GREENPEACE briefing

September 2009

KEY POINTS – PALM KERNEL ANIMAL FEED

What is the problem with palm kernel expeller?

Palm kernel expeller (officially PKE but commonly referred to as "palm kernel") is an important economic product of the destructive palm oil industry. Indonesia is the biggest producer of palm oil in the world. Indonesia and Malaysia make up 87% [1]of global palm oil production.

Indonesia's forests have one of the fastest rates of deforestation in the world. In total, Indonesia has already lost 72 per cent of its large intact ancient forests[2]. A major driver of this destruction is the expansion of palm plantations. Key products produced from palm plantations are palm oils (used mainly in foods, cosmetics and now biofuels) and palm kernel expeller (or PKE) used for animal feed and biomass electricity generation.

Forest destruction, fires lit for clearing land for palm and other plantations and the conversion of carbon rich peatlands are major contributors to climate change. Recent estimates rank Indonesia as the third biggest greenhouse gas emitter on the planet after China and the US due, mainly, to the destruction of forests growing on peatland soils[3]. It is essential to stop deforestation as it contributes around 20 per cent of global greenhouse gas emissions annually[4]. The clearing and burning of Indonesia's peatlands emits 4 per cent of the world's greenhouse gases each year – which is huge considering they only make up 0.1 per cent of the worlds intact land mass[5].

According to data from carbon footprint research of the palm industry[6] rainforest destruction of peat lands for palm plantations gives rise to 96,565 kg of greenhouse gas emissions per hectare per year of production. According to carbon footprint methodology[7] by a Malaysian Government research agency for industrial development the production of one kg of PKE gives rise to a footprint of up to 18.2 kg of carbon dioxide equivalent emissions.

Therefore the 2008 import into New Zealand of 1.1 million tonnes of PKE equated to a carbon footprint of up to 20,020,000 tonnes of carbon dioxide equivalent.

[1] (United States Department of Agriculture, Foreign Agricultural Service, Commodity Intelligence Report, December 31, 2007)

[2] 1 World Resources Institute, The Last Frontier Forests, 1997

[3] Indonesia and Climate Charge: Current Status and Policies. The World Bank. 2007.

[4] IPCC Fourth Assessment Report: Climate Change 2007 (AR4)

[5] Based on an estimated 1.8 Gt CO2 emissions from Indonesia's degraded peatland (Hooijer et al. 2006) and estimated global GHG emissions of 49 Gt CO2e (IPCC, 2007). 10 million ha of peatland is deforested and degraded in Indonesia (Hooijer et al. 2006) out of a global land area of 15 billion ha. Hooijer, A. et al. (2006) 'PEAT-CO2'. Delft Hydraulics report Q3943: 1 & 9. IPCC (2007): Working Group III 'Mitigation of Climate Change', Cambridge University Press: 3.

[6] GHG emissions from palm oil production Literature review and proposals for amendments of RSPO Principles & Criteria, July 2009

[7] The LCA Approach to Illustrate Palm Oil's Sustainability Advantage S.S.Chen SIRIM Environmental & Bioprocess Technology Centre, Malaysia. SIRIM Berhad is a wholly-owned company of the Malaysian Government under the Minister of Finance Incorporated.

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According to the NZ Government's report[8] on greenhouse gas emissions for 2006 report that all emissions from the dairy sector's agricultural emissions was 14,022,000 tonnes of CO2-eq. The contribution of the footprint of PKE was not included in that total since the emissions occurred in Malaysia and Indonesia.

Therefore the carbon footprint of using PKE in the New Zealand dairy herd is equivalent or greater than the entire sector's New Zealand emissions. This demonstrates that by using PKE Fonterra is risking a huge carbon footprint liability in its production of diary products.

Clearing forests for timber, palm and pulp plantations is the main cause of the decline of the orang-utans[9] and they are now at high risk of extinction in the wild. Forest destruction has also pushed many other species to the brink of extinction, there are probably less than 400 Sumatran tigers left in the wild today[10]. The palm industry is having a devastating impact on indigenous peoples who rely on rainforests for their livelihood.

What is Greenpeace asking for?

Greenpeace is calling for the Indonesian Government to implement an immediate moratorium on forest and peatland destruction for the sake of climate stability, biodiversity and to protect the livelihoods of forest dependent peoples.

In New Zealand this means that Greenpeace wants all palm kernel expeller shipments into New Zealand stopped as NZ companies purchasing palm products is helping to drive this destruction – and Fonterra is the key player within this.

What is the connection to New Zealand and Fonterra?

Almost a quarter of the world's palm kernel expeller supply is coming into New Zealand (4.7 million tonnes of palm kernel expeller was exported globally in 2008[11] and New Zealand imported 1.1 million tonnes in 2008[12].)

