

Corporate ownership and dominance of Indonesia's palm oil supply chains

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This briefing is a collaboration between Trase, Auriga, and researchers at The University of California, Santa Barbara.

HIGHLIGHTS

- A relatively small number of large corporate groups¹ control Indonesian oil palm refineries and the export market, with the five largest groups controlling about two-thirds of the total refining capacity and export volume.
- In contrast, hundreds of smaller corporate groups and individual companies own mills and plantations, and hundreds of thousands of independent smallholders contribute towards production. The corporate groups that dominate exports and refining only control a small percentage of mill capacity and planted area.
- This means that upstream (e.g. plantation and mill) and downstream (e.g. refinery and export) companies are rarely owned by the same corporate entity, i.e. there is low vertical integration. Refineries must therefore source from beyond their own group. The diversity and lack of transparency of these sourcing relationships makes it difficult to map the palm oil supply chain.
- Investments in installed mill capacity (85 million tons CPO-eq per year) have dramatically outpaced production (41 million tons CPO per year). Although this suggests scope for expansion in palm oil production, growth would require expansion of planted oil palm, posing a risk for forests.

INTRODUCTION

The crude palm oil (CPO) and refined palm oil (RPO) supply chain involves a number of stages from planting through to harvesting fresh fruit bunches, which then are milled and in some cases refined before being sold on the domestic market or shipped worldwide. Using information on capacity and ownership for plantations, mills, refineries and exports, we analyse the market concentration at each stage of the supply chain to better understand corporate group operations and dominance.

We also explore the extent of vertical integration within Indonesia's palm oil supply chain, i.e. the ownership of assets at different stages by a company. This analysis allows us to explore the extent to which companies are able to control production and processing activities within their supply chain.



PALM OIL MILL, SUMATRA | PHOTO: NIEUWENHUISEN VIA ISTOCK

¹ The term 'corporate group' refers to a parent company that owns subsidiaries at various stages of the supply chain and that may be active in other industries as well. A 'company' refers to the legal entity that directly owns either plantations, mills, refineries, etc. A company can be part of a corporate group or act as an independent player.

Table 1. Capacity and ownership at different stages of Indonesia's palm oil supply chain – see Box 1 for data sources.

 PLANTATION	 MILLS	 REFINERIES	 EXPORTS
16,822,834 HA	84,594,237 CPO-EQ T/YR	45,817,162 CPO T/YR	CPO: 10,584,046 T RPO: 20,290,036 T
38,086 CONCESSIONS	1093 MILLS	85 REFINERIES	61 PORTS
1739 COMPANIES	874 COMPANIES	57 COMPANIES	352 EXPORTERS
187 GROUPS	178 GROUPS	25 GROUPS	55 GROUPS

BOX 1. DATA SOURCES, UNITS AND METHODOLOGICAL CONSTRAINTS

Main acronyms: CPO (Crude Palm Oil), RPO (Refined Palm Oil), FFB (Fresh Fruit Bunches), CPO-eq (CPO equivalent²).

- CPO and RPO export volumes are derived from customs data reported under the Harmonised System (HS) code for palm oil and its fractions, whether or not refined but not chemically modified. Volumes are an average over the years 2013–2018. We calculate the CPO-equivalent based on average conversion factors between products and assumed working habits for the Indonesian oil palm industry.
- Refining capacity is mainly based on data acquired from Maps & Globe (2018), Aidenvironment (2018) and CDMI's Indonesian Oil Palm & Refinery Directory (2019). Gaps in the data and discrepancies between datasets were mediated based on desk research and company websites.
- Mill data is from the latest version of the World Resource Institute's UML (Universal Mill List, 2019), while mill capacity information was collected in a separate approach by researchers at the University of

Hawaii and the University of California Santa Barbara, consolidating Provincial Dinas Perkebunan reports, the initial results from the Sistem Informasi Perizinan Perkebunan (SIPERIBUN) and Roundtable on Sustainable Palm Oil (RSPO)/Indonesian Sustainable Palm Oil (ISPO) certification reports. Remaining gaps (10%) were filled using a spatial interpolation of capacities at the province or district level.

- Oil palm cover, covering both smallholder and industrial palm plantations, comes from the 2016 maps published by the government of Indonesia, with technical support from Auriga.
- Corporate group ownership uses information provided by the CDMI's Oil Palm & Refinery Directory (2019) and company notary acts, supplemented by information from company websites.

