



Global Education – Learning Emphases

- Interdependence and globalisation
- Identity and cultural diversity
- Social justice and human rights
- Peace building and conflict resolution
- Sustainable futures

IT'S A JUNGLE OUT THERE!

The impacts of palm oil production in South East Asia

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STUDY GUIDE: IMPACTS OF PALM OIL PRODUCTION IN SE ASIA

Overview

This study guide will focus on the impacts of Palm Oil production in Indonesia and Malaysia.

Palm Oil production was selected because it is an extremely contentious issue globally. It has been hailed as the great saviour of the human race as it scrambles to find an alternative to fossil fuels; it provides employment and greatly needed income for many millions of rural farmers throughout Indonesia and Malaysia (the two largest palm oil producers worldwide, totalling 56% of global production) (World Growth 2011) yet, at the same time, has been blamed for the deforestation and habitat destruction of vast swathes of rainforest throughout the region.

The range of stakeholders involved in this issue (governments, rural communities, farmers, multi-national corporations, environmental organisations and animal species, notably Orang-utans) makes this an appropriate and engaging case study for Stage 4–5 geography students.

The study guide has been designed to demonstrate the importance of sustainability, deforestation, habitat destruction and loss of biodiversity using the impacts of Palm Oil production as its primary case study.



Figure 1: Delivering a palm oil harvest to the refinery



Figure 2: Cooking Oil (Palm)



Figure 3: Palm kernel

Background

What is Palm Oil?

Palm oil is obtained from the fruit of the African palm oil tree (*Elaeis guineensis*) (Schuster et al., 2007).



Figure 4: Palm oil plantation (Malaysia)



Figure 5: Palm species botanical sketch

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World Production of Oils & Fats (million tonnes)

	2001	2002	2003	2004	2005	2006	2007	2008
Palm	23.88	25.03	28.06	31.18	33.98	37.29	38.83	43.12
Soybean	27.83	29.90	31.19	30.69	33.58	35.24	37.36	36.86
Groundnut	4.94	4.96	4.32	4.72	4.51	4.38	4.21	4.34
Sunflowerseed	8.24	7.67	8.86	9.40	9.74	11.15	10.87	10.80
Rapeseed	13.72	13.27	12.64	15.09	16.32	18.48	18.74	19.84
Palm kernel	3.14	2.96	3.27	3.61	4.00	4.38	4.51	5.03
Coconut	3.40	3.04	3.18	3.04	3.24	3.12	3.11	3.05
Animal Fats	21.21	21.78	22.09	23.20	23.58	23.94	24.15	24.43
Other oils	10.30	10.45	10.35	11.47	12.11	12.05	12.33	12.34
Total	116.65	119.06	123.96	132.40	141.07	150.03	154.1	159.8

Figure 6: World production of edible oils and fats. Source: Oil World

Why is it important?

It is the most widely produced edible vegetable oil in the world (Mukherjee and Mitra, 2009).

In 2008, it accounted for over a third of the 130 million tonnes of vegetable oil produced globally (WWF, 2010).

Where is palm oil produced globally?

Malaysia and Indonesia are by far the largest producers of palm oil in the world. In 2009 they produced around 86% of the world's total production (World Growth, 2011).

World Palm Oil Production

000 MT	2008	2009f
Malaysia	17,735	17,800
Thailand	1,150	1,150
Nigeria	830	860
Indonesia	19,200	20,600
Colombia	778	840
Others	3,432	3,740
World	43,124	44,990

Share (%)	2008	2009f
Malaysia	41%	40%
Thailand	3%	3%
Nigeria	2%	2%
Indonesia	45%	46%
Colombia	2%	2%
Others	8%	8%
World	100%	100%

Figure 7: Global share palm oil production.
Source: RSPO fact sheet

Palm Oil Producers 2009

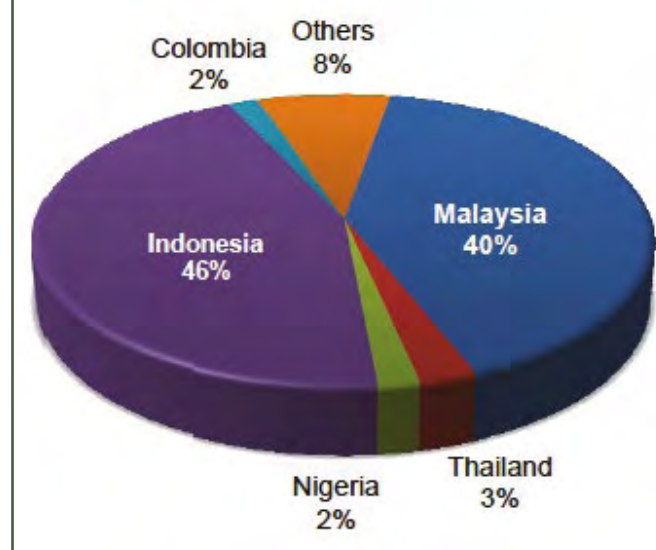


Figure 8: Palm Oil producers 2009 RSPO fact Sheet

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Figure 9: Palm plantation (Indonesia)

Economic Benefits

In Indonesia palm oil generated \$7.9 billion in exports in 2007, accounting for 13 per cent of agricultural output, second only to rice.