New Zealand has dramatically increased the import of palm kernel expeller in the last nine years, a 2,700 fold increase[13], almost all of which is used as supplementary feed on dairy farms. Fonterra represents 95% of all New Zealand dairy farms and is driving intensification of dairying. Over 1.5 million hectares of palm plantations planted on previously rainforested land in Malaysia and

[8] New Zealand's Greenhouse Gas Inventory 1990–2006, Ministry for the Environment

[9] "The last stand of the orangutan – State of Emergency: Illegal logging, fire and palm oil production in Indonesia's national parks", Nellerman, Miles, Kaltenborn, Virtue and Ahlenius (Eds), United Nations Environment Programme, 2007

[10] http://www.panda.org/what_we_do/endangered_species/tigers/sumatran_tiger/

[11] "Oil Seeds: World Market and Trade", United States Department of Agriculture, page 4.

[12] Statistics New Zealand

[13] Information from Statistics New Zealand.

Indonesia would have been needed to meet the 2008 New Zealand imports of palm kernel expeller[14].

In 2008 Fonterra's joint venture subsidiary RD1 entered into a joint venture with one of the world's biggest rainforest destroyers for palm oil and kernel production, Wilmar. The resulting company, International Nutritionals Limited was incorporated on 22 July 2008 (according to the NZ Companies Office).

But isn't palm kernel expeller just a waste by-product of palm oil?
Palm kernel expeller is not a waste by-product – it is a lucrative economic part of the destructive palm oil business. The three main end products of the palm plantation business are Crude Palm Oil (for food), Palm Kernel Oil (for cosmetics, etc) and Palm Kernel Expeller (used for animal feed and biomass electricity generation).

According to the Malaysian Palm Oil Board "PKC [palm kernel cake/expeller] is also an important product from the oil palm industry that generate[s] substantial export earnings for Malaysia, which was approximately RM 337.9 million in 2003."(141,240 million NZD)."[15]

According to an experts group meeting report[16] by the United Nations Industrial Development Organisation, a representative of the Malaysian Government's palm industry research institute presented the make-up of palm products from the industry;

"Oil Palm Oil is a very productive crop, producing 90 million tons per year of Biomass. The products with economic value are: palm oil, palm kernel oil, and palm kernel cake. Remaining biomasses in the form of lignocellulose materials like fibres and shell are used in mills to generate steam and electricity."

Palm kernel expeller represents 12-15% of the value of palm products and its trade price has increased 128% in the last 4 years, a rate double that of palm oils[17] .

Therefore palm kernel expeller is an important part of an industry that causes tropical rainforest destruction in Malaysia and Indonesia, threatens critically endangered species like orang-utan, impacts indigenous people in these forests and gives rise to massive greenhouse gas emissions. Traders of palm kernel expeller have the same responsibilities as palm oil importers – they are both profiting from the environmental destruction being wrought in Indonesia and Malaysia.
The true wastes arising from the palm oil industry are Palm Kernel Shells (PKS), Empty Fruit Bunches (EFB) and Palm Oil Mill Effluent (POME)[18].

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[14] Different palm oil production systems for energy purposes and their greenhouse gas implications. 2007 Department of Science, Technology and Society, Copernicus Institute for Sustainable Development and Innovation, Utrecht University, The Netherlands. This report provides figures that show that 700kg of palm kernel expeller is produced per hectare.

[15] Palm Kernel Cake Marketing: Constraints and Prospects, Malaysian Palm Oil Board, OIL PALM INDUSTRY ECONOMIC JOURNAL (VOL. 5(2)/2005).

[16] International Centre for Science and High Technology, Final Report, Expert Group Meeting on 'Perspectives on Cleaner Technologies for Sustainable Chemistry', Trieste, Itlay, 29-30 April 2002, United Nations Industrial Development Organisation.

[17] Trade prices from IJM CORPORATION BERHAD ANNUAL REPORT 2009.

The main reason palm plantations are encroaching into forests and peatlands and not wasteland is due to profits. Palm plantations need to be growing for five years before the fruit can be processed. By destroying forests prior to planting the companies can realise a profit straight away – by selling the timber of worth. They then burn the waste wood and peat soils – the reason is it's cheaper to burn than to hire manual labour and the burning helps the palm plants to germinate (the ash acts as a cheap form of fertiliser). [19]

Fonterra gets it wrong on PKE.

Fonterra's General Manager for Sustainable Production, John Hutchings, has made a number of misleading claims about PKE that shows that Fonterra does not understand the palm oil industry that it is doing business with.

PKE is a waste product.

