantation companies, was another cause of the fires.⁷³

The Indonesian government banned burning practises by law in 1997. The Environment Management Act No.23 (1997) recognises corporate liability for environmental crime, including the crime of causing forest and land fires. This means that each concession or plantation company is responsible for any fire outbreaks in its concession area.⁷⁴ As of February 2001, Government Decree No. 4/2001 Act on Environmental Pollution related to Forest Fires and/or Land Burning explicitly prohibits all persons and their businesses from causing forest fires and using fire for land clearing in their land or concessions. They are obliged to extinguish all fires and take fire prevention measures (Art. 13-15).⁷⁵ In June 2002, Indonesia signed a binding anti-haze treaty with fellow-ASEAN countries. The treaty sets out the obligations of member states and details preventative measures and responses expected of ASEAN's 10 member countries.

In Malaysia, where burning was also banned in 1997, strict enforcement and heavy penalties led to greater compliance. A key success factor may have been that higher labour costs in Malaysia made zero-burning techniques economical.⁷⁶ In PNG, burning practises and forest fires are not yet a significant problem.⁷⁷ The use of fire to clear land for plantations should no longer be a point of discussion: burning is harmful to health and safety, poses great economic and environmental risks. It is illegal and there are alternatives. Indeed, the burning issue was not even a subject of discussion at the Palm Oil Roundtable in Kuala Lumpur in August 2003 as consensus had been reached on the issue. This, however by no means indicates that burning is no longer a serious concern (see box 5). In September 2002, CIFOR compared satellite information from the U.S. National Oceanographic and Atmospheric Agency (NOAA) with Indonesian land-use maps. CIFOR data shows that more than 75% of the hot-spots recorded in West and Central Kalimantan during August occurred in oil palm plantations, timber plantations and forest concessions.⁷⁸ In March 2003, the author of this report observed rampant forest fires in the **PT Surya Dumai Agrindo** and **PT Budi Dhaksa Dwikesuma** oil palm concessions near Dumai port in Riau. Fires were also observed in the PT Gunung Mas Raya (a subsidiary of **PT Indofood Sukses Makmur**)

concession in Rokan Hilir. While it received little media attention in Europe, forest fires in 2002 and 2003 frequently blanketed Kuala Lumpur, Singapore and Sarawak with hazy skies for periods of several days.

Box 5: Companies accused and sentenced of illegal burning (1997-2003)

The Indonesian authorities and NGOs have been partially successful in the uphill legal battle against plantation companies that are suspected or found to be burning illegally:

- Only 5 of the 176 plantation and timber companies accused of burning to clear concession land in 1997 were ever taken to court and only one was found guilty.⁷⁹
- In East Kalimantan, the **PT SMART** subsidiary PT Matrasawit Sarana Sejahtera illegally burned rainforests and community forests in the process of land clearing in 1997/98. A former company employee stated that when PT Matrasawit was burning to clear the forests, he observed three orang-utans dying in the flames. To the dismay of the communities involved, the fires spread into community coconut groves in the transmigration area of SP I-V and inside the Dayak forest gardens in Miau Baru. Villagers claim that the company did not stop the fires until they began to complain. In 1999 the company was found guilty in court and was fined Rp. 700,000 (US\$ 82.4).⁸⁰
- In 1999, Riau provincial forestry office announced it was taking 47 cases of fire starting to court. 17 companies were to be prosecuted for fires which took place in 1997-98, whilst 30 others were accused of similar offences in 1999.⁸¹ Of the 47, only two went to court. **PT Cipta Daya Sejati** was found guilty of illegal burning in 1999. Three people (two casual labourers and one field staff) received sentences of three to ten days in jail. No action was taken against the management. A court case against PT Torganda in Bangkinang, Riau for illegal burning in 1999 was dismissed.⁸²
- In 2000, the Indonesian environmental NGO "Walhi" (Friends of the Earth Indonesia) brought charges of pollution against 11 logging and plantation companies in South Sumatra following the 1997-8 forest fires: **PT Pakerin, PT Sentosa Jaya, PT Inhutani V, PT Sukses Sumatera Timber, PT Inti Remaja Concern, PT Nindita Bagaskari, PT Musi Hutan Persada, PT Sinar Belanti Jaya, PT Sri Bunia Trading, PT Daya Penca** and **PT Family Jaya Group**. **PT Musi Hutan Persada** (Barito Pacific) and **PT Inti Remaja Concern** were found guilty of burning, but the companies were merely ordered to improve their management and fire precautions.⁸³
- In July 2001, the North Sumatra Plantation Agency recommended that the Governor of North Sumatra take legal action against eight oil palm plantation firms for their alleged involvement in burning: **PT Daya Labuhan Indah, PT Cisadane Sawit Raya, PT Abdi Budi Mulia, state-owned PTPN IV, PT Wonorejo, PT Indosepadan Jaya, PT Torganda** and **PT First Mujur Plantation**.⁸⁴
- In July 2001, the Riau office of the Ministry of Forestry released the names of 24 plantation and forestry companies operating in Riau who had allegedly been responsible for causing haze in the province. The following companies accused are involved in oil palm: **PT Astra Agroniaga, PT Rokan Adi Jaya, PT Surya Dumai Agrindo, PT Duta Palma Nusantara, PT Inti Indosawit Subur** (Raja Garuda Mas group), **PT Tani Swadaya Perdana, Musim Mas, PT Blankolam, Subur Arum Makmur, PT Kencana Amal Tani, PT Jatim Jaya Perkasa, PT Titian Tata Pelita** and **PT Dharma Unggu Guna**.⁸⁵
- In 2002, the Riau Provincial Environment Department (Bapedalda) announced that it was considering suing five companies for illegal burning, including the **Sinar Mas** owned company **PT Ivo Mas Tunggul**, the **Indofood** subsidiary **PT Cibaliung Tunggul Plantation, PT Sindora Seraya, PT Dumai Industrial Zone, PT Tri Bhakti Sarimas** and **PT Jatim Jaya Perkasa**.⁸⁶
- Early in May 2003, the Malaysian company **PT Adei Plantations** (95% owned by the Malaysian company **KL Kepong**) paid a US\$1.1 million settlement to the Indonesian Ministry of Environment for the company's involvement in illegal burning in Riau in 1999.⁸⁷ A total of 17 fires were found when a local environmental control office team conducted an investigation into the plantation. Four other companies are close to being brought to court, according to the government.⁸⁸
- In June 2003, Walhi initiated a move to sue 32 companies and the local Riau government for their negligence in preventing forest fires in their respective areas. Following the initiative, the government expressed its support for any legal recourse pursued against firms that caused forest fires. Among those sued who are active in oil palm are: **PT Guntung Hasrat Makmur, PT Multi Gambut Industri, PT Langgan Inti Hibrindo, PT Adei Plantations, PT Rimba Rohul, PT Siak Raya, PT Kencana Amal Tani, PT Surya Dumai Agrindo, PT Bhumi Reksa Nusa Sejati, PT Priatama Riau (PT Primatama Riau), PT Flora Wahana Tata, PT Bumi Reksa Nusa Sejati, PT Inecda** and **PT Duta Palma Nusantara 1**.⁸⁹
- Walhi is currently demanding that these companies stop all land clearing activities and mobilize their employees to assist in fire-fighting efforts as well as fund fire-fighting efforts on their concessions and the surrounding forests. Walhi Riau is furthermore demanding that the government immediately: revokes existing forest conversion permits; sets up emergency health posts in every sub-district to facilitate free medication for those suffering respiratory problems; carries out fire-fighting efforts with funds levied from the companies whose lands are on fire; and uses local government funds to sponsor fire-fighting efforts in protected forest areas and lands designated APL (Forest Lands for Other Purposes).⁹⁰

E. Pollution

E.1 General concerns

Villagers interviewed in Indonesia often report that local fish stocks in rivers and lakes declined and that their potable and bathing water sources turned brown and smelt foul after oil palm was introduced to their areas. In Malaysia, female workers in plantation estates are disproportionately unhealthy compared to other women. In PNG, West New Britain village women have also reported significant increases in birth defects, fertility and maternity problems associated with oil palm pollution.⁹¹ NGOs are concerned that the country's relatively undamaged coral reefs will be affected by pollution, thus contributing to the destruction of pristine reef systems and hence valuable fish breeding and spawning grounds.

