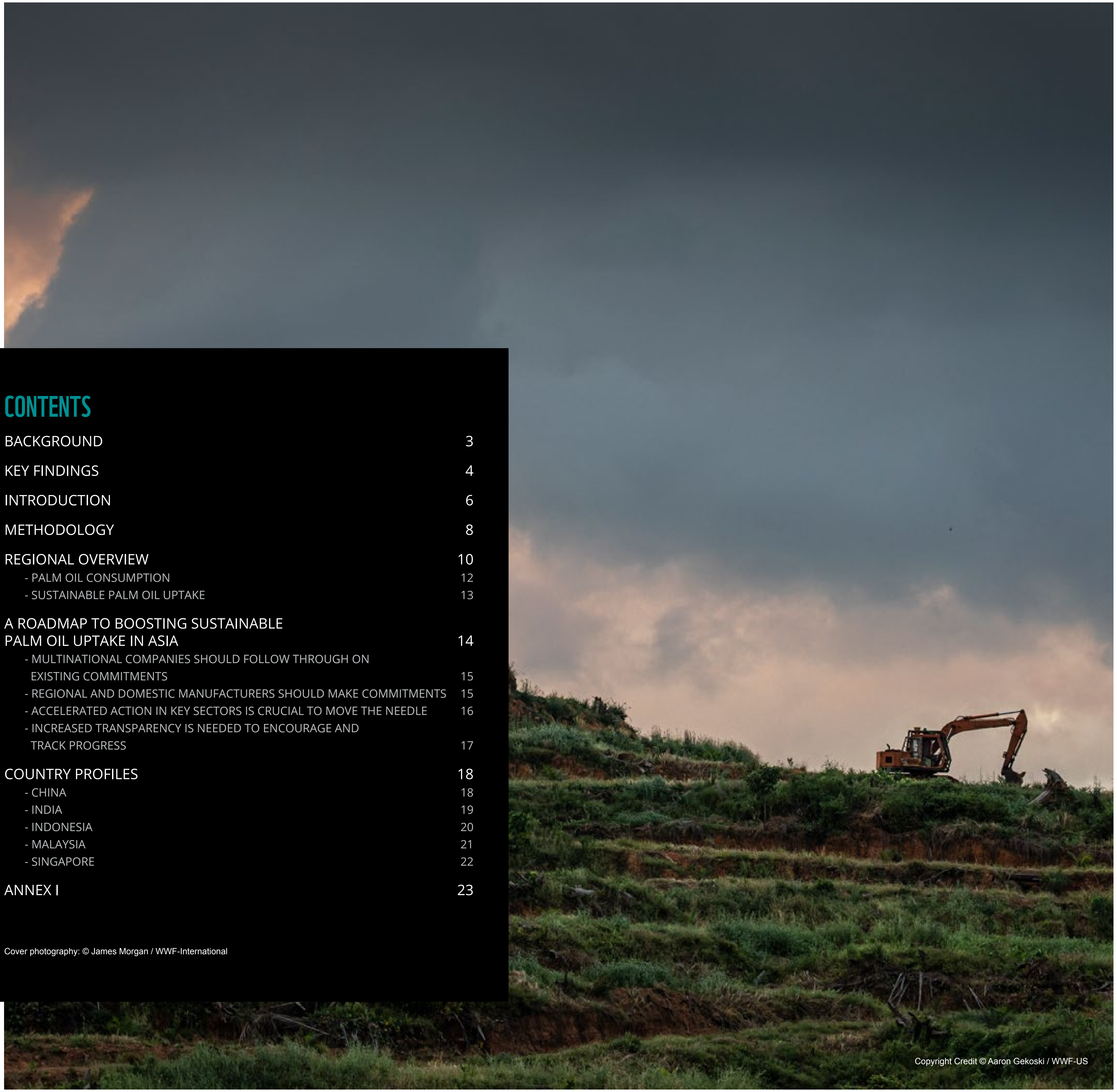
SUSTAINABLE PALM OIL UPTAKE IN ASIA: WHERE DO WE GO FROM HERE?

2021



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BACKGROUND

ABOUT THIS STUDY: WWF commissioned Segi Enam Advisors Pte Ltd to conduct this research. Segi Enam Advisors provides customised research services to corporate, NGO, think tank and state agency clients. Its founder and principal, Yu Leng Khor, has over 25 years experience as a corporate economist. In the last 15 years, she has been a specialist in the agri-food sector, with a focus on palm oil, rubber, timber and sweeteners, and has a deep understanding of sustainable sourcing.

ACKNOWLEDGEMENTS: WWF would like to acknowledge the Global Environment Facility for providing financial support for this report through the Good Growth Partnership. We would also like to thank the following people for their valuable inputs and support in developing this summary report: Philippa Walker, Mai Lan Hoang, Manola De Vos, Michael Guindon, Octyanto Bagus Indra Kusuma, Sera Brown, Yu Leng Khor, Nadirah Sharif, Denise Westerhout, Aditya Bayunanda, Joko Sarjito, Angga Prathama Putra, Henry Chan, Mohamed Faisal Mohd Noor, Max Donysius, Nicholas Fong, Glyn Davies, Adrian Choo Cheng Yong, Benjamin Loh, Xin Yu, Wenjie Zeng, Bhavna Prasad, Narendra Mohan, Sanjana Das, Aqeela Samat and Elizabeth Clarke.

ABOUT WWF: WWF is one of the world's largest and most respected independent conservation organisations. WWF's mission is to stop the degradation of the Earth's natural environment and to build a future in which humans live in harmony with nature.

More information on www.panda.org

ABOUT WWF'S WORK ON PALM OIL: WWF's vision is to halt the conversion of natural ecosystems by ensuring that palm oil production, trade and consumption is responsible; protects, restores and connects landscapes; and benefits both people and nature.

