



# VEGETABLE OILS: FROM FICTION TO FACTS

DISSEMINATION OF JOINT STUDY ON  
"CONTRIBUTION OF VEGETABLE OILS TOWARDS SUSTAINABLE DEVELOPMENT GOALS: A COMPARATIVE ANALYSIS"  
4 & 5 FEBRUARY 2020





## FICTION: PALM OIL = DEFORESTATION



### The Bungle In The Jungle

This land belongs to the endangered Sumatran tiger and orangutan. Those that survived this disaster will be killed if they ever return.  
This is a so-called sustainable palm oil plantation.





# FOREST DEGRADATION > DEFORESTATION



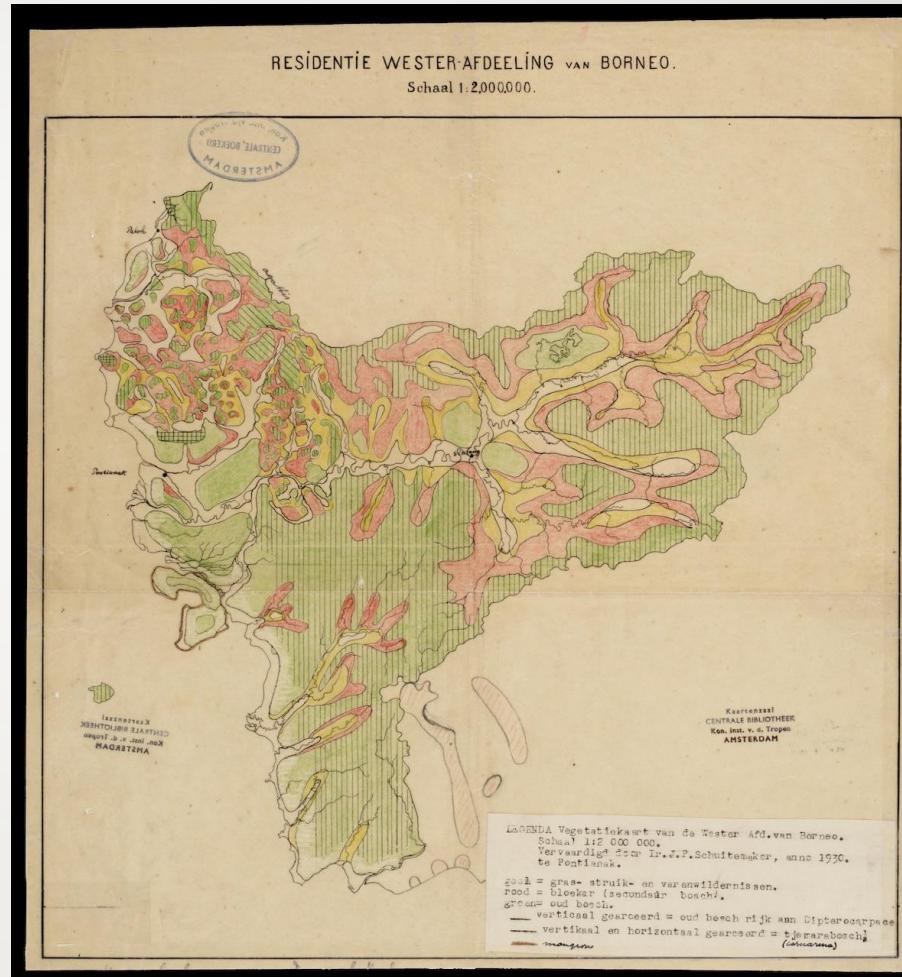


# 1930 VEGETATION MAP OF WEST- KALIMANTAN

green = primary forest

red = secondary forest

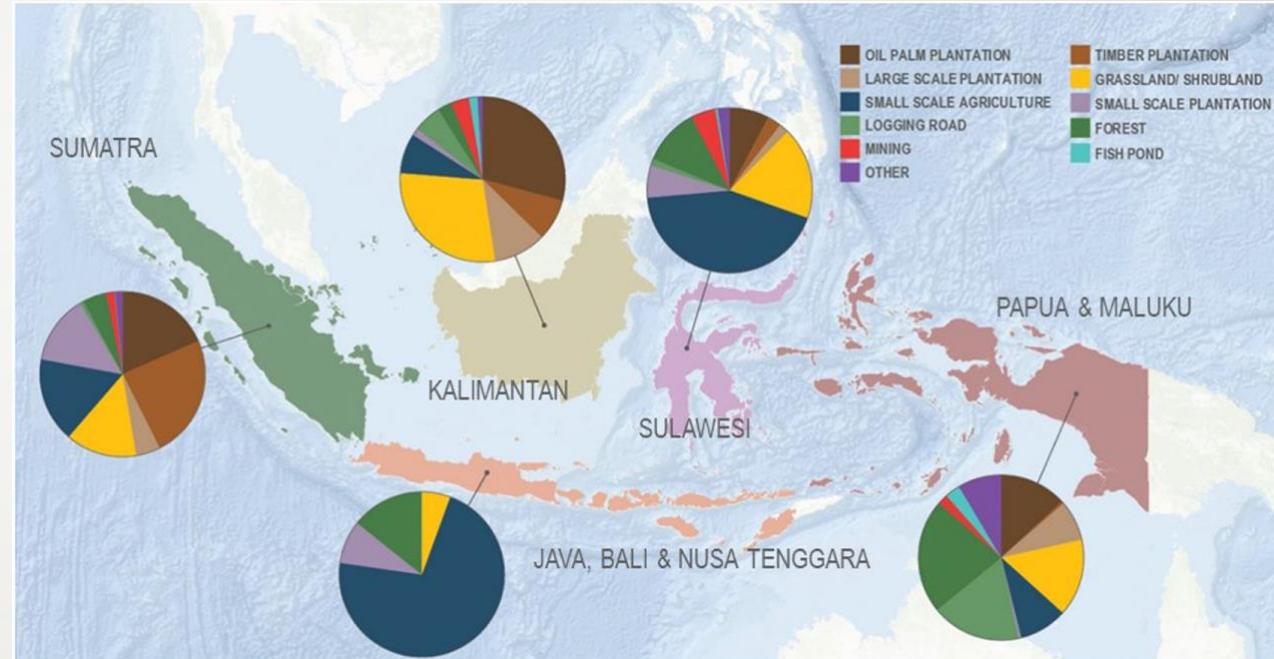
yellow = non-forest





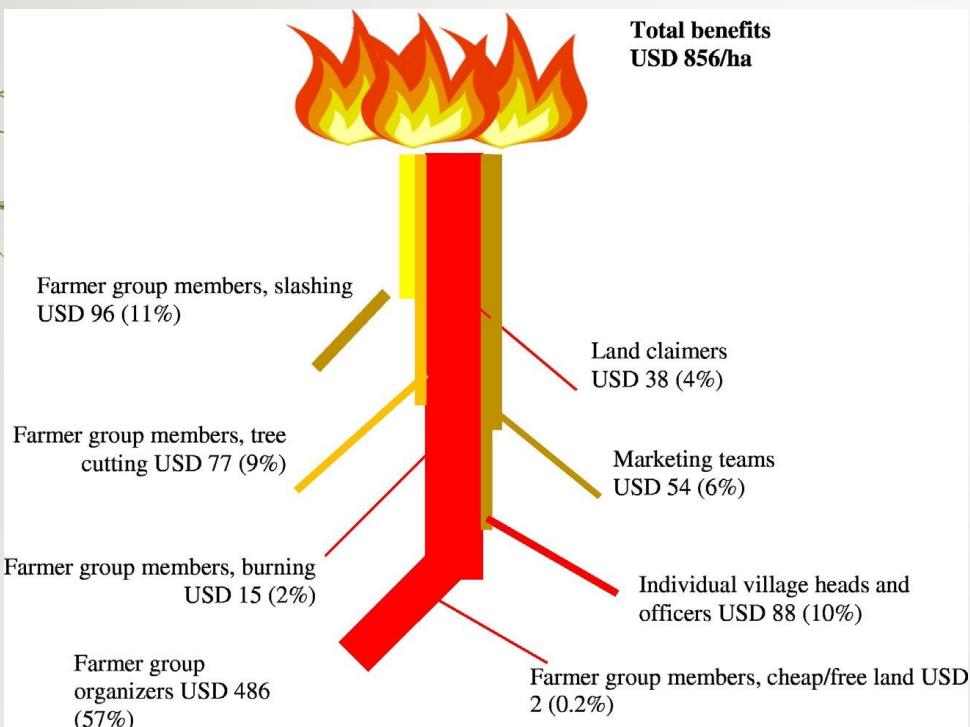
# DEFORESTATION 2001–2016

proportion caused by each driver category, by major region of Indonesia





## FICTION: WILDFIRES = FOREST FIRES



1. Although only 30% of the fire was on peatland area, it had a much higher impact than that on mineral land because of its fire density.