Palm oil production brings about various types of environmental pollution. The most important are:

- air pollution caused by forest and peat fires;
- heavy sediment loads in rivers and streams;
- pollution caused by excessive or improper use of agro-chemicals; and
- Palm Oil Mill Effluent (POME) dumping.

E.2 Soil erosion

Land clearing causes considerable increases in topsoil run-off, disturbs stream-flow and increases sediment loads in rivers and streams. Soil erosion, for example, is five to seven times greater during clearance, while sediment loads in rivers increase by a factor of four.⁹² Whereas some of these impacts are temporary, the pressure on riverine and coastal ecosystems remains significant in many areas because land clearing and development is continuously taking place in different areas in the same watershed. Soil erosion is especially problematic when oil palms are planted on steep slopes and at high altitude. Terracing reduces longer-term erosion risk but the land preparation causes very heavy erosion. As suitable lowland areas become more scarce, it may well be that upland oil palm plantations will be introduced to Southeast Asia, with all the associated risks. This has already taken place in Costa Rica and Kenya where oil palm has successfully been planted at 1,000 m above sea level.

E.3 Agro-chemicals

The European Union is presently working on food safety regulations that would require food companies to ensure that, by 2005, their products do not even contain traces of pesticides. In the oil palm plantation sector, around 25 different pesticides are being used, but because usage is not controlled or documented monitoring is very difficult. Demands on food safety, animal welfare, environmental protection and worker welfare are formulated by a cooperative body of European retail chains and food suppliers, *EurepGAP*, which is defining *Good Agricultural Practice (GAP)* procurement guidelines.⁹³

During a workshop on Food Safety in Medan (June 2003), representatives of Dutch laboratories stated that they did not know what agrochemical to test incoming CPO shipments for because there is no list of which fertilisers, herbicides and rhodenticides are available locally and actually used on the estates.⁹⁴

The most commonly used weed killer in Southeast Asia's oil palm plantations is paraquat dichloride ("paraquat"). This herbicide is very toxic, may be fatal if inhaled, ingested or absorbed through the skin and its effects are irreversible.⁹⁵ There is no known antidote to paraquat poisoning. Agricultural workers are regularly exposed to this toxic substance during handling and mixing, spraying and working in freshly-sprayed fields. Paraquat is persistent and accumulates in the soil with repeated applications.⁹⁶

Women, who due to their physiological makeup are more vulnerable to the harmful effects of agro-chemicals than men, are predominantly responsible for mixing, handling and spraying pesticides on palm oil plantations. In 2002, Pesticide Action Network (PAN) Asia/Pacific and Tenaganita, a workers' rights organisation, in collaboration with the National Poisons Centre, published a study of women plantation workers confirming widespread pesticide poisonings and significant problems associated with paraquat. Approximately 30,000 women work daily as pesticide sprayers in Malaysia; many have shown acute paraquat poisoning symptoms, including nosebleeds, eye irritation, contact dermatitis, skin irritation and sores, nail discoloration, nail loss and abdominal ulceration.⁹⁷

Paraquat is banned in Austria, Denmark, Finland and Sweden, and seriously restricted in Germany. In August 2002, the Malaysian government announced its intention to ban all production of paraquat through a two-year phase-out process. This ban is now being vigorously opposed by the pesticide industry, although at the time of writing it remains in place.⁹⁸ On 3 October 2003, the EU Commission's Standing Committee on the Food Chain and Animal Health disappointingly failed to exclude paraquat from the list of active substances authorised at EU level (Annex 1 of the Pesticides Authorisation Directive 91/414) – but NGOs are continuing to make the case that a ban is necessary.

E.4 Palm Oil Mill Effluent (POME) pollution

Due to that fact that Fresh Fruit Bunches (FFB) of palm oil need to be processed within 24 hours of harvest, one CPO mill is usually built for about every 4,000 - 5,000 ha of plantation. This means that hundreds of processing facilities operate throughout the countryside of Malaysia, Indonesia and to a lesser extent, PNG. Of the various types of waste produced, POME is responsible for the most pollution. POME is a mixture of water, crushed shells and a small amount of fat residue. Most CPO mills have outdoor basins in which POME is stored and somewhat detoxified (by adding oxygen) but these basins easily overflow during heavy rain or intensive production. Some companies allow the liquid to flow directly into the rivers. Because of its high Biological Oxygen Demand (BOD), POME is highly polluting to waterways and has significant negative effects on aquatic life downriver.⁹⁹

Box 6: Palm Oil Effluent (POME) Pollution Incidents

- In June 2001, waste disposed by the CPO mill in **PT LonSum's** plantation contaminated the Itam river in Musi Rawas district. The river water turned brown, smelly and slimy and could no longer be used for washing or bathing as it caused skin rashes. Local fishermen stated that they were unable to catch any fish from the river. The plantation company, however, stated that the waste was used as fertiliser for the palm trees. The fishermen argued that the waste overflowed into the Cupu river at the mouth of Itam river. The case was settled with a compensation payment of Rp. 6 million (US\$ 705.9) from the company to the community on 24th July 2001.¹⁰⁰
- On April 11, 2003 some 20 plantation companies in Riau province pledged to improve their waste management. However, by the end of May, the Jakarta Post reported that thousands of fish had been killed in the Kuning River as a result of palm oil waste water dumping by the oil palm company **PT Surya Dumai**.¹⁰¹
- In Central Kalimantan, crocodiles reportedly died as a result of wastewater effluent spillage in the Sungai Sekonjar in 2002.¹⁰²
- In Malaysia, there is considerable scope for improving environmental performance in the industry. During 2000, enforcement officers visited 627 palm oil mills and took action against 213 mills for various air and water pollution offences, of which 20 were court cases. The highest number of contraventions were recorded in the states of Sabah (83 mills), Johor (68 mills) and Pahang (66 mills). Overall compliance with the regulations was reported to be 38%.¹⁰³

Most pollution related to oil palm plantations can be avoided and for producers it makes economic sense to reduce wastage of nutrients and replace agro-chemicals with biological alternatives. Thus, many companies have taken measures to prevent pollution but half-hearted mitigating measures cannot compensate for the enormous growth in the sector, inevitably leading to vastly increased pollution.

