

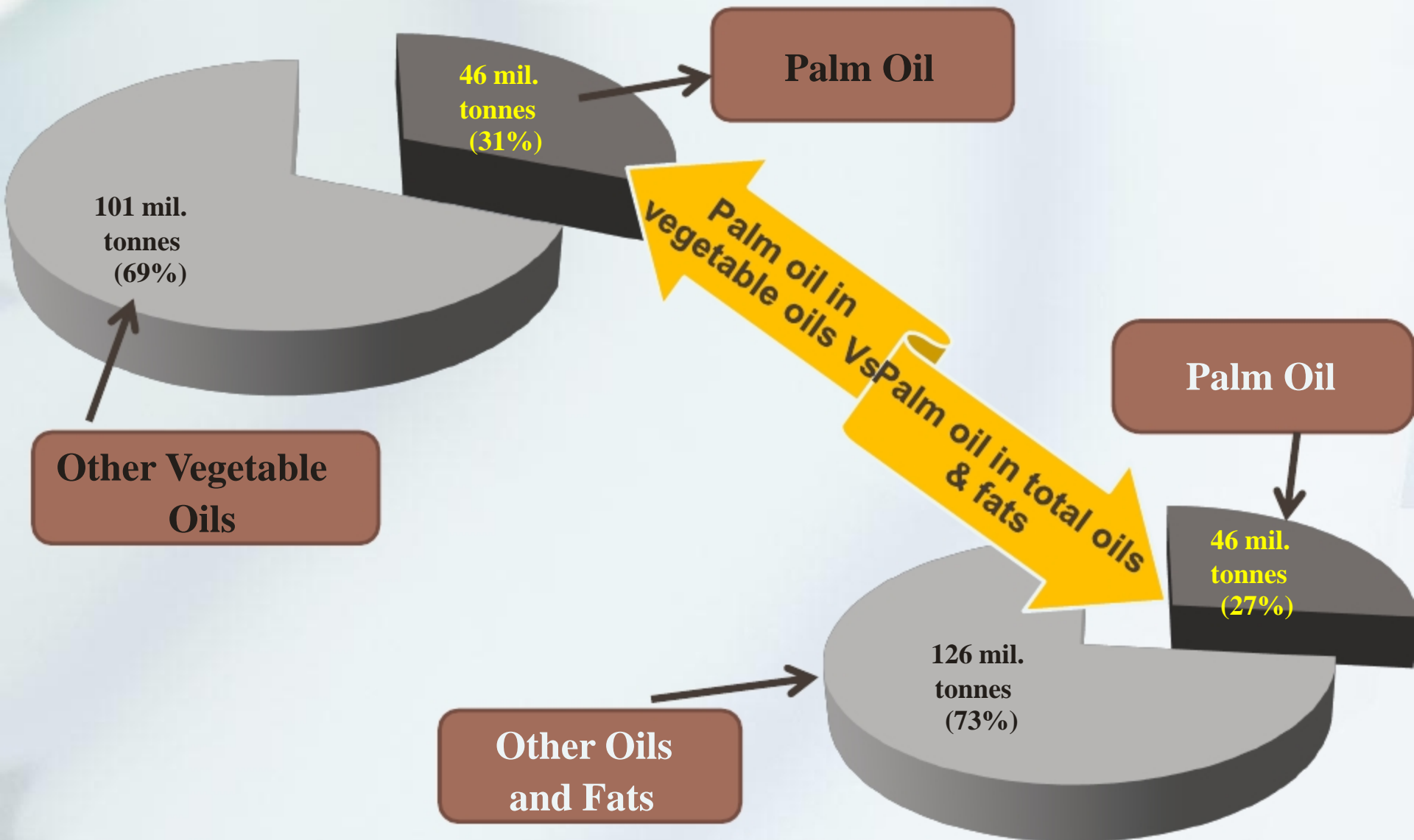


M P O C

Opportunities and Challenges in Production of Sustainable Palm Oil: The Malaysian Experiences

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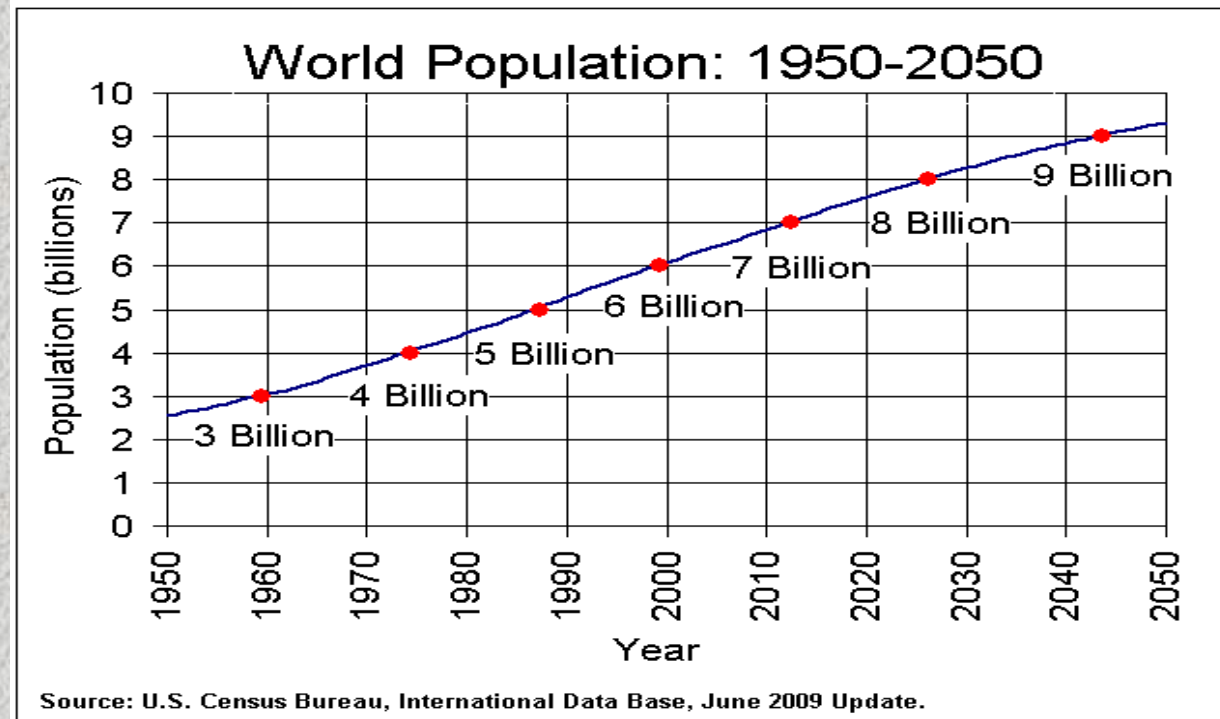
2.1 World Palm Oil Production (2010)



Ever Growing World Population Results in More Mouths to Feed

Future of palm oil is driven by growth in demand for food, oleochemicals and bio fuel due to population and economic growth