All numbers for mills and refineries refer to input capacity regardless of actual throughput. Many assets operate below capacity and data on throughput remains scarce.

Our analysis of exports is limited to CPO and RPO and does not include exports of derivative products and/or the domestic market.

² CPO-eq indicates that a value is reported in other units/based on other products e.g. refined palm and we converted it into CPO-eq by using average conversion factors for the Indonesian palm oil industry.

BOX 2. DATA GAPS ON CORPORATE OWNERSHIP

There are significant gaps in available information on plantation ownership as only roughly one third of estates hold the final, traceable HGU (Land Cultivation Rights title).

Independent smallholders represent a minor yet significant share of the oil palm cover with about 10–15% of the planted area. However, identifying smallholdings from satellite imagery is less accurate since planting patterns are less clearly structured than industrial plantations and, as a result, are harder to distinguish from natural forests. There are also significant numbers of

‘plasma’ smallholders who are tied to companies and usually operate on their concessions. Since we are unable to differentiate such plasma smallholders from industrial plantings, we assign these tied smallholder plantings to the corporate group that operates the concession.

Ownership for roughly a third of mill capacity could not be identified and was classified as unknown. This is either because information could not be accessed or the mill is independently owned and so is not linked to any corporate group. This challenge is compounded by the use of shadow companies³ by some corporate groups to obscure ownership of their subsidiaries, although the extent of this practice is unclear.

CORPORATE DOMINANCE AT DIFFERENT STAGES OF THE SUPPLY CHAIN

We found far more corporate groups operating at the plantation (187) and mill (178) stages than at the refinery (25) and export (55) stages of the supply chain.

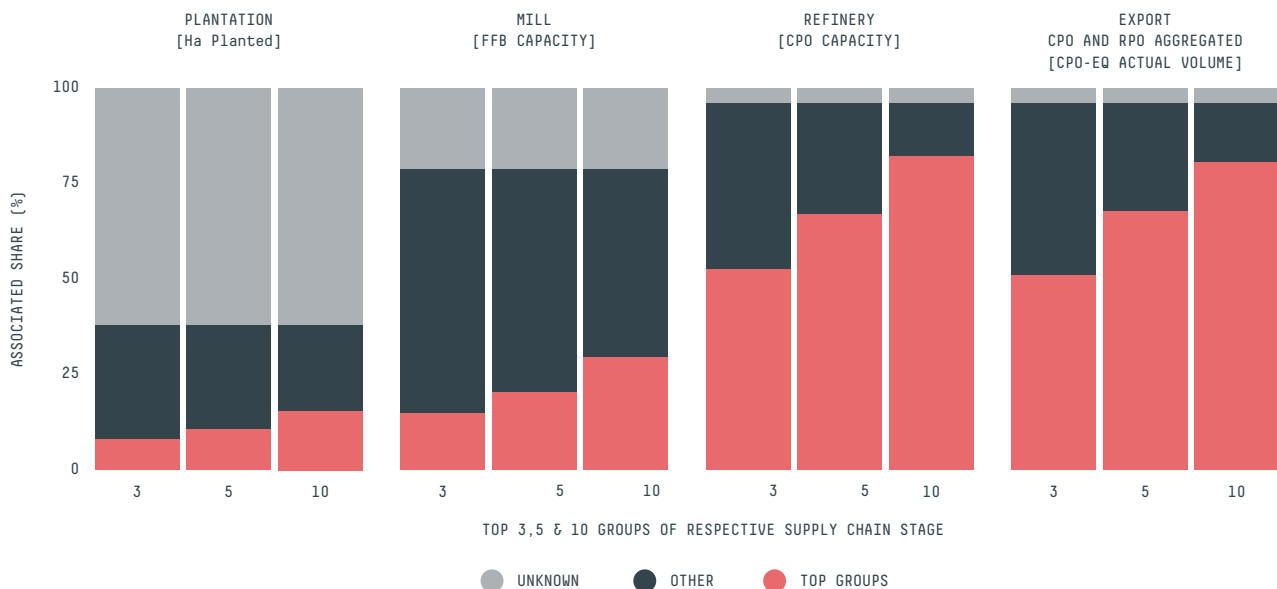
Plantations, and to a lesser extent mills, are owned by a relatively large number of companies and corporate groups. The 10 largest groups at the mill level own just one quarter of the total mill capacity and less than 16% of plantation area (see Figure 1), although there is a significant level of unknown ownership, particularly for plantations (see Box 2).