In 2011, Palm Oil contributed over \$US14.5 Billion to Indonesia's economy. In Malaysia in 2008, palm oil exports accounted for \$19.6 billion. Source: World Bank (2009, 2011).



Figure 10: Palm Oil plantation (Cigudeg, Indonesia)

Production Process

1. Nursery

Seedlings are raised in the nursery for about 12 months prior to transplanting in the field. (RSPO factsheet, 2010).



Figure 11: Palm Oil nursery (Malaysia)

2. Harvesting and Collection

After about 24 to 30 months, the oil palm starts to yield fruit in compact bunches called fresh

Fruit bunches (FFB). Harvesting involves cutting ripe bunches manually using a chisel or sickle.

Collection of harvested fruits is either done manually, sometimes with a wheelbarrow, or mechanically using a tractor mounted grabber with trailer (RSPO factsheet, 2010).



Figure 12: Harvest time



Figure 13: Lift picking team GoGlobal twin harvesting platform



Figure 14: Man takes harvest to refinery (Malaysia)

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3. Extraction

To preserve the freshness and quality of palm oil, the FFB are preferably sent to the mill for extraction within 24 hours of harvesting. The FFB are steamed under high pressure to sterilise, loosen and soften the fruits before they are stripped from their stalks and mechanically pressed to extract the oil.

Small scale farmers use open fires to boil the fruit before it is pressed.

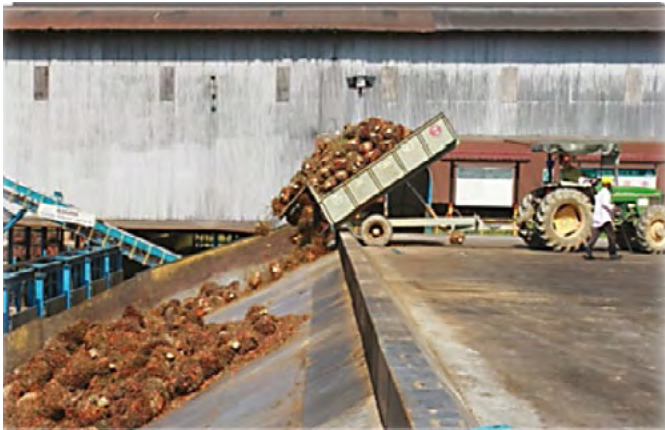


Figure 15: Palm kernel harvest at refinery



Figure 18: Farmers manually process palm kernels



Figure 19: Palm Oil refinery (Malaysia)

4. Refining

The extracted oil from the mill is called Crude Palm Oil (CPO). The CPO is sent to a refinery where impurities, colours (by bleaching), and odours (by deodorising) are removed. (RSPO factsheet, 2010).



Figure 16: Palm oil refinery (Malaysia)



Figure 20: Worker at palm oil refinery (ABC file photo)

Uses of palm oil

Palm oil is used primarily in **food products**: cooking oil, shortening, margarine, milk fat replacer and cocoa butter substitute.

Palm kernel oil is mostly used in the **chemical industry** for making soap, detergent, toiletries and cosmetics.



Figure 17: Palm oil refinery (Malaysia)

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Figure 21: Palm oil as a biodiesel (credit ceopalmoil.com) and Figure 22: Palm oil used for cooking. Background image: palm leaves

Palm oil is also now being used as an additive for **biodiesel** production.

The kernel residue is used in **animal feed** and as **fuel** in industrial burners to produce activated charcoal. The fronds, trunks and empty fruit bunches can be used to make fiberboard for **furniture** and mats to prevent erosion.



Figure 23: Cosmetic brands using palm oil (whaleofatime.org)



Figure 24: Variety of processed food brands that use palm oil in their products (whaleofatime.org)

Issues: An Overview

The environmental impacts of palm oil production not only affect stakeholders in Indonesia, they also affect the global community. This becomes evident when analysing the effects of land clearing for palm oil production. “Deforestation accounts for one-fifth of global greenhouse gas emissions and is one of the most significant contributors to climate change” (Stern: 2006, p.14). Indonesia’s rainforests are the third largest on the planet; however their rapid rate of deforestation is one of the fastest in the world. Since 1960, Indonesia has lost over 40% of its rainforests and at its current rate of deforestation; it stands to lose around 98% of its lowland forests by 2022 (Nellemann: 2007, p43). As palm oil plantations expand to meet global alternative fuel demands in the form of biodiesel, illegal clear cutting practices accelerate the process of deforestation. Paradoxically, creating yet more greenhouse gasses. Habitat destruction, as a result of deforestation is also an equally important learning outcome for secondary school students. “Rising global demand for palm oil is likely to exacerbate deforestation rates in oil-palm producing countries. This will lead to a net reduction in biodiversity” (Koh: 2008, p.21). A study carried out by the University of Queensland found that “40 of Kalimantan’s 46 threatened mammals occur within areas slated for oil palm development.” (Venter: 2009, p3). According to the World Wildlife Fund (WWF), the Wildlife Fund (WWF), the been listed as ‘the most endangered’ due to loss of its habitat through deforestation and human settlements (WWF 2011).