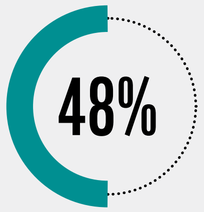
WWF believes that creating a sustainable and responsible palm oil industry that guarantees the wellbeing of people, wildlife and habitats requires a multi-faceted approach that is inclusive of, but not limited to certification. Only through the use of a variety of tools and strategies involving all actors along the palm oil supply chain can the adverse environmental and social impacts of unsustainable palm oil production be addressed.

WWF works in close collaboration with businesses, governments, financial institutions, civil society, communities and consumers to support the production and use of sustainable palm oil.

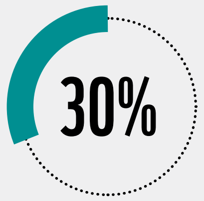
Published in September 2021 by WWF.

PROGRESSING SUSTAINABLE PALM OIL IN ASIA

PALM OIL CONSUMPTION IN ASIA

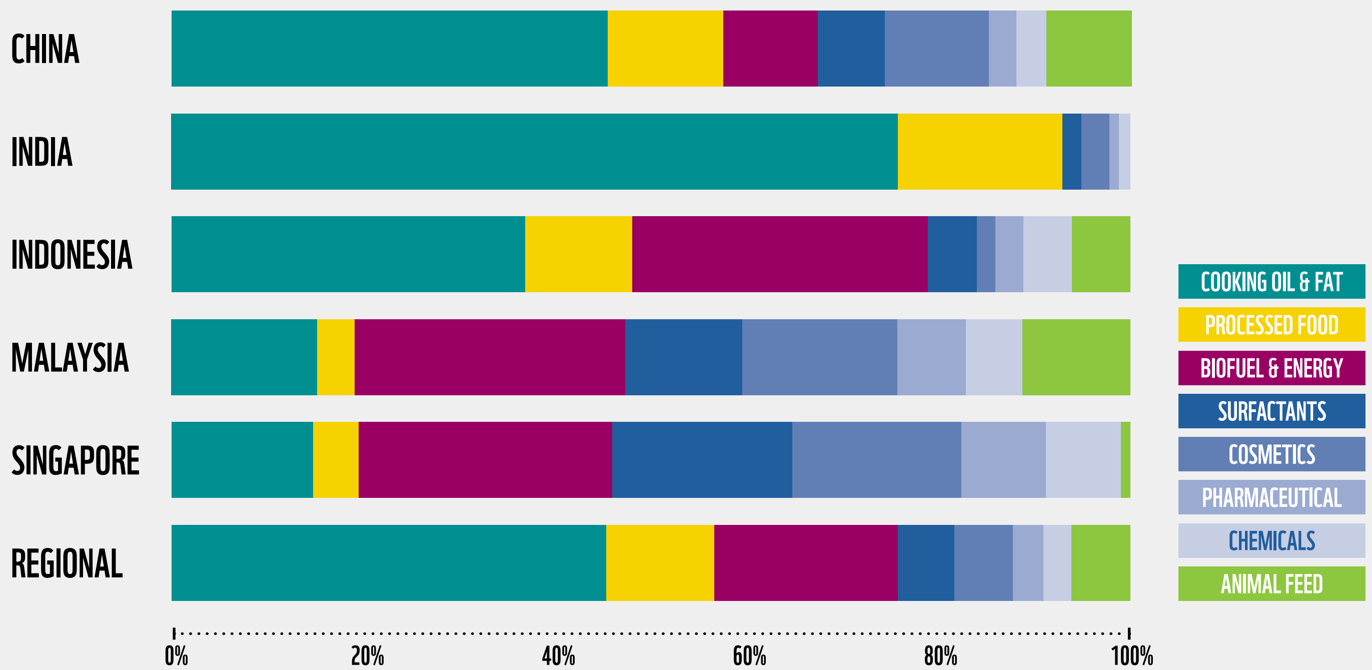


5 ASIAN COUNTRIES
(CHINA, INDIA, INDONESIA, MALAYSIA, AND SINGAPORE) ACCOUNTED FOR 48% OF GLOBAL PALM OIL (CPO) AND PALM KERNEL OIL (PKO) CONSUMPTION IN 2019



CHINA AND INDIA ARE AMONG THE WORLD'S LARGEST IMPORTERS OF PALM OIL
ACCOUNTING FOR OVER 30% OF GLOBAL IMPORT VALUE FOR KEY PALM PRODUCTS (CPO, PKO, PKE) IN 2019

PALM OIL IS MOST COMMONLY USED AS COOKING OIL
IN CHINA, INDIA, AND INDONESIA. IT IS ALSO WIDELY USED FOR BIOFUEL AND ENERGY PRODUCTION IN INDONESIA, MALAYSIA, AND SINGAPORE

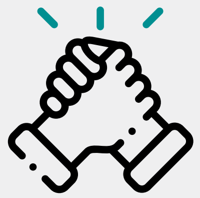


SUSTAINABLE PALM OIL UPTAKE IN ASIA

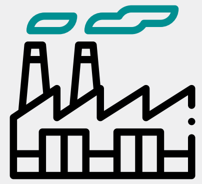
	Estimated RSPO CSPO uptake (% of domestic consumption)	Breakdown of RSPO CSPO supply chain model*: % CREDITS	% MASS BALANCE	% SEGREGATED/ IDENTITY PRESERVED
CHINA	4-7%	31	52	17
INDIA	2-3%	26	55	18
INDONESIA	2%	29	55	17
MALAYSIA	9-10%	32	53	16
SINGAPORE	10%	31	54	16

* Percentages may not add up to 100% due to rounding

A ROADMAP TO BOOSTING RSPO CSPO UPTAKE IN ASIA



Multinational companies following through on existing RSPO CSPO uptake commitments in Asian markets can help achieve a 5% increase in regional RSPO CSPO consumption.