World Population: 1950-2050

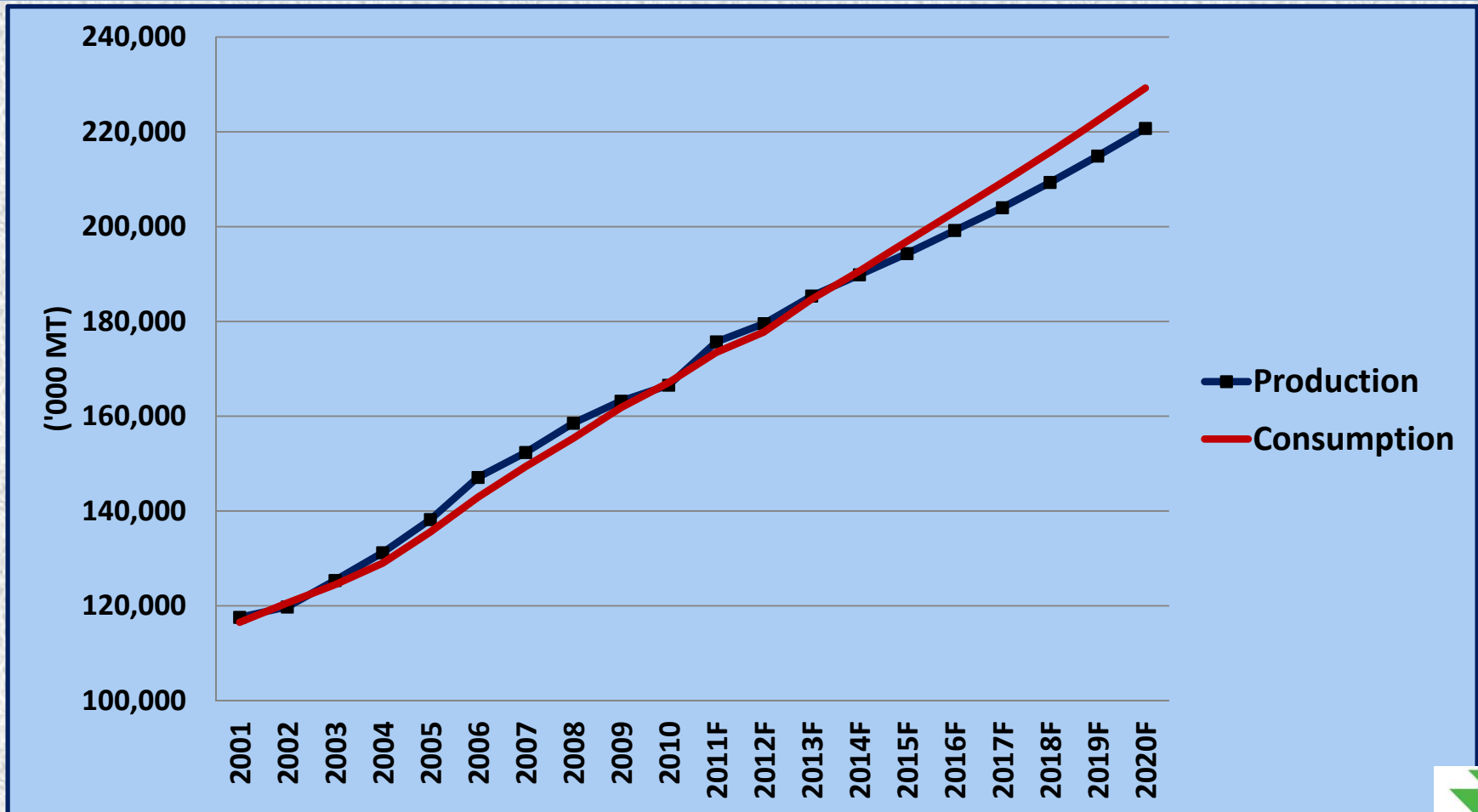


The world population is projected to grow from 6 billion in 1999 to 9 billion by 2043, an increase of 50 percent. Food production must meet this rate of increase.

Global Demand and Supply of Oils & Fats

A 20 Years Outlook

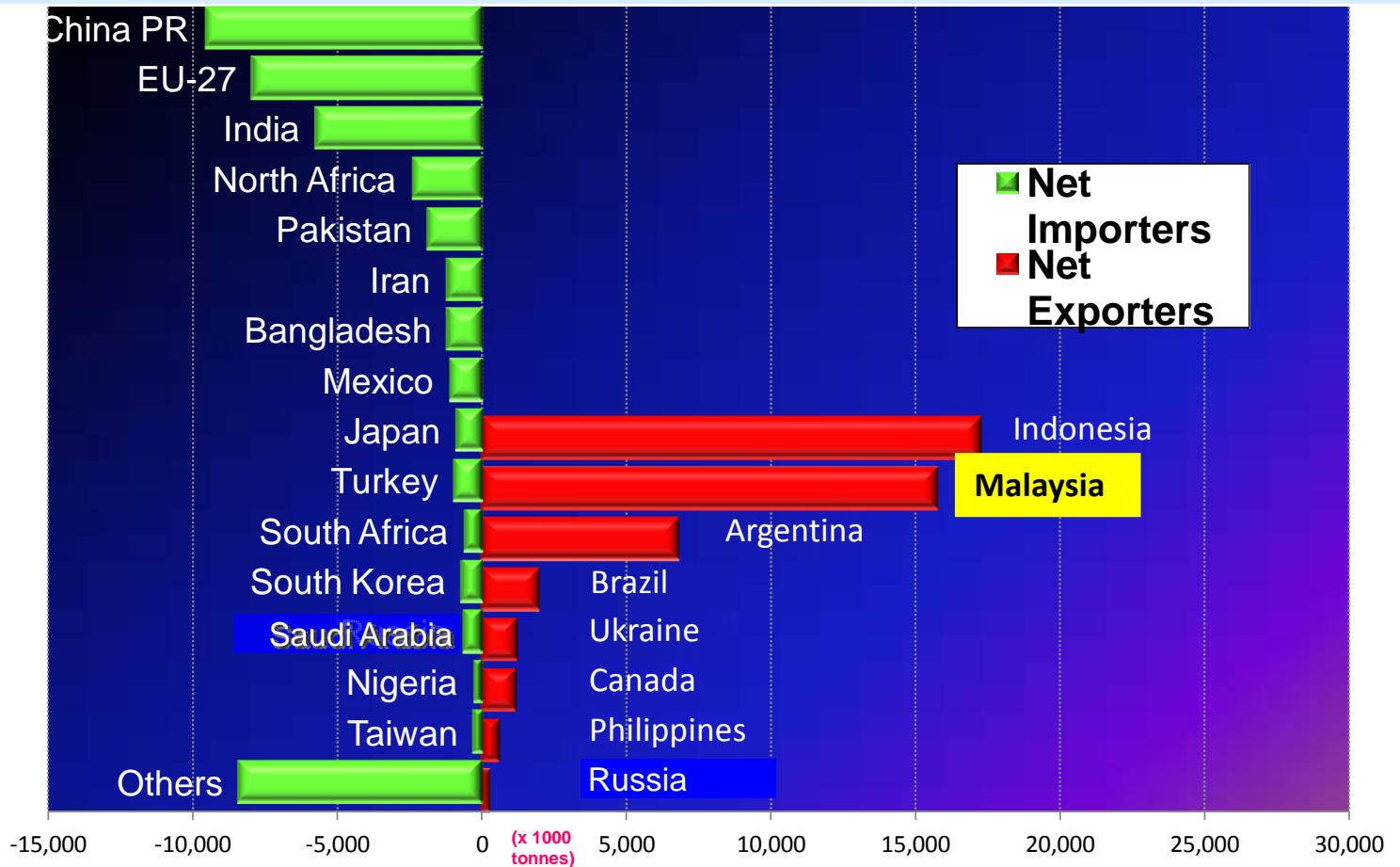
(Supply gap emerged in 2010, will become more prominent by 2014 indicating long term shortages)



Source: Oil World and MPOC

Palm oil is readily available in large quantities (only small portion to be used as biofuel)

• *Malaysia, Indonesia & Argentina – are major net exporters of oils and fats.*



Source: Oil World

Malaysian Palm Oil Industry – an Overview



- 4th largest contributor to Malaysia's economy, accounting for Euros 20 billion in Gross National Income (GNI).
- one of the 12 National Key Economic Areas (NKEAs) that would spearhead our country's transformation into a high-income nation by 2020.
- Malaysian oil palm is sustainably produced while adhering to the 3P: People, Planet, Profit

The Tree of Life: Oil Palm!