Orang-utans are also at risk of being hunted by farmers whose crops they eat and consequently destroy. Eric Meijaard from People and Nature Consulting International, states “They [Orang-utans] either go into the oil palm, and start eating the oil palm fruits, or get pushed into a smaller and smaller areas...What quite often happens is that the oil palm concession basically will ask for these orang-utans to be shot so they get rid of the problem” (Kinabalu, 2009).



Figure 25: Tracts of land cleared for palm plantations



Figure 26: Map of Borneo (Indonesia / Malaysia)

Whilst it is important to highlight the devastating environmental effects that palm oil production has had on Indonesia’s environment and biodiversity, it is equally important to shed light on the economic contribution palm oil has made to Indonesia and its people. A report titled ‘The importance of Palm oil to Indonesia’s growth’ states that “Palm oil provides developing nations and the poor a path out of poverty. Its preface is quite deliberate in the statements it makes. Stating “developing nations must be allowed the chance to develop and grow without political intervention by environmental groups or developed nations. It is crucial that developing nations be given the same opportunities which developed nations have benefitted from” (World Growth, 2011, p. 2). Furthermore, Palm oil has contributed over \$US14.5 billion to Indonesia’s economy (World Growth, 2011, p. 11). It has been estimated that the production of palm oil employs around six million people globally as well as offering additional benefits to workers such as secure incomes, access to healthcare and education (Sheil, D. et al: 2009). It is important that students acquire an understanding of all perspectives from a wide range of stakeholders involved in this issue if they are to develop critical thinking skills. Students will be presented with a range of perspectives and viewpoints from various stakeholders and will need to make their own judgments as to which side they will take in this contentious issue.

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Figure 27: Group of Penan Tribesmen.
Source: Tribe DVD series – Penan

Stakeholders

In order for students to make an informed judgment about palm oil production it is necessary for them to develop an understanding of all of the stakeholders involved in this issue.

Tribal communities: The Penan

The nomadic hunter-gatherer Penan are one of the last such groups in South East Asia. Out of the 10,000 Penan living in the Malaysian state of Sarawak, Borneo, only 200 nomadic people are left.

The Sarawak state government does not recognize the Penan's rights to their land. Since the 1970s, it has backed large-scale commercial logging on tribal land across Sarawak.

In 1987, many Penan communities protested against the logging of their land by blockading the roads cut through the forest by the logging companies. More than a hundred Penan were arrested.

The Penan have kept up their resistance, and continue to mount blockades against the companies. Some have managed to prevent the companies from entering their land, but others have seen much of their forest devastated.

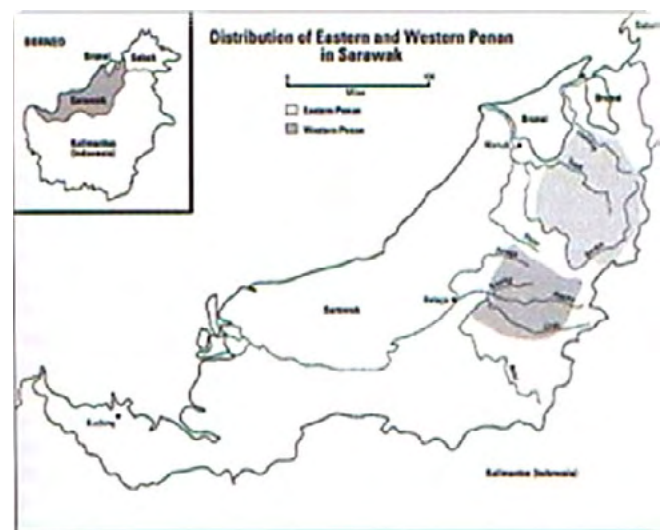


Figure 28: Distribution of Eastern & Western Penan in Sarawak

Where all of the valuable trees have been cut down, the companies have started to remove the forests completely in order to establish oil palm plantations.

Source: Survival International (Website)

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Suggested Readings/ Links

- Survival: The movement for tribal peoples – <http://www.survivalfrance.org/tribes/penan>
- Stars of BBC 'Tribe' show in conflict with logging company – <http://www.survivalinternational.org/news/2506>
- BBC News: Malaysia Country Profile – http://news.bbc.co.uk/2/hi/asia-pacific/country_profiles/1304569.stm
- Palm oil and indigenous peoples in South East Asia (report)– <http://www.forestpeoples.org/topics/palm-oil-rspo/publication/2010/palm-oil-and-indigenous-peoples-south-east-asia>
- BBC Tribes: Penan – <http://www.bbc.co.uk/tribe/tribes/penan/index.shtml#further1>
- Penan Tribe (YouTube) – <http://www.youtube.com/watch?v=p9o0hhu5sas>
- Malaysian tribes fight to protect rainforests (YouTube) – <http://www.youtube.com/watch?v=D6PhgdrnQn4>

Activities

1. Ask students to locate the Penan tribal area on a map of South East Asia
2. Why are the Penan suffering as a result of Palm Oil production?
3. List the various stakeholders involved in the dispute with the Penan. Outline what you would do if you were:
 - a. A developer
 - b. A palm oil farmer
 - c. A Malaysian Government Minister
 - d. A Penan tribesperson
4. What solutions would you suggest to help solve this issue?