Adoption by **regional and domestic manufacturers** of a phased and time-bound approach to RSPO CSPO uptake — starting with credits and gradually transitioning to physical CSPO supplies — could lead to a further 5% increase in regional RSPO CSPO consumption.

Key sectors to target:

- Cooking oil (hospitality, food and beverage, and bulk processing in Indonesia and India; supermarkets in Singapore, Malaysia and China)
- Instant noodles
- Oleochemicals

INTRODUCTION

Palm oil makes a substantial contribution to many local and national economies across Asia. In Indonesia and Malaysia, palm oil expansion has delivered significant benefits, contributing to poverty alleviation, employment and income creation. Production has also helped stimulate rural infrastructure and local economic growth.

But the rapid expansion of palm oil has come at a high cost for people and nature. In Southeast Asia, large expanses of tropical forests have been lost to meet the world's growing appetite for palm oil,[1] with devastating consequences for biodiversity and ecosystem functions,[2] while also generating significant greenhouse gas emissions (GHG).[3] The sector's unsustainable production practices are also associated with a number of social issues, ranging from land use conflicts, to exploitation and poor working conditions.[4, 5, 6]

Encouragingly, recent official data suggests that oil palm-driven deforestation has begun to slow,[7,8] with governments in palm oil producing countries taking action to curb palm oil expansion, particularly in primary forests and peatlands. In 2018, the Malaysian government committed to maintain at least 50% forest cover across the country and cap palm oil development to 20% of total land (6.5 million hectares).[9] Similarly, the state government of Sabah has created a unique enabling environment for sustainable palm oil by committing to adopt 100% Roundtable Sustainable Palm Oil (RSPO) Certified Sustainable Palm Oil (CSPO) by 2025, and comply with the national moratorium and government requirements for 100% Malaysian Sustainable Palm Oil (MSPO) certification. The state has also adopted the policy of having 30% of the state as protected areas and 20% as production forest. Meanwhile in Indonesia, the government has issued a range of policies — including a forest-clearing ban,[10] a moratorium on issuing of licenses for new oil palm plantations,[11] and a regulation on peatland protection[12] — which are critical to reducing palm oil expansion into forests and peatlands. Local activists, nonprofits and global investors have however raised concerns[13] about the potential impact of environmental deregulation measures contained in the "omnibus law"[14] enacted in November 2020, which aims to attract investment, create new jobs, and stimulate the economy.

[1] Pacheco, P., Gnych, S., Dermawan, A., Komarudin, H., Okardaet, B. (2017). The palm oil global value chain Implications for economic growth and social and environmental sustainability. CIFOR Working Paper 220. Available at: http://www.cifor.org/knowledge/publication/6405/

[2] Meijaard, E., Garcia-Ulloa, J., Sheil, D., Wich, S.A., Carlson, K.M., Juffe-Bignoli, D., and Brooks, T.M. (2018). Oil palm and biodiversity. A situation analysis by the IUCN Oil Palm Task Force, xiii, p. 116. Available at: https://portals.iucn.org/library/sites/library/files/documents/2018-027-En.pdf

[3] Vijay, V., Pimm, S.L., Jenkins, C.N., Smith, S.J. (2016). The Impacts of Oil Palm on Recent Deforestation and Biodiversity Loss. PLoS ONE 11, 7, e0159668. Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0159668

[4] Abram, N.K., Meijaard, E., Wilson, K.A., Davis, J.T., Wells, J.A., Ancrenaz, M., Budiharta, S., Durrant, A., Fakhruzzi, A., Runting, R.K., Gaveau, D., Mengersen, K. (2017). Oil palm-community conflict mapping in Indonesia: A case for better community liaison in planning for development initiatives. Applied Geography, 78, pp. 33-44. Available at: https://www.sciencedirect.com/science/article/abs/pii/S0143622816306087

[5] Ayompe, L. M., Schaafsma, M., Egoh, B. N. (2021). Towards sustainable palm oil production: The positive and negative impacts on ecosystem services and human wellbeing. Journal of Cleaner Production, 278, 123914. Available at: https://www.sciencedirect.com/science/article/pii/S0959652620339597

[6] Pacheco, P., Gnych, S., Dermawan, A., Komarudin, H., Okardaet, B. (2017). The palm oil global value chain Implications for economic growth and social and environmental sustainability. CIFOR Working Paper 220. Available at: http://www.cifor.org/knowledge/publication/6405/

[7] Gaveau, D., Locatelli, B., Salim, M., Husnayaen, H., Manurung, T., Descals, A., Angelsen, A., Meijaard, E. and Sheil, D. (2021). Slowing deforestation in Indonesia follows declining oil palm expansion and lower oil prices. Research Square. Available at: https://doi.org/10.21203/rs.3.rs-143515/v1

[8] Varkkey, H., Tyson, A., Choiruzzad, S.A.B. (2018). Palm oil intensification and expansion in Indonesia and Malaysia: Environmental and socio-political factors influencing policy. Forest Policy and Economics, 92, pp. 148-159. Available at: https://www.sciencedirect.com/science/article/abs/pii/S1389934117304483?via%3Dihub

[9] Mongabay (2019). Malaysia to ban oil palm expansion. Available at: https://news.mongabay.com/2019/03/malaysia-to-ban-oil-palm-expansion/

[10] Republic of Indonesia (2019). Presidential instruction 5/2019. Available at: https://peraturan.bpk.go.id/Home/Download/107863/Inpres%20No.%205%20Tahun%202019.pdf

[11] Republic of Indonesia (2018). Presidential instruction 8/2018. Available at: https://sipuu.setkab.go.id/PUUdoc/175597/INPRES%208%20TAHUN%202018.PDF

