



BETTY TIOMINAR

PLANTATIONS AND POVERTY

NOTES FROM A VILLAGE
DEEP IN OIL PALM TERRITORY



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Down to Earth
International Campaign
for Ecological Justice
in Indonesia

PLANTATIONS AND POVERTY

**NOTES FROM A VILLAGE
DEEP IN OIL PALM TERRITORY**

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Notes from a village deep in oil palm territory

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“...before, Paya Rumbai people didn’t want to work for company because there were other choices – there were a lot of forests and fish. Now hardly any of this is left and we have no choice but become labourers on the company plantations...”
(Paya Rumbai villager)



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SUMMARY

This report tells the story of one village's experience of the oil palm boom. Following an outline of national and regional policies on oil palm and poverty, the impacts on Paya Rumbai village, Riau Province, on the island of Sumatra, are described. As there is a lot of published material on oil palm's international linkages, the export market side - including agrofuels - is touched on only briefly. The focus is mainly on the Indonesia-end of oil palm.

The report attempts to answer the question: what happens to a community when oil palm plantations are developed in their area? Do they become better off – as the developers and government promoters promise them – or do they end up the same, or worse off than they were before?

Paya Rumbai does not represent all villages affected by oil palm, but the developments there do throw light on how a powerful industry interacts with a small rural community in a variety of ways: how little choice people have when developers target their area, and how villagers' livelihood options become increasingly narrow when oil palm arrives.

Some of the main conclusions drawn are:

- The expansion of oil palm is not the answer to poverty and unemployment in Indonesia. When palm oil prices are high on international markets, Indonesians are hit by high cooking oil prices. When the prices fall, farmers are impoverished because they can't pay their debts;
- There is no clear policy from the Indonesian government on whether agrofuel development is aimed at catering for domestic needs or is solely aimed at export markets. While palm oil feeds power stations abroad, most rural Indonesians still depend on diesel generators and oil lamps;
- Local people allocated smallholdings on their lands are being exploited by company managers;
- Local land sales are leaving many villagers landless while others accumulate larger holdings;
- Local people taken on as day labourers become second-class citizens paid at or below the minimum wage;
- The pressure on land and lack of employment obliges others to log and sell timber from their remnant forests, even though this is a highly dangerous occupation in which limbs and even lives are lost;
- Government and companies have failed to pay attention to the many problems faced by plantation labourers, including health and safety.



ABOVE

A toddler is held up by her older sister to have her photo taken

Photo: © DTE

INTRODUCTION

Palm oil is the world's most produced and traded vegetable oil and is used in around half of all packaged foods products sold in supermarkets. It is also used to make non-food products – from shampoo, soap and cosmetics to fuel for transport and electricity generation. In 2008 palm oil accounted for a third of the total 130 million tonnes of vegetable oil produced worldwide.¹ Indonesia and Malaysia are the biggest producers and the European Union is the biggest buyer of palm oil, importing around 3 million tonnes a year.²

Over the past few years palm oil has hit the headlines as big plantation schemes are linked to

- human rights abuses
- the loss of independent rural livelihoods
- the destruction of vast swathes of forests
- the take-over of indigenous peoples' territories
- biodiversity collapse, including declining orang-utan populations
- and, especially through the opening of carbon-rich peatlands, worsening climate change

In Europe and in Indonesia itself, the prospect of 'sustainable palm oil' is still being held up as the answer to all these problems. The palm oil industry wants its business to survive and flourish, the Indonesian government understandably wants palm oil to bring in export revenues and European governments want to rely on 'sustainable palm oil' as a means of reducing dependency on fossil fuels and of meeting greenhouse gas emissions reduction targets.

However, the chances of producing that ideal 'sustainable oil palm' on a substantial scale – at least in Indonesia – are very slim. The sustainable palm oil certification body (the Roundtable on Sustainable Palm Oil) has started to award its members the sustainable label, but among the first recipients are companies – such as PT London Sumatera (Lonsum), PT Musim Mas, and PT Hindoli, whose operations are linked to land disputes with local communities.³

1 WWF *Palm Oil Buyers' Scorecard 2009*. <http://assets.panda.org/downloads/wwfpalmoilbuyersscorecard2009.pdf>; WWF, *Palm Oil*, http://www.panda.org/what_we_do/footprint/agriculture/palm_oil/, accessed April 22, 2010

2 Antara, 29 Oktober 2009. 'Perusahaan Eropa Kebanyakan tak Beli Minyak Sawit.' <http://www.mail-archive.com/ekonomi-nasional@yahoo.com/msg10793.html>

3 Kompas, 3 November 2009. *RSPO Jadi Tempat Bersembunyi Perusahaan Bermasalah*. See also DTE 80-81:17.



In Indonesia, oil palm is promoted by the government as being pro-poor, pro-jobs and pro-growth. Plantations are held up as creators of employment and village prosperity as well as bringing in much-needed revenues for the economy. Recent legislation which promotes agrofuels - both as domestic energy source as well as for export - has reinforced this positive message.

However, independent studies by civil society organisations show a different story from the official picture painted by government and the palm oil industry, and those policy-makers in consumer countries like the UK who want to believe in sustainable palm oil. As an organisation which is dedicated to working for the interests of its members, many of whom are small-holder oil palm farmers, Indonesia's Sawit Watch [Oil Palm Watch] network is well-placed to know what's really going on in the field. Recent reports such as 'Ghosts on our own Land' expose serious concerns about the social and environmental impacts of palm oil. These include:

- The theft of indigenous peoples' lands
- Neglect of smallholders in plantation schemes involving large companies and smallholder growers
- Disputes between local peoples and companies that marginalise community rights
- Lack of transparency in setting prices paid to small-holders for their oil palm crops
- Smallholders farmers' indebtedness to companies
- Poor roads, making it difficult for communities to sell their produce directly to palm oil processors
- Use of chemicals without safety equipment, which is potentially damaging to farmers' health
- Destruction of forest for conversion to oil palm plantations.⁴

This DTE report seeks to add to the information store about oil palm and its impacts. Its focus is on Paya Rumbai village in Riau, Sumatra, a province where there has been intensive development of oil palm over the past decade. It does not claim to be a comprehensive scientific study of the relationship between palm oil plantations and poverty. But it does ask questions about how the life of a rural community has been transformed by the palm oil industry. Based on interviews with villagers, backed up by research into local and national-level policy-making, the report takes a look at how oil palm measures up in Paya Rumbai. It looks at the companies, asks how local people have fared, what benefits there have been and what negative impacts, and asks too about the conditions for plantation workers.

We hope that this snapshot view of how this village has responded to its encirclement by oil palm plantations will offer a further insight into this high-profile industry and its impacts.

⁴ *Ghosts on our own land: Oil palm smallholders in Indonesia and the Roundtable on Sustainable Palm Oil*, by Forest Peoples Programme and Sawit Watch, Bogor, November 2006. See also *Promised Land: Palm Oil and Land Acquisition in Indonesia – Implications for Local Communities and Indigenous Peoples*, by Marcus Colchester, Norman Jiwan, Andiko, Martua Sirait, Asep Yunan Firdaus, A. Surambo and Herbert Pane. Forest Peoples Programme, Sawit Watch, HuMA and ICRAF, Bogor (also available in Bahasa Indonesia), November 2006.



At a time of crucial international negotiations on climate change, when key decisions will be made about how to cut global greenhouse gas emissions, how we reduce our dependence on fossil fuels, which alternatives we should consider, it is vital that decision-makers ask the right questions about oil palm and that the answers are based on evidence from the field.

Finally, we can't ignore the impacts of the global financial crisis: in 2008, oil palm's boom years were brought to an abrupt halt – a situation which brought its own problems, especially for small producers who threw everything they had into oil palm and now have nothing left. But the price of palm oil is on the increase again.⁵ Demand for this commodity will continue to grow if importers continue to insist that palm oil is 'green' and if governments continue to ignore the evidence before them showing how developing oil palm plantations actually contributes to climate change rather than reducing its effects.

How this report was researched and written

DTE worked with Yayasan Elang, a Riau-based NGO, to carry out field visits to the village of Paya Rumbai in November 2007, and May 2008. On each occasion, seven days were spent collecting data. Yayasan Elang itself had already had some involvement with the village before this study was done.

DTE's researcher informed each villager interviewed the purpose of the study and asked them how they felt about the presence of oil palm plantations around their village.

We conducted informal interviews with around twenty villagers. It's difficult to be exact about this because these one-to-one interviews often turned into group discussions as one and then another person joined in.

Not all people were asked the same questions, which were tailored according to the group. Villagers who owned 'plasma' land (small-holder lots attached to a bigger 'nucleus' company-run plantation scheme)⁶ were asked:

- 1) Do you know how much credit you need to repay to under the Kredit Koperasi Primer Anggota (KKPA) scheme run by PT ASL (one of the plantation companies in the village)?
- 2) What income do you make from the plasma plot?
- 3) Do you know where your plot is?

Villagers who worked in the plantations were asked:

- 1) How much do you earn?
- 2) How is the work shared out?
- 3) Have you ever received training from the company on fertiliser use?

5 See http://www.mongabay.com/images/commodities/charts/palm_oil.html accessed 23/Apr/2010.

6 For more background on these schemes see, for example, <http://dte.gn.apc.org/63OPI.HTM>



Company personnel were asked:

- 1) Have you heard of the RSPO?
- 2) What is your contribution towards village development in Paya Rumbai?

Other information in this report resulted from direct observation of village activities such as how people accessed health and education services and how they relied the natural resources of the forest and river.

In addition to observation and interviews, secondary data from various media and studies related to oil palm plantations and poverty were used as references points.



Photo: © DTE

ABOVE

Oil palm

RIGHT

Palm fruit



Photo: © DTE





PALM OIL AND POVERTY: THE NATIONAL CONTEXT

I. Palm oil in Indonesia

Indonesia is now the world's top producer of palm oil. Together with the second biggest producer, Malaysia, it accounts for over 80% of the global market.⁷

Table:
The role of Indonesia in Global Production
of Crude Palm Oil 1993 – 2008

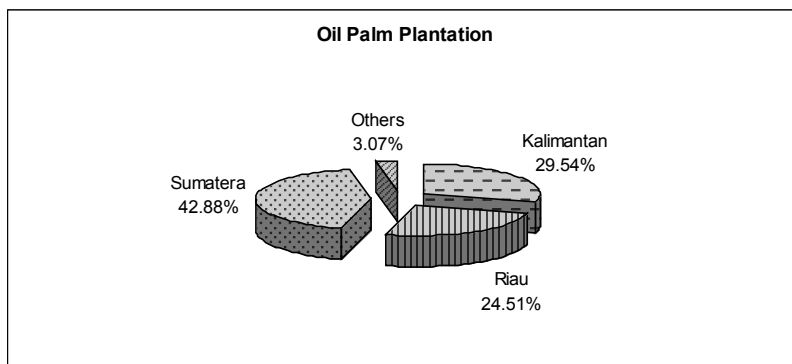
Description		Indonesia	Malaysia	Nigeria	Thailand	Columbia	Others	World
1993	Production (000)	3,421	7,403	645	297	324	1,716	13,806
	Percentage (%)	24.8	53.6	4.7	2.2	2.3	12.4	100
2000	Production (000)	7,000	10,842	740	525	524	2,196	21,827
	Percentage (%)	32.1	49.7	3.4	2.4	2.4	10.0	100
2007	Production (000)	17,373	15,823	835	1,020	732	289	36,072
	Percentage (%)	44.9	40.9	2.2	2.6	1.9	7.5	100
2008	Production (000)	19,200	17,735	860	1,160	800	3,149	42,904
	Percentage (%)	44.7	41.3	2.0	2.7	1.9	7.4	100
Growth (%/YR)		10.4	6.0	1.9	9.5	6.2	4.3	7.9

Source: Oil World dan MPOB⁸

⁷ http://ditjenbun.deptan.go.id/index.php?option=com_content&task=view&id=258&Itemid=62

⁸ Indonesian Palm Oil Development to Accomplish the Indonesian Vision on the Year 2020. Ditjen Perkebunan, 13 Juli 2009

Palm oil plantations have been developed throughout the archipelago, with the highest concentration in Riau, other parts of Sumatra and Kalimantan. By 2009, the area covered by oil palm plantations had reached 7.9 million hectares.⁹



Source: Statistik Agriculture 2008-2010

Table:
Five top palm oil producer provinces in Indonesia, 2010

Province	Area (Ha)	Production (000 Tonnes)
Riau	1,911,110	5,764,210
Central Kalimantan	1,114,320	1,217,023
North Sumatera	1,017,570	2,738,279
South Sumatera	690,729	1,753,212
West Kalimantan	489,062	842,434

Source: Statistik Agriculture 2008-2010

In Riau, the focus province for this study, the total land area is 86,461.91 Km² or 8,646,191 ha,¹⁰ based on Riau regional government data for 2007. Projections for the extent of oil palm by 2005 was 1.4 million ha¹¹ and in 2007, 1,611,381.60 ha.¹² Expansion is set to continue in future too. According to Sawit Watch (2010), the additional area of oil palm plantations planned for the whole of Indonesian is 26.7 million ha.¹³ For Riau, 3 million hectares is planned.¹⁴ In Papua, where there is still a large area of forest, the oil palm targets are even bigger: 5 million hectares for Papua province and 2 million hectares for West Papua province.¹⁵

⁹ Kompas, 4 Januari 2010. 'Serap satu juta pekerja baru'.