Figure 29: Land clearing for palm oil plantation (Sarawak)



Figure 30: Example of deforestation caused by palm plantations

Rainforest Species: Plants

Palm oil production has resulted in mass deforestation, social upheaval and the near extinction of several animal species (Tan et al 2009).

Indonesian rainforests are the third largest on the planet; however their rate of deforestation is the fastest in the world.

Since 1960, Indonesia has lost over 40% of its rainforests. By 2022 it stands to lose around 98% of its lowland forests (Tan et al 2009).

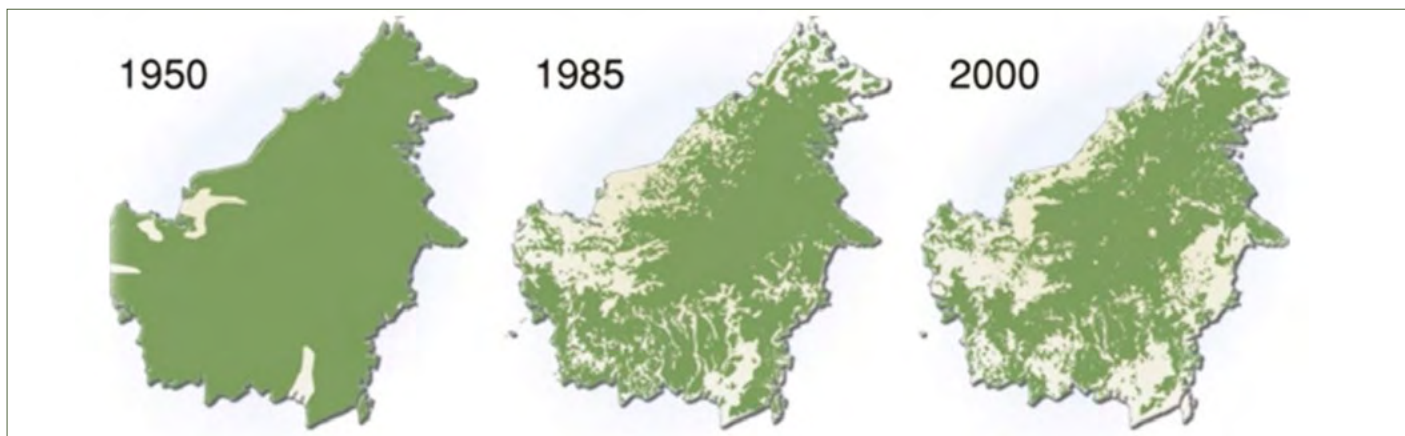


Figure 31(a): Deforestation of Borneo from 1950–2000 (source WWF Germany)

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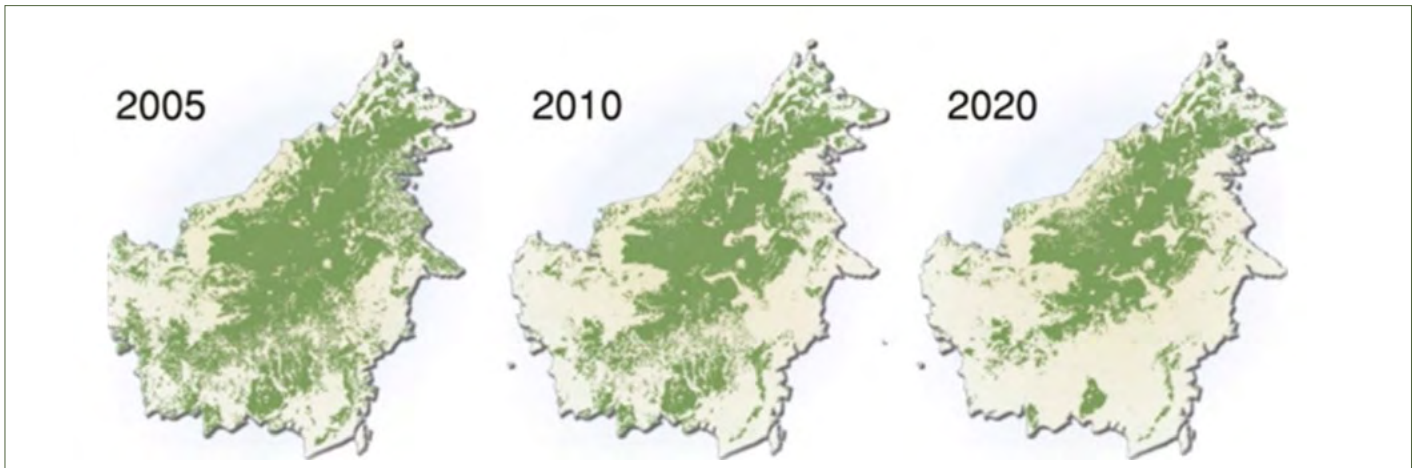


Figure 31(b): Deforestation of Borneo from 2005–2020 (source WWF Germany)

Suggested Readings/ Links

- Illegal Logging in Indonesia: The Environmental and Social Costs (report) – http://www.illegal-logging.info/item_single.php?it_id=912&it=document
- The State of the World's Forests – <http://www.fao.org/docrep/013/i2000e/i2000e00.htm>
- Forests – The Palm Oil Threat (YouTube) – <http://www.youtube.com/watch?v=y7fFeJyXkBk&feature=related>
- Wild Money: The Human Rights Consequences of Illegal Logging and Corruption in Indonesia's Forestry Sector – <http://unhcr.org/refworld/country..HRW.COUNTRYREP.IDN..4b1533392.0.html>
- 101 East: The Price of Palm Oil – <http://www.youtube.com/watch?v=A01iDTNQ2rs>