[12] Republic of Indonesia (2016). Presidential instruction 57/2016. Available at: https://www.hukumonline.com/pusatdata/detail/lt585a31eb90cd7/node/534/peraturan-pemerintah-nomor-57-tahun-2016

[13] Mongabay (2020). Indonesia's omnibus law a 'major problem' for environmental protection. Available at: https://news.mongabay.com/2020/11/indonesia-omnibus-law-global-investor-letter/

[14] United Nations Conference on Trade and Development (UNCTAD) (2020). "Omnibus Law" on job creation has been enacted. Available at: https://investmentpolicy.unctad.org/investment-policy-monitor/measures/3567/indonesia-omnibus-law-on-job-creation-has-been-enacted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The opportunity for Asian markets to drive meaningful, positive change in the palm oil value chain is unequivocal: Asia consumes approximately 60% of the world's palm oil,[15] and Indonesia, India, and China are among the world's top consuming countries. Indonesia and Malaysia account for 86% of global palm oil production,[16] and palm oil is a primary source of income for an estimated 4.3 million people in these two countries alone. The palm oil industry across Asia is also deeply interconnected, with a handful of vertically integrated companies (Wilmar, Golden Agri-Resources, Musim Mas, and Royal Golden Eagle) controlling the majority of the world's palm oil trade. These companies source palm oil from both their own and third-party plantations, and are involved in the refining, manufacturing, and distribution of palm oil.

While many companies operating in Western markets are spearheading sustainability action in the palm oil sector, sustainable palm oil is also increasingly becoming an important consideration across businesses in Asian markets. In India and China, membership in national industry platforms such as the India Sustainable Palm Oil Coalition (I-SPOC) and China Sustainable Palm Oil Alliance (CSPOA) continues to increase.[17] Meanwhile in Singapore, 80% of consumers surveyed in a study conducted by WWF-Singapore and Accenture say they care about how their purchasing decisions affect the environment.[18] These examples showcase the growth potential for sustainable palm oil in Asia.

Despite recent advances within the region, several challenges continue to inhibit widespread demand for sustainable palm oil in Asia. Awareness across companies and end-consumers remains low and is reinforced by a lack of clear labelling of palm oil on products, with palm oil often labelled as "vegetable oil". Companies servicing Asian markets also share a strong focus on price competitiveness, with limited appetite to shoulder the price premiums associated with RSPO CSPO. Finally, the complexity of the palm oil value chain and related traceability challenges make it difficult for companies to identify and remedy sustainability issues across their supply chains.

While a variety of tactics can help shift business behaviour and sourcing practices, a lack of transparency on the palm oil footprint of many companies in the region makes it increasingly challenging to design effective strategies to increase the uptake of sustainable palm oil — both within key markets and across the region. Currently, the vast majority of companies operating in Asia do not report their palm oil usage.

This study aims to provide detailed, credible market intelligence into palm oil consumption[19] across five key countries in Asia: China, India, Indonesia, Malaysia and Singapore. WWF's hope is that the data presented can help devise effective and tailored strategies to boost the demand for sustainable palm oil in key Asian markets. The study puts forth estimates covering both conventional and RSPO CSPO volumes for 2019, in addition to highlighting the main players, application sectors and interventions that can help progress sustainable palm oil demand in Asia in the near future.

[15] United States Department of Agriculture Foreign Agricultural Service (USDA FAS) (2020). Production, Supply and Consumption database. Available at: https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery

[16] USDA FAS (2020). Production, Supply and Consumption database. Available at: https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery

[17] ISEAL Alliance (2021). Strengthening demand for sustainable palm oil in Asia: Report and case studies. Available at: https://www.isealalliance.org/get-involved/resources/strengthening-demand-sustainable-palm-oil-asia-report-and-case-studies

[18] WWF-Singapore and Accenture (2021). Sustainability in Singapore: Consumer and Business Opportunities. Available at: https://wwfasia.awsassets.panda.org/downloads/sustainability_in_singapore_wwf_accenture.pdf

[19] This report is a summary of an in-depth study and research paper WWF commissioned from Segi Enam Advisors Pte Ltd.

METHODOLOGY

This study presents and models in-depth market data for 2019 on the consumption of conventional and RSPO CSPO across China, India, Indonesia, Malaysia and Singapore. It also includes selected data on the imports of palm-related products and goods such as surfactants, oleochemicals, biofuel and energy.

This study considers palm oil consumption from a production basis, meaning both industrial and household consumption are considered together. The consumption estimates found in this report reflect the usage of palm products — i.e. crude palm oil (CPO),[20] palm kernel oil (PKO)[21] and palm kernel expeller (PKE) — by processors, retailers and consumers, and do not distinguish between end-products that are used domestically or that are re-exported and consumed in other markets.

As statistical information on the consumption and processing of palm oil in Asia remains largely unavailable, limited or outdated, Segi Enam Advisors (whom WWF commissioned to conduct this research) developed a bespoke research and modeling approach using a range of official and private data sources:

- Import data from the United States Department of Agriculture (USDA) Foreign Agricultural Service (FAS), International Trade Centre (ITC), and UN Comtrade Database;
- Market reports and company sustainability reports, including GreenPalm, Malaysian Palm Oil Board (MPOB) product summaries, and oleochemical producer product and process summaries;
- RSPO reporting by member companies, including Annual Communication of Progress (ACOP) reports for 2019 and Supply Chain Certification (SCC) data;
- Trade and market insights from interviews conducted with 20 industry and technical experts. Where data was incomplete or not publicly available, Segi Enam Advisors sought to address knowledge gaps by taking a case-study approach and interviewing close observers and specialists.