¹⁰ http://en.wikipedia.org/wiki/Square_kilometre [1 ha = 0.01 km²]

¹¹ 2007. Greenpeace. *How The Oil Palm Industry is Cooking the Climate*.

¹² <http://regionalinvestment.com/newsipid/id/commodityarea.php?ia=14&ic=2>

¹³ Jiwan, Norman. April 2010. *The Indonesia's Land Tenure: myths and facts of the oil palm industry realities*

¹⁴ Colchester. M. Et.al 2006. *Promised Land*. FPP and Sawit Watch

¹⁵ Amafnini. P. 2 Desember 2009. *Ekspansi Perkebunan Sawit di Tanah Papua*. <http://sancapapuaana.blogspot.com/2009/12/ekspansi-perkebunan-sawit-di-tanah.html>



Source: Investment Coordination Agency. 2006¹⁶

During the financial crisis of the late 1990s, the palm oil sector remained healthy and, according to certain indicators, made a substantial contribution to economic growth.¹⁷

2. Supplying the markets

Indonesia's history of large oil palm plantations goes back to 1967. Then they covered just 105,808 hectares, but increased to 6,338,433 ha in 2006, according to the Indonesian Palm Oil Commission (IPOC).¹⁸ By 2009, the plantations covered 7.9 million ha, according to the Indonesian Palm Oil Producers Association (Gapki)¹⁹ or 7,508,023 ha, according to estimates by the Directorate General of Agriculture.²⁰

Whatever the precise figure, it remains clear that this sector holds an important position in the national economy, and is seen in official circles as driving development in underdeveloped regions as well as directly employing 3.3 million households.²¹

Table:
Area and production of palm oil in Indonesia 1980-2007.

Year	Area (000 ha)			Production (000 tonnes CPO)			Total Area	Total Production
	Small-holders	PBN	PBS	PR	PBN	PBS		
1980	6	200	84	1	499	221	290	721
1990	292	372	463	377	1,247	789	1,127	2,413
2000	1,167	588	2,403	1,906	1,461	3,634	4,158	7,001
2007	2,565	688	3,530	5,805	2,314	9,254	6,783	17,373
Growth per year	25.2	4.7	14.6	37.8	5.8	14.8	12.3	12.5

Source: BPS, July 2008

¹⁶ <http://www.regionalinvestment.com/sipid/id/commodity.php?ic=2>

¹⁷ *Bisnis Indonesia*, 4 Juli 2008. 'Industri Sawit di antara dua keinginan.'

¹⁸ *Bisnis Indonesia*, 26 Juli 2007. 'Pembatasan lahan langkah mundur & menakuti investor'.

¹⁹ *Kompas*, 4 Januari 2010. 'Serap Satu Juta Pekerja Baru'

²⁰ <http://ditjenbun.deptan.go.id/cigraph/index.php/viewstat/komoditutama/8-Kelapa%20Sawit>

²¹ Op. Cit



PR: *Perkebunan, Rakyat*-People's Plantations, PBN: *Perkebunan Besar Nasional*, Large state plantations, PBS: *Perkebunan Besar Swasta*, Large private plantations.

According to the Plantations Directorate-General, the total amount of forest and non-forest land converted to oil palm plantations is 4.3 million ha, while the issue of land lease (HGU) permits covers 4.6 million ha.²²

Meanwhile, the National Investment Coordinating Board (BKPM) states that land available for oil palm in Indonesia amounts to 11,487,626 ha. A 2006 study by Sawit Watch and FPP found that oil palm expansion plans reached almost 20 million hectares across the country²³ – a figure updated to 26.7 million ha in 2010.²⁴

Table:
Availability of Land for Oil Palm Plantations

NO.	REGION	LAND AREA (HA)		LAND STATUS
		USED	AVAILABLE	
1	Bangka Belitung	107,070		
2	Bengkulu	180,693		
3	West Irian Jaya [West Papua]	30,171	150,000	State, Customary
4	Jambi	274,265	114,000	Community, Cultivated State
5	West Java	7,115		
6	West Kalimantan	373,162	58,720	Community, State
7	Central Kalimantan	343,303	497,427	State And Right Application Over Land
8	East Kalimantan	171,581	652,135	State, Community
9	North Maluku		100,000	State
10	Aceh	227,590		
11	Papua	89,827	1,935,000	State, Customary
12	Riau	1,307,880	30,000	Community
13	West Sulawesi	9,568	45,000	State, Community
14	South Sulawesi	11,894	120,298	State, Community
15	Southeast Sulawesi		74,000	State
16	West Sumatra	280,099	14,500	Customary
17	South Sumatra	3,500,076	512,740	
18	North Sumatra	229,512	40,000	State, Community
	Total	7,143,806	4,343,820	

Source: Investment Coordinating Board, 2006²⁵

22 Directorate General of Plantations. 14 August 2008. *Komitmen Pemerintah Membangun Perkebunan Kelapa Sawit Berkelanjutan*

23 FPP-SW. 2006. *Ghosts on our own Land, as above.*

24 Jiwan, Norman. April 2010. *The Indonesia's Land Tenure: myths and facts of the oil palm industry realities*

25 <http://www.regionalinvestment.com/sipid/id/commodity.php?ic=2>



According to the Directorate General of plantations, oil palm development is targeted at 9,127,000 hectares by 2020.²⁶

Table:
Projected Area of Oil Palm Plantations in Indonesia in 2020

Position of 2008			Prediction for 2020		
Category In Producer	Area (000 Ha)	Percentage (%)	Category Of Producer	Area (000 Ha)	Percentage (%)
Smallholder	2,903	41.42	Smallholder	4,107	45.00
Government estate	608	8.67	Government estate	912	10.00
Private estate	3,497	48.64	Private estate	4,107	45.00
Total	7,008	100	Total	9,126	100

Source: Directorate General of Plantations, 2009

The conversion of vast tracts of land for oil palm plantations has had serious consequences for local and indigenous communities. Sawit Watch has counted 630 unresolved conflicts between communities and oil palm plantation companies up to January 2009.²⁷ The majority of these conflicts spring from the fact that communities' rights to the land are recognised neither by the government nor by the companies. Communities end up feeling tricked and trapped into agreements through false promises.²⁸ The events associated with palm oil development in many parts of the country, are similar to what happened in Paya Rumbai village, as described later in this report.

Exports versus domestic need

Until the current economic crisis, the high price of palm oil on the international market, was one of the spurs for rapid expansion of oil palm plantations. This also affected the price of cooking oil inside Indonesia.

Large companies have been oriented toward export markets rather than toward fulfilling domestic needs. The result has been shortages of cooking oil domestically. When this happened in 1999, the price of cooking oil rocketed from IDR3000 to IDR4200-4,300 per kilo.²⁹ Less than a decade later, from the end of April to June 2007, in a matter of weeks, palm oil prices rose from under IDR 7,000 per litre to over Rp10,000 per litre. In Papua, it reached as high as Rp 40,000 per litre.³⁰

26 Dirjen Perkebunan, 6 Juli 2009. *Pengembangan Kelapa Sawit Nasional, Mewujudkan Visi Indonesia 2020*

27 Jiwan, Norman. April 2010. *The Indonesia's Land Tenure: myths and facts of the oil palm industry realities*

28 Marcus Colchester. Et. Al. 2006. *Tanah yang di Janjikan. FPP dan Sawit Watch*

29 <http://majalah.tempointeraktif.com/id/arsip/2004/02/23/EB/mbm.20040223.EB89087.id.html>

30 *Media Indonesia Online*, 8 Juni 2007. 'Harga Minyak goreng di Papua Capai Rp40 ribu per liter'. <http://www.media-indonesia.com/berita.asp?id=134960>

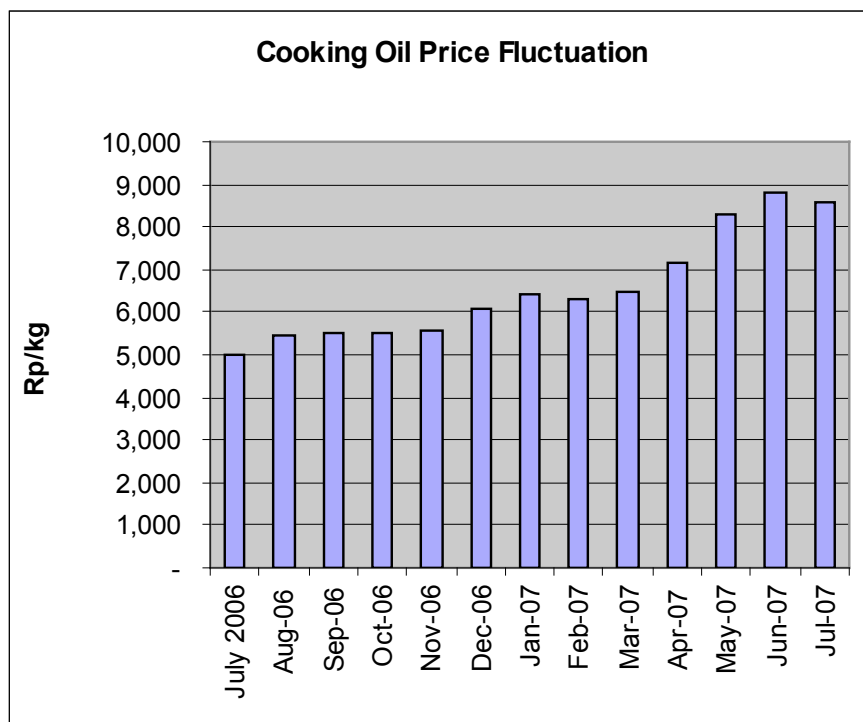


CPO Prices in Rotterdam 1999 - 2009



Sumber: <http://www.rea.co.uk/prices/>

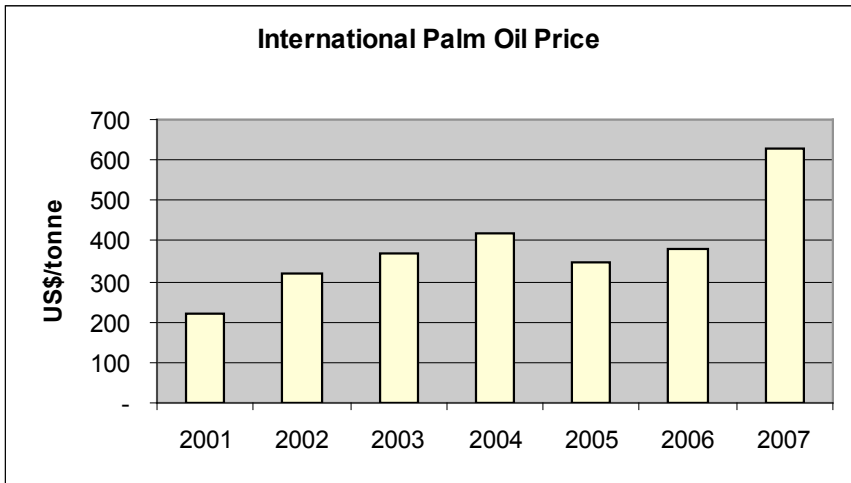
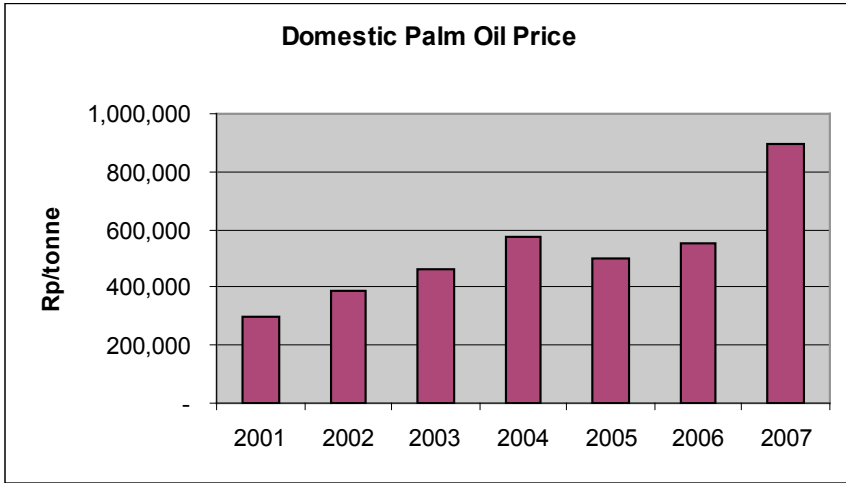
Cooking Oil Price Fluctuation