F. Illegal activities and corruption

F.1 The licensing process

Oil palm plantations in Indonesia are developed on land leased from the Government. Illegal expansion of oil palm plantation prior to obtaining all licenses or in excess of the legally permitted maximum, results in unacceptable environmental degradation, losses of public or community owned natural resources and losses to state coffers.

If and when they are detected, illegal practises present the authorities with a choice of either accepting the situation or entering lengthy and uncertain legal proceedings in a generally corrupt legal arena. It is no secret in Indonesia that the first option is commonly chosen and that bribery is also common. As a result, forests are lost and affected local communities are left to deal with the situation themselves, a recipe for persistent social conflicts.

After in-principle approval by the Department of Plantations, an investor approaches the district governor for his in-principle approval, which is followed by a land allocation. This is known as an Izin Lokasi, or Location Permit. After the land has been obtained, and its use has been cleared by the Department of Forestry, a leasehold title (HGU) is granted for a period of 30 years (99 years in East Indonesia). Plantation licences are now issued at the district level, but there has been no corresponding decentralisation of licence-issuing authority in the Ministry of Forestry. Thus, getting new plantation licences has become more time-consuming. Some companies proceed with land clearing ahead of obtaining formal approvals. There are instances where district governments issue new investment licences for land that has in fact been allocated to another company but is not under active cultivation.¹⁰⁴ Moreover, it has also been reported that local officials keen to encourage oil palm development in the districts sometimes falsify the condition of the forest for which a release permit is required from the Ministry of Forestry.¹⁰⁵

As of 2000, approximately 270,000 ha in 6 provinces had been excised from protected (production) forests for oil palm projects without the approval of the Ministry of Forestry.¹⁰⁶ A plantation company can only fully engage in plantation development when it has recommendations from the Governor, provincial Forestry authorities and at least four other permits from the Ministry of Agriculture and the Ministry of Forestry.

F.2 Common illegal practises

Acquiring the permits required is a time-consuming process, which not all companies can or wish to afford, for example if they have already borrowed money from a syndicate of banks and are incurring interest charges on this money.¹⁰⁷ Commonly reported illegal practises in the Indonesian oil palm sector include land clearing without required permits, expansion outside concession boundaries and illegal burning (see box 7). Sawit Watch's research also revealed that in many cases plantation companies clear and plant areas that are bigger than the areas assigned to them through their HGU permit (see box 8).

Box 7: Evidence of illegal practices by oil palm companies

- After a series of conflicts in the PT Gelora Mahapala oil palm concession, owned by **PT London Sumatra** in East Kalimantan, community representatives and NGOs visited the Minister of Forestry Crops in February 1999. At the Ministry, they discovered that the company had, over the last few years, illegally established thousands of hectares of oil palm estates in East Kalimantan. The company had no forest conversion permit (IPKH), no landclearing permit (IPH) and no environmental impact statement (AMDAL).¹⁰⁸
- During the same NGO visit to the Minister, it was also found that the **PT SMART** subsidiary PT Matrasawit Sarana Sejahtera started planting well before it had finalised the investment application procedures. The company possessed neither a permit for the release of conversion forestland (Izin KBNK), nor an IPKH permit or operation permit (Hak Guna Usaha). The company furthermore had no AMDAL in early 1999 when it had already cleared thousands of hectares of forest and community land. By the time the company wanted to finalise its permits, the rules governing large estate developments had changed, and the company could no longer secure estates on the basis of full ownership.¹⁰⁹
- In Pahang, Peninsular Malaysia, the ruling government party's logging operation Ladang UMNO circumvented laws by dividing a 4,000 ha area into 10 units of 400 ha in order to avoid the legal requirement for an Environmental Impact Assessment required for all projects in excess of 500 ha.

Box 8: Clearance and planting by oil palm companies outside permit boundaries

- In Desa Pergulaan, North Sumatra, **PT London Sumatra** cleared 139 ha of community land that was excluded from the HGU.¹¹⁰
- The HGU permit for PT Dasa Anugerah Sejati (PT DAS, **Raja Garuda Mas** group) is valid for an area of 9,000 ha, yet the National Land Body (BPN) in Jambi reported that the actual area utilised is around 15,000 ha.¹¹¹
- A team of representatives from BPN Batang Hari branch, district government (DPRD) and community representatives was formed to re-measure the PT Inti Indosawit Subur (**Raja Garuda Mas** group) area in Bulian and Tembesi sub-districts. The team discovered that the company had extended its operations into 890 ha of customary rights land and 142 ha of community forest. PT IIS offered to sell back 300 ha to the community but refused to return the remaining 591 ha of customary rights land, as it claimed to be in the process of obtaining an HGU for this area.
- In 1996, the resident community convinced the National Land Body to re-measure the land opened up by PT Kresna Agroindo Duta (PT KDA, a subsidiary of **PT SMART**). The survey revealed that the company had indeed encroached into 270 ha of community land. The community's actions led the company to cease its expansion activities, although it did not return the land to the affected villagers.

The main reasons for these infringements, according to a local Sawit Watch contact, are:

1. Poor land use planning and mapping in Indonesia. There are few reliable maps and there is little coordination between different government departments.
2. Law enforcement in Indonesia is slack and companies depend on "KKN" (Corruption, Collusion and Nepotism) to realise their projects. Taking a larger patch of land compensates for the cost of bribes;
3. Communities living in or nearby allocated concession areas do not have the land rights that would prevent companies encroaching on their land formally recognised by the government, which means that they are in a poor bargaining position. After landclearing community land, some companies apply for an HGU under a new name in order to diffuse community efforts to get compensation or get their land back;
4. Taxes are based on the company's area specified in the HGU.

The Indonesian Government issued a decree in 1998 (No 728/Kpts-II/1998) limiting plantation areas in the country to 20,000 ha per province. This decree therefore aimed to take a step towards greater social equity between communities and companies. However, questions exist as to its effectiveness. Publicly listed companies (including company groups such as LonSum, Astra and SMART) are not bound by these regulations¹¹² and are therefore exempted from this means of limiting their power. Even for those companies which are not listed, there are a number of questionable cases – the most striking being that of **PT Asian Agri Lestari (PT AAL)**, part of the Raja Garuda Mas group. PT AAL currently own 56 oil palm plantations in Sumatra, with a planted area of around 130,000 ha. The Group has a total concession area of more than 543,000 ha in Indonesia: more than 150,000 ha in Sumatra, 79,000 ha in Central Kalimantan and 314,000 ha in Papua.¹¹³

G. Land rights and social conflicts

“The main problem is that our land rights are not being recognised. Although the government recognises indigenous peoples’ rights under some regulations or laws, these have never been implemented. A big problem is the huge number of oil palm plantations which have taken our lands and cut down our forests. Sometimes indigenous communities are forced by the military or the police to give their land to the company. The most important thing is not compensation, but recognition of our rights. Companies have a lot of money to offer indigenous communities as compensation, but they’re never frank about the impact of oil palm plantations. These are not just destroying our lands, but also our cultures. Oil palm isn’t part of our farming culture. It’s rice that is part of our culture - we have a customary ceremony to ask the Gods for good harvests for our families.”