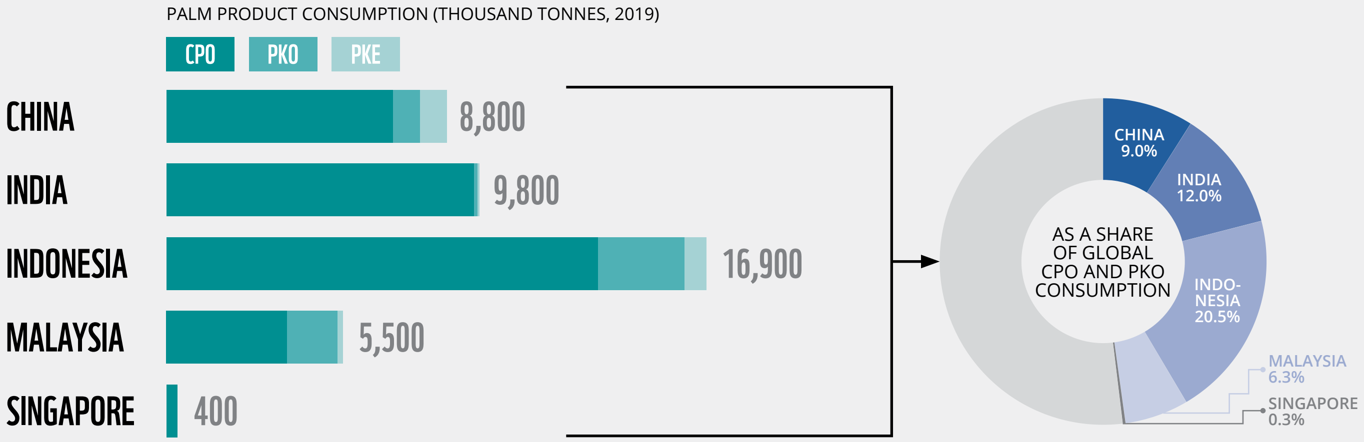
When combined, these sources provide an insightful glimpse into palm oil consumption patterns. But the chosen approach also came with intrinsic challenges:

- Companies do not routinely disclose palm oil volumes by country or application sector; and RSPO data only covers a subset (19%) of total supply, with inherent challenges due to the complexities of the value-chain, which can lead to multi-counting of palm oil volumes. Whenever necessary, this study fell back on proxy market indicators and expert interviews to determine volumes and estimates in relation to specific markets and application sectors.
- RSPO ACOP data was used as the basis for estimating RSPO uptake in each considered country. Given the limitations and inconsistencies of company disclosures, RSPO estimates should be viewed as indicative.
- RSPO ACOP data for key palm oil value chain segments (e.g. consumer goods manufacturers, retailers, biofuel and animal feed) by country/region was found to be an unreliable source to determine end product distribution. Disclosure was inconsistent across reporting entities and included several obvious errors, showing a mix of raw material sourcing, chemical production and end-consumption. Company-level information was adjusted when alternative and more robust information sources were available.
- Company volumes reported in RSPO ACOP data were tagged to application sectors based on primary application. For companies operating across multiple sub-sectors, this approach can lead to inconsistencies. Breakdowns for oleochemicals segments (e.g. surfactants, cosmetics, pharmaceuticals) were primarily based on inputs from chemical specialists and were inferential.
- Estimates of RSPO uptake by sector were derived from a group of companies where data was available, which led to partial coverage.

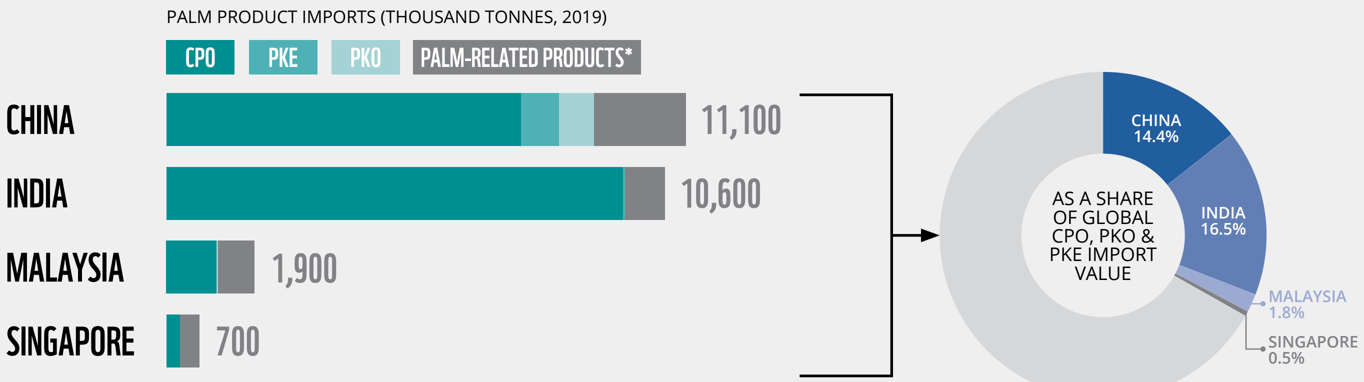
[20] In this report, crude palm oil (CPO) encompasses crude and refined palm oil, including derivatives and fractions.
[21] In this report, palm kernel oil (PKO) encompasses crude and refined palm kernel oil, including derivatives and fractions.