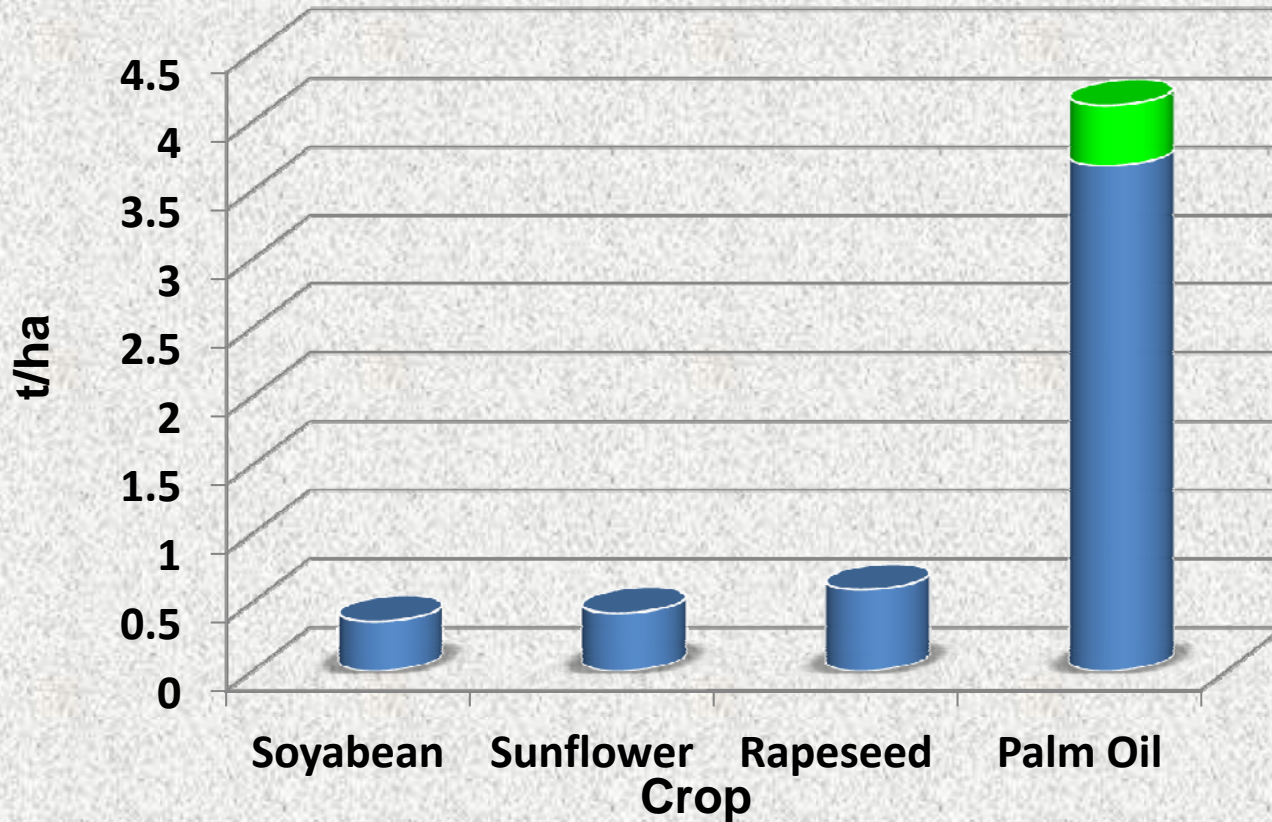


MALAYSIAN PALM OIL AREA (‘000 Hectares)

	2010			2011		
	Mature	Immature	Total	Mature	Immature	Total
Peninsula Malaysia	2.224	0.300	2.525	2.200	0.345	2.545
Sabah	1.261	0.149	1.410	1.272	0.152	1.423
Sarawak	0.717	0.203	0.919	0.792	0.215	1.007
Total	4.202	0.652	4.854	4.264	0.711	4.978



High land productivity is key to sustainable production



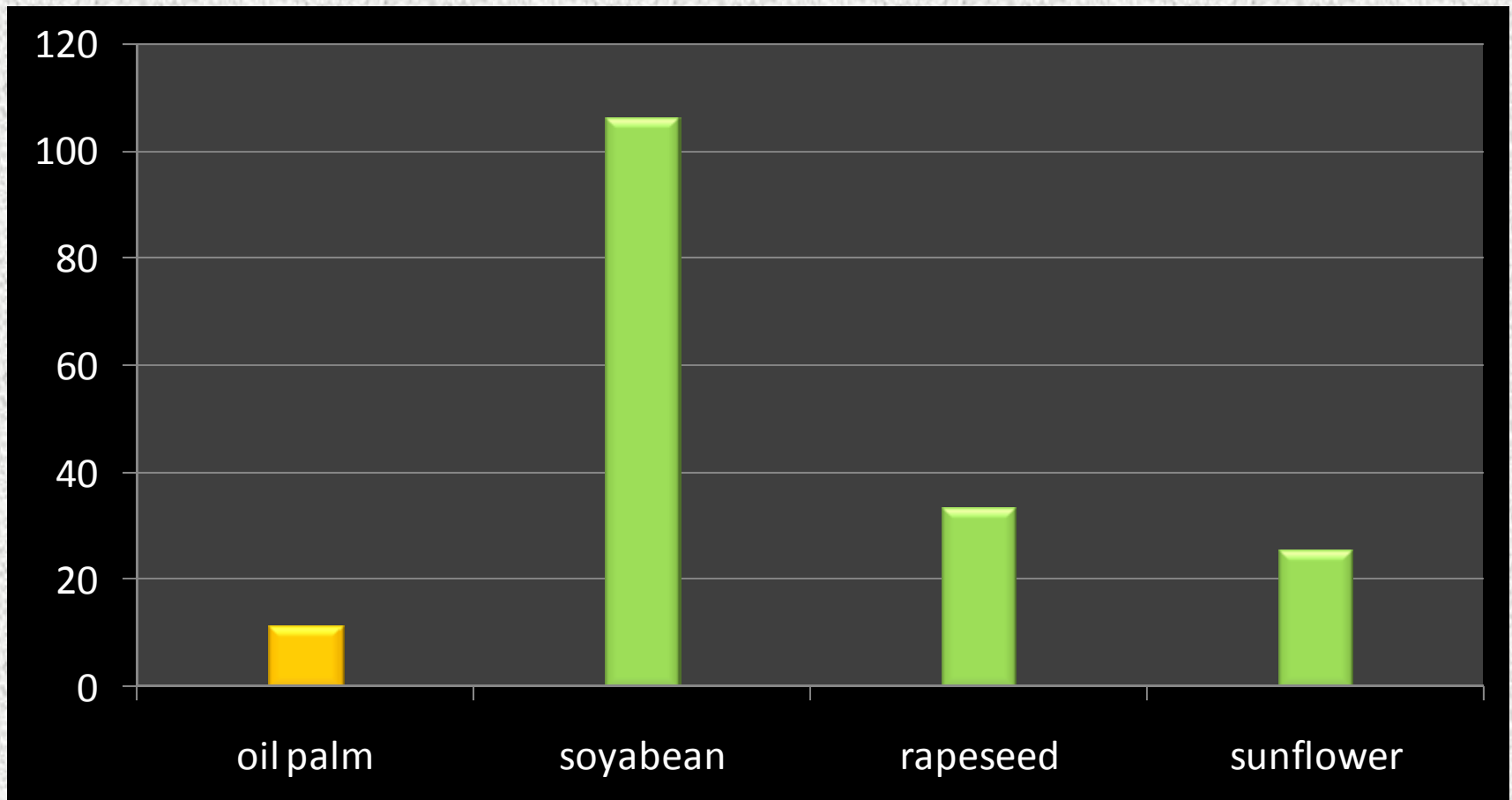
Oil Palm produces 11 x more than Soyabean, 10x Sunflower & 7x Rapeseed

Note: with next generation higher yielding palm varieties, productivity per ha of palm is projected to triple whereas other oil bearing crops cannot match this potential

Malaysian oil palm industry is land conservation friendly

Parameter	Area or %
Malaysian palm oil area	4.98 million ha
Malaysian agricultural land area	6.89 million ha
Total world land area for vegetable oils	244 million ha
Total world agricultural land area	5,660 million ha
Malaysian palm oil as % of total Malaysian agricultural land area	70%
Malaysian palm oil as % of total world land area for oil bearing crops	2.0 %
Malaysian palm oil as % of total world agricultural land area	0.09% (of 5,660 million ha)
Malaysian palm oil's contribution to global oils & fats supply	11.4%

Harvested area of oil crops in world (million ha)



Oil palm occupies less than 5% of oil crops area and less than 1% of agricultural land area in world. Avoided deforestation

Malaysian palm oil dedicated primarily for food supply while biofuel use is minimal

Year	CPO production (t)	Biodiesel production (t)	Biodiesel production as % of total CPO production
2007	15,823,745	128,236	0.81%
2008	17,734,441	197,610	1.11%
2009	17,564,937	238,469	1.36%
2010	16,993,000	190,374	1.13%

Malaysian PO industry generates nearly 42 million MT of various palm biomass. Potential for use as second generation renewable energy source is an important driver and opportunity towards reduced use of polluting fossil fuels.