Quote from an interview with a volunteer for AMA Kalbar (Indigenous Peoples Alliance, West Kalimantan) as published by Down to Earth¹¹⁴

G.1 Land conflicts in Indonesia

The description of the precarious situation of the indigenous Dayak peoples in West Kalimantan is a typical story that can be heard throughout Indonesia and in parts of Malaysia. Indonesia’s forestlands provide a livelihood to 40 million indigenous people and other rural communities but because they rarely have formal rights, palm oil companies have taken over large tracts of customary rights lands (known as “adat”) and community forests. The total area involved and the number of affected people is considerable. According to the Indonesian Legal Aid Foundation (YLBHI), in 1998 alone 214,356 households involving 553 cases in 14 provinces jointly lost 827,351 ha of community land to private companies.¹¹⁵ As of 2001, the conflict area had risen to 569,733 ha (see Table 2). Such developments nurture numerous, persistent and often violent conflicts. Some conflicts have prevented many companies from operating altogether and in response, many have mobilised and paid the police, army or government officials to suppress unrest, which often translates into gross human rights violations.¹¹⁶

As a result, the plantation business is the most conflict-prone land based sector in Indonesia. According to data gathered by the Consortium for Agrarian Reform (KPA), plantation related social conflicts accounted for one-third of all forest and land conflicts in the country. Of these, the military was involved in almost half of all cases.

Table 2: Forest and land conflicts in Indonesia recorded to July 2001

Sector	Number of conflicts		Number of villages involved		Land area (ha)		Military involvement (cases)	
	Number	Percentage	Number	Percentage	Area	Percentage	Number	Percentage
Plantations	261	32%	566	39%	569.733	30%	37	47%
Forest concessions and industrial tree plantations	66	8%	122	8%	578.684	30%	4	5%
Mining	38	5%	74	5%	255.102	13%	3	4%
Housing	181	22%	235	16%	208.374	11%	11	14%
Tourism, resorts	63	8%	106	7%	80.971	4%	5	6%
Industrial zones	87	11%	120	8%	64.866	3%	3	4%
Dams, irrigation	72	9%	168	12%	78.620	4%	8	10%
Mangrove forests	26	3%	42	3%	40.899	2%	3	4%
Conservation areas	19	2%	19	1%	20.751	1%	4	5%
Total	813	100%	1452	100%	1,898.00	100%	78	100%

Source: Consortium for Agrarian Reform (July 2001)

Many recent land conflicts have been sparked by "re-occupations" staged by villagers who were dispossessed of land and resources by large-scale plantation companies during the Suharto period. Longstanding unresolved disputes resurfaced during the more fluid political situation immediately following the ousting of Suharto in 1998. The new political optimism, combined with desperation caused by the economic crisis, prompted people to organise actions to reclaim their land. The number of conflict cases continues to rise. By September 2002, the Consortium for Agrarian Reform had recorded 530 cases related to plantations, more than twice the number recorded in July 2001 (261).¹¹⁷ The KPA data, drawn from media reports and information from member organisations in 19 provinces, show that between mid-1998 and early 2002:

- At least 479 local people and activists defending community rights were tortured in 41 conflicts;
- At least 12 were killed in 14 cases;
- At least 134 were shot in 21 cases;
- At least 25 were abducted in 7 cases;
- At least 936 were arrested in 77 cases;
- At least 284 houses or huts were burned down or destroyed in 25 cases;
- No less than 307,954 ha of peasants' land was affected by crop damage, destruction and burning;
- No less than 1,901 peasants and activists were terrorised in 157 cases;
- No less than 1,809 were intimidated in 202 cases;
- Other forms of violence include rape (1 case recorded) and disappearances, which were reported in 88 different cases.
- Fourteen people were still missing when the report was published in 2001.¹¹⁸

Evidence from different case studies indicate that communities rarely make excessive land claims. Most conflicts involve a few hundred, at most a thousand, hectares per community. In one such case, a community has struggled for no less than 17 years to see 130 ha of land returned to them that the company involved opened up illegally. Some companies have encountered so much social unrest that they might be inclined to return part of their estates to local communities and there are a few cases in Indonesia where an informal arrangement has been made. Plantation companies are, however, very reluctant if not fearful of seeing any form of formal recognition of traditional land claims being recognised as this would set a precedent that could affect many plantation companies throughout the country. Hence, the struggle for land, both in Indonesia and Malaysia, continues on a daily basis.

G.2 Land conflicts in Malaysia

Land rights conflicts in Malaysia are not as common as in Indonesia. Conflicts involving indigenous communities in certain parts of the country, for example the Orang Asli in Peninsular Malaysia, the Penan and Dayak in Sarawak and various smaller groups in Sabah, do however appear to be as common as they are in Indonesia. At present the largest number of social conflicts occur in the East Malaysian state of Sarawak, where most Malaysian oil palm expansion takes place and where oil palm is reportedly forced upon communities with, or without Native Customary Rights (NCR) (see box 9).

Box 9: Land rights conflicts in Sarawak, East Malaysia

- On 17 April 1997, the Police Field Force arrested nine Iban men from Rumah Reggie for voicing opposition to an encroaching oil palm plantation.¹¹⁹
- On 19 December 1997, when a violent conflict between unarmed Iban and the Police Field Force broke out following a dispute with a palm oil plantation company, one Iban man, Enyang Ak Gendang, was fatally wounded by a gunshot wound to his head.¹²⁰
- On 1st September, 1999, at about 3.00 p.m., a violent clash between Iban natives from two longhouse communities, namely, Rumah Busang and Rumah Bali in the Miri Division, Sarawak and workers of Vintay Enterprise, a contractor to **Sarawak Oil Palm (SOP)** resulted in four workers of the contractor company being killed and three others injured. SOP is a state owned company involved in oil palm plantation development in various parts of Sarawak. The Ibans protested against the clearance of the said land as it would completely destroy their crops such as pepper, fruit trees, rice farms and other trees on which they solely depend.¹²¹

G.3 Papua New Guinea

In Papua New Guinea a very different situation exists. Almost all land in PNG is owned by communities. While this is probably one reason why oil palm development so far has been modest and why PNG is still heavily forested, conflicts between communities and, especially, logging companies are widespread. The situation in PNG illustrates the importance of community awareness raising and education. Without it many communities may be tempted to lease out their forests to logging companies with a view to making a quick profit, without taking into account the longer term costs and benefits.

Once village leaders agree to an oil palm development on their land, internal community conflicts often arise if not everyone in the community is in agreement with the project. Customary land boundaries are sometimes crossed when oil palm plots are established, or at other times, the company leases out some of the land to people from other areas for oil palm plots. This results in tension and misunderstandings within and between communities, as land use decisions are no longer based on customary decision making processes. Conflicts arising from land disputes are on the increase as these kinds of schemes are introduced.¹²²

Box 10: Landscapes and commodities replaced by oil palm – “good” for local people?

It is frequently argued that the introduction of palm oil and other large-scale commodities (such as soy) is “good” for local people, bringing jobs, money and development to poor rural areas. Why do local communities protest about their land being converted to what some perceive to be more productive land use? The key question is: “more productive to whom?”

In Southeast Asia's rainforests, many indigenous communities have successfully adapted their lifestyles to the rainforest environment and pass this knowledge on through a strong oral history. The adaptation to their environment included the use of hundreds of products from the natural forest for their subsistence (game, fruits, fish, medicinal herbs etc.) as well as on the products from more intensively used areas (such as rattan, rubber, coffee and resins).