2. 86% of peat forest that burned in 1997 in Kalimantan was replaced by scrub&fern in 2015. 74% of burning in 2015 was on those same degraded lands.





# FICTION: PALM OIL IS IN 50% OF PRODUCTS





## PALM OIL OFTEN IS A MINOR INGREDIENT

flour (35%), chocolate chips (30%), sugar (19%),  
butter/cheese (16%), **palm oil (0.01%)**

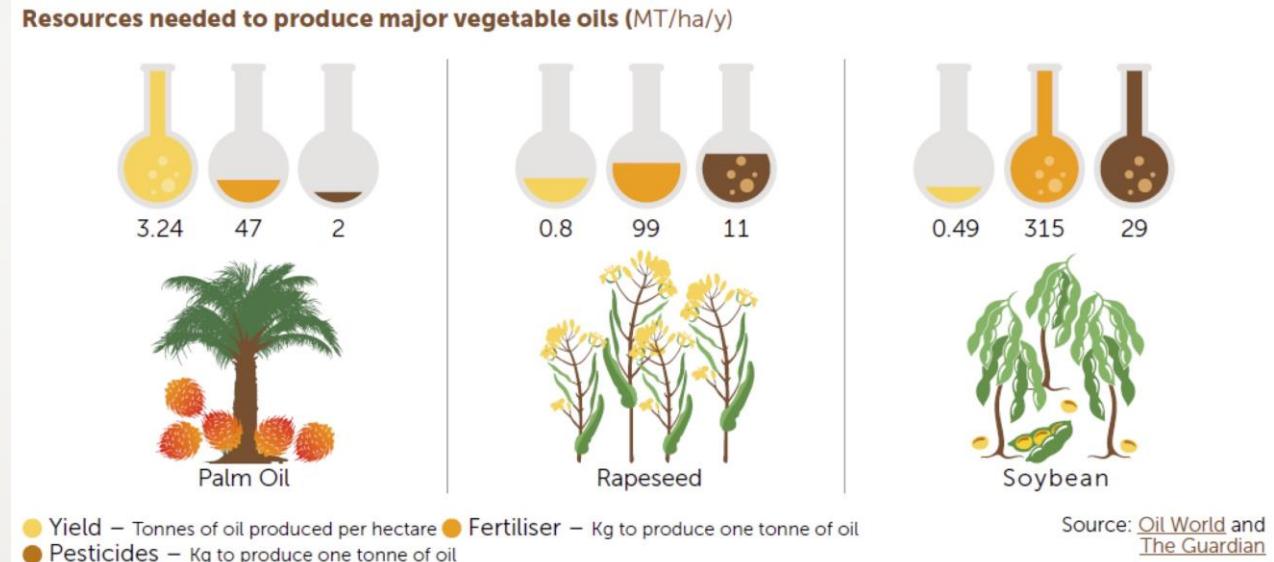
certified sustainable palm oil is available, but are the main ingredients too?