Suggested Activities

1. Students to watch *101 East* and write a report on the impacts of palm oil production on Malaysia and Indonesia
2. Outline the direct causes of deforestation in Malaysia and Indonesia.
3. How can sustainable palm oil production be achieved in Malaysia and Indonesia?
4. Using Figure 30 (a and b): *Deforestation of Borneo* discuss strategies which the governments of both Indonesia and Malaysia could adopt to reduce the deforestation that is occurring.

Rainforest Species: Animals

Species that are now endangered include:

The Sumatran tiger (*Panthera tigris sumatrae*)

The Sumatran Orang-utan (*Pongo abelii*)

The Bornean Orang-utan (*Pongo pygmaeus*) (IUCN Red list).



Figure 32: A Sumatran Tiger

The Sumatran tiger

There are now only 400 to 500 left in the wild (Shephard & Magnus 2004)

The Orang-utans

There are currently around 7,300 occupying 20,552 km² of forest.

The Bornean Orang-utan is listed as endangered on the IUCN Red list (between 45,000 and 69,000 individuals) living in 86,000 km² of forest. Approximately 1000 Orang-utans die every year due to habitat degradation, forest fires, illegal logging, encroachment and mining (Xenophone, 2009).

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Source: C, Nelleman., L, Miles., B, P, Kaltenborn., M, Virtue. And H, Ahlenius. (Eds.), 'The last stand of the Orang-utan – state of emergency: Illegal logging, fire and palm oil in Indonesia's National Parks' 2007. United Nations Environment Programme, GRID-Arendal, Norway, www.grida.no



Figure 33: A baby Orang-utan clings to its dead mother (Malaysia)

Figure 34: Orang-utan on a wire cable



Figure 35: Map of decreasing habitat of Bornean Oran-Utan (1930–2004)

Suggested Readings/ Links

- Borneo Orang-utan survival – <http://www.orangutans.com.au/Orangutans-Survival-Information/About-Palm-Oil.aspx>
- Palm Oil Action – <http://www.palmoilaction.org.au/>
- World Wildlife Fund, 2011. Sumatran Orang-utan: Close relative in dire straits – <http://www.worldwildlife.org/species/finder/sumatranorangutan/sumatranorangutan.htmls>
- Don't palm us off (Taronga Zoo) – <http://www.zoo.org.au/PalmOil>
- Malaysia opens Orang-utan safe haven – <http://www.youtube.com/watch?v=SeoYyAhwxSA>
- WWF, Bornean Orang-utan – http://www.wwf.panda.org/what_we_do/endangered_species/great_apes/orangutans/borneo_orangutan/

Suggested Activities

Orangutan profile:

Go to http://wwf.panda.org/what_we_do/endangered_species/great_apes/orangutans/borneo_orangutan/

Answer the following questions:

- List four key facts about the Bornean Orang-utan
- Explain why high quality habitat is important for the survival of Orang-utans
- With reference to TWO maps, discuss how and why the population and distribution of Orang-utan has changed over the past 20 years
- What are the main threats to species and habitat loss?
- What is WWF doing to improve the outcomes for Orang-utans in Borneo?

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Figure 36: Newspaper article: Nestlé forum deforestation

Non-Government Organisations: Greenpeace

Greenpeace have run successful campaigns against large corporations such as Unilever who use palm oil in products such as Dove soap.

A highly successful campaign against Nestlé was run which resulted Nestlé removing all 'high risk' palm oil plantation suppliers that were linked to deforestation.



Figure 37: Greenpeace 'Save Orang-Utan campaign poster



Figure 38: Greenpeace Save the Orang-utan poster



Figure 39: Greenpeace report on Nestlé palm oil usage

Suggested Readings/ Links

- Caught Red Handed – Greenpeace report on Nestlé's use of Palm Oil – <http://www.greenpeace.org/international/en/publications/reports/caught-red-handed-how-nestle/>
- Greenpeace Nestlé Advertisement (YouTube) Orang-utan finger – <http://www.youtube.com/watch?v=1BCA8dQfGi0>
- Palm oil: How our consumer choices affect wildlife WWF (YouTube) – <http://www.youtube.com/watch?v=w-1DQwaauwE>
- Nestlé doesn't deserve a break – <http://www.greenpeace.org/international/en/news/features/Nestle-needs-to-give-rainfores/>
- Greenpeace Palm Oil citizen action website – <http://www.greenpeace.org/international/en/campaigns/climate-change/kitkat/>
- Nestlé comments on palm oil usage press release – <http://www.nestle.com/media/statements/pages/update-on-deforestation-and-palm-oil.aspx>

Figure 40: Greenpeace 'Save Orang-Utan campaign poster



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Suggested Activities

1. Organise a class debate with a Greenpeace and Nestlé team opposing each other
2. Create a PDF portfolio collection of articles and information that represent both sides of the debate
3. Why target Nestlé? Are there other large corporations that should also accept responsibility in this debate?
4. Create a YouTube advertisement that exposes a corporation for unethical behaviour
5. Write a letter to Nestlé Australia asking them for comment on their current palm oil policy and a list of food items that contain palm oil.