Indigenous communities do deforest and burn certain forest areas, but generally on a limited scale. In the more intensively managed areas shifting cultivation and forest gardens provided them with staple foods such as rice, tapioca and maize. Hunting endangered species also occurs in these communities but the scale of these activities rarely critically threatens the survival of species in an area. In monetary terms, such forest dependent communities are poor. They do, however, have access to ample land and resources and can be considered well-off in terms of food security, available recreational time, sovereignty over production and management and stability in supply and income. It is a common misunderstanding that indigenous communities are not market-oriented. Such communities often supply a range of internationally traded goods and commodities that are heavily traded and highly valued. The key point is that the benefits of the traditional forest use system accrue to the local communities rather than outsider traders and investors.

Indigenous communities often produce small volumes of unprocessed high quality products that are not marketed optimally. For centuries this has driven outsiders' attempts to gain greater access to communities' resources and products in order to promote greater production and ultimately gain control over production. Local communities all over Southeast Asia have endured the wave of logging operations that has affected almost every single hectare of virgin forest they had set aside as well as the community-owned “forest gardens”

The destruction of these resources has brought hardship to local communities. In general, however logging operations are temporary. Once the logging company had taken its cut, it would move on to previously unlogged forests.

(continued overleaf)

Box 10: Landscapes and commodities replaced by oil palm – “good” for local people? (continued)

Oil palm (and other large-scale tree plantations) bring about complete and permanent change of the local communities' way of life, economy and culture. Many of the natural resources are removed, the land is fully and permanently misappropriated, a monoculture export oriented crop is planted and a 100% cash-based economy is introduced. When and where this happens, cash incomes may raise overall, but not necessarily the local peoples' overall livelihoods. They have no other option left but to work for the plantation company or become oil palm smallholders. Farmers on small-scale farms become workers on large-scale plantations, with less control over their lives and an income ultimately dependent on the fluctuations of the international market.

This system may bring benefits to local communities – for example, in the form of a regular wage. Yet the problems associated with the trade at producer level, loss of control at community level, environmental damage and the conflict resulting from it, indicate that this development model may not be a sustainable or sensible once for the long-term. Serious questions need to be asked about the policies of international institutions, national governments and corporations in promoting the production of commodities like oil palm as an answer to the needs of rural communities.

H. Settlers and smallholder issues

H.1 Background

Under settler and smallholder schemes, a plantation lot of 2-5 ha is prepared and planted by a company, and transferred to a family to manage the mini-estate as part of a larger complex including CPO mills which are run by the company. The schemes were initially set up by state run companies such as the Federal Land Development Authority (Felda) in Malaysia and PTPN in Indonesia.

Smallholder schemes have been developed to achieve a series of objectives such as the development of isolated rural areas, accumulation of property for landless farmers, better development and use of natural resources, creation of jobs, ensuring national food security, diversification of exports and stemming rural exodus.¹²³ Smallholder schemes have also been seen a tool to settle indigenous people who have historically moved around (and thereby freeing forestland for logging companies) and to relocate people from densely populated areas (e.g. Indonesia's Transmigrasi program). These latter objectives have become a source of conflict with local communities who have had these programs forced upon them, often in combination with a massive influx of outsiders (migrants) to their areas.

H.2 Indonesia

Until 1995, the Perkebunan Inti Rakyat (PIR) or Nucleus Estate and Smallholder (NES) scheme was the most common smallholder scheme in Indonesia. Under this scheme (which is still operating in many places) the nucleus company is in charge of developing smallholder (plasma) estates, usually adjacent to its own estates. It arranges and guarantees the financing of these estates and provides agricultural inputs such as fertiliser to the smallholders. The latter agree to sell their FFB to the nucleus based on a formula that takes into account the market prices for CPO and PKO, adjusted for the cost of processing, transportation and marketing costs. This price is determined on a monthly basis per province, and announced by the provincial Department of Agriculture. The parent estate withholds loan instalments from the payments and channels these to the issuing bank.¹²⁴

Based on their field research in West Kalimantan, Potter and Lee (1998) found that, with some exceptions, oil palm does not appear to provide smallholders with sustainable livelihoods. Moreover, the credit schemes associated with smallholder programmes make smallholders highly dependent on the nucleus company and they often end up with bad debt.¹²⁵

Their findings apply especially to the Dayak, whose traditional farming methods and culture do not suit the large-scale monoculture plantation approach. The schemes are particularly unjust to those communities whose land is taken to develop smallholder estates. Their land is divided by three and split into 'equal' portions between a. the company, b. a transmigrant family or retired military or government personnel and c. the local community member who surrendered the land. Even if the family held 10 ha in the area where the estates are to be developed, only 2 ha will be returned to them.¹²⁶

Furthermore, local communities in Indonesia are the primary producers of agroforestry and agricultural commodities such as rattan, coffee, tea, rubber, cacao and rice. The production of these commodities has been adjusted to the needs and priorities of the farmers where food sovereignty and stable income are often more important than high cash income. Lafranchi (2000) found that traditional agroforestry production systems are relatively resistant to market shocks and do not require long time horizons or large initial investments to realise returns. From the local perspective, customary forest management ultimately provides a greater return to labour than oil palm.¹²⁷ Similarly, a Sawit Watch study among smallholders in Sulawesi found that growing palm oil is significantly less rewarding than growing corn (Table 3). Despite this, the credit scheme does not allow them to convert the estate into other crops.

Table 3: Gross and net monthly income derived from independent corn farming vis-à-vis palm oil production in the PT Surya Lestari II PIR-Trans smallholder scheme.¹²⁸

	Corn		Palm oil (FFB)	
	Rp	US\$	Rp	US\$
Gross income	1.600.000	188	1.350.000	159
Costs	648.563	76	900.000	106
Net monthly income	951.437	112	450.000	53

In 1995, a new system was introduced by which smallholders were organised as a cooperative (*Kredit Koperasi Primer Anggota*, KKPA) that entered into an agreement with the parent estate, which is appointed as the manager of the land. The parent still guarantees the repayment of the development loan from the bank.¹²⁹ However, from another point of view, the KKPA scheme implies that local people must pay for their own land.¹³⁰ Like NES, the KKPA scheme is one way by which local farming knowledge and skills are wiped out, as the promise of high productivity and improved standards of living seduce people into becoming involved in a completely different form of agriculture without fully considering the implications.¹³¹

- The smallholder lots allocated in Indonesia are 2 ha per household, whereas in Malaysia up to 5 ha are allocated and in Ghana communities gain access to 8 ha per family. For local communities, if they get involved at all, this transaction can be very inequitable. They may have owned 10 ha under customary rights law but because this law is not recognised they will never get more land than 2 ha, whereas the remaining 8 ha is either included in the nucleus estate or handed over to transmigrants (under the PIR-Transmigrasi programme). According to Sawit Watch, smallholder schemes are formed merely to procure people's land and as a way for companies to gain access to cheap credit in the name of the community.¹³²
- As a rule, the company develops the core part of the estate before the smallholder lots are allocated. The company gives an undertaking to convert this part into farmer's plots once it becomes productive. However, in some cases, such as **PT Tunjuk Langit Sejahtera** in Batanghari district, the company (Jambi) kept control of the trees during their most productive years and only handed them over to the community after that.¹³³ Many communities complain of being allocated the worst lots with either poor soil quality or at great distance from the centre of the estate, whilst the company holds on to the best land.¹³⁴
- The credit for smallholder schemes is ultimately sourced from the state bank (Permodalan Nasional Madani, PPN), that on-lends to commercial banks in the provincial towns against interest. These banks charge commercial interest rate (~7%) on loans extended. Preliminary research by Sawit Watch has shown that smallholders are sometimes drawn into credit schemes based on faulty assumptions at the feasibility studies stage (i.e. FFB prices are exaggerated, forecasted yields are too high, areas are overestimated). As a result they may gain access to too much credit that they can not pay back later. This draws them into a debt relationship with the company whose bargaining position vis-à-vis the smallholder increases.