Source: Trade Department³¹

31 <http://www.tempointeraktif.com/hg/ekbis/2007/07/11/brk,20070711-103496,id.html>





Source: Directorate General of Plantations



Exports of Indonesian CPO and derivatives by export destination (2004-2009)

Year	India		China		EU		Other countries		Total Volume
	Volume	%	Volume	%	Volume	%	Volume	%	
2004	2.76	31.88	1.08	12.51	1.47	16.97	3.35	38.63	8.66
2005	2.56	24.66	1.35	13.06	1.89	18.24	4.57	44.05	10.38
2006	2.48	20.51	1.76	14.53	2.01	16.64	5.85	48.31	12.10
2007	3.31	27.84	1.44	12.14	1.83	15.38	5.30	44.65	11.88
2008	4.79	33.52	1.77	12.36	2.58	18.07	5.15	36.05	14.29
2009	5.50	32.66	2.65	15.72	3.14	18.63	5.55	32.99	16.83

Note : volume in millions of tonnes

Source : Greenomics Indonesia (May 2010) based on Trade Ministry data.³²

Development of CPO Supply and Demand in Indonesia		
Details	Volume (millions of tonnes)	
	2006	2007*)
Export	12.1	13.2
Domestic consumption	3.3	3.8
Downstream industries	0.5	0.4
Total production	15.9	17.4

*) Estimate

Source: Central Statistics Agency, Trade Department, Gapki.³³

At times of high prices, opportunities are created for some unscrupulous people to take advantage by selling so-called 'oplosan' cooking oil, which is recycled cooking oil to which chemicals have been added to make it appear clear, like new oil. There have been cases of oil to which hydrogen peroxide has been added as a bleaching agent, or benzene which is a carcinogen.³⁴

3. Palm oil for agrofuels

The pressure to act on climate change plus the prospect of dwindling fossil fuel supplies and rising prices has forced all countries to consider alternative energy options which are environmentally sustainable. As a result there has been a growing focus on oil palm as a fuel for electricity generation and for transport.

32 Greenomics Indonesia, 19 Mei 2010. *Kinerja Ekspor CPO Indonesia Tak Terganggu Isu Lingkungan*

33 *Bisnis Indonesia*, 1 Mei 2007. 'Produsen CPO Usulkan Subsidi.'

34 <http://www.forumsains.com/kesehatan/oplosan-minyak-goreng-curah-dan-oli-bekas/>



Europe – agrofuels consumer

In the last couple of years the agrofuels-boom has been considerably promoted by government subsidies worldwide. One area that has been importing agrofuels – including palm oil – is Europe. In December 2008 the European Union's Renewable Energy Directive (RED) was passed and EU member states have to come up with National Action Plans on how they will implement the RED by June 2010.

RED includes a target which says that 10% of all transport energy should come from renewable sources by 2020 – with agrofuels expected to make a major contribution to this target. Agrofuels for heat and electricity are also covered under the general RED target. This says that 20% of all energy used in the EU has to be sourced from renewables, including biomass, bioliquids and biogas, by 2020.

In March 2010 the EU Commission outlined how member states and companies can implement the sustainability criteria and counting rules for agrofuels under the RED. These include a few rather weak environmental standards but there are so far no social standards. The European Commission is obliged to report on the information provision system (on sustainability criteria) by the end of 2012 and can suggest corrections if necessary.

In brief, the sustainability criteria imply that minimum greenhouse gas emissions savings compared to fossil fuels have to be 35% from 2009 and 50% from 2017. If waste and residues from crops are used to make agrofuel, they count twice towards the transport target of 10%. Agrofuels sourced from carbon rich and biodiverse land cannot be counted towards the RED target. However, this only applies to land which had not already been converted for agrofuel use by January 2008. Impacts from indirect land use change (ILUC)³⁵ are not yet considered here at all.

The EU Commission has to come up with a proposal on how to deal with ILUC by the end of 2010. Therefore, they have commissioned a series of four studies to examine the impacts of ILUC. The first one, published in March 2010, has shown negative impacts on the environment and food production and put the EU Energy Commissioner under pressure to rethink agrofuels policies in Europe.³⁶

One of the European countries which imports huge amounts of Indonesian and Malaysian palm oil each year is Germany. Germany imported 1,127,537 tonnes of palm oil in 2008, 47% of which was burnt in combined heat and power (CHP) plants. Investments in CHP are a lucrative business as there are government subsidies as high as 0.19 Euro per kWh.³⁷

To provide another example of palm oil flows from Indonesia, in 2008 almost 1.8 million tonnes of agrofuels were imported for the European transport sector alone. Whereas 80% of those imports came from the US at that time, this amount is expected to decline steeply in the next couple of years due to an EU anti-

35 Direct land use change is where land is cleared for agrofuel crops. Indirect land use change (ILUC) is the knock-on effect: where land is cleared to make way for crops that have themselves been displaced by agrofuel crops.

36 <http://euobserver.com/19/29840>

37 <http://www.regenwald.org/regenwaldreport.php?artid=304>. For an update on the current palm oil usage in the UK please see DtE newsletter no. 84 <http://dte.gn.apc.org/84dpa.htm>



dumping law of March 2009. According to assumptions made by the International Food Policy Research Institute, the decline of EU agrofuels imports from the USA will be mainly compensated by importing palm oil from Indonesia and Malaysia. It is expected that palm oil imports from those countries will quadruple by 2020.³⁸

Environmental groups in Europe are lobbying the EU on RED sustainability criteria and particularly on ILUC this year.³⁹ They have founded the EU Biofuels Coalition which is coordinated by Friends of the Earth Europe and others. Joint work has increased this year as National Action Plans are being developed by EU member states. A lot of lobbying and campaigning is also being done at national level. One of the most active groups at campaigning level is Biofuelwatch in the UK.⁴⁰

Agrofuels in Indonesia

The development of agrofuels is one of the current programmes to tackle poverty, set by the TKPK (Tim Koordinasi Penanggulangan Kemiskinan = Coordination Team for Addressing Poverty). This has been strengthened by Presidential Decree No. 10/2006 on Forming a National Team to Develop Agrofuels to Accelerate the Reduction of Poverty and of Unemployment.

In Indonesia's Green Energy Action Plan,⁴¹ three aspects are promoted as drivers of the national economy:

- Pro jobs – creating employment
- Pro growth – to increase economic growth and
- Pro poor – to reduce the poverty level.

Under these programmes, Indonesia's target for 2010 was to:⁴²

1. create jobs for 3.5 million people
2. increase income for farmers to at least the regional minimum wage⁴³
3. develop agrofuel plantations on 5.5 million hectares of land
4. create 1000 Energy Self-Sufficient Areas (self-sufficient villages) and 12 special areas dedicated to agrofuels
5. reduce dependence on fossil fuels by at least 10%
6. save up to least US\$ 10 billion⁴⁴
7. meet domestic and export demand for agrofuels.

On top of these targets, the government hopes that by 2025, alternative energy use will have reached at least 17%.⁴⁵

38 <http://www.ifpri.org/publication/global-trade-and-environmental-impact-study-eu-biofuels-mandate>

39 <http://www.wetlands.org/LinkClick.aspx?fileticket=IPScUuJ2K4E%3d&tabid=56>

40 www.biofuelwatch.org.uk

41 SUGIYONO, Agus. 2008. *Pengembangan Bahan Bakar Nabati untuk Mengurangi Dampak Pemanasan Global*. <http://www.geocities.com/sugiyono.geo/paper/p0801.pdf>.

42 INILAH.COM. 2 Maret 2009. 'SBY, Biofuel Bermanfaat Ganda Bagi RI.'

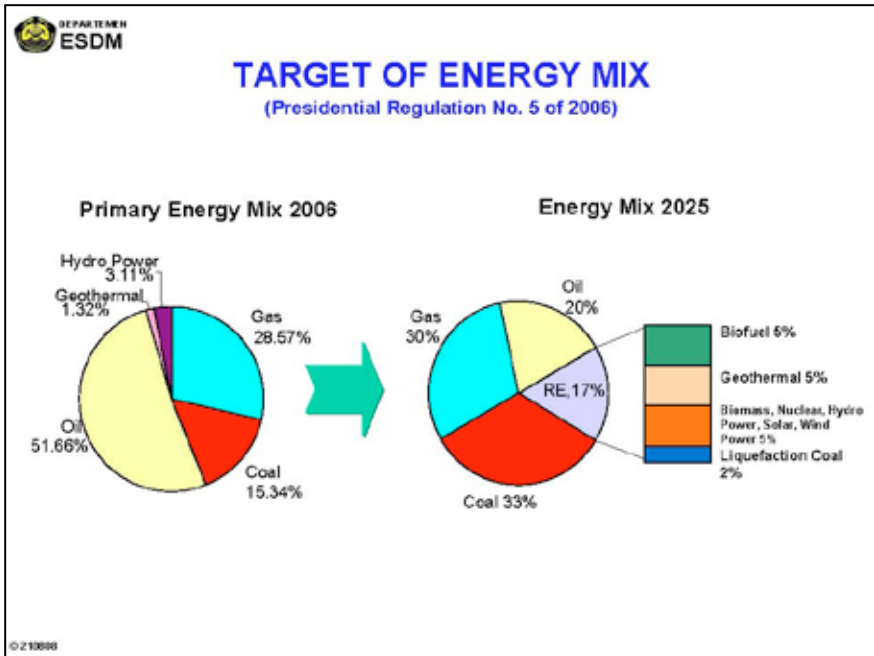
43 The Regional Minimum Wage is a minimum standard used by companies to set wages for office staff, other staff and labourers in the workplace. The relevant government regulation Labour Ministry Regulation No. 05/1989 29 May 1989 on the Minimum Wage.

44 There is no information on how this money will be saved.

45 INILAH.COM. 18 November 2008. 'Kadin Tagih Insentif Industri Biofuel.'



Target energy use based on Presidential Regulation No. 5/2006.



The reality has turned out somewhat different to the target. In mid-2008, around 17 agrofuel companies stopped production due to high prices for raw materials and lack of clarity over regulations for agrofuel projects.⁴⁶ Now, of 22 agrofuels producers, only five companies are still operating: PT Eterindo Wahanatama Tbk, PT Multikimia Intipelangi, Wilmar Nabati, and PT Darmex Biofuels.⁴⁷ The high price of feedstock and the low uptake of agrofuels locally, is the reason why the agrofuels target has not been reached. (For more information see Annex 1: Agrofuels Development and Annex 2: Agrofuels Development Plans).