'It [PKE] would otherwise be left to rot and burn… it is not a driver for rainforest destruction.' [20]

This is completely wrong and misleading. Malaysia has been exporting PKE as animal feed to the Netherlands since 1976. No PKE is left to rot or is burnt in Malaysia and Indonesia. The Malaysian Palm Oil Board and Palm Oil Industry stress how important PKE (called palm kernel cake in Malaysia) is to the palm industry.

According to the Malaysian Government in 1987[21];
"Malaysia first began to export palm kernel cake in 1976. Exports equaled only 100,000 tonnes that year but have since risen 5-fold to nearly 500,000 tonnes per annum currently."

The value of exports to the Malaysian Palm Oil Board is stated[22] as follows;
"PKC has long been utilized either as additional ingredients in animal compound feeds or as straight animal feeds particularly for ruminants. PKC is also an important product from the oil palm industry that generate substantial export earnings for Malaysia, which was approximately RM 337.9 million in 2003."

[18] Different palm oil production systems for energy purposes and their greenhouse gas implications. 2007 Department of Science, Technology and Society, Copernicus Institute for Sustainable Development and Innovation, Utrecht University, The Netherlands

[19] Different palm oil production systems for energy purposes and their greenhouse gas implications. 2007 Department of Science, Technology and Society, Copernicus Institute for Sustainable Development and Innovation, Utrecht University, The Netherlands

[20] Fonterra defends PKE, Rural News, 2nd September 2009.

[21] M A L A Y S I A, The Palm Oil-Based Industry in Malaysia, A GUIDE FOR INVESTORS Prepared by: Malaysian Industrial Development. Authority Palm Oil Registration & Licensing Authority Palm Oil Research Institute of Malaysia July, 1987

[22] Palm Kernel Cake Marketing: Constraints and Prospects, Malaysian Palm Oil Board, OIL PALM INDUSTRY ECONOMIC JOURNAL (VOL. 5(2)/2005).

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According to the Malaysian Government research agency for industrial development[23],

"Palm kernel oil (PKO) and palm kernel cake (PKC) from palm kernel are major co-products of CPO. Mills that recycle the empty fruit bunch (EFB) for purposes outside the system boundary of CPO production, namely use of EFB for particle board manufacturing; paper making; or the conversion to cellulosic ethanol (second generation biofuel) will have three co-products to every ton of CPO produced. Currently EFB is used as mulch to reduce the application of synthetic fertilisers."

In fact the Malaysian Palm Oil industry does not see PKE as a waste product and do not classify it as such.

"In addition, oil palm also produces c. 0.5 tonne/ha/year of kernel containing c. 47% kernel oil. The kernel and mesocarp oils differ in fatty acid composition and hence have different uses, including both food and non-food. The kernel meal or cake is also of economic value as a source of animal feed protein."[24]

The same report goes to list the true waste products from the palm oil industry;

"Environmental considerations are equally important in the processing sector of the industry. Legislation imposes limits to the nature and amounts of discharges to the atmosphere and waterways by mills and refineries. However, mill 'waste' products, which were once viewed as embarrassing liabilities are now viewed as co-products of increasing potential value. In addition to EFB and palm oil mill effluent (POME) as nutrient sources in the plantation, the use of excess fibres in manufacturing, the recovery of POME solid for animal protein, the generation of biogas from the effluent ponds and use of surplus boiler energy to generate electricity, are further examples, all of which serve to promote a 'zero-waste' concept." (Page 7)

So Fonterra's claims are misleading because the true wastes arising from the palm oil industry are Palm Kernel Shells (PKS), Empty Fruit Bunches (EFB) and Palm Oil Mill Effluent (POME)[25].

[23] The LCA Approach to Illustrate Palm Oil's Sustainability Advantage S.S.Chen SIRIM Environmental & Bioprocess Technology Centre, Malaysia. SIRIM Berhad is a wholly-owned company of the Malaysian Government under the Minister of Finance Incorporated.

[24] Oil Palm – Achievements and Potential - **Mohd. Basri Wahid1**, Siti Nor Akmar Abdullah2 and I. E. Henson11Malaysian Palm Oil Board, PO Box 10620, 50720 Kuala Lumpur, Malaysia; Department of Agricultural Technology, Faculty of Agriculture, Universiti Putra Malaysia, 43400, UPM Serdang,

[25] Different palm oil production systems for energy purposes and their greenhouse gas implications. 2007 Department of Science, Technology and Society, Copernicus Institute for Sustainable Development and Innovation, Utrecht University, The Netherlands

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Fonterra sourced PKE is certified sustainable.