PALM OIL PLANTATION, SULAWESI | PHOTO: ADIARTANA VIA ISTOCK

³ ‘Shadow companies’ refers to the practice of hiding or disassociating ownership of controversial assets. See Kuepper, B. et al. (2018). Shadow companies present palm oil investor risks and undermine NPDE efforts. *Chain Reaction Research*. Available at: <https://chainreactionresearch.com/wp-content/uploads/2018/06/Shadow-Company-June-22-2018-Final-for-sharepoint.pdf>

Figure 1. Ownership (horizontal concentration) at plantation, mill, refinery and export levels (CPO + RPO) – see Box 1 for data sources.



In contrast, just three corporate groups, Wilmar, Sinar Mas and Musim Mas, own more than half of the refinery capacity and dominate palm oil exports from Indonesia. In fact, more than three quarters of refinery capacity and export trade are controlled by the 10 main groups operating in the country.

This market concentration with a small number of corporate groups at the refinery stage is probably due to the greater capital requirements for refinery ownership compared to mills. The dominance of a small number of traders at the export stage of the supply chain may also be a direct consequence of the limited number of groups controlling the refinery and bulking facility assets.

This structure is commonly seen in global commodity markets and shows that sustainability commitments made by a small number of corporate groups at the refinery or trader level have the potential to have considerable impact by influencing the behaviour of upstream suppliers. This potential is demonstrated by the fact 86% of oil palm exports from Indonesia in 2018 were covered by some level of zero-deforestation commitment. However, many growers and plantations are yet to make similar commitments.



PALM OIL PLANTATION, WEST JAVA | PHOTO: CREATIVAIMAGES VIA ISTOCK

A CLEAR DISCONNECT BETWEEN OWNERSHIP OF MILLS AND REFINERIES

By analysing the extent to which the main corporate groups that dominate refining capacity and control exports also own assets at the mill and plantation level, we can assess the extent to which Indonesian palm oil supply chains are vertically integrated.

An analysis of the share (see Figure 2) and capacity (see Table 2) controlled by the main corporate groups at each stage in the supply chain suggests that:

- Major export traders own far more refinery capacity than they export RPO, with Wilmar a particularly extreme example. This could be because they also trade derivatives following further processing, which are not included in this analysis, and/or they sell to the domestic market.
- All the main groups deal in both CPO and RPO exports but have different priorities. Sinar Mas dominates CPO exports while RPO exports are more evenly distributed among corporate groups.
- Most of the main groups own a far greater share of refining capacity than mill capacity. This emphasises the distinct control of the two stages of the supply chain and suggests there is limited integration between the mill and refinery stages. Sinar Mas is the exception with similar amounts of refinery and mill capacity.
- The second tier of refinery companies (i.e. beyond the top five) tend to have more integrated supply chains, in some cases owning more mill capacity than refinery capacity as they specialise in the upstream stages of the supply chain.
- A number of groups, including Sime Darby, Astra Agro Lestari and PTPN III, focus on the mill level.
- While the majority of the main traders and refiners have limited, if any, plantation assets, all of the main growers have investments downstream at the mill level.

Figure 2. Dominance of palm oil groups at the production, milling, refining and export stages of the supply chain (highlighting the top five groups for each stage).