Malaysia's deforestation rate is lowest

Forest area & deforestation rate in selected countries (1990-2010)

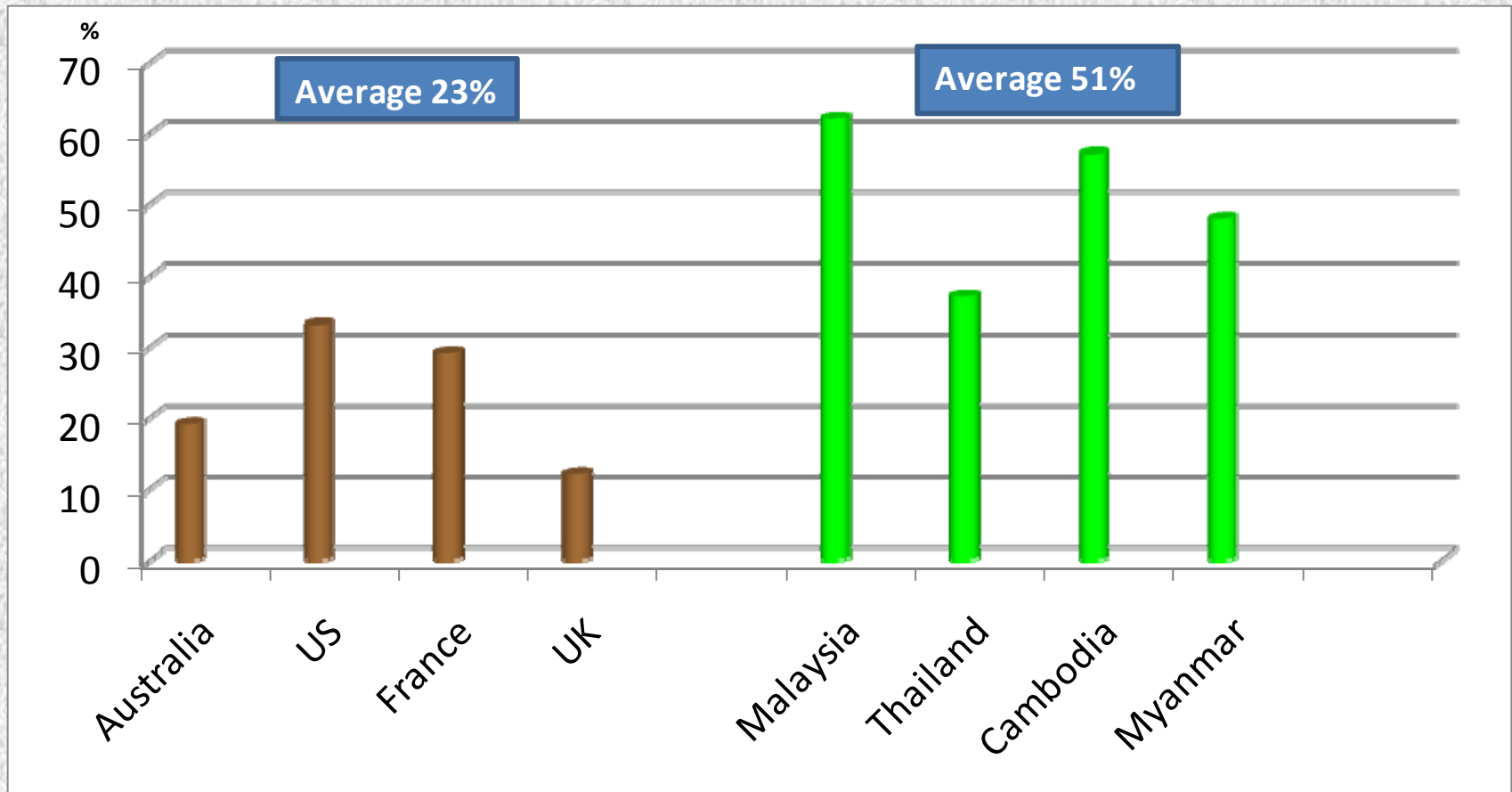
Country	Forest area (Million ha)			Deforestation (Million ha)	
	2000	2005	2010	2000-2005	2005-2010
Australia	154.92	153.92	149.30	1.0	4.62
Indonesia	99.41	97.86	94.43	1.55	3.43
Argentina	31.86	30.60	29.40	1.26	1.20
Malaysia	21.59	20.89	20.46	0.70	0.43



Source: FAO Global Forest Resources Assessment (2010)

- **Malaysia would not deforest unnecessarily and will continue to use land judiciously**
- **Committed to Rio Summit pledge – to maintain at least 50% of total land area under forest**

Distribution of forest in Malaysia versus other countries



Poor uptake of Certified Sustainable Pam Oil

- CSPO production in 2011 was 5.6 million tonnes
- Malaysian plantations contribute 49% of RSPO production, Indonesia (48%) & South America (3%)
- Poor uptake of CSPO by MNCs e.g. Nestle, Unilever; implementation date pushed back by MNCs
- Malaysia will continue to get more production units certified and compliant with an ever increasing stringent set of standards mandated by Malaysia's own legislations

CSPO Palm Fat: Possibly The only Certified SUSTAINABLE INGREDIENT IN A CHOCOLATE Bar

Cocoa Powder

Palm Fat (CSPO)

Sugar



Milk Solids

Permitted Food Additives and Colorants

Oil Palm A Major Factor in Malaysia's National Key Economic Area (NKEA)

- Palm Oil to raise Gross National Income by RM 125 billion
- To reach RM 178 billion by 2020
- Additional 41,000 jobs (40% of which are high skilled jobs earning RM 6,000 /month)
- 8 EPPs for palm oil industry
- address productivity, sustainability & value addition

EPP1 & EPP2

Key Actions

- **STATUS**

- 400,000 ha with trees > 25 years drag down national average yield

- **ACTIONS**

- Replant if > 25 years & productivity < 14 t/ha/yr
- Increase national area under replanted oil palm
- >1 million ha to be replanted by 2020

Improving Fresh Fruit Bunch Yields

- National FFB yield stagnated at 20MT /ha & independent smallholders lower at 17 MT/ha

- **ACTIONS**

- Increase National FFB yield to 26.2MT/ha in the short term
- Increase oil yields progressively to 6.0 MT per hectare

EPP5

Develop biogas facilities

- **STATUS**

- Opportunity loss from unutilized methane gas released during milling

- **ACTIONS**

- Build biogas facilities for all mills by 2020
- 200 mills to supply electricity to national grid by 2020
- Get increase in electricity tariff from 21 sen to 35 sen per kilowatt hour

- **EFFECTS**

- Increase GNI by RM 2.9bil
- RM 2.8 bil of private investment
- Create 2,000 jobs

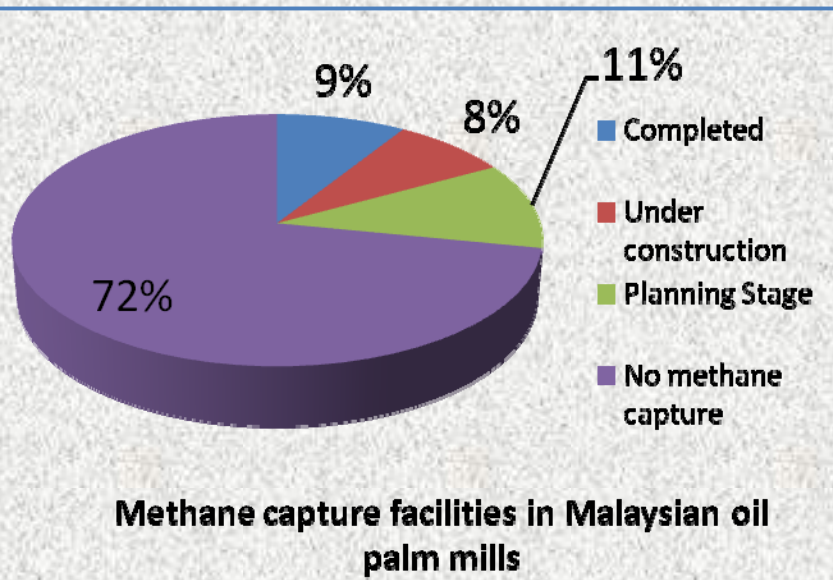
- **ACHIEVEMENTS IN 2011**

- 48 mills built with biogas facility compared to 36 mills target (133%)

Biomass Renewable Energy Potential – POME



- Currently nearly 80% of Clean Development Mechanism (CDM) projects in Malaysia are from the palm oil industry,
- There are now 423 palm oil mills in the country as of May 2011.
- Out of this figure 38 mills (9%) have completed their biogas facility
- A further 34 are under construction while another 47 more facilities are planned
- By 2012, 28% of the mills will be equipped with methane capture facilities.
- Therefore, the Malaysian palm oil industry has a tremendous opportunity to improve its environmental performances for better market acceptance.