REGIONAL OVERVIEW

CONSUMPTION OF PALM PRODUCTS ACROSS KEY ASIAN MARKETS (2019)

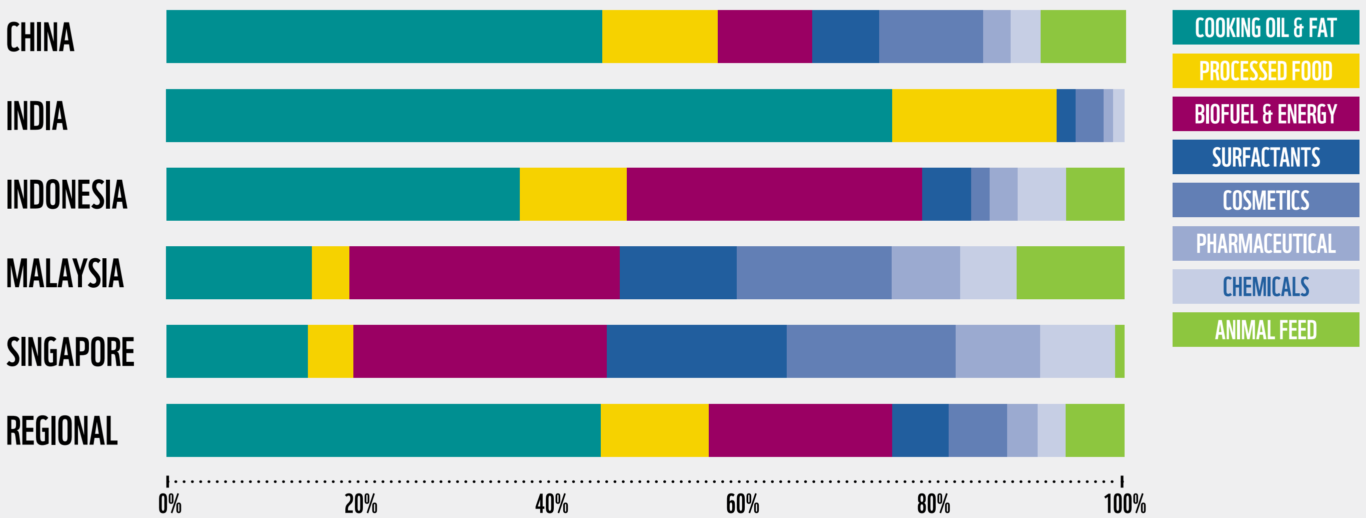


IMPORTS OF PALM AND PALM-RELATED PRODUCTS ACROSS KEY ASIAN MARKETS (2019)

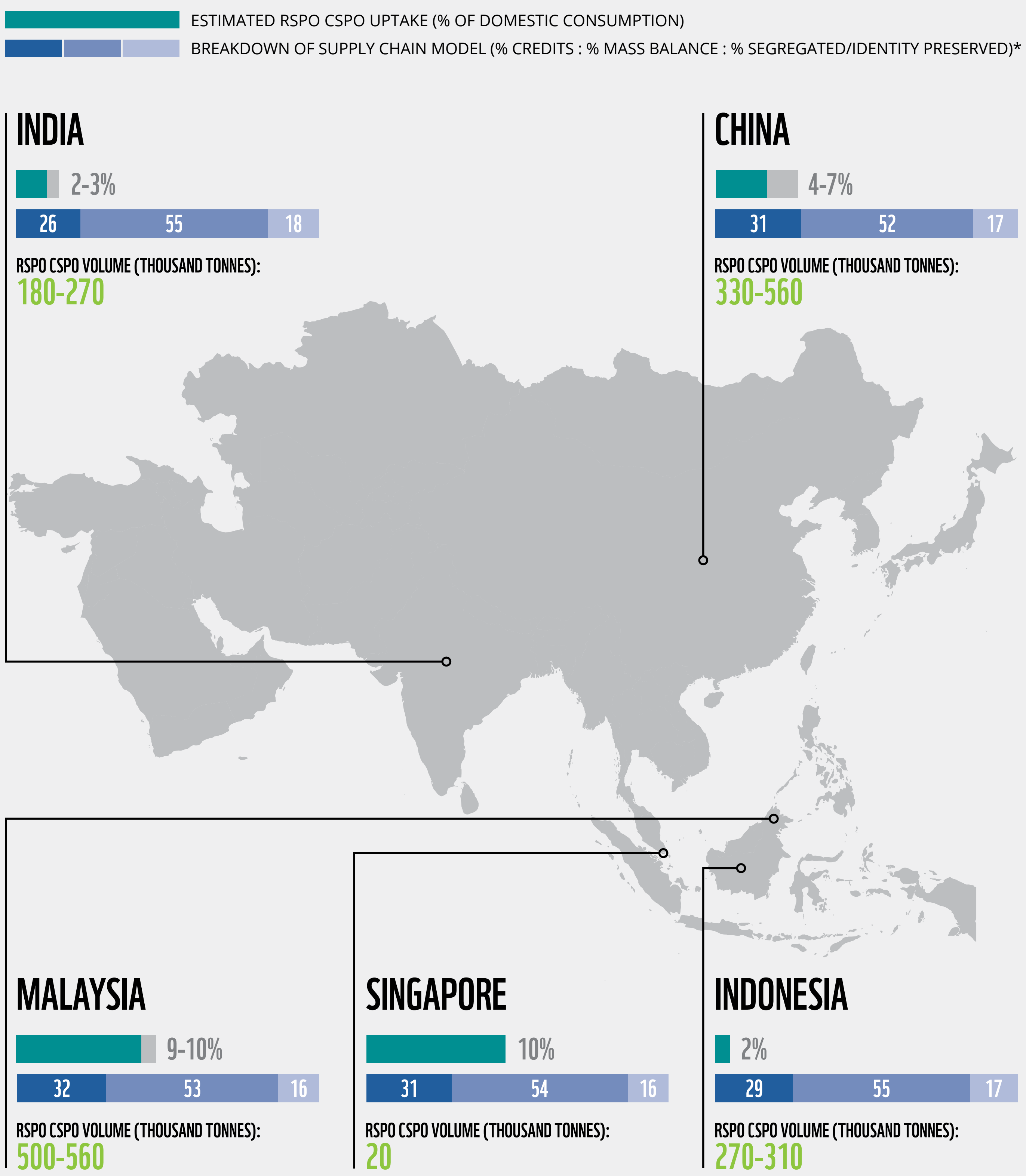


* Includes palm-based components of soap, surfactant, waxes, industrial fatty acids, acid oils, fatty alcohols, and biofuel and energy

PALM OIL CONSUMPTION BY APPLICATION SECTOR ACROSS KEY ASIAN MARKETS (2019)



RSPO CSPO UPTAKE ACROSS KEY ASIAN MARKETS (2019)



* Percentages may not add up to 100% due to rounding.