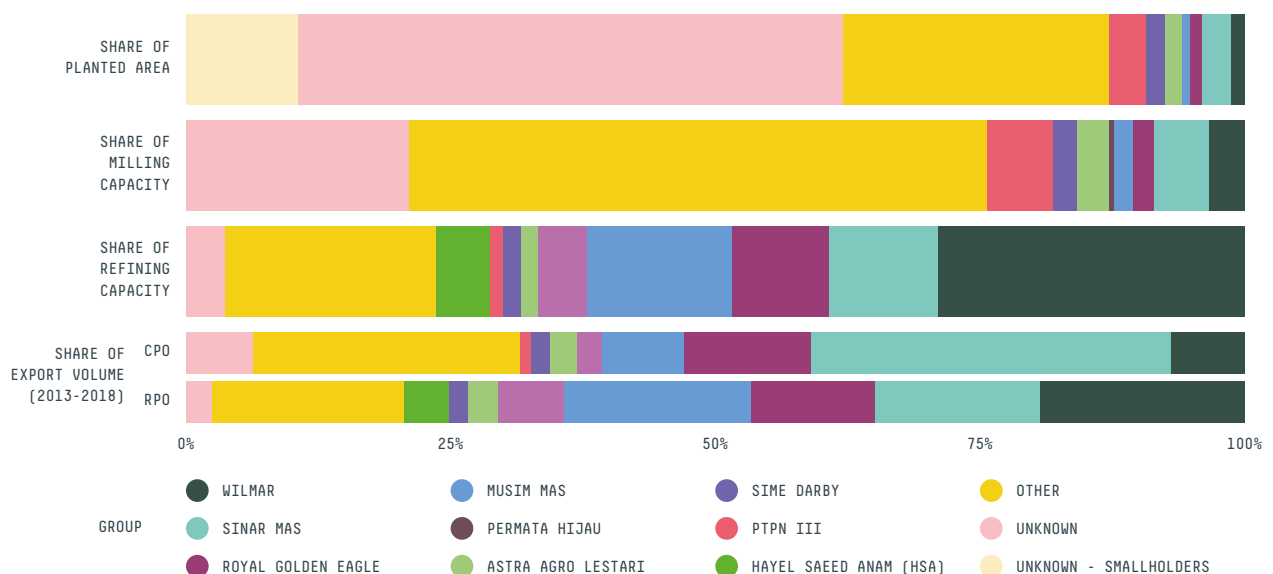


Table 2. Refinery and mill annual capacity for the 10 top refiners (million tons)

	WILMAR	MUSIM MAS	SINAR MAS	ROYAL GOLDEN EAGLE	HAYEL SAEED ANAM	PERMATA HIJAU	BEST INDUSTRY	SUNGAI BUDI	SALIM GROUP	FIRST RESOURCES
REFINERY CAPACITY (CPO)	13.18	6.76	4.73	4.22	2.32	2.16	1.58	1.33	1.11	0.85
MILL CAPACITY (CPO-EQ)	2.71	1.51	4.42	1.84	0	0.30	1.14	0.70	1.32	1.35

QUESTIONS OF CAPACITY

The available data on mill capacity suggest that Indonesia's mills operate at a little over half their potential capacity. Our analysis estimates total mill capacity to be about 85 million tons CPO-eq if all mills were operating at full capacity, which compares to about 41 million tons of reported CPO production in 2018⁴. Assuming high productivity levels of 3-4 tons CPO-eq/hectare on all oil palm plantations, compared to an average yield of 2.4 tons CPO-eq/hectare for 2018 production, the current oil palm planted area could produce 50-70 million tons CPO⁵.

The large number of companies and smallholders operating at the growing stage makes it unlikely that such productivity can be achieved. The large amount of latent capacity in existing mills indicates the potential for further plantation expansion, some of which may occur over existing forests.



FRESHLY HARVESTED OIL PALM BUNCHES | PHOTO: IBR GRAPICS VIA SHUTTERSTOCK

⁴ Indonesian Statistics Department, BPS

⁵ Currently only industrial plantations reach such productivity levels. About 10% of Indonesia's total oil palm cover are smallholdings with much lower productivity.

CONCLUSION

A handful of corporate groups dominate exports and refining capacity in Indonesia's palm oil supply chain. Many more companies and groups own mills and plantations evidencing limited vertical integration. This has a number of potential implications for the sustainability of palm oil supply chains:

- In terms of traceability, because the vast majority of CPO is produced by companies that are not directly controlled by the main refining or exporting groups, refineries must source from beyond their own group. Where company traceability reports exist, they frequently show hundreds of suppliers for any given refinery and lack critical information on volumes. The diversity and lack of transparency of these sourcing relationships makes it difficult to map the palm oil supply chain. This remains a barrier for companies to implement and monitor their sustainable sourcing commitments.
- Installed mill capacity greatly exceeds current production. This suggests there is potential for increasing the amount of palm oil harvested and milled. While some of this capacity may be filled as a result of increased productivity, it appears likely that this investment in mills reflects planned plantation expansion. This could pose a risk to remaining forests, depending on the location of expansion.



PALM PLANTATION, ACEH | PHOTO: HERI MARDINAL VIA ISTOCK

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