EPP7

Commercialising 2nd Generation Biofuels

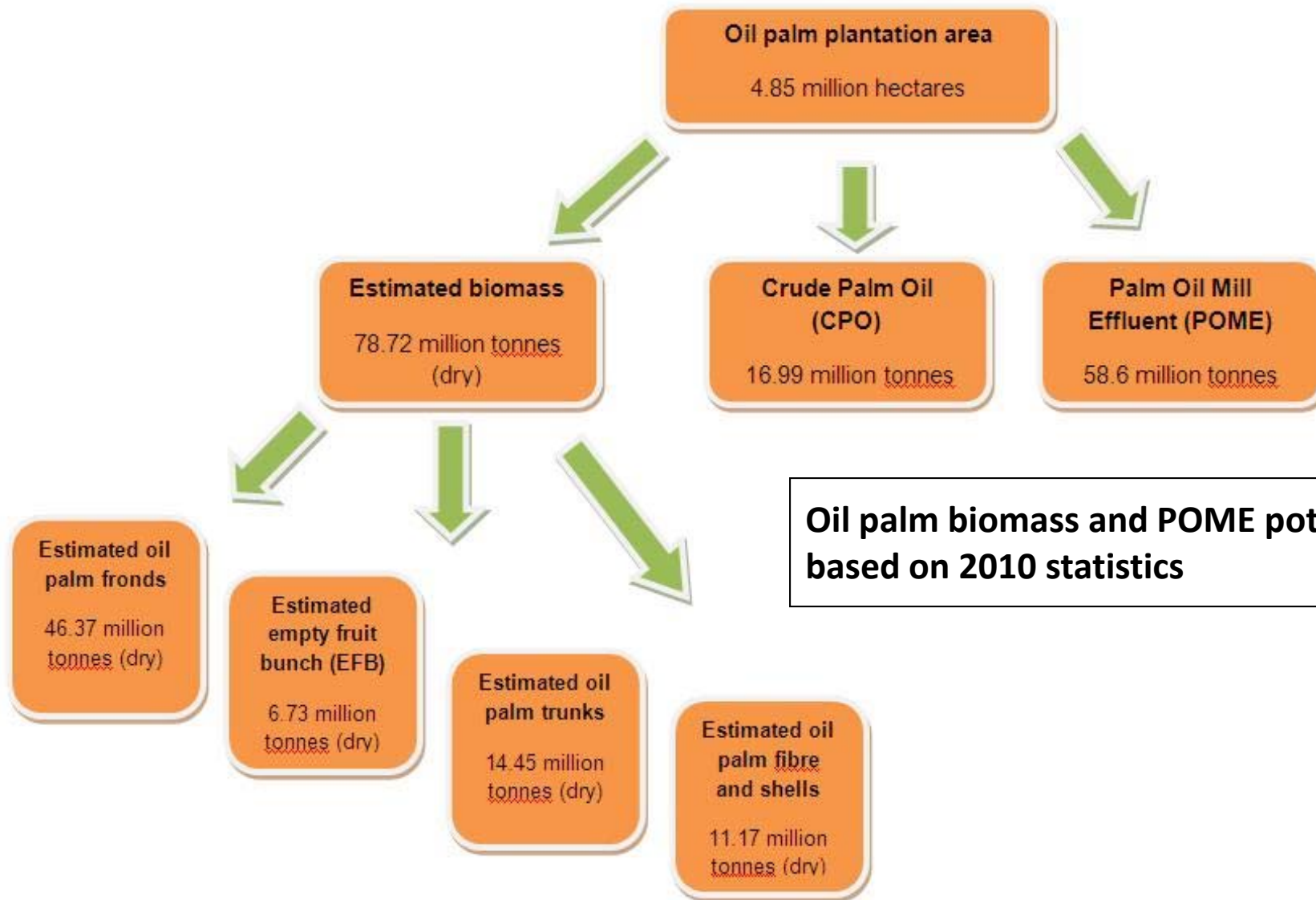
- **STATUS**

- EFB fibre & shell accounts for 74% of biomass
- Biogas-to-gas technology available but more expensive than fossil fuel gasification

- **ACTIONS**

- Fast track commercialization of 2nd generation biofuels
- As technology becomes available next few years, bio oil to be converted into transportation fuels e.g. diesel