## PRODUCTIVITY

Oil palm produces 7-10 times more oil than its competitors





# confusing terminology

- jungle versus plantation (e.g. coffee, rubber & timber)
- legal status (*kawasan hutan*) versus land use (change)

rule of thumb:

- ½ forestry (e.g. timber plantations)
- ½ non-forestry
  - ¼ non-oil palm (e.g. rubber & soy; animal husbandry)
    - ⅛ commercial enterprises
    - ⅛ smallholders (slash-and-burn?)
  - ¼ oil palm
    - ⅛ commercial enterprises
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**POLICY PERSPECTIVE**  
**Rise and fall of forest loss and industrial plantations in Borneo (2000–2017)**

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**Abstract**  
The links between plantation expansion and deforestation in Borneo are debated. We used satellite imagery to map annual loss of old-growth forests, expansion of industrial plantations (oil palm and pulpwood), and their overlap in Borneo from 2001 to 2017. In 17 years, forest area declined by 14% (6.04 Mha), including 3.06 Mha of forest ultimately converted into industrial plantations. Plantations expanded by 170% (6.20 Mha: 88% oil palm; 12% pulpwood). Most forests converted to plantations were cleared and planted in the same year (92%; 2.83 Mha). Annual forest loss generally increased before peaking in 2016 (0.61 Mha) and declining sharply in 2017 (0.25 Mha). After peaks in 2009 and 2012, plantation expansion and associated forest conversion have been declining in Indonesia and Malaysia. Annual plantation expansion is positively correlated with annual forest loss in both countries. The correlation vanishes when we consider plantation expansion versus forests that are cleared but not converted to plantations. The price of crude palm oil is positively correlated with plantation expansion in the following year in Indonesian (not Malaysian) Borneo. Low palm oil prices, wet conditions, and improved fire prevention all likely contributed to reduced 2017 deforestation. Oversight of company conduct requires transparent concession ownership.

**KEY WORDS**  
annual time-series, Borneo, deforestation, Indonesia, industrial plantations, LANDSAT, Malaysia, no deforestation commitments, oil palm, pulpwood

**1. Introduction**  
Oil palm production in Indonesia has been linked to substantial deforestation in the recent studies suggest that new plantations are increasingly developed on non-forest land, and that the area of oil palm plantations in Indonesia and its supply chains could therefore be overestimated. We examine the area and geoposition of forests across Sumatra, Kalimantan, and Papua up to 2015, and map biophysically suitable areas for oil palm expansion in Borneo from 2001 to 2017. We examined oil palm area and 2015, and examined land cover replaced in this period. Nationwide, oil palm plant at an average rate of 400,000 ha yr<sup>-1</sup>, and resulted in an average of 117,000 ha yr<sup>-1</sup> of forest loss. The area of oil palm plantations in Indonesia has increased since 2001, and the area due to new plantations has remained relatively stable since 2005, despite large growth in oil palm area. At a national level, the proportion of plantations replacing deforested land has declined from 18% during 2001–2005 to 13% during 2006–2010, and 11% during 2011–2015, which meet biophysical suitability criteria for oil palm cultivation. Our findings on forestation commitments may not have a large impact on deforestation in Sumatra and Kalimantan, but could have a significant impact on oil palm expansion in Papua area for future deforestation-free expansion. On the other hand, these pledges on Kalimantan, where oil palm driven deforestation increased over our study period, and expansion with substantial remaining forest cover.