PALM OIL CONSUMPTION

Key Asian markets drive global palm demand, with **China, India, Indonesia, Malaysia, and Singapore accounting for as much as 48%** of global palm oil consumption in 2019.

Demand for palm oil in Asia is growing, as exemplified by the marked increase of palm product imports[22] across all considered countries in the last few years. Between 2017 and 2019, palm product imports grew by 73% in Malaysia, 48% in China, 13% in Singapore and 6% in India:

- In Malaysia, from 0.6 million tonnes in 2017 to to 1.1 million tonnes in 2019
- In China, from 6.2 million tonnes in 2017 to 9.1 million tonnes in 2019
- In Singapore, from 255,000 tonnes in 2017 to 289,000 tonnes in 2019
- In India, from 9.2 million tonnes in 2017, to 9.8 million tonnes in 2019

Driven largely by domestic consumption, China and India are among the world's largest importers of palm oil. In 2019, total import volumes of palm and palm-related products by China and India amounted to 11.1 million tonnes and 10.6 million tonnes respectively.

The majority of palm oil imported into India and China is used to service the domestic market, where growing demand is likely to be positively correlated to increasing incomes and a rise in the consumption of consumer goods.[23] Malaysia, Indonesia and Singapore consumption figures capture a large share of industrial consumption, which reflect value-added transformation into intermediate and finished goods which are then re-exported across the world.

Palm oil is most commonly used as cooking oil in China, India, and Indonesia; it is also widely used for biofuel and energy production in Indonesia, Malaysia and Singapore, where the sector accounts for approximately 30% of domestic palm oil consumption.

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[22] As specified in the methodology, palm products include CPO, PKO and PKE.
[23] United Nations Development Programme China (UNDP) (2020). Mapping the Palm Oil Value Chain: Opportunities for sustainable palm oil in Indonesia and China. Available at: https://www.cn.undp.org/content/china/en/home/library/environment_energy/mapping-the-palm-oil-value-chain--opportunities-for-sustainable-.html

SUSTAINABLE PALM OIL UPTAKE

RSPO CSPO uptake across China, India, Indonesia, Malaysia and Singapore remains extremely low. Across these countries, consumption of RSPO CSPO only accounted for 3-4% of the total volume consumed in 2019. This is substantially lower than one would expect, considering that approximately 19% of the world's palm oil is RSPO certified. Uptake of RSPO CSPO by major companies also remains limited.

However, certain markets are performing better than others. Singapore and Malaysia are leading the way among Asian markets, with RSPO CSPO accounting for approximately 10% of total volumes used in each country in 2019. China is in the middle of the pack, with RSPO CSPO estimated to cover 4-7% of domestic consumption. Uptake of RSPO CSPO is lower in Indonesia and India, with estimates ranging from 2-3% of domestic consumption.

Some application sectors stand out for their progress. According to this study's modeling estimates, sectors with the highest RSPO CSPO uptake in each country include the Singapore processed food sector with an estimated 54% RSPO coverage in 2019; the Indonesian and Indian surfactants sectors at 16%; the Chinese chemicals sector at 8%; and the Malaysian biofuel and energy sector.

Across the five markets, the predominant RSPO supply chain model used is Mass Balance, representing 52-55% of all RSPO CSPO purchased across the five countries in 2019. This was followed by Book & Claim credits, which accounted for 26%-32% of RSPO volumes purchased. Only 16-18% of RSPO CSPO purchased was Segregated or Identity Preserved.


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A ROADMAP TO BOOSTING SUSTAINABLE PALM OIL UPTAKE IN ASIA

Expanding sustainable palm oil consumption in Asian markets in the near future is challenging, but not out of reach. Across all five countries considered, a number of demand-focused interventions to shift business behaviour on palm are already being deployed[24] — from corporate engagement efforts, to consumer campaigns and policy work. These can be fine-tuned and scaled-up by the market intelligence presented in this study.

The data of this study can also help devise a roadmap for boosting sustainable palm oil demand in key Asian markets. Based on the estimates and trends uncovered, this study recommends a phased approach to increase RSPO CSPO uptake, through targeted interventions focused on specific players and industries across the region. For example, an increase of one million tonnes per year of RSPO CSPO — which would represent approximately 1% of global consumption — can be achieved if 10 to 20 companies in Asia purchase 50,000 to 100,000 tonnes of RSPO CSPO every year.

RSPO Book & Claim credits can be used as an *interim* and *temporary* strategy to reach this annual goal, as they offer an easy starting point for companies operating in emerging sustainability markets where demand for sustainably produced palm oil is currently low. These credits can also be immediately used by companies as a top-up measure to reach 100% sourcing of RSPO CSPO. Companies taking this measure should then transition as soon as possible to 100% physical CSPO supply. Companies can also support independent smallholders through the purchase of Independent Smallholder credits.

It is also important to bear in mind that RSPO certification is but one tool which, if used in isolation, cannot deliver a sustainable palm oil industry. While RSPO certification has a role to play in ending irresponsible production practices and encouraging the production and demand of sustainable palm oil, it must be complemented by other approaches and strong governance to spur industry-wide change.

In order to achieve a sustainable palm oil industry that helps turn the tide on deforestation, biodiversity loss, climate change and social inequity, WWF advocates for the use of a holistic and multi-faceted approach which is inclusive, but not limited to, RSPO certification. This means:

- Growing consumer and business demand for RSPO CSPO;
- Collective action and advocacy by companies both within and beyond their supply chain;
- Policy and legislative action in producer and consumer countries which tackles deforestation and conversion, and requires legal and sustainable palm oil production;
- On-the-ground investments which support a sustainable palm oil industry, including projects focused on conservation, biodiversity and forest restoration, the integrated management of palm producing landscapes,[25] and smallholder empowerment and inclusion in ethical supply chains.