Malaysian Oil Palm Biomass



Oil palm biomass and POME potential based on 2010 statistics

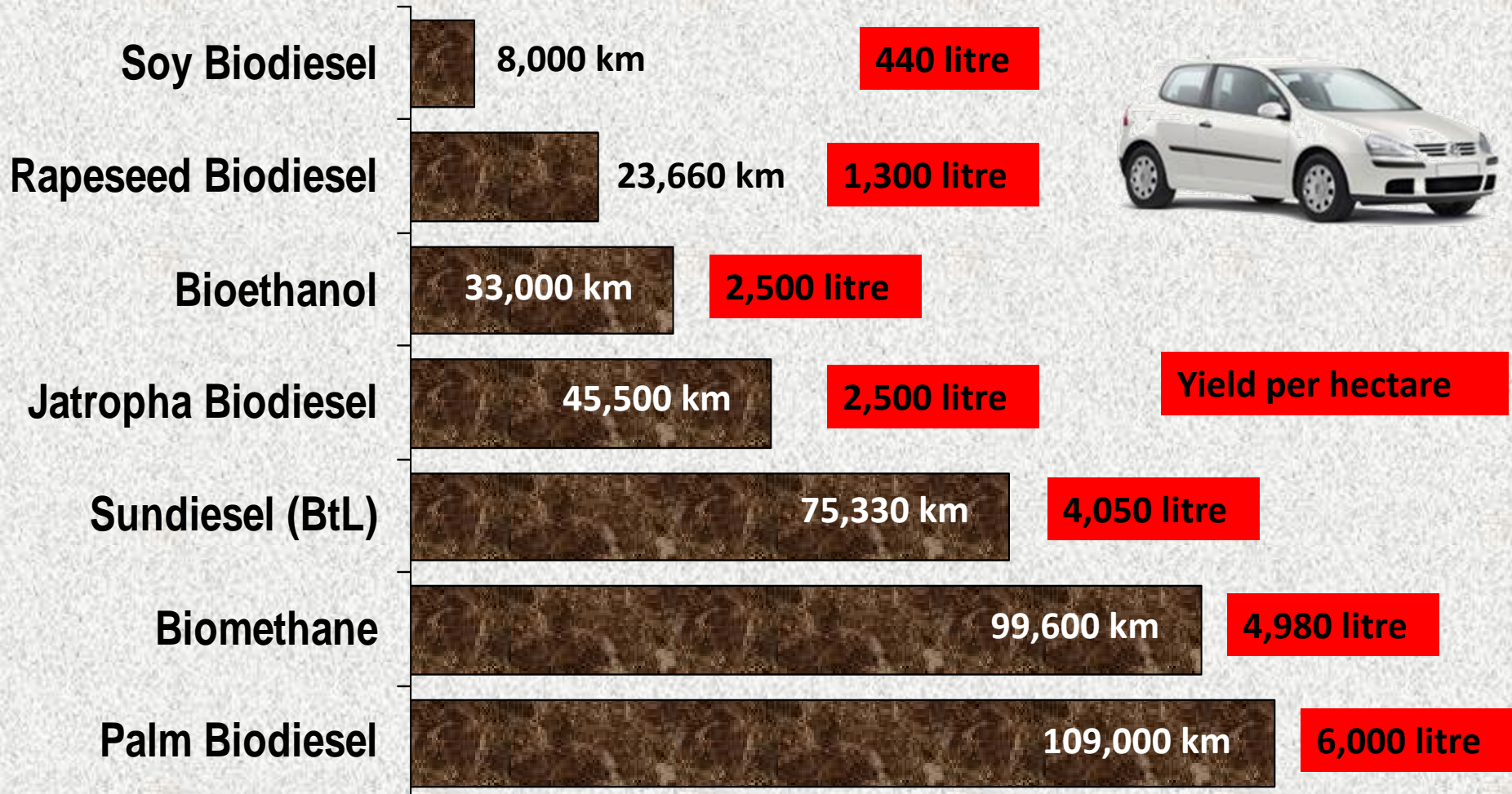
Potential biofuel from palm oil biomass



Use biomass to produce biofuel so that palm oil continued to be used for food

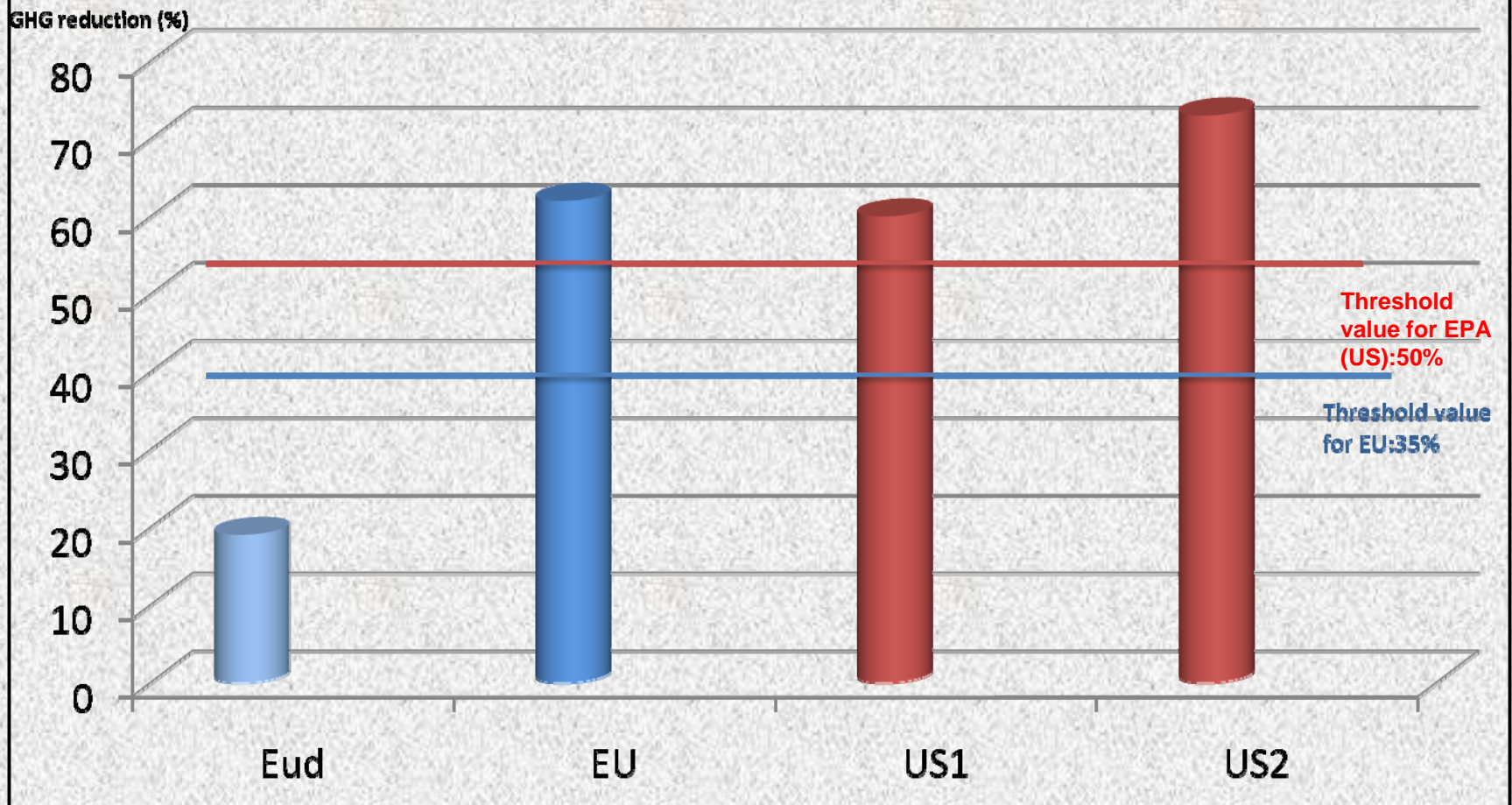
Oil palm is most efficient biofuel source producer

Mileage per hectare per year



Source: "Biofuels", Fachagentur
Nachwachsende Rohstoffe e.V. (FNR),
2006 and own data

Proper Life Cycle Analysis (LCA) studies in US and Europe show palm biodiesel GHG reduction exceeds stipulated threshold values