Further misleading claims made by Fonterra relate to 'sustainable certification' of PKE. Fonterra sustainability manager John Hutchings told Radio New Zealand[26] Wilmar International was a reputable company.
"They've been working very hard to ensure that all of their mills and plantations are RSPO -- Round Table on Sustainable Palm Oil -- certified, and they have almost completed that task."

According to the RSPO secretary-general Dr Vengeta Rao "very little" of the palm kernel expeller that entered New Zealand would have been certified[27].

This is an admission that the majority of PKE imports into New Zealand for use by Fonterra's dairy herd is unsustainable and not certified by the RSPO (Roundtable on Sustainable Palm Oil).

Globally, less than 4 per cent of palm products is certified by RSPO but because of the higher cost, uptake has been low[28].

Wilmar, who sells Fonterra's RD1 their palm kernel expeller, is a member of the Roundtable on Sustainable Palm Oil (RSPO) - a voluntary certification scheme set up in 2002 to develop ways to secure palm oil from sustainable sources. However until now, the RSPO has failed to deliver major changes on the ground.

Whilst becoming a member of the RSPO is a good first step for companies wanting to tackle rainforest destruction, many suppliers are not taking their commitments seriously and are continuing business as usual in terms of rainforest and peatland destruction. Greenpeace is calling for the RSPO to adopt a halt on all further rainforest and peatland destruction for all its members.

Companies who are members of the RSPO until now have largely not stopped the destruction of Indonesia's rainforests and peatlands for palm oil. Many are using the RSPO as a way of looking green while carrying on with business as usual.

Even looking just at the RSPO certified palm product figures – the numbers don't add up. Wilmar's subsidiary (PPB Oil Palm Bhd) had three of its mills RSPO certified in Malaysia in February 2009 - Sapi Palm Oil Mill, Reka Halus Palm Oil Mill and Sabahmas Palm Oil Mill. These mills collectively produce a paltry 27,400 tonnes of RSPO unprocessed palm kernel annually from four plantations, spread over more than 19,400 hectares in Sabah, East Malaysia[29].

This unprocessed palm kernel is then processed into 12,056 tonnes of Palm Kernel Oil and 15,344 tonnes of Palm Kernel Expeller[30].

[26] NZPA, 23/08/09

[27] Sunday Star Times, 23rd August 2009. 'Our Destructive Ways'.

[28] "WWF accuses RSPO of hypocrisy over sustainable palm oil pledge" WWF press release, Leah Armstrong, 13 May 2009, and USDA statistic of 4.685 million tonnes of palm kernel expeller exported globally in 2008 (personal communication)

[29] *RSPO Assessment Report: PPB Oil Palms Berhad*, Control Union Certifications, February 2009.

[30] Different palm oil production systems for energy purposes and their greenhouse gas implications. 2007 Department of Science, Technology and Society, Copernicus Institute for Sustainable Development and Innovation, Utrecht University, The Netherlands

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Even if Fonterra's RDI brought all of this palm kernel expeller it would represent only about 1% of New Zealand's total imports in 2008. This means that 99% of New Zealand's imports of palm kernel expeller in 2008 came from unknown sources. This 99% is therefore highly likely to be from suppliers engaged in destructive practices, including deforestation, drainage and conversion of carbon rich peatlands and the destruction of human and endangered animal habitat.

PKE is needed for feeding cows during drought.

John Hutchings, Sustainability Manager for Fonterra, says palm kernel was, during last year's drought, the only alternative dairy feed available for purchase. This is misleading and is not supported by New Zealand farmers who were able to supply maize silage to dairy farms during the 2007/08 drought.
There are local alternatives for emergency drought relief, such as maize which is grown by New Zealand farmers. There was New Zealand grown supplemental feed available to feed dairy cows during the recent drought.

Federated Farmers grain and seed section has said "There was a surplus of maize silage this season [2008/2009][31]."

Maximising profit has been quoted as the main reason for increasing PKE use. According to *New Zealand Farmers Weekly ("NZFW")* September 2008 the: "supplementary feeds market is hot", as dairy farmers look to maximise milk output while milk prices remain high.

In January 2009 the New Zealand Farmers Weekly stated "Dairy farmers are earning few friends among maize growers this summer as they walk away from silage deals, leaving some contractors with as much as a third of their crop now unsold. "The dairy industry is really letting us down big time this year. It is hard to see how some contractors are going to be able to survive with portions of their crop now unsold despite contracts being signed," Bay of Plenty contractor Bill Webb told The New Zealand Farmers Weekly.[32] "

[31] Hew Dalrymple, Federated Farmers Grain and Seeds Section. Sunday Star Times, 23rd August 2009. 'Our Destructive Ways'.

[32] NZ Farmers Weekly, 19th January 2009. http://www.farmersweekly.co.nz/article/7640.html

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