4. Linking palm oil and poverty

Officially, palm oil is considered as having high capacity for job creation, especially in rural areas. For every 5 million hectares of oil palm plantations developed, 2 million jobs are created (0.4 people/hectare x 5 million hectares).⁴⁸ According to the Director General of Agriculture, the sector is able to create employment for 338,000 people per year.⁴⁹

46 *INILAH.Com*. 12 May 2009. 'Pengusaha Biofuel Rugi US\$ 2 M'

47 *Investor Daily*. 28 Februari 2011. 'Saatnya serius Garap BBN'

48 PAHAN. Iyung. 2006. *Panduan Lengkap Kelapa Sawit. Manajemen Agribisnis dari Hulu hingga Hilir*. Jakarta.

49 Barani. Ir. Achmad Mangga. 6 June 2007. *Pembangunan Perkebunan Masa Depan*. Makassar.



In the economic crisis of the late 1990s, palm oil was not adversely affected. The sector made a substantial contribution to the economy. The value of exports before the crisis (1992-1996 was US\$646 million per year; during the crisis (1997-2001) the value rose to US\$1.07 billion per year.⁵⁰

The contribution of Crude Palm Oil industry to economic growth		
Economic indicators	Average	
	Before economic crisis (1992-1996)	After economic crisis (1997-2001)
Area (million ha)	1.832	3.051
Production (million tonnes)	4.015	5.966
Volume of exports (million tonnes)	1.781	2.700
Value of exports (US\$ millions)	646	1,074
Domestic consumption (million tonnes)	2.043	3.051

Source: R&D, Department of Agriculture.

In 2008, exports of CPO reached 14.3 million tonnes, with a value of US\$12.4 billion. Indonesia also received income from CPO export taxes, worth IDR 13.5 trillion (around US\$1.5 billion), providing work for around 3.5 million households both on-farm and off-farm.⁵¹

These figures back the government and palm oil industry view that palm oil means prosperity for rural communities. However, as this report will show, the reality on the ground is a different story.

Measures of poverty

In 2008, Indonesia's population reached over 228 million people.⁵² According to the Central Statistic Agency the number of people living in poverty stands at 32.53 million as at March 2009, with the majority of those people living in rural areas.⁵³

Of the 70,000 villages in Indonesia, around 45% are categorised as 'left-behind' due to their minimum level of infrastructure.⁵⁴

As many as 100 million people are estimated to depend on forests and forest products and services for their livelihoods.⁵⁵

50 *Bisnis Indonesia*, 4 Juli 2008. 'Industri sawit diantara dua keinginan.'

51 *Bisnis Indonesia*, 4 Juli 2008. 'Industri sawit diantara dua keinginan.'

52 <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPACIFICEXT/INDONESIAEXTN/0,,menuPK:287097~pagePK:141132~piPK:141109~theSitePK:226309,00.html>

53 Berita Resmi Statistik. No. 43/07/Th. Xii, 1 Juli 2009. *Profil Kemiskinan Di Indonesia Maret 2009*. http://www.bps.go.id/brs_file/kemiskinan-01jul09.pdf

54 Tim Nasional Pengembangan BBN. BBN. *Bahan Bakar Alternatif Tumbuh Sebagai Pengganti Minyak Bumi dan Gas*.

55 Chidley, L. 2002. *Forests, people and Rights*. Down To Earth.

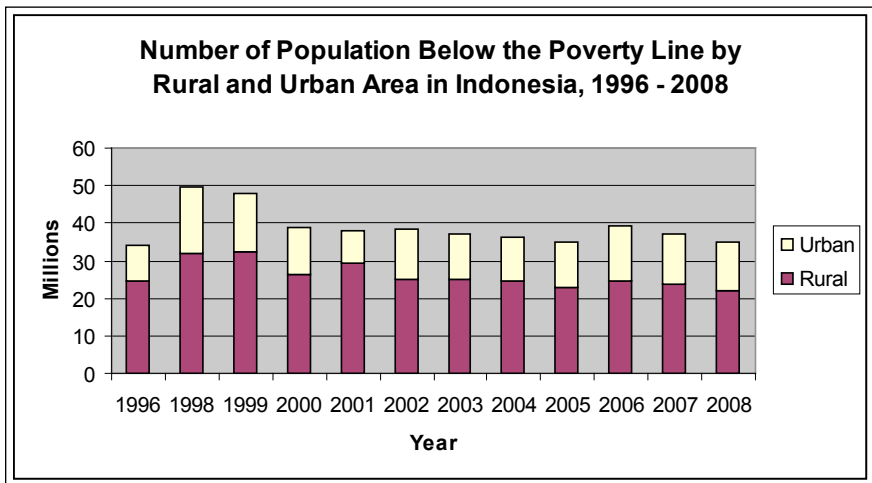


According to research by the Centre for International Forestry Research (CIFOR), 20% of the rural population dependent on forests are poor.⁵⁶

In what appears to be a direct contradiction of claims that plantations bring prosperity, a 2006 World Bank report found that the majority of Indonesia's poor worked in the agricultural and plantations sectors.⁵⁷

Since the early 1960s, during President Soekarno's period of office, successive Indonesian government programmes have promoted poverty reduction. Under President Suharto, poverty programmes were included in sectoral and regional 5-year plans (Pelita). In 1993 during the 5th 5-year plan (Pelita V), Suharto issued Presidential Instruction No.3 on Increasing Poverty Eradication, implemented through the so-called 'Left-behind Villages Programme' (Inpres Desa Tertinggal).⁵⁸

At least 25 further anti-poverty measures were introduced during the following decade and a half ranging from Regional Development Zones for areas identified as 'left-behind' to the Social Safety Net programmes of the late 1990s – the last financial crisis before the current one – to the programme to Increase the Income of Small Farmers and Fisherfolk.⁵⁹ By 2008 the situation had not changed much (see bar chart), and the level of poverty in rural areas was still higher than in urban areas (see also Table).



Source: Based on National Socio Economic Survey⁶⁰

56 http://www.cifor.org/pen/pubs/barcelona/8jan08/RIRIN_Indonesia.ppt#258,3, Introduction

57 The World Bank. 2006. *Making The New Indonesia Work For The Poor*.

58 <http://tkpkri.org/id/sejarah-singkat-tim-koordinasi-penanggulangan-kemiskinan.html>

59 DTE research on poverty programmes. A table of these is available from DTE

60 http://dds.bps.go.id/eng/brs_file/eng-kemiskinan-01jul09.pdf



Today external measures of poverty include the following:

Table:
Poverty levels in Rural and Urban Areas, Indonesia, 2009⁶¹

	Rural	Urban
Number of poor people (millions)	20.62	11.91
Food poverty line (IDR/capita/month)	139,331	155,909
Non-food poverty line (IDR/capita/month)	40,503	66,214
Poverty gap index	3.05	1.91
Poverty severity index	0.82	0.52

Note: The food poverty line is the amount of expenditure needed to consume 2,100 calories per capita per day; while the non-food poverty line is the amount needed for minimim housing, clothing, education and health needs.

Table:
Poverty in Indonesia according to the World Bank, UNDP and the Central Statistics Agency (BPS).⁶²

World Bank	Life expectancy at birth, total (years) in 2007: 71	Mortality rate, infant (per 1,000 live births) in 2008 : 31	Literacy rate, youth female (% ages 15-24) in 2006: 96.3	GNI (current US\$) (millions) in 2008: 496,128	GNI per capita, Atlas method (current US\$) in 2008: 1,880
Human Development Index, 2007*	HDI level: 0.734	Life expectancy at birth (years): 70.5	Adult literacy rate (% ages 15 and above): 92.0	Combined gross enrolment ratio (%): 68.2	GDP per capita (PPP US\$): 3,712
BPS 2009	Number of poor (million people): 32.53	Food poverty line (IDR/capita/month): 147,339	Non-food poverty line (IDR/capita/month): 52,923	Poverty gap index: 2.5%	Poverty severity index: 0.68%

61 Links from <http://web.worldbank.org/WBSITE/EXTERNAL/COUNTRIES/EASTASIAPA-CIFICEXT/INDONESIAEXTN/0,,contentMDK:20100026~pagePK:1497618~piPK:217854~theSi tePK:226309,00.html>

62 See above link to World Bank website.

These figures indicate that rural poverty persists despite the massive expansion of the oil palm industry - which has been promoted as an answer to that poverty.

Other evidence shows that where there are price fluctuations on international markets, there is a strong oil palm and poverty link. When the global financial crisis hit in 2008, the oil palm sector suffered with it. Prices dropped on international markets and the rate paid for farmers' palm oil fruit bunches fell to Rp250 per kilo⁶³ from around Rp1,500 – Rp 2,000 per kilo.⁶⁴ In Riau, 104 thousand small holder families and 174,978 other oil palm farmers had difficulties in paying off credit for their plantation areas, amounting to a total of IDR 1.2 trillion.⁶⁵

This was a different situation to the 1998 financial crisis, when palm oil became the favoured sector because of high prices on international markets. The stress caused by the collapse in palm oil price and the resulting indebtedness has been directly related to a number of suicides among oil palm farmers.⁶⁶ A large portion of their debts are related to means of transport (motorbikes and cars) which are normally paid off at harvest time. These debts are additional to the amounts owed to the bank for plantation land.

5. Poverty in Riau

In Riau too, palm oil has been officially sanctioned as a way out of poverty. In this province where 10.63% of the population is classed as poor (556,700 people),⁶⁷ the provincial government launched the K2I Programme to tackle "Poverty, Ignorance and Limited Infrastructure".⁶⁸ The programme started in 2002 and was included in the 2004-2008 work programme of the then Riau Governor H.M. Rusli Zainal.⁶⁹

The prime commodities in this programme are cattle and oil palm. The target area for K2I is 50,000 hectares, according to a regional government regulation (No 2/2006) and the programme runs until 2010.⁷⁰ 10,200 hectares has been set aside for this project so far, and is available on an interest-free credit basis, with repayments due to start in 2010. The programme budget is IDR217 billion and is taken from Riau's regional budget, with allocations of over IDR45 billion for 2006, and a further Rp 73 billion for 2007.⁷¹

The initial stage involves developing oil palm plantations in four districts: Bengkalis, Kuansing, Indragiri Hulu and Kampar⁷² and the budget allocation for 2006 is for land consolidation, clearing, seedling cultivation and planting.⁷³ After an initial area

63 *Detik News*, 15 October 2008. 'Harga Sawit Anjlok Hingga Rp 350 per Kilogram.'

64 *Detik Finance*, 15 October 2008. 'Harga Sawit Anjlok, Petani Terbelit Hutang.'

65 *Tempo Interaktif*, 13 November 2008. 'Harga Sawit Anjlok, Petani Riau Terjerat Kredit'

66 *Suara Karya Online*, 5 November 2008. 'Era Orang Kaya Baru (OKB) Tinggal Kenangan.'

67 BPS. <http://bpsriau.homeip.net/attachments/BRS-01072008-kemiskinan.pdf>

68 <http://www.riamenuntut.com/download/Minda%20-%20Riau%20Dalam%20Refleksi%202004.doc>.

69 *Ibid*.

70 *Rapor Dinas Perkebunan Merah*. <http://groups.yahoo.com/group/lingkungan/message/31859>

71 *Riau Terkini*, 18 Januari 2006. 'Kebun K2i Dijadikan Proyek Multiyears'

72 *Riau Online*, 13 Nopember 2007. 'Kebun Sawit K2I Akan Segera Dibangun di 4 Kabupaten'

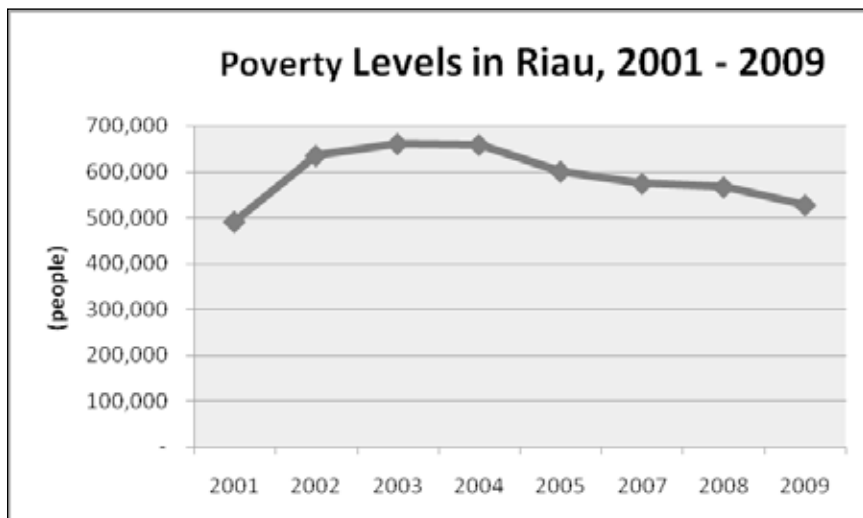
73 *Riau Post*, 21 April 2006. 'Kebun Sawit K2I Tinggal Pelaksanaan'



of 4,800 ha has been completed, the programme will be continued in Rokan Hulu, Rokan Hilir and Indragiri Hulu districts.