Eud: EU Directive

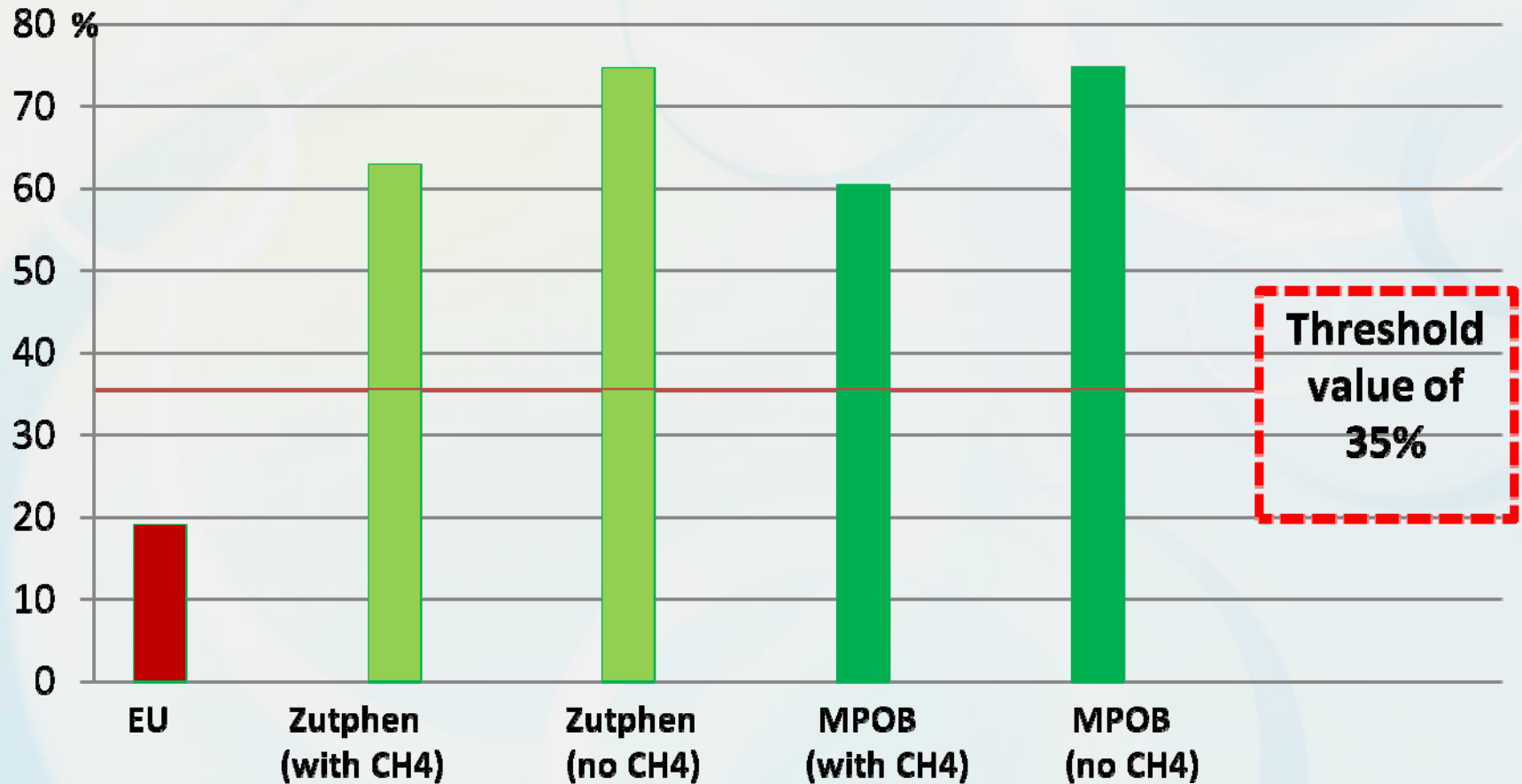
EU: van Zutphen's study

US1: GREET Model using allocation method

US2: GREET Model using displacement method

EU Directive

GHG emission reduction for palm oil biodiesel



Directive Discriminating Against Palm Oil

- Vague and distortive formulations and values regarding the classification of “sustainable”, with significant variations in calculations that undermine the credibility of the values contained in the Directive.
- A study by Friedrich Schiller University, Germany shows that a more realistic overall default value for palm oil diesel was derived resulting in GHG savings potentials of palm-based biodiesel beyond the 35% threshold value required and not 19% default value as published in the Directive.
- This shows the unreliability of the Directive to support the EU’s low-carbon ambitions, thus exposing the EU and its commission to unfair practice and trade discrimination.

Palm Oil Recovered From Process Waste Streams

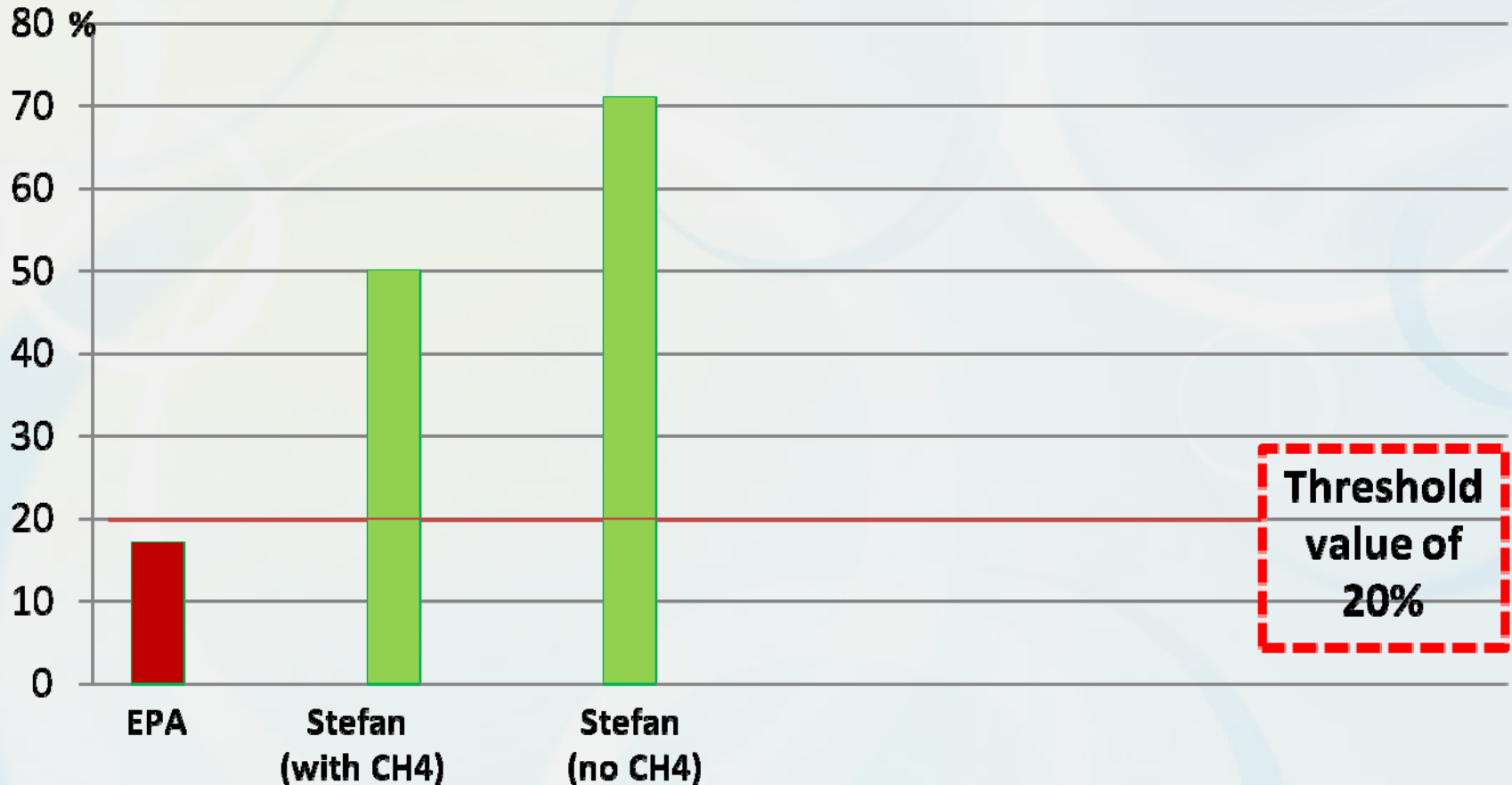
- Several waste streams within the current palm oil process operations could yield valuable outputs: eg. Oil extracted from spent bleaching earth
- Current production capacity is nearly 60,000 MT per annum
- Classified as a waste product and hence qualifies for a significantly lower GHG emission value compared to CPO
- Readily lend itself for aviation biofuel after cracking

Palm oil biofuel cannot qualify as RE based on EPA's NODA

- **Notice of Data Availability concerning renewable fuels produced from palm oil under RFS Scheme**
- **EPA's analysis shows**
 - **Palm oil biodiesel has GHG emission reduction of 17%**
 - **Palm oil renewable diesel has GHG emission reduction of 11%**
- **Both palm oil based biofuels fail to qualify minimum 20% threshold value**
- **Cannot qualify as renewable fuel under RFS program**
- **MPOC and MPOB are mounting technically sound responses to challenge the EPA's NODA results**