Figure 41: RSPO webpage banner image

Non-Government Organisations: RSPO

Established by WWF in 2002. The Roundtable on Sustainable Palm Oil (RSPO) is a non-profit, multi-stakeholder organisation that is comprised of palm oil producers, manufacturers, retailers, banks, investors and NGOs.

There are now over 500 members from more than 25 countries (Nikoloyuk et al., 2009).

RSPO members account for approximately 35% of the palm oil produced worldwide (RSPO, 2007).

The most important aspect of the RSPO is ensuring rainforests are not cleared for the establishment of new plantations (Fitzherbert et al. 2008).



Figure 42: Senate Bill "Truth in Labelling Laws 2009"

Government Organisations: The Australian Government

Senator Nick Xenaphon and Senator Bob Brown have campaigned heavily to introduce mandatory labeling on food products to allow consumers to determine if Palm Oil has been used in the production of food and cosmetic products



Figure 43: Newspaper article on food labeling

Suggested Readings/ Links

- Roundtable on Sustainable Palm Oil – <http://www.rspo.org/>
- Truth in Labelling Campaign – <http://www.truthinlabelling.com.au/recentmedia.html>
- Speech by Senator Bob Brown to Senate Truth in Labelling Bill, second reading 2009 – [http://www.truthinlabelling.com.au/5FSA%20\(Truth%20in%20Labelling%20Laws\)%20Bill%202009%20-%20RS%20BB.pdf](http://www.truthinlabelling.com.au/5FSA%20(Truth%20in%20Labelling%20Laws)%20Bill%202009%20-%20RS%20BB.pdf)
- Malaysia sends envoy to negotiate on palm oil bill, The Australian – <http://www.theaustralian.com.au/business/malaysia-sends-envoy-to-negotiate-on-palm-oil-laws/story-e6frg8zx-1226105583210>
- Malaysian Palm Oil Council urges Australian Parliament to reject bill – <http://www.theaustralian.com.au/business/malaysia-sends-envoy-to-negotiate-on-palm-oil-laws/story-e6frg8zx-1226105583210>

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- We have the right to know what's in our food – SMH – <http://www.smh.com.au/opinion/politics/we-have-a-right-to-know-whats-in-our-food-20110825-1jbug.html>

Suggested Activities

1. List the stakeholders involved in the 'truth in labelling campaign'
2. Read the speech by Senator Bob Brown (Former Greens leader). Do you agree with the main argument for truth in labelling? Give reasons for your answer
3. How does this campaign affect the linkages between the Australian & Malaysian governments?
4. Research this bill further and find out if it was passed in the senate
5. Do you agree with Senator Nick Xenaphon's argument about having a right to know what's in our food? Give reasons for your answer



Figure 44: Worker cleans drum at palm oil refinery (RSPO)

Indonesian & Malaysian workers

It has been estimated that the production of palm oil employs around six million people globally as well as offering benefits to workers such as:

- Secure incomes
- Access to healthcare
- Educational opportunities

In Indonesia palm oil generated \$7.9



Figure 45: Farmer with palm kernels



Figure 46: Worker at palm oil refinery (RSPO)



Figure 47: Worker at Palm kernel processing plant (Malaysia) (RSPO)



Figure 48: Worker at palm oil refinery (Malaysia RSPO)

billion in exports in 2007, accounting for 13 per cent of agricultural output, second only to rice.

In Malaysia in 2008, palm oil exports accounted for \$19.6 billion.

Source: Sheil, D. et al: 2009

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Suggested Readings/ Links

- The Economic Benefit of Palm Oil to Indonesia (Report) – http://www.worldgrowth.org/assets/files/WG_Indonesian_Palm_Oil_Benefits_Report-2_11.pdf
- Sustainable Palm Oil Production WWF film – <http://www.youtube.com/watch?v=7BRGj0DwYwA&feature=related>
- How greenies threaten jobs and food security – <http://www.ceopalmoil.com/2011/02/palm-oil-how-greenies-threaten-jobs-and-food-security/>
- Why palm oil does not deserve its bad press – <http://www.sciencealert.com.au/opinions/20102801-20545.html>
- Palm oil poses job threat (ABC Asia Pacific) – <http://abcasiapacificnews.com/stories/201104/3195736.htm>
- Importance of palm oil (YouTube) – http://www.youtube.com/watch?v=Gyta_HOt22g&feature=related
- Develop or Die 1 of 6– Asia's Growing Tigers, BBC Environmental Documentary – <http://www.youtube.com/watch?v=ch7THUnLyRA>

Suggested Activities

1. Watch 'Sustainable Palm Oil Production' and answer the following questions
2. What benefits have the palm oil farmers gained since they started farming palm oil?
3. What percentage of palm oil is produced by small holders in Indonesia?
4. In what ways does being an RSPO farmer benefit the environment?
5. How can individuals (consumers) help sustainable palm oil producers?



Global Citizens

Australian school students

Issues such as species loss, habitat destruction and deforestation also affect global citizens such as Australian school children. Global citizens can play an active role in understanding and helping to reduce the negative impacts of palm oil production whilst promoting the positive.