This project has been opposed by NGOs in Riau since the beginning because there has been a lack of clarity about the families targeted for the programme as well as the plantation locations which are in separate areas meaning it will be difficult to control or supervise the oil palm plantations.⁷⁴

By 2010, this oil palm project had only been 20% implemented, and only around 2,000 hectares from the 10,200 target had been developed. No oil palms had reached the fruit-bearing age of three or four years.⁷⁵ There have been two problems – the lack of clarity on the part of the Riau provincial plantation service over the participant families (as predicted by the NGOs) and the lack of clarity over the location of the land to be used for the project.⁷⁶



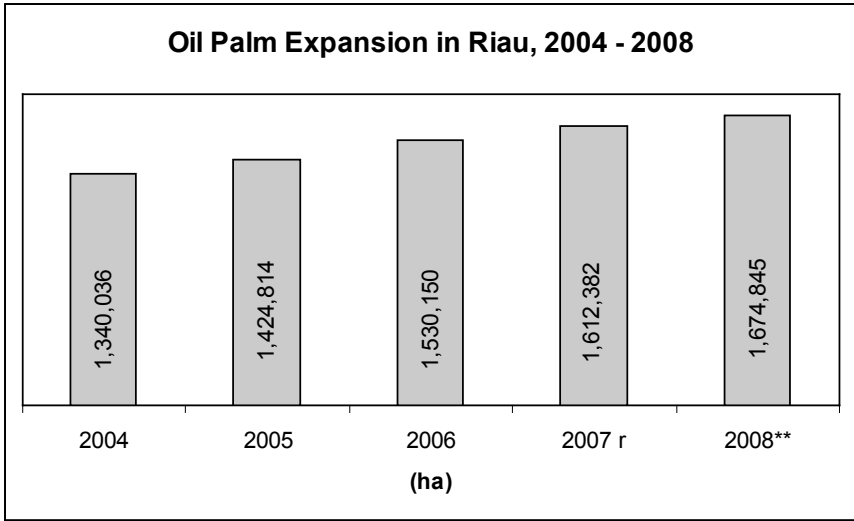
Source: Central Statistics Agency, Riau

⁷⁴ *Riau Terkini*, 1 Juni 2006. 'NGOs dan DPRD Ramai-Ramai Tolak K2I Kebun Sawit'

⁷⁵ *Riau News*, 10 Maret 2010. 'Jefri: Kebun K2I Program Gagal'

⁷⁶ *Riau Times*, 27 Januari 2010. 'Lahan Kebun K2I Belum Jelas'





Note: r: Revised figures

** Preliminary Figures

Source Agriculture Service Riau Province

RIGHT

PT Medco's palm oil collection tank in Paya Rumbai



BELOW

harvested palm fruits ready to be take for processing

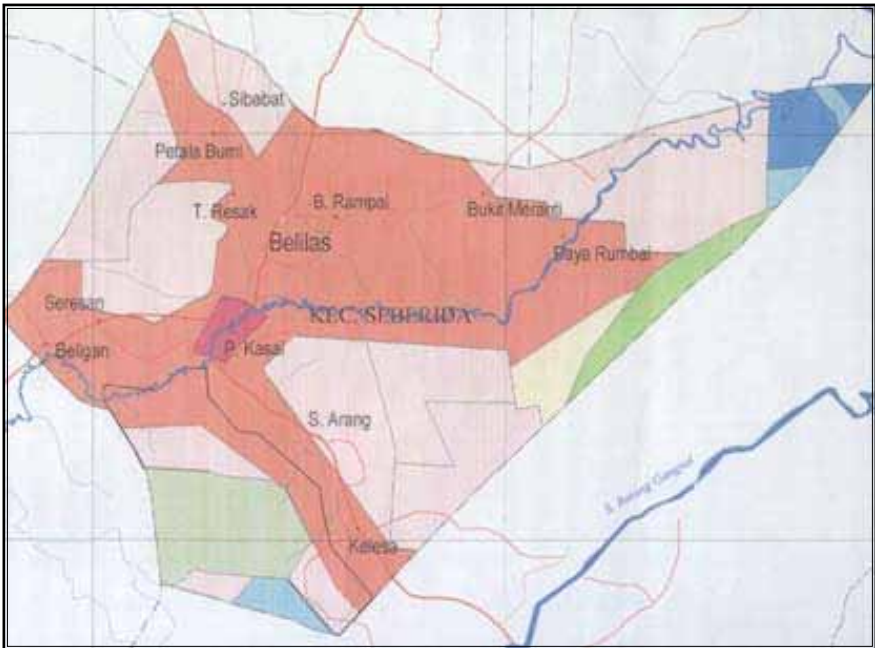


Photo: © DTE

Photo: © DTE

III

NOTES FROM THE VILLAGE



Source: http://www.inhu.go.id/kec_seberida.php

I. A portrait of Paya Rumbai

Paya Rumbai in Seberida subdistrict is an old settlement whose name comes from the words Paya meaning marsh or swamp and Rumbai, a kind of wetland plant.

Of the eleven villages in Seberida subdistrict, seven are former transmigration sites,⁷⁷ including Paya Rumbai itself. The area was a transmigration target area in the 1980s but most of the transmigrants now live in villages neighbouring Paya Rumbai, such as Bulit Meranti, Buluh Rampi, Seresam and other villages.

In 2009 the village population was 5,355 people, grouped in 1,475 households.⁷⁸

Ninety percent of the villagers are ethnic Melayu, the remaining 10% consisting of Batak, Minang (both from other parts of Sumatra) and Javanese. They make their living from cultivating rubber (10%), growing oil palm (5%), growing lowland rice (*sawah*) (5%), fishing (25%), working as labourers (40%), traders (5%) teachers (5%) and others (5%).⁷⁹

Land use in Paya Rumbai

Wet rice paddies (ha)	Dry Land (ha)			
	Fields for crops/ gardens/ Fish Ponds etc	Plantations	Buildings	Other
60	520	3,200	65	6,380

Source: Potential land use book for Inhu district, 2002⁸⁰

No forest land is listed officially. According to the Village Secretary, there is no village forest area left as this has been used for large plantations.

2. One village, five companies

There are five companies operating near Paya Rumbai: PT Medco Energi International, PT Kencana Amal Tani, PT Banyu Bening Utama, PT Alam Sari Lestari and PT Wahana Mandiri Indonesia.

PT Medco

Meta Epsi Drilling Company (Medco) is an Indonesia-based international mining and energy company developed by Indonesian entrepreneur Arifin Panigoro.⁸¹

The company office is in Lirik subdistrict and its oil well is in the Parum field, near the town of Rengat. This company has been operating in this area since December 1995.⁸² Its oil refinery is around 15 minutes walk from Paya Rumbai village.

According to the villagers, this company once offered to provide electricity to the village. However, when one villager refused to allow a *petai* bean tree to be

77 The hugely controversial transmigration programme, shifted poor families from more densely populated areas to less densely populated areas. See DTE's report on transmigration at www.downtoearth-indonesia.org/old-site/ctrans.htm for more background.

78 Seberida in Figures, 2010.

79 Compilation of Yayasan Elang field data

80 <http://www.inhu.go.id/seberida/infoumum02.php>

81 http://www.mail-archive.com/stikom_tk@yahooogroups.com/msg00173.html

82 <http://bankdata.depkes.go.id/kompas/Kabupaten%20Indragiri%20Hulu.pdf>

felled for use as an electricity pole the company cancelled the plan. The reason for the refusal was that the price offered for the tree was too low. There is still no electricity in Paya Rumbai even though that person who objected died a long time ago.

PT Kencana Amal Tani and PT Banyu Bening Utama

PT Kencana Amal (KAT) has oil palm plantations covering 5,375 ha, while PT Banyu Bening Utama (BBU) has plantation permits for an area of 5,495.94 ha. These two companies are subsidiaries of the Dutapalma Group.⁸³

Dutapalma is a national company also known as the Surya Darmadi group. The company has interests in oil palm and rubber.⁸⁴ The company has been a member of the RSPO since May 2007.

A Greenpeace report published in 2007 named this group as belonging to the top three companies responsible for forest destruction in Indonesia. The report said the company was clearing land by drying out and burning peatland. This company has 200,000 ha of peatland concessions, with one quarter of these in Riau.⁸⁵

In Paya Rumbai, parts of Dutapalma's plantations are in areas of forest claimed by members of the local community. According to the village Secretary whom the DTE researcher met in November 2007, each of these two companies had concessions which overlapped with 1000 hectares of community forest. No-one from Paya Rumbai had been employed by these companies. According to the company personnel department, 60% of its plantation workers are from outside Riau.

Community demands to get smallholder plots in return for the 2,000 ha of village land that had been expropriated were turned down by the company. The company considered it had done enough by paying compensation of IDR150 million worth of 'village development funds', but the villagers demanded jobs. If this money is viewed as compensation for land, it means the company bought the land for around IDR75,000 (US\$8.15) per hectare or IDR7.5 per square metre.

This conflict, which started in 2003, is still not resolved. Paya Rumbai villagers still want to know why the company wouldn't involve them in its plantations schemes.

PT Alam Sari Lestari

PT Alam Sari Lestari (ASL) received its plantation licence in 1989, allowing it to develop 2,000 ha smallholder ('plasma') plots and 5,588 for the central ('nucleus') plantation area. The company is a joint venture involving Indonesian entrepreneur Nunung Darajatun and a Malaysian, H. Zainal,⁸⁶ who is popularly known as Datuk.

The company has thus far only managed to develop the 2,000 hectares of smallholder plots – this was done in 2000 – 2003 – allocated to 1,000 families in

83 Yayasan Elang data compilation, 2007.

84 Surya Darmadi, Website Indonesia Today by Yosef Ardi (yosef-ardi.blogspot.com), 11 July 2006.

85 <http://www.sinarharapan.co.id/berita/0804/07/kesra01.html>

86 Yayasan Elang field research notes, 2005.



Talang Jerinjing village, and Paya Rumbai. Each family got a two hectare share.

The management of these plots is done directly by the company: the villagers just get a share of the income at the rate of 30:70, with the larger portion going to the company. The funds are handled by village cooperatives in each location. When the company was asked why it didn't transfer management to the villagers, the reply was that the villagers were not capable of doing it.

The 'nucleus' part of the plantation has not been developed due to lack of sufficient funds, according to the company. The concession's location in a marshy area means the company would have to spend additional funds to open this land. Meanwhile, only 700 ha of smallholder plantations are being harvested; the rest does not have transport access. The poor condition of the roads means that the palm fruits from these other 300 ha can't be transported for sale.

The fruits that are harvested are sold to PT Inecda or PT KAT or other oil palm processing companies operating in Indragiri Hulu district. The fruits go to the highest bidder.

This company makes a direct contribution to the village if there is a village event, such as the election of the village head, and Independence Day celebrations every August.

The company had never heard of the RSPO. They thought a certificate of sustainable palm oil was the same as a certificate guaranteeing the quality of the seeds.

PT Wahana Mandiri Indonesia

PT Wahana Mandiri Indonesia (WMI) was established in 2001 by a sole investor, former state enterprises minister (BUMN) Sugiharto.

The company has a concession of around 988 ha⁸⁷ and employs 200 people, the majority of whom are from Java (Javanese and Sundanese). The company acquired its land by buying up community land. The number of casual workers or free lance 'partners' (*mitra harian lepas*) who work for the company is not known because these workers are coordinated by the Group Leaders (*Kepala Rombongan*) and the number depends on how many are needed.

Rahmat, from the personnel department said that at present the company was not able to process palm oil because it could not meet the plant's minimum capacity requirement. There were 512 palms ready to harvest and 225 *sisip* palms ('intermediary' or new palms planted between older plants which will be ready to harvest once the older ones are no longer productive).

Plantation work was divided into three sections:

- 1) Tending the plants
 - a) fertiliser – large palms, intermediary (*sisip*) and growing palms (*sawit tumbuh*)
 - b) trimming off old shoots
 - c) clearing weeds from around the palms

⁸⁷ <http://hbn-group.com/hbn/agriculture.html>



- 2) Harvesting
 - a) cutting the fruit; and collecting it
 - b) transporting the fruits to the storage area
- 3) Transporting the fruit to the nearest mill – either one of the four nearby mills in Indragiri Hulu district: PT Sari Lembah Subur, PT Inecda, PT KAT or NHR.