EPA RFS2 NODA

GHG emission reduction for palm oil biodiesel

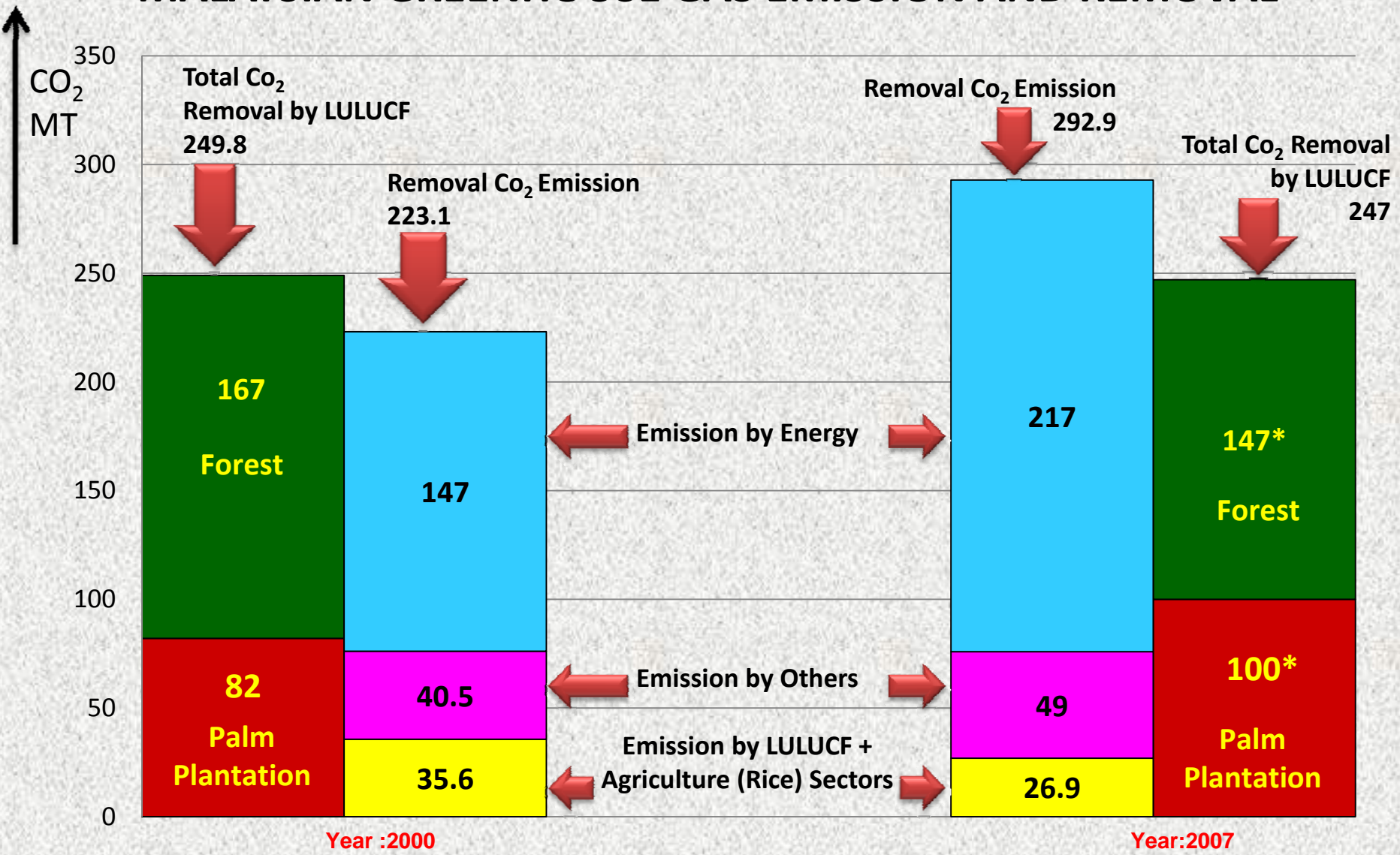


Is ILUC An Exact Science that it could now be used in Policy / Rule Making??

EPA's LCA GHG emissions for palm oil biodiesel (kg CO₂/mmBtu)

Fuel Type	Palm oil biodiesel	2005 Diesel base
Net agriculture (w/o land use change)	5	
Land use change, Mean	46	
Fuel production	25	18
Fuel & feedstock transport	4	*
Tailpipe emissions	1	79
Total emissions	80	97
LCA GHG% reduction compared to petroleum baseline	17%	

MALAYSIAN GREENHOUSE GAS EMISSION AND REMOVAL



Land Use, Land Use Change and Forestry (LULUCF) is made up of Forestry and (Oil Palm) Plantation Sector

* Trend Estimate

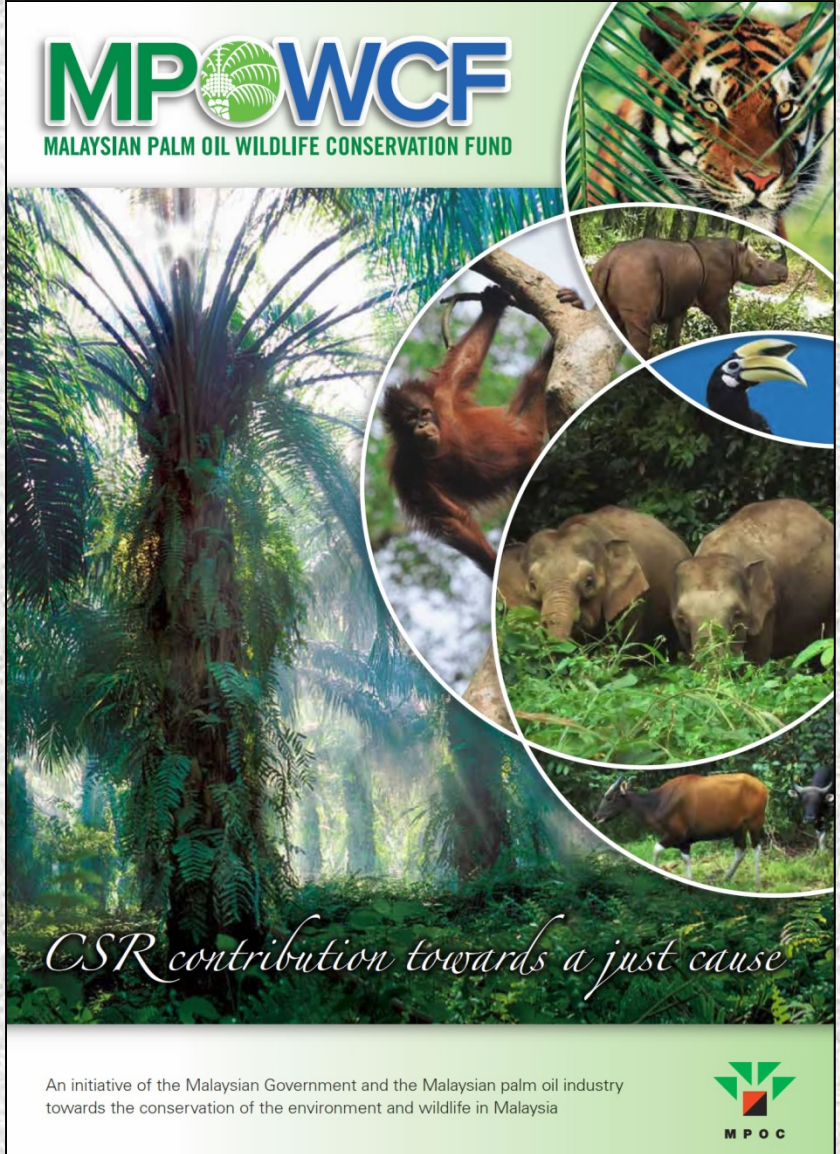
Conservation of biodiversity in Protected RainForests (PRFs)

- Tropical rainforests of Malaysia are very complex ecosystems
- Malaysia is committed to protect its PRFs and biodiversity
- Pledge made at Earth Summit in Rio (1992)
- This commitment manifested since 7th Malaysia Plan (1996-2000) until now
- Malaysia is also a signatory to Convention on Biological Diversity
- Importance of Biological Diversity conservation accorded high priority
- National Policy on Biological Diversity adopted in April 1998

Conservational efforts of Malaysian Palm Oil Industry

Malaysian Palm Oil Wildlife Conservation Fund (MPOWCF)

- Launched in 2006
- RM 20,000,000:- RM 10m from Malaysian palm oil industry
- RM 10m as grant from Malaysian government
- MPOWCF welcomes donations & grants
- Matches third party funding on a 1:1 basis



The image shows a promotional poster for the Malaysian Palm Oil Wildlife Conservation Fund (MPOWCF). At the top, the logo features the letters 'MPOWCF' in green and blue, with a palm leaf icon integrated into the 'O'. Below the logo, the text reads 'MALAYSIAN PALM OIL WILDLIFE CONSERVATION FUND'. The main visual is a lush tropical forest scene with a large palm tree in the foreground. Overlaid on this scene are several circular inset images: a tiger's face, a rhinoceros, a toucan bird, an orangutan hanging from a tree, and two elephants. At the bottom of the poster, the text reads 'CSR contribution towards a just cause'. In the bottom right corner, there is a logo for MPOC (Malaysian Palm Oil Council) consisting of a stylized green and red leaf shape above the letters 'M P O C'. Below the MPOC logo, the text states: 'An initiative of the Malaysian Government and the Malaysian palm oil industry towards the conservation of the environment and wildlife in Malaysia'.

MPOC/SABAH WILDLIFE DEPT. COLLABORATION
Instrumental in setting up the region's first WILDLIFE RESCUE Unit (WRU)



27 6 2007

MPOC Serves Multiple Stakeholders within the industry



Source: MPOA,

A vibrant, high-angle photograph of a tropical landscape. The foreground is filled with dense, green vegetation, including several prominent palm trees with long, feathery fronds. The middle ground shows a vast expanse of lush greenery, possibly a field or a low forest, extending towards a dark, forested ridge in the background. The sky is a pale, overcast blue with soft, white clouds. The overall scene is bright and verdant, suggesting a healthy, natural environment.

THANK YOU