**2. Climate Forces**  
Much of the research investigating deforestation in Indonesia has focused on oil palm expansion (e.g. 52% of oil palm plantations in Indonesia; Gaveau et al., 2013; Rob and Wulff, 2008), and 89% Kalimantan (Carlson et al., 2013), replaced forest areas nearly quadrupled in area between 1990 and 2010, from 3.8 to 12.5 Mha (Gaveau et al., 2013). This rapid expansion resulted in negative environmental impacts including forest loss, peatland destruction, and biodiversity degradation (Rob et al., 2013). The majority of oil palm plantations are owned by large-scale oil palm planters, commercial enterprises and producers of palm oil made pledges to eliminate deforestation from their palm oil supply chains (United Nations, 2014). By 2015, more than 96% of internationally traded palm oil was sourced by companies that have committed to zero-deforestation palm oil sourcing (Buitelaar, 2015), though less than half of these companies have time bound plans to achieve compliance

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**5. Conclusion**  
The links between plantation expansion and deforestation remain debated (Merajuddin et al., 2018). Although some plantations replace old growth forests, a substantial fraction of new plantations are located on land that previously have replaced large areas of old-growth forests in Indonesia and Malaysia, where 87% of global palm oil production originates (FAO 2015). This region, rich in threatened forest species, accounts for some of the world's most rapid forest loss (Gaveau et al., 2016; Margono, Potapov, Turubanova, Stolle, & Hansen, 2014).

**6. Acknowledgments**  
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**7. References**  
Gaveau, D.A., 2016. Margono, P., Potapov, P., Turubanova, S., Stolle, R., Hansen, M., 2014. Assessing such outcomes have been challenging and controversial. Various industry and government representatives dispute that plantations cause deforestation and highlight that plantations are a reasonable use of already deforested land (Gaveau et al., 2016). At the same time, the oil palm industry has committed to zero-deforestation palm oil sourcing (Buitelaar, 2015), though less than half of these companies have time bound plans to achieve compliance

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The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a conflict of interest.

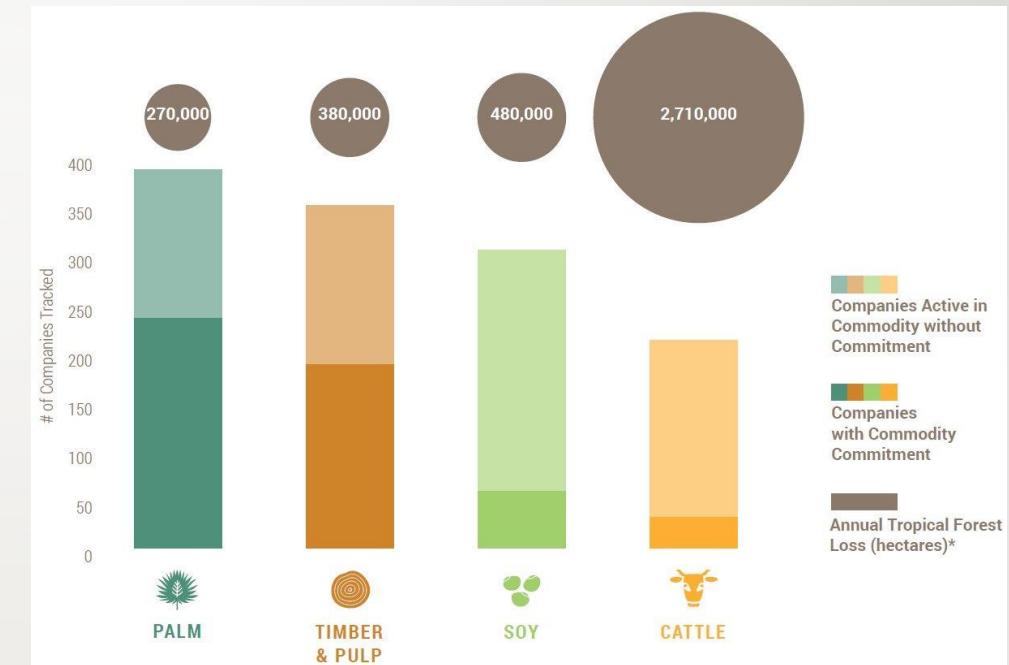
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# don't throw away the baby with the bath water!

- improved transparency and commitments by key commodities
- drives the mental leap from “backward” communities to valued partners
- catalyst for new initiatives





## Questions

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