In addition to providing some jobs, the company contributes to the village by providing tea and sugar for the school teachers, and additional food for the nursery.

As with PT ASL this company had never heard of the RSPO – the staff who were asked said that they were only plantation managers, and thought their superiors would know.

3. Village Facilities

The road leading into Paya Rumbai is in part dirt track which is bumpy due to erosion. It's slippery when wet, and dusty in the dry season. There is no public transport to the village and it can only be reached by motorbike taxi, regular taxi or on foot.

One or two kilometres outside the village, the oil palm plantations of WMI reach up to either side of the road. As you enter the village, on the right hand side there is a field often used as a football pitch in the late afternoons. Then more palm oil plantations on both sides - this time owned by individuals - as you get nearer to the village entrance. By the side of the road and in people's gardens, you can see *pinang* trees (betel nut palms), used as boundary markers.

Once in the village, the roads are in part dirt track and in part cemented – some stretches with potholes, but others in good shape thanks to a road project in early 2008. This is a narrow road, but still wide enough for small trucks carrying palm fruits and logs to enter the village.

On the left as you go into the village, there is a big house belonging to Rusman, the former village head, with a football pitch in front, beside which is a house painted blue and white – one of the ten simple government-built 'healthy homes' (*rumah sehat*) in the village.

Other government assistance to the village includes:

- paddy fields extension project, by providing seedlings, fertiliser, fish and herbicides
- Kecamatan (subdistrict) Development Programme (PPK) from the health service for sanitation improvement – 10 units in the 2005/2006 period
- Cement for the road worth IDR 350 million in 2008
- A fresh water well which will get IDR 300 million in funding assistance.

At night the village road is dark, as there are no lights except for those around the Medco oil storage depot and the PT WMI office. Within the village, several houses have diesel generators, referred to as 'genset' while others use kerosene pressure lanterns or oil lamps.



The majority of villagers still rely on the Rumbai River – a tributary of the Indragiri River - for their daily needs: bathing, laundry, washing the dishes and drinking water. Although there is a well, not all the villagers benefit from it.

Market day is Monday, from 6.00 in the morning until midday or 1 o'clock. Market traders come from neighbouring villages or further afield from Belilas/Pangkalan Kasai, 16 km away.⁸⁸ This means the villagers have limited options for selling their produce. Selling in the village means low prices, but going to outside markets means they need time and money for transportation. Market goods include vegetables, clothes, toys, rice, sugar, soap, and household goods. When villagers can't get what they need they must go to Belilas.

As far as education is concerned, there is only a nursery and a primary school in the village. The nursery has 2 teachers and there are 12 teachers in the primary school: four permanent staff, two (lower paid) government funded staff and six contract staff.

To continue their schooling, the children need to go to the neighbouring village of Bukit Meranti, Belilas, Rengat or the Riau capital, Pekanbaru. As many people consider it too far to the next village, the majority of children stop school after primary school, but now a lot of them want to complete secondary school too (SLTA).

The village has only one health worker, a midwife. If people fall ill and need treatment, they need to go to Belilas to see a doctor or go to hospital. To do this, they must hire a car, which costs around IDR 150,000 – 200,000, as well as pay for any medicine needed. The hire cost is equivalent to 2 to 3 hectares of community land at the rate paid by Duta Palma.

4. Farmers and Fisherfolk

Slowly but surely, the forest formerly owned by the village is dwindling each year. This is due to villagers opening fields as well as forest clearing carried out by the companies. Villagers are clearing the forest for various reasons: for making *sawah* paddies or fields for other crops, or because they make a living from logging.

Logging started in the 1970s. There is still a small contingent of villagers who persist as loggers even though they have been told it is illegal and they can be put in jail if they continue. Their motivation is that they can earn more from cutting trees than as plantation workers or from fishing.

Nevertheless, this is a high-risk activity: during the first DTE visit, two people had suffered broken bones from being hit by falling trees.

When the women were asked what they thought about their husbands felling trees there was a mixed response: some said they didn't want their husbands to continue but what other work could they do? Others said there were risks in every job, you just had to deal with it.

There are two groups of villagers cutting the forest to make fields. First, those who are serious about working the land and second, those who do so in order

88 Seberida in Figures, 2010



to get a land certificate from the village authorities so they can they sell it on to others, mostly people from outside the village.

People are starting to notice the impact of deforestation. Fish are becoming harder to find. In the past, one night's catch would be so plentiful that it would only sell at around IDR2000 per kilogramme. Now fishers have to spend the whole night fishing a longer stretch of river. Not surprisingly the price of fish has gone up. *Lais*/Glass catfish (*Kryptopterus bichirrhis*) fetches around IDR20,000 per kilo for those lucky enough to catch one.

The plantations are also having an impact on the rivers: PT KAT has dug drainage canals on its plantation, which has caused 38 streams to dry up and has reduced the size of 13 lakes.⁸⁹

For villagers who collect rattan, deforestation has affected the rattan harvest too. One collector who had pioneered this business after coming to the village in the 1980s, was forced to close down in mid-2007.

One man from the village said that if there were still a lot of sources of income within the village, not so many people would seek jobs on the oil palm plantations. People were now vying to get labouring jobs because there weren't many forest resources left, with fish becoming scarce and forests turned into fields. Some villagers are still using the forest resources to make an income, but what about in 10 or 15 years' time?

5. Smallholder oil palm farmers

Of the four oil palm plantation companies operating around Paya Rumbai only PT ASL has allocated 'plasma' – smallholder - plots to the villagers. They got these plots after they transferred around 1,000 ha of village land to the company through the Perintis Co-operative, which was set up in 1994.

The Cooperative, which counts all Paya Rumbai households among its members, is the contact point between villagers and company. It regulates the division of land and divides out the income earned from the plots.

Although they own this smallholder land, none of the villagers knows where their own plot is, bought through the primary credit members cooperative (KKPA system). Although the land was supposed to be in exchange for the 1000 hectares of village land, the villagers still have to pay for the 'land development', through the KKPA. Every month the company deducts amounts to pay back plantation development credit, fertiliser and several other costs, leaving the villagers with an income far below the amount fetched by the palm fruits.

The villagers don't know how much credit they must repay. They just know that the company manages the plots and that it gets 70% of the income.

Since the palms started producing fruit in 2005 they have received IDR30,000 (USD3) per month per family, and in 2008 this increased to around IDR100,000 (USD10) per month. According to the villagers, this is too little to pay for their daily necessities.

89 Data compilation by Yayasan Elang. 2008.



Feeling they had been tricked, a majority of the villagers have sold their plasma plots to others. The selling price has varied from Rp8 million, 11 million, 15 million and finally, in 2008, the selling price reached 30 million. According to the Cooperative's director, around 20% of the villagers still own company plasma plots, but according to the villagers themselves, only around 10 families have stayed in the scheme.

6. Plantation workers

The kind of work that villagers get at the oil palm plantations is as casual/freelance day labourers (*buruh harian lepas*), or as the term is refined by PT WMI, freelance day 'partners'. In addition to this kind of work, only 3 villagers have found work at PT ASL, two of them as monthly paid staff and one as a security guard.

Workers at PT WMI are divided into three groups headed by a team leader known as a 'KR' (*Kepala Rombongan*). They apply fertiliser to the plantation in three areas:

- large palms – those which have started producing fruit
- new palms – newly planted palms
- intermediary (*sisip*) palms which have been planted between mature palms.

Team leaders are responsible for all their members. They are the contact point between labourers and company. Each labourer in the group pays the team leader "thank you" money of Rp1000-Rp5000, which is a fitting price, according to villagers.

If a member of the group can't work, the team leader will try to get a replacement from that member's family, in order to make sure that the original labourer will be able to get his or her job back. Once out of a group, it's difficult to get back in, because there is increasing competition for these jobs.

Each group has different working hours. If the 'large palms' group is spreading fertiliser, the other two groups don't work at the same time. The hours depend on the size of the plantation area to be covered, from 14-20 working days. Each working group is contracted for two months at a time.

During the November 2007 visit, the large palms group had a work schedule of 20 days. They gathered at 7.00 am and were taken to the plantation in an oil palm fruit transport truck. Once at the plantation, some bought something to eat or engaged each other in banter while waiting for the truck to be filled with fertiliser. It is usually the men who carry the fertiliser from the store to the truck. Then they went in the truck, together with the fertiliser, to the part of the plantation which needed fertilising that day. Fertiliser was spread along each row of palms, with each row covered by three people, two to spread the fertiliser and one to carry it. At around 11.00 or 12.00 they finished work and returned to the village in the company truck.

In May 2008, the large palms team leader was complaining that there had been a change of policy by the company. The contract schedule had been reduced but the daily working hours had increased. For example in February that year they



had only worked three days, then it was extended to March for seven days. At the time of the May visit, they didn't know when they would get more work in the plantation.

The company had applied its new policy since February, to increase the amount of fertiliser applied to each palm, meaning it took longer for to get through the same area than previously. Whereas before the change, labourers had been able to return home before lunchtime, now they had to continue till mid-afternoon (3.00 – 4.00 pm).

The shorter schedules have had a negative impact on their income, since work is counted on a piecework basis (rather than on the basis of time spent or amount of fertiliser spread), with each hectare of plantation earning IDR25,000. In one day they can cover 50-64 hectares. Assuming one group has 30 people and they cover 50 ha in one day, this means a wage of IDR41,600 per person for that day. According to the workers, this is still more than they would get from working on the PT KAT plantation, which is said to pay only IDR25,000 per day. For the men, the piece work is supplemented by the wages from loading the fertiliser onto the truck.

The minimum wage for Indragiri Hulu district in 2006 was IDR756,000 per month,⁹⁰ or if calculated on the basis of 20 working days, IDR37,800 per day. While this may appear to match the minimum wage (at least in WMI's case) the income is not steady as it is the company that decides when it needs workers.

Health and Safety

Information on the fertiliser application method and dosage comes from the team leader. There is no direct training from the company for the plantation labourers on how to use safety equipment while applying fertiliser.

Equipment provided by the company includes a bucket which holds 12.5 kg and a scoop to distribute the fertiliser. Initially, the company provided rubber gloves, but because they are hot, the worker replaced them with cloth gloves. They only get one pair: when these wear out, workers must buy their own.

When applying fertiliser, the workers don't use face masks so that when the product is spread, the dust is in the air around them and is inadvertently breathed in.

Both straight (single nutrient) and compound non-organic fertilisers are used on oil palm plantations.⁹¹ The straight fertilisers include: Urea, Ammonium Nitrate (AN), Sulphate of Ammonia (SOA-ZA), Rock Phosphate (RP), Triple Super Phosphate (TSP), Single Super Phosphate (SPP), Muriate of Potash (MOP-KCl), Sulphate of Potash (SOP-ZK), Kieserite, Dolomite, Sulfur, Borate, Copper Sulphate (CuSO₄-H₂O) and Langbeinite. The compound fertilisers used are Diammonium Phosphate (DAP), NPK (12-12-17-2), NPK (15-15-6-4) and NPK (15-15-15).

90 <http://www.balitbang.riau.go.id/index.php?bahasa=&litbang=subhal&sublink=umr>

91 http://niaga.pusri.co.id/Mupuk_Sawit/jenis_ppk.htm



Those used at Paya Rumbai are currently urea, NPK, MOP, dolomite and TSP. To economise on time, all fertilisers are mixed together before application in one lot. The villagers have received no information as to the dangers of inhaling fertiliser dust.

Pesticide dangers

As a monoculture, oil palm requires large amounts of chemical inputs in the form of fertilizers and pesticides. There are around 25 pesticides used in oil palm plantations, but poor supervision and documentation means that their use is difficult to monitor.⁹²

Day labourers in oil palm plantations – especially women labourers – are vulnerable to the harmful effects of chemical pesticides and fertilisers.

Pesticides can poison people via the skin, airways and mouth, with 90% of poisoning being through the skin, according to Pesticide Action Network.⁹³ In several cases of direct pesticide poisoning, farmer and other agricultural labourers were contaminated in the process of mixing and spraying pesticides.