At time of writing, cooperatives without a nucleus estate could not gain access to smallholder credit. In 1999 a number of new models were introduced which allow for various types of ownership. Of those investments approved since 1999, 11 out of 37 (30%) have made use of a model whereby the cooperative owns 20% of the shares and the company/investor controls 80%.¹³⁵ This 20:80 model offers the least to the cooperatives of the five models available. It is questionable whether those who are allocated the 20% share were ever consulted on the other options available, which include:

- full ownership by the cooperative;
- 65-35% division in favour of smallholders;
- transfer of the estate to the cooperative after 15 years; and
- the housing estate model, by which the company develops the estate and the cooperative members buy the plantations.

H.3 Malaysia

Of the 3.38 Mha of oil palm planted in Malaysia in 2000, 60% were under private ownership, mainly by plantation companies, 30.5% were under Government settler schemes, while the remaining 9.5% were individual smallholders. Between 1980 and 2000 the relative share of settler and smallholder schemes declined from 47.9% to 40%.¹³⁶ The largest player in the smallholder business is FELDA which was established in 1956 with the mandate to develop agricultural land for the rural poor and landless. FELDA accounted for 17.7% of the total planted area and 20.6% of the palm oil produced in Malaysia in 2001.¹³⁷ The size of holdings for which FELDA issues land titles ranges between 4.1 to 5.7 ha per family.¹³⁸

The FELDA schemes were responsible for considerable deforestation especially in Peninsular Malaysia.¹³⁹ However at present, Peninsular Malaysia has very little capacity for further oil palm expansion. That is one of the reasons why FELDA is targeting Sabah and Sarawak besides some of the forest areas in the northern states of Perak and Pahang.¹⁴⁰

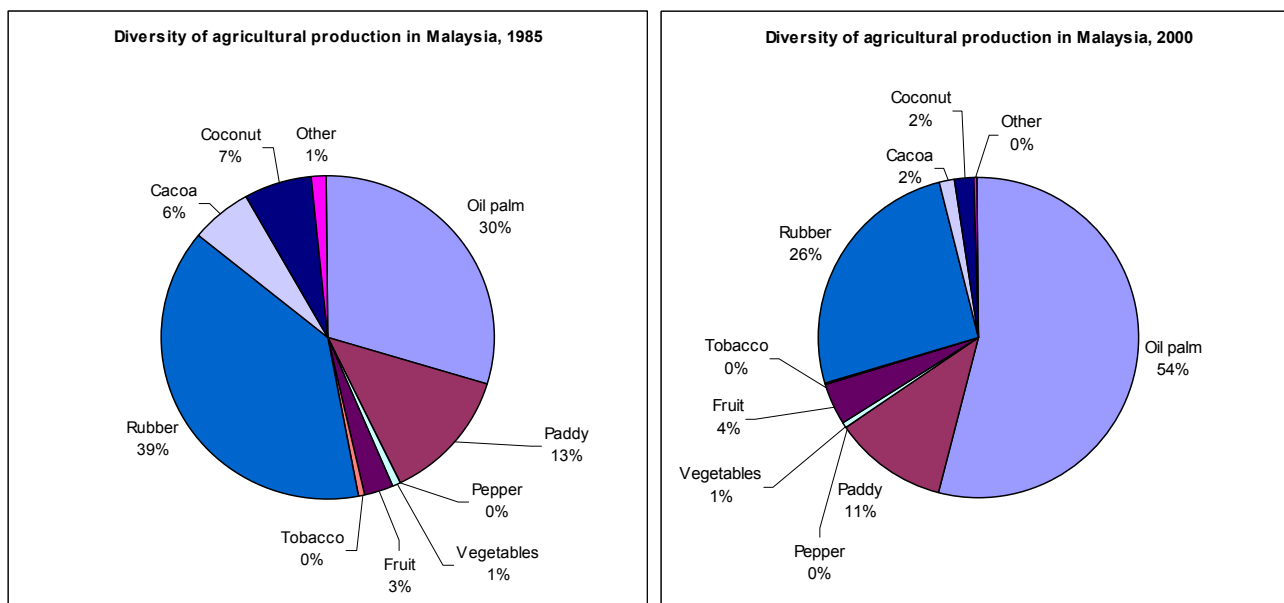


Figure 3: Diversity in agricultural production in Peninsular Malaysia in 1985 and 2000

FELDA was part of a Malaysian government policy from 1960 onwards intended to diversify agricultural production. Oil palm was the prime crop choice for the diversification program and large tracts of rubber land were converted to oil palm over the next three decades. Coupled with intensified new land development, in particular by FELDA, state agencies and the private sector, oil palm areas expanded from a mere 55,000 hectares in 1960 to 1 Mha in 1980, over a period of just two decades. Oil palm planted areas had doubled to 2 Mha by 1990.¹⁴¹ Although the composition of exported commodities was diversified, the net outcome of this diversification was to reduce the diversity in agricultural production (Figure 3).

In terms of poverty alleviation, FELDA claims success. Overall, through organised smallholders and other programs, the incidence of poverty in agriculture as a whole had been successfully reduced from 68.3 per cent in 1970 to only 11.8 per cent in 1997. However, published data (subsequent to 1990) on the incidence of poverty by sub-sectors is not available.¹⁴² Poverty among FELDA smallholders is still prevalent in some areas and smallholders are particularly vulnerable when global palm oil prices are low. Smallholders are not permitted to convert the oil palm to any other crop, nor are they permitted to dispose of their land without the State Government's approval. In April 2003, it was discovered that hundreds of settlers had mortgaged or leased their land.¹⁴³

Box 11: Smallholder-tiger conflicts in Terengganu, Malaysia

On 16 September 2003 a Memorandum of Understanding (MoU) between FELDA farmers, the management of the FELDA Jerangau Barat oil palm estate and WWF Malaysia was signed with the aim of mitigating smallholder conflicts with tigers in the area. The project site is an oil palm estate in Terengganu and one of the poorest areas in West Malaysia. The farmers who tend the plantation earn around US\$1 per day, depending on the commodity price of oil palm, and the work is part-time, around 10 days per month. To increase their income, FELDA encouraged farmers to integrate cattle farming into the palm oil plantation. The cattle would not only provide a weeding and fertilisation service, it would also add up to 30 per cent of the farmers' income.