KFC, McDonalds and Cadbury Australia have already taken palm oil out of their products because of consumer pressure.

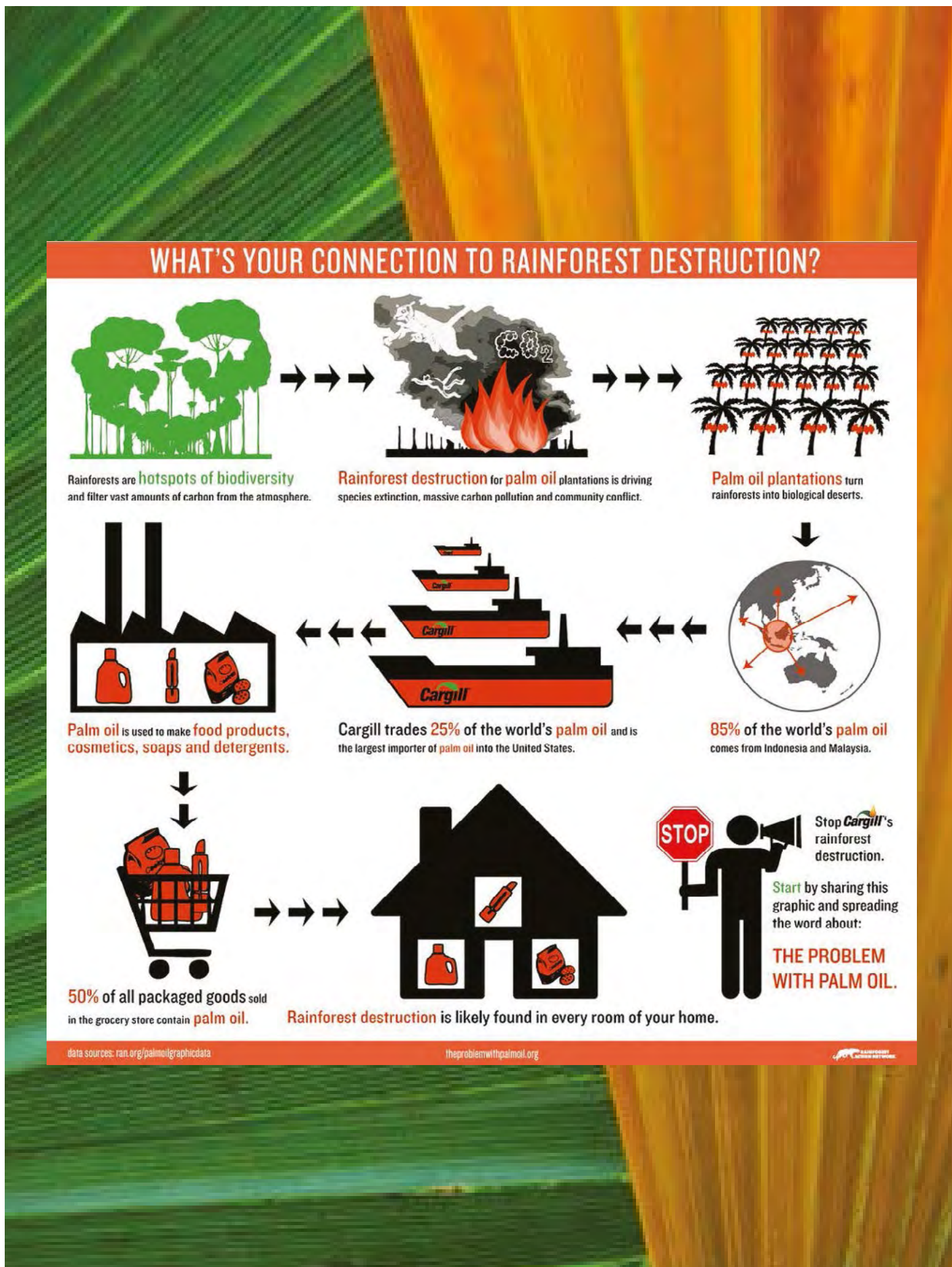
Woolworths, Coles, Arnotts, Magnum and Walmart have committed to sourcing only 100% certified sustainable palm oil by 2015!

What can you do as a global citizen?

Students can become active citizens in the following ways:

- Insist that all makers clearly label Palm Oil on their products
- Pressure manufacturers such as Arnotts, Cadburys, Nestlé to source only sustainable palm oil
- Pressure supermarkets such as Coles, Woolworths, Aldi to pressure their suppliers to become certified
- Write to your local Minister and insist they make labelling mandatory.
 - Buy sustainably farmed palm oil products
- Create an infographic poster (see following page) to educate people about palm oil use

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List of Relevant Resources

Reports / Publications

- Colchester M, 2011. *Land acquisition, human rights violations and indigenous peoples on the palm oil frontier*. Land Forest Peoples Program, International Land Coalition. – <http://www.forestpeoples.org/topics/palm-oil-rspo/publication/2010/palm-oil-and-indigenous-peoples-south-east-asia>
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- Greenpeace, 2010. Caught Red Handed, *Greenpeace report on Nestlé's use of Palm Oil*. – <http://www.greenpeace.org/international/en/publications/reports/caught-red-handed-how-nestle/>
- Human Rights Watch. 2009. Indonesia: *The Human Rights Consequences of Illegal Logging and Corruption in Indonesia's Forestry Sector*. – <http://www.hrw.org/en/node/86705>
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View of palm oil plantation in Cigudeg, Bogor, Indonesia

From plantation to product


Palm oil companies are being blamed for the haze from land being cleared by burning

STAGE

1


NURSERY

- Germinated seeds of the African oil palm are planted for a year before being transferred to the fields.