Women are especially at risk when spraying, as several types of pesticides can damage reproduction and can cause harm to unborn babies in the womb. Pesticides can also cause breast cancer and poison breast milk. Many women sprayers also suffer from problems with their uterus.⁹⁴

According to Cancer Research UK, pesticides have the potential to cause cancers, especially breast cancer, bowel cancer, lymphomas and leukaemia.⁹⁵

A study by US researchers, published in September 2009, showed that workers using pesticides had a 80% higher risk of developing Parkinson's disease.⁹⁶

A study by PAN AP (Pesticide Action Network Asia & the Pacific) refers to the fact that accurate statistics on health effects of pesticides are not available. "However, it is estimated that globally, every year, between 1 and 41 million people suffer health effects from exposure to pesticides (PAN International, 2007). WHO (2009) estimated that a minimum of 300,000 people die from pesticide poisoning each year, with 99% of these from low- and middle-income countries. In 2008, the World Bank put the number of deaths at 355,000. However, FAO (2005) referring to recent data from Sri Lanka indicated that 300,000 deaths per year may occur in the Asia-Pacific region alone".⁹⁷

92 Sulistiyono, L. *Dilema penggunaan pestisida dalam system pertanian tanaman hortikultura di Indonesia*. IPB. 2004

93 Yayasan Duta Awam – Pesticide Action Network AP. *Pestisida berbahaya bagi kesehatan*. 1999

94 *Dampak pestisida pada kesehatan manusia*. <http://mathedu-unila.blogspot.com/2009/10/dampak-pestisida-terhdap-kesehatan.html>

95 *Pestisida dan Kanker*. 15 Oktober 2009. <http://mathedu-unila.blogspot.com/2009/10/pestisida-dan-kanker.html>

96 *Antara News*, 15 September 2009. 'Penggunaan pestisida dapat picu parkinson'

97 PANAP. *Communities in Peril*. Asian regional report on community monitoring of highly hazardous pesticide use. 2010.



In Indonesia there were 317 cases of pesticide poisoning in 2003, but these went unreported.⁹⁸ Blood tests carried out by Sawit Watch in 2006 on 25 oil palm farmers in East Kalimantan – nine of whom were women – found that 16 people had high levels of toxins in their blood, one person had none and the rest had a low level of toxins.⁹⁹



Photo: © DTE



Photo: © DTE



Photo: © DTE

TOP

Fertiliser spreading is done by women, without using face masks.

ABOVE

Left: An empty TSP fertiliser sack. This fertiliser is used on the oil palm plantations.
Right: A women plantation worker laughs amid the fertiliser dust.

98 Strong, G. et. al. *Memecah Kebisuan, Perkebunan dan Pestisida*. YDA. 2000

99 Notes from Smallholder Task Force meeting, Malaysia 2007.



Photo: © DTE



Photo: © DTE



Photo: © DTE



Photo: © DTE

TOP

Cutting the fruits

MIDDLE LEFT

Making a broom for use at home

MIDDLE RIGHT

Cleaning fish caught after a long trip to the mouth of the Cenaku River.

LEFT

Doing the laundry in the river is part of the daily routine for women in Paya Rumbai.

IV

CONCLUSIONS

Palm oil is not pro-people

When palm oil prices rise on global markets, Indonesia's palm oil is directed overseas causing shortages at home and driving up the price of cooking oil generally. How is it possible that the world's biggest palm oil producer experiences shortages of the oil at home? If this sector were really pro-people, there would not be these shortages.

On the other hand, when world prices go down, again it is ordinary people – especially farmers – who must bear the consequences. Many oil palm farmers have been thrown into poverty when they don't bring in enough money to live on.

Labourers on their own land

If experience is a good teacher, as the saying goes, the Paya Rumbai story is a real-life lesson showing that oil palm plantations are not a panacea for curing poverty and unemployment.

Instead, large scale plantations close down opportunities for the community in this village to manage their forest and get a proper income. While some people are still managing to make a living now, what will they do when all the forest is gone and all that remains are the plantations?

Oil palm plantations do create new jobs, but they also create unemployment which didn't exist before, among the village farmers. People who once owned land themselves, have now become labourers for companies, on what was once their own land.

There is no health insurance for plantation workers

Plantation companies operating in Paya Rumbai have not paid proper attention to health and safety issues for their workers. No information about the dangers of the chemicals used in the sector is provided. There is not even any safety equipment for workers who are in direct contact with these chemicals.

It is hoped that this report will provide evidence for government and companies alike, that a lot of improvements are needed in oil palm plantations. Expanding the area of plantations before addressing these, will only further marginalise the rural poor.



Recommendations

To the Indonesian government

The role of the government in addressing problems in oil palm plantations is important, so we therefore recommend that the government:

- ▶ Supports the more efficient management of existing oil palm plantations and prevent expansion into new areas in order to increase palm oil production. There is evidently a lot of plantation land that is not being well-managed.
- ▶ Creates a mechanism to take sanctions against companies who fail to fulfil their promises to local communities.
- ▶ Ensures that companies really do apply the principle of free, prior and informed consent when dealing with indigenous communities and ensure that negotiated agreements and fair compensation is agreed with non-indigenous local communities. This means that before any development is begun, local people understand the advantages and disadvantages of having a large company in their area.
- ▶ Halts all further oil palm expansion until these principles are applied.
- ▶ Reviews credit schemes which tie local people into longterm debt.
- ▶ Ensure that the health and safety of oil palm plantation workers are paid proper attention and are improved. The government must make companies responsible for providing safety equipment for workers in direct contact with chemicals.
- ▶ Implement training or education programmes about workers' rights to health and safety at work.
- ▶ Support community-based resource management schemes to balance large scale plantations.

International

The international role in Indonesia's oil palm sector is significant. The demand for vegetable oils to make agrofuels is helping to drive oil palm expansion in Indonesia. We therefore recommend to governments, international agencies and the private sector:

- ▶ No investment of funds in oil palm projects which damage livelihoods and cause poverty among local people.
- ▶ Suspend policies on vegetable oil-based agrofuels until protections are effectively applied on human rights, livelihoods and the environment.
- ▶ Further research on links between poverty and oil palm plantations
- ▶ Support for community-based resource management schemes to balance large scale plantations.



Postscript: Labourers on their own land

This section was drafted to provide an update on the Paya Rumbai villagers' situation. During a visit in November 2010, DTE found there were a lot of new developments.

The majority of workers on the PTWMI plantation, especially the women workers, are no longer working as fertiliser spreaders, as the palms they had been applying fertiliser to have now been cut down. The work now available – such as spraying pesticides, digging up and clearing away the palm stems – is thought to be heavier work than before. The spraying equipment is also heavy to carry. So now they stay at home or, for those who still have them, work in their gardens.

Since a man called Sugiharto – a shareholder in PT WMI - took ownership of PT ASL, a lot of villagers have been working for that company. Their job is to open up land for the small-holder ('plasma') part of the plantation, which hasn't been well-managed by the company up to now.

The main source of livelihood for the Paya Rumbai villagers is working as plantation labourers, either in large oil palm plantations or as day labourers for the villagers who own small-scale plantations. This situation has come about because most people have sold their land to newcomers. While these new landowners' share of the land has grown, the villagers' land is dwindling.

According to one villager, there are three kinds of people in Paya Rumbai. The first group is people who think about living self-sufficiently and develop their own small-scale plantations; the second group are the people who only live for today; and the third group is people who use up whatever they have. It is this group that is the biggest, and these are the people who have sold the land they owned before.

The speaker identified himself as belonging to the first group. His comment reflects the fact that there are different levels of access to information and to natural resources within the village. This, in turn, reflects power imbalances between the relative newcomers and the original villagers. It is not clear to what extent these imbalances are exaggerated by the presence of the oil palm companies – which are far more powerful than either group of villagers.



Apart from the land which has been handed over to the companies and village cooperative land, 64% - or around 1,000 hectares - of Paya Rumbai village land is now owned by outsiders.

People's main sources of livelihood have changed: from fishing, logging and farming to working on plantations (as labourers), plus fishing (although they get much less than before from this), and logging. People who still fish have to travel around three days to the river estuary. The fish they catch only fetch enough money to feed one family for one day.

Work as a day-labourer brings in from Rp50,000 to Rp60,000 (around US\$ 6-7) per day but it isn't easy to get the work. One person, of middling economic status in the village, said that every morning there are always villagers who come and ask him for work. Sometimes, when he really needs someone, he gives them work, but if not, they must go and look elsewhere.

According to people no longer working on the plantations, the daily wages paid now are not enough to feed a family and they have to owe money to the local shopkeeper in order to buy basic necessities like rice, sugar and cooking oil. Close family networks mean that some people can survive by being allowed credit in the shops kept by their families. One negative effect of owing money is 'shop politics' where a customer in debt to a shop must vote how the shopkeeper wants them to, if they want to continue getting credit.

For local people, oil palm plantations are not the answer to poverty. The poorer villagers are trapped in oil palm schemes. They can't plant rice because their farmland floods in the rainy season. At the same time, there is no-one from the oil palm companies to provide advice or assistance to manage the oil palms. The local perception is that people living on nearby transmigration sites get a much better deal: assistance with oil palms as well as training in the use of chemicals used on the plantations.

While this perception may indeed be the reality on some transmigration sites, it has been well-documented that much of this population-shifting programme which reached its height under former President Suharto ended in more poverty for the participants. It also led to the systematic denial of land and resource rights and loss of livelihoods for local communities and wholesale forest destruction in the programme's target areas.¹⁰⁰ The programme continues today where land is plenty but labour for commercial enterprises is scarce, although in scaled-down forms and in different guises.

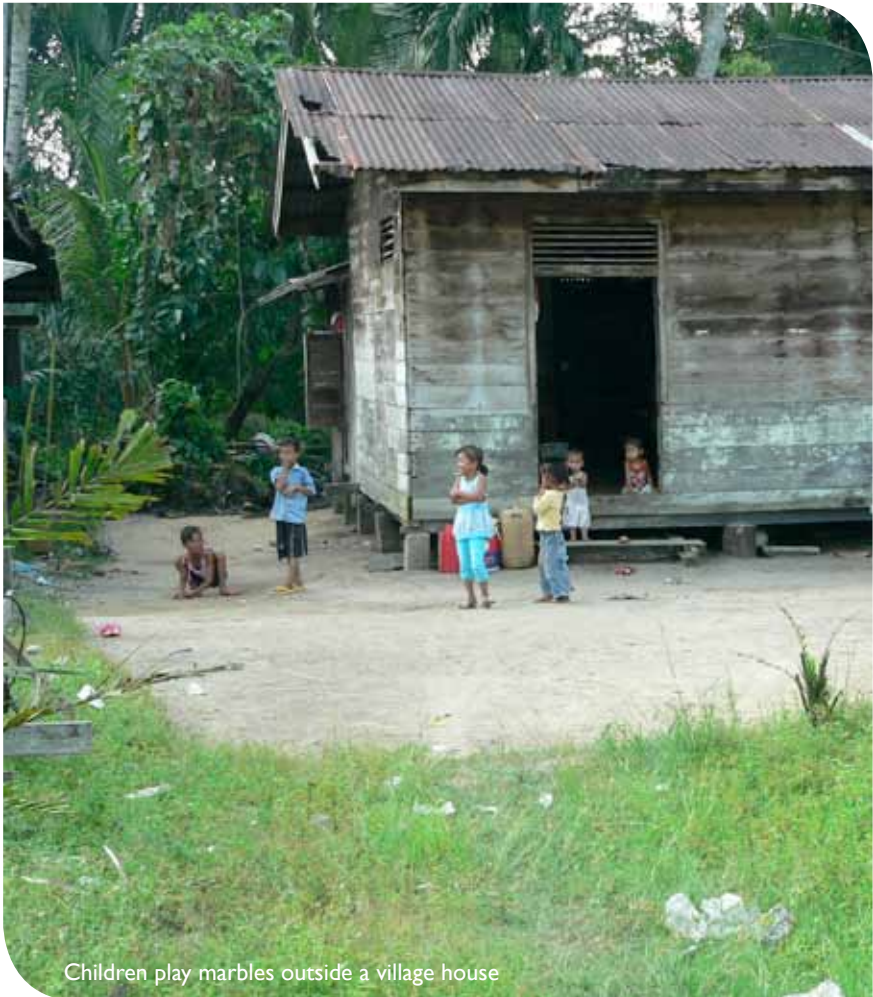
100 For more background see www.downtoearth-indonesia.org/old-site/ctrans.htm.



Whether or not the transmigrants living near Paya Rumbai really are that much better off than the villagers, the perception that they are creates potential for inter-community conflict in the area.