However, the oil palm estate is surrounded by secondary forest and between November 2000 and July 2002, the FELDA settlers lost no less than 60 free-roaming cattle to tigers. A WWF Malaysia project which began in 1999 has shown that simply fencing cattle in paddocks at night, when tigers are active, can prevent this. Since paddocks were first introduced, tiger attacks on cattle have almost been eliminated — only one cow was killed, and this cow had not been fenced in.¹⁴⁴

8.4 Papua New Guinea

In PNG, nucleus-smallholder schemes are the predominant model of oil palm development, probably because companies must deal with the local landowners in order to gain access to their land, rather than with the central or local government. But the PNG government is assisting the industry to influence landowners and considerable pressure is put on them to accept the "success story" and surrender their land to the miracle crop. The Minister for National Planning and Monitoring Sinai Brown stated that "from a humble beginning as a relatively minor crop, the (oil palm) sector has enjoyed average export growth of nearly 11 per cent per annum in real terms since 1980. It is now our most important agricultural export and it directly supports around 190,000 Papua New Guineans. Average incomes and the quality of life in our oil palm regions are significantly above that in other areas of rural PNG."¹⁴⁵

As in Indonesia and parts of Malaysia, the benefits of oil palm compared to alternatives that better sustain local communities' traditional way of life, culture and environment are disappointing to local communities who have become oil palm growers. In PNG, communities are not well aware of the costs compared to the benefits of oil palm growing and they are not presented with a balanced picture of the costs and benefits by industry or government.

The other side of the story, according to the Centre for Environmental Law and Community Rights (CELCOR) in PNG, is that many landowners and smallholders in existing oil palm project areas are unhappy with the low returns they get from oil palm. They complain that, whilst big promises were made to coerce them into accepting oil palm as a good development project, they find themselves trapped in a situation of total dependency on the oil palm company and exposure to commodity price fluctuations. Normally growers allocate the best farmland available in their charge to oil palm. The opportunity costs of oil palm, according to CELCOR, are too high.

In the Milne Bay province, Village Oil Palm scheme, producers' average income from oil palm reached K\$1000 (USD\$250) per annum per hectare. Compare this with the net profit from one grown tree of K\$1,050 (USD\$260) where an average 3 cubic metres worth of rough sawn timber can be obtained. When the value of non-timber products is added to the worth of the 1-hectare forests, the opportunity costs of the area are far beyond what oil palm can offer to landowners and many of the alternatives are far more ecologically sustainable and socially viable. In the same province landowners are offered rent in a lease-leaseback arrangement by oil palm companies of a mere K\$20 (USD\$5) per annum per hectare.¹⁴⁶

Not all communities in PNG believe that oil palm will bring them the development that they seek. For example, eight landowner groups in Madang province fiercely opposed the Ramu Sugar oil palm project through an advertisement in a PNG newspaper in June 2003.

NO OIL PALM

We the landowners of:

Koropa	Usino
Sausi	Garaligut
Yakumbu	Bill 1
Urigina	Bill 2
Danaru	Sepu

Located in the proposed Oil Palm area in the Upper Ramu district in Madang Province wish to make it perfectly clear that there will be **NO OIL PALM** project on OUR LAND!!!

We have made our position clear from the very beginning that we do not want or need oil palm in our area.

The proposed Oil Palm project is an agreement by the National Government, Provincial Government, Ramu Sugar Company and Overseas Investors and DOES NOT INCLUDE THE LANDOWNERS!

Only after an agreement had been reached by the above parties did they bother to inform us landowners. We have objected time and time again.

In addition our Local Level Government (LLG) with the support of local officials have continually informed the Provincial Authorities that they **DO NOT** and **WILL NOT SUPPORT OIL PALM** in their area.

We, the landowners are developing and will continue to develop OUR LAND on our terms.

We therefore sternly warn all those parties involved in wanting to use OUR LAND for oil palm to **STAY OUT!** Any attempts to bring oil palm on our land will be strongly resisted.

Lastly we wish to inform all parties trying to force oil palm on us that in addition to resisting you on site we are prepared to take legal action.

YOU HAVE BEEN WARNED!!!

Bom Onot (Sausi)	Kofior Genembia (Urigina)
Masai Kensa (Sausi)	Tamonifa Sinandup (Urigina)
Agus Lupia (Koropa)	Pori Tamuel (Urigina)
Naman Topo (Yakumbu)	Win Marauf (Danaru)
Turaya Gidimaipa (Yakumbu)	Kasi Marauf (Danaru)
Miaip Bagipa (Yakumbu)	Set Win (Danaru)
Simon Tiloni (Usiana)	Pais Bugap (Usino)
Manam Setif (Usiana)	Simon Awaiva (Sepu)
Michael Kamai (Usiana)	Toby Jangupe (Sepu)
Bimul Kapiak (Buku)	Moses Soba (Garaligut)

Figure 4: Advertisement in a PNG newspaper, June 2003, taken out by eight landowner groups in Madang province opposed to the Ramu Sugar oil palm project.

I. Plantation labour

I.1 Introduction

When interviewed, plantation labourers often seem grateful for their jobs. The plantation company is seen as a "helper of God", bringing in employment for those with few skills or capital to start their own business. This, however, does not tell the full story.

A labourers' daily income on an oil palm plantation is US\$1.6-1.8 per day, less than what the average European or Jakartanese spend on a cup of coffee. Beneath the surface there are various types of bitter excesses including gender inequity, payment below minimum wages, poor response to union requests, unsafe working conditions and forced evictions.

"If the price of margarine in Europe doesn't even include the price of a worker's minimum wage, then this food industry must be in serious crisis."

(Rivani Noor, Indonesian NGO Walhi Jambi, 11 October 2003)

I.2 Indonesia

Out of a 110-million people workforce, about 30 million are unemployed.¹⁴⁷ The oil palm sector employs around a million (1% of the labour force), half of whom are day labourers.¹⁴⁸ Based on field work in both Indonesian and foreign owned plantation estates in North Sumatra, Siegmann (forthcoming thesis) found a number of fundamental inequities in labour relations (see box 12):¹⁴⁹

Box 12: Labour relation inequities on oil palm plantations in Indonesia

- In recent years the number of daily workers has increased in relation to the number of permanent workers, who are viewed as exposing the companies to greater risks and the burden of greater employee rights. In addition, wives of permanent or casual plantation workers commonly work as unpaid labourers in the estate to help their husbands achieve their production targets. Although they work similar hours to their male family members and other permanent or temporary workers, they neither enter a contract relationship with the plantation company or a subcontracting firm, nor do they receive remuneration for their work.
- Of those employed on a daily basis, the portion of female workers is higher. Female plantation workers assume this to be a cost-saving strategy on the part of the companies to avoid having to pay for maternity leave.¹⁵⁰ On average, female employees fill only five to six percent of all managerial positions in the estate's administration.
- Plantation wages in North Sumatra are at a subsistence level, barely covering the costs of sending a child to school outside the village and providing little if any disposable income. In 2002, the nominal minimum wage in North Sumatra was IDR 464,000 (US\$51). This calculation includes basic wages and fixed allowances. Plantation wages are therefore typically below the minimum wage (see Table 4).
- Plantation workers are commonly not aware of minimum wage legislation, which may be related to the lack of independent unions in most estates. Vocal workers in general and union members in particular are repeatedly reported to be transferred to other estates or dismissed (see Table 5).
- Commonly, neither working tools nor safety equipment is provided to either permanent or temporary workers by domestic estate companies, while working tools are supplied to permanent field workers in foreign estates. Safety training, e.g. for pesticide application, palm fruit harvesting etc., is not provided for workers in foreign estates.
- Whereas both domestic and foreign firms commonly maintain a hospital or employ medical staff for the treatment of illnesses and injuries, these facilities are available for permanent workers only. Health and safety risks are therefore higher for the - largely female - day labourers in as far as their medical expenses are not covered by any health insurance.