STAGE

2



PLANTATION


- About 140 oil palms can be grown per hectare.
- The fruit bunches on each tree can be harvested after three years. The peak production period is between seven and 18 years, and yield drops thereafter.
- Harvesting is done manually.

STAGE

3


MILLING

- The fruits are sterilised with high-pressure steam and crushed to obtain crude palm oil (from the flesh) and palm kernel (the husk).



STAGE

4



PROCESSING


- Reddish-gold crude palm oil is sent for refining, where it is separated into different forms for different uses.
- Palm kernels are threshed to extract palm kernel oil.


STAGE

5

MANUFACTURING

- Refined palm oil is mainly used in items such as cooking oil, preserved foods such as chocolates, ice cream and instant noodles, and cosmetics. It can also be used to make biodiesel.
- Palm kernel oil is mainly used in soaps, shampoos and cleaning agents.





Land renewal

- As yield drops, farmers chop down trees and replant new crops.
- Sustainable clearing involves heavy equipment such as bulldozers or excavators.
- Slash-and-burn methods involve cutting down forests, piling the dead wood and leaves, and then burning the heap. It is believed that the ash enriches the soil and improves fertility.

FACTS & FIGURES

85%

Percentage of total palm oil in the world produced in Indonesia and Malaysia

Land used: 8.5 million ha in Indonesia and 5.1 million ha in Malaysia.

\$42.3b

Approximate worth of oil palm industry in 2012 for Indonesia and Malaysia

4.5m

Number of people in Indonesia and Malaysia who earn a living from palm oil

#1

Most widely-consumed vegetable oil in the world

#1

Highest yielding vegetable oil, at 3.8 million tonnes per hectare

Sources: Wilmar International, Golden Agri-Resources, World Wide Fund for Nature Singapore, Ms Khor Yu Leng, Dr Dodo Thampapillai

ST GRAPHICS PHOTOS: AZIZ HUSSIN and ISTOCKPHOTO TEXT: WALTER SIM

Oil palm a lucrative crop for Indonesia, Malaysia

Straits Times, by Walter Sim

PALM oil is the liquid gold of South-east Asia, accounting for billions of dollars in the economies of Malaysia and Indonesia – as well as the livelihoods of millions of people there.

The two countries together account for some 85 per cent of global production, and this contributed about \$42.3 billion to their economies last year, going by the average price of US\$750 (S\$960) a tonne. This was estimated by Dr Dodo Thampapillai, an economist at the Lee Kuan Yew School of Public Policy.

Some 4.5 million people in the two nations earn a living from the crop, said World Wide Fund for Nature Singapore (WWF).

The labels of many products show how ubiquitous palm oil is – it can be found in everything from ice-cream and chocolate to soap and shampoo.

"It is almost impossible to avoid palm oil," said Ms Khor Yu Leng, a visiting research fellow at the Institute of Southeast Asian Studies who specialises in agribusiness research. "It is everywhere."

Palm oil has come under scrutiny after an Indonesian Forestry Ministry official accused Malaysian and Singapore palm oil companies there of being responsible for the fires in Sumatra.

But substituting it with another oil crop may not be a solution.

Compared to other vegetable oil crops such as sunflower, soyabean and rapeseed, palm oil requires less than half the land to produce the same amount of oil, say experts.

This means production costs and the eventual price will be lower than alternatives, Ms Khor noted. Palm oil also has health benefits, as it does not need to be chemically processed and has no transfat, she said.

Substituting palm oil with other oils may thus create "similar, if not even larger, environmental and social problems", WWF said.

"The issue here is not around the usage of palm oil, but around the way it is produced today," it stressed.

Unsustainable — production could involve the indiscriminate clearing of rainforests, said Dr Thampapillai.

Ms Khor said sustainable practices should be encouraged, although they carry a "slight premium" as they need to comply with global protocols. The WWF said this premium could be as little as 1 per cent.

Forests and oil palm plantations with less-usable crop may be cleared using heavy machinery such as bulldozers. But errant companies and farmers tend to use the slash-and-burn method, which some believe improves soil fertility.

This involves chopping down trees, piling up dead wood and leaves, and razing the heap.

When this is done on highly flammable peat land, the fires can spread great distances underground and make fires difficult to extinguish, said the Roundtable on Sustainable Palm Oil, a non-profit body promoting sustainable oil palm farming.

The WWF said: "To find a long-term solution, a multi-stakeholder method must be employed, beyond governmental rule and regulation."

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Firefighters in Riau battling the flames on Sunday. Less land is needed to produce palm oil than other vegetable oil crops, but firms and farmers often use slash-and-burn methods to clear the land. PHOTO: AGENCE FRANCE-PRESSE