The conclusion of this study is that the roots of poverty in Paya Rumbai lie in the loss of natural resources and livelihoods to powerful palm oil developers, and the worsening power relations between the original villagers, the companies and the newcomers who buy land.

This loss needs to be properly acknowledged and redressed, but the more immediate demands of the villagers also need to be met: assistance and training to enable them to improve their lives in their present situation.



Children play marbles outside a village house

Photo: © DTE



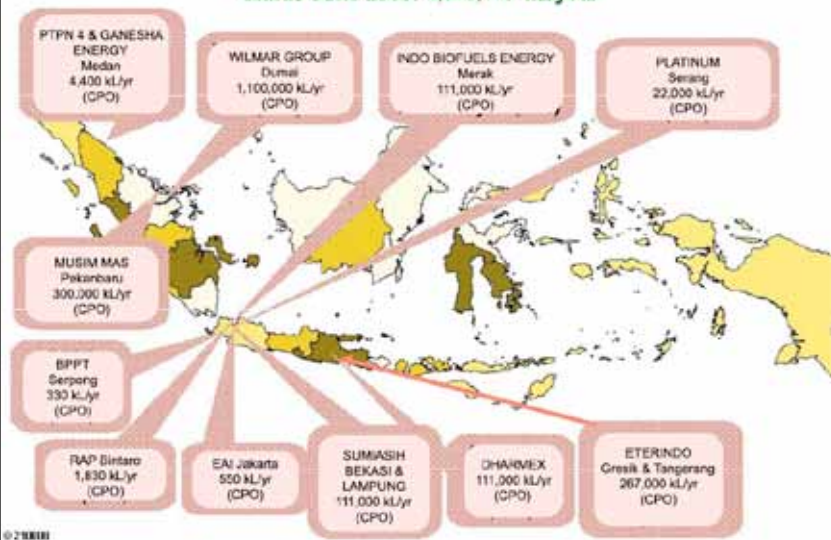
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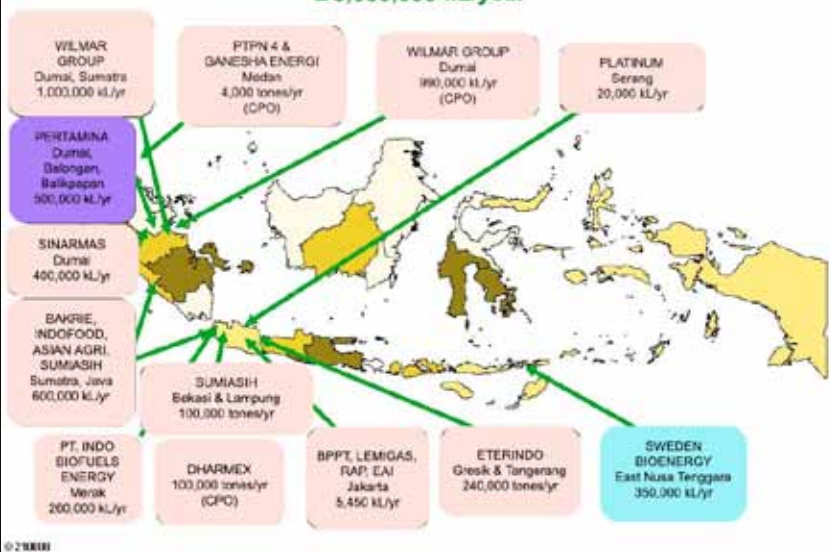
101 Ministry of Energy and Mineral Resources (ESDM). Biofuel Development in Indonesia. http://www.biofuels.apec.org/pdfs/apec_200810_wiryawan.pdf



INSTALLED CAPACITY FOR BIODIESEL PRODUCTION Status June 2008: 2,029,110 kL/year

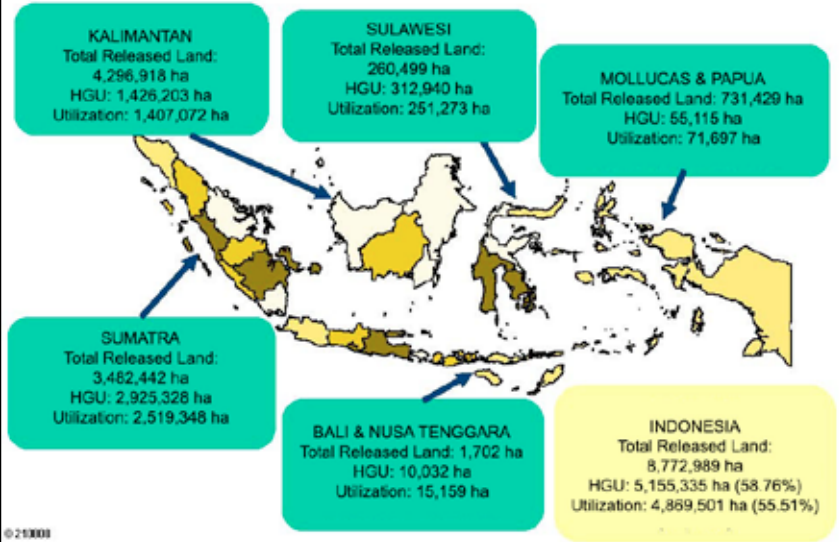


BIODIESEL PRODUCTION : Projection up to 2010 ± 5,000,000 kL/year





SUMMARY OF COMPANY LEASEHOLDS (HGU) UPON RELEASED LAND UP TO JUNE 2008



LAND AND CLIMATE COMPATIBILITY MAP FOR PALM (3 million hectares)

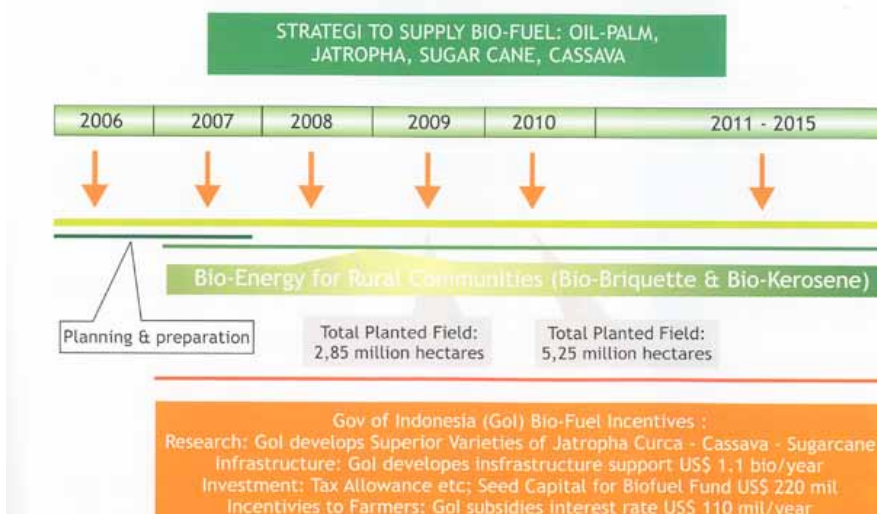


© 2008

Annex 2:

Agrofuel Development Plans

STRATEGI PENYEDIAAN BAHAN BAKAR NABATI



RENCANA STRATEGIS SAMPAI DENGAN 2015

STRATEGIC PLAN FOR: BIO-DIESEL (B), BIO-OIL (O), BIO-KEROSEN (O)

1. Policies on Bio-Diesel & Bio-Oil (Transportation, Bio-Kerosen & Power Generation)

2006	2007-2008	2009-2010	2011 - 2015
<p>Specification & Test of:</p> <p>B5 Bio-Diesel</p> <p>O5 Bio-Oil Trasp.</p> <p>O10 Bio-Kerosen</p> <p>O50 Bio-Oil PLN</p>	<p>Pertamina+PLN Mandate:</p> <p>B10 in Big Cities</p> <p>O5 Transport. (5% Vol)</p> <p>O10 Bio-Kerosen (5% Vol)</p> <p>O50 for PLN (20% Vol)</p>	<p>Pertamina+PLN Mandate:</p> <p>B10 in Big Cities</p> <p>O5 Transport. (5% Vol)</p> <p>O10 Bio-K Whole Country</p> <p>O50 for PLN (50% Vol)</p>	<p>Pertamina+PLN Mandate:</p> <p>B10 in Big Cities</p> <p>O5 Transport. (5% Vol)</p> <p>O10 Bio-K Whole Country</p> <p>O50 for PLN (20% Vol)</p>

2. Action Plan for Bio-Diesel & Bio-Oil

	2006	2007	2008	2009	2010	2011	2013	2015
Existing Palm Oil								
1. Area, Mil Ha	55	5.5	5.5	5.5	5.5	5.5	5.5	5.5
2. Export Volume, Mil KL/year	11	11	11	11	11	11	11	11
JGE-AP Palm Oil:								
1. Area, Mil Ha	0.1	0.3	0.6	1	1.5	2	3	4
2. Volume, Mil KL/year	0	0	0	0.4	1.3	2.6	6.7	17.7
JGE-AP Jatropha Curcas:								
1. Area, Mil Ha	0.004	0.06	0.3	0.9	1.5	2.0	3	3.0
2. Volume, Mil KL/year	0.0006	0.038	0.198	0.598	1.0	3.0	4.5	4.5
Total Volume, Mil KL/year:	11.0006	11.038	11.198	11.998	13.298	16.6	22.2	33.2
Vol Solar+Kerosen, Mil KL/year	31.83	29.74	30.65	31.59	32.57	32.57	32.57	32.57
B-Fuel Substitution, Mil KL/year	0	1.98	6.73	6.89	7.06	7.06	7.06	7.06
Surplus Bio-Fuel, Mil KL/year	11.006	9.058	4.468	5.108	6.238	9.54	15.14	26.14

**Projection of Vegetable Fuel Oils Development up to
and including 2010**

Parameter	Unit	Oil Palm	Jatophra	Sugarcane	Cassava	Total
Land	hectares	1,500,000	1,500,000	750,000	1,500,000	5,250,000
Production	tonnes kernel, fruit bunches	30,000,000	7,500,000	60,000,000	30,000,000	127,500,000
Bio-ethanol or Bio- diesel	tonnes oil	6,000,000	2,250,000	3,750,000	4,615,385	16,615,385
Plants	unit	167	22,727	125	288	23,307
Direct workforce	people	750,000	500,000	1,500,000	750,000	3,500,000
Indirect workforce	people	1,167	68,182	6,250	11,538	87,137

source: <http://www.indobiofuel.com/Timnas%20BBM%204.php>

**Projection of Vegetable Fuel Oils Development up to
and including 2015**

Bio-ethanol or Bio- diesel	tonnes oil	16,000,000	4,500,000	8,750,000	5,100,000	34,350,000
Plants	unit	444	45,455	292	319	46,510
Direct workforce	people	2,000,000	1,000,000	3,500,000	750,000	7,250,000
Indirect workforce	people	3,111	136,364	14,583	12,750	166,808

Source: <http://www.indobiofuel.com/Timnas%20BBM%205.php>

Road map for domestic agrofuel consumption

Year	2005-2010	2011-2015	2016-2025
Biodiesel	Use of biodiesel equals 10% of diesel consumption, 2.41 million kl	Use of biodiesel equals 15% of diesel consumption 4.52 million kl	Use of biodiesel equals 20% of diesel consumption 10.22 million kl
Bioethanol	Use of bioethanol equals 5% of gasoline 1.48 million kl	Use of bioethanol equals 10% of gasoline 2.78 million kl	Use of bioethanol equals 15% of gasoline 6.28 million kl
Biooil			
- Biokerosene	Use of biokerosene 1 million kl	Use of biokerosene 1.8 million kl	Use of biokerosene 4.07 million kl
- (pure plant oil) PPO for electricity generation	Use of PPO is 0.4 million kl	Use of PPO is 0.74 million kl	Use of PPO is 1.68 million kl
Biofuel	Use of biofuel is 2% of energy mix 5.29 million kl	Use of biofuel is 3% of energy mix 9.84 million kl	Use of biofuel is 5% of energy mix 22.26 million kl

source: <http://www.indobiofuel.com/Timnas%20BBM%208.php>



Returning home after finishing work on the oil palm plantation.

Photo: © DTE

**“Our development efforts will amount to nothing
if we are not capable of lifting our people out of
poverty and underdevelopment.”
*(Susilo Bambang Yudhoyono, President of Indonesia)***

D!E

Down to Earth
*International Campaign
for Ecological Justice
in Indonesia*