Table 4: Examples of wages for oil palm plantation field workers in North Sumatra, 2002

Capital source	Type of estate	Worker's sex	Status	Task	Reported wage (IDR)*	Monthly wage (IDR)**
foreign	oil palm	male	permanent	harvesting	462,000 (monthly)	462,000
foreign	oil palm	male	temporary	harvesting	18,560 (daily)	445,440
domestic	oil palm	male	permanent	harvesting	300,000 (monthly)	300,000
domestic	oil palm	male	temporary	harvesting	265,725 (monthly)	265,725
domestic	oil palm	female	permanent	fertilising/weeding	285,000 (monthly)	285,000

Source: *Siegmann (forthcoming)*

Notes: Empty data cells arise from a lack of information about the employer's capital source, type of the estate, worker's sex, status, or tasks in the FGDs. This is particularly the case, if participants reported about third persons' experience.

*In 2002, the exchange rate from IDR to USD was USD 0.00011 for 1 IDR (table A3 in the appendix).

**If not reported, monthly wages are calculated assuming 24 workdays per month.

Box 13: Demonstrations against PTPN II

Illegal underpayment triggered demonstrations in November 2001 when thousands of workers of state-owned oil palm plantation PT Perkebunan Nusantara II in Tanjungmorawa held a demonstration at the North Sumatra governor's office, demanding the management pay their wages in accordance with the province's minimum wage regulations. The demonstrators claimed to be paid far below the province's minimum wage. According to the Governor's 2001 decree, the monthly minimum wage in the province was Rp 450,000 (US\$52,9) but according to demonstrators most workers were paid just Rp 279,000 (US\$32.8). In response, the company stated that the workers' take-home pay was between Rp 400,000 and Rp 500,000 because they were also given food, transportation and family allowances. However, the law stipulates that minimum wages exclude all allowances and annual bonuses.¹⁵¹

Lack of good governance is another problem that affects workers' rights. In 2001, the Medan Legal Aid Institute called upon the local prosecutor's office to investigate corruption cases in state-owned palm oil companies PTPN II in Tanjungmorawa and PTPN III in Tebing Tinggi. According to the Institute, the companies' management had caused around Rp 5 trillion (US\$588 million) in material losses to the state. The prosecutor acknowledged that his office had received many reports of rampant corruption and that major irregularities in PTPN II were detected.¹⁵²

Eight months' later some 25,000 workers of PTPN II went on strike to demand replacement of the company's board of directors, fair pay and better job security. The PTPN II workers union also demanded that the new management pay off its debt to state-owned insurance company PT Jamsostek for the insurance program that the workers were enrolled in and to comply with the minimum wage standard for the province. The workers went on strike because the management refused to offer hundreds of contract-based workers permanent jobs and failed to comply with the standard minimum wage.¹⁵³

Table 5: Examples of bargaining power of plantation workers vis-à-vis estate's management in rural North Sumatra, 2002

Capital source	Existence of trade union	Problem	Result
foreign	state trade union	plantation workers express disagreement with company's policies	transfer to other estate
foreign	state trade union	request to lower harvesting targets by male plantation worker	no response from trade union and management
foreign	state trade union	female temporary worker requests permanent status.	permanent status obtained as father was permanent worker
domestic	state trade union	severe accident of male plantation worker	worker does not report accident to management as he is are afraid of being dismissed
domestic	..	male plantation worker requests new harvesting tool as old one is broken.	down-grading of worker from permanent to temporary status
domestic	..	workers demonstrate to request to increase wages	signing of agreement about wage increase, but no effective disbursement
domestic	state trade union	workers request disbursement of thirteenth month wage.	disbursement of thirteenth month wage reached with external help
domestic	..	membership of male field worker in Communist party	dismissal
domestic	state trade union and independent trade union	company's rules, e.g. regarding provision of housing or promotion for plantation workers, are unknown to workers.	..
domestic	state trade union and independent trade union	temporary workers request permanent status.	permanent status obtained as parents were permanent workers
domestic	state trade union and independent trade union	male plantation worker requests to (state) trade union to obtain artificial leg after work-related accident.	no response in four years
..	..	male plantation worker joins independent trade union.	transfer to different plantation

Source: Siegmann (forthcoming)

Note: Empty data cells arise from a lack of information about the employer's capital source, the existence of trade unions and the results of problems in industrial relations in the FGDs. This is particularly the case, if participants reported about third persons' experience.

I.3 Malaysia

In Malaysia, some 400,000 people are directly employed by the oil palm sector (around 5% of the work force). The terms of plantation labour are subject to much debate in Malaysia, along with land rights issues, illegal workers, safety, pesticide use and forced worker evictions.

Wages

The core message of the Malaysian Palm Oil Association (MPOA) at the Oil Palm Roundtable in Kuala Lumpur, August 2003 was that oil palm has been around in Malaysia for almost 100 years. The sector is the backbone of rural development and political stability. Hence palm oil *is* sustainable. However, an NGO representative puts this history in quite a different perspective when saying: "Through the blatant exploitation of workers, the plantation companies have successfully kept the workers poor enough to be recognised as a poverty group in every Five Year Malaysia Plan."¹⁵⁴

In 2001 a collective agreement was reached that stipulated that oil palm workers will receive a guaranteed monthly wage of RM325 (US\$92). The wage agreement has been severely criticised because it represents only 80% of the basic poverty-level wages in the country.¹⁵⁵ The hidden and unrecognised fact behind the wage-environment controversy is that in most plantations children between six and 10 years of age work to help their parents, as each worker in an oil-palm plantation has to collect 1.5-2 tons of palm fruit each day. Nearly 60 percent of the plantations are without schools for children. With \$92 as a wage to run a family of five, poaching presents a viable way of bringing in more money. Tiger meat, for example, fetches a high price and sells for \$40 a plate in some of the country's tourist spots.¹⁵⁶

Illegal workers

A significant share of the workforce in Malaysia comprises legal and illegal foreign workers from Indonesia, Bangladesh and the Philippines. One estimate indicates that there were or are more than 800,000 illegal workers in Malaysia.¹⁵⁷ Some plantation estates in Sabah employed solely Indonesian workers. In 2002, the Malaysian government cracked down on illegal workers and sent back hundreds of thousands. The Malaysian crackdown will have a serious impact on Indonesia's forests. With thousands of unemployed workers, skilled in land clearing and oil palm planting, the Indonesian government announced it would open up 230,000 - 500,000 ha of forestland for oil palm plantations in Nunukan district in East Kalimantan, right at the border with Malaysia.¹⁵⁸

Health hazard

The accident rate in the plantation sector is higher than in other sectors in Malaysia. In 1999 and 2000 the plantation sector alone contributed 14 percent (or 12,753 cases out of 92,704 cases in 1999) of industrial accidents. The reason for this high accident rate is the nature of the fieldworkers' working environment. Accidents often occur because of sharp thorns, branches and the fruit of the oil palm and/or by use of the long-handled implements or by exposure to pesticide.¹⁵⁹

Housing issues

The quality of the housing and amenities available to fieldworkers is generally low. Lyngkaran (1995) reports that more than 35% of estate families live in houses which do not meet the basic minimum requirement, regulated by the Workers Minimum Standards of Housing and Amenities Act 1990, and most estates do not have an adequate, treated water supply".¹⁶⁰

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