[24] ISEAL Alliance (2021). Strengthening demand for sustainable palm oil in Asia: Report and case studies. Available at: https://www.isealalliance.org/get-involved/resources/strengthening-demand-sustainable-palm-oil-asia-report-and-case-studies

[25] WWF Forest Solutions Platform (2020). Sustainable Landscapes. Available at: http://forestsolutions.panda.org/approach/sustainable-landscapes

A number of stakeholders and industries are optimally positioned in-country and regionally to contribute toward increasing RSPO CSPO uptake in Asia by one million tonnes per year. Recommendations on key interventions are outlined below, while individual country profiles provide insight into major players and sectors at the level of each market that could be instrumental in achieving this target.

MULTINATIONAL COMPANIES SHOULD FOLLOW THROUGH ON EXISTING COMMITMENTS

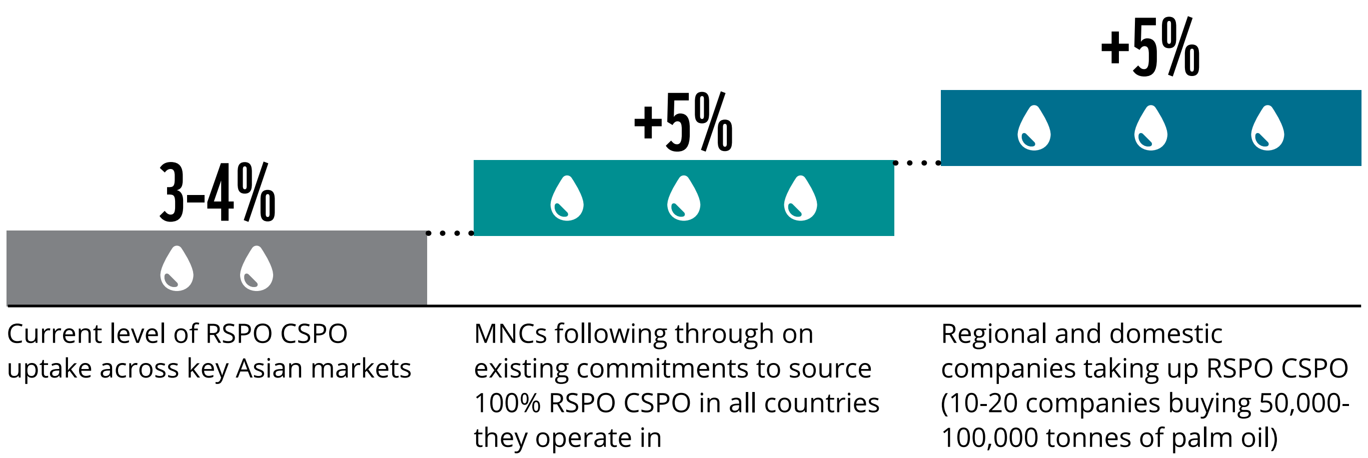
Multinational companies with existing commitments have a critical role to play in driving up the uptake of RSPO CSPO in Asia. According to experts interviewed for this study, **global fast moving consumer goods (FMCG) companies could contribute an estimated 5% increase in RSPO CSPO consumption** across key Asian markets if they follow through on existing commitments to source 100% RSPO CSPO in all countries they operate in.

REGIONAL AND DOMESTIC MANUFACTURERS SHOULD MAKE COMMITMENTS

Experts also believe that regional and domestic manufacturers could contribute an additional 5% to RSPO CSPO uptake in Asia if they follow the example set by multinational companies. They can do this by adopting a phased and time-bound approach to increasing their uptake of RSPO CSPO.

Many regional and domestic manufacturers in Asia have taken the first step in their sustainability journey by becoming members of the RSPO, with membership in the five targeted countries standing at 611 in May 2021.[26] The next step would be to set a time-bound and ambitious commitment for achieving 100% RSPO CSPO, such as Singapore-based Denis Asia Pacific (Ayam Brand) and Fraser and Neave (F&N) have done. Regional and domestic manufacturers can start sourcing RSPO CSPO through the purchase of Book & Claim credits, before gradually transitioning to physical supplies.

ESTIMATED POTENTIAL INCREASE IN RSPO CSPO UPTAKE ACROSS KEY ASIAN MARKETS (%)



[26] RSPO Members (2021). Available at: https://rspo.org/members/all

ACCELERATED ACTION IN KEY SECTORS IS CRUCIAL TO MOVE THE NEEDLE

Three key sectors stand out as pivotal to accelerate RSPO CSPO uptake in Asia:

A. THE COOKING OILS SECTOR

In countries with a modest modern grocery retail sector, such as Indonesia and India, **engagement with the bulk market in the cooking oils sector** is crucial to maximise transformation. This includes direct engagement with processors and traders, the majority of whom are already RSPO members with commitments to increase their RSPO CSPO uptake via shared responsibility and/or through group level commitments.

In countries with a large and well established modern grocery retail sector such as China, Malaysia and Singapore, **consumer packed cooking oil can be an entry point for engagement,** albeit challenging on account of the trend towards mixing different types of oil and national level regulations around composition. However, the Singapore market presents a case for hope: Preliminary studies indicate that at least 10% of palm oil-based cooking oils available in Singapore is currently RSPO-certified — although some industry experts suggest the RSPO market share is likely much greater thanks to commitments made by domestic manufacturers and retailers towards increasing RSPO CSPO uptake. As an example, Singapore-based retailer Fairprice NTUC is sourcing 100% RSPO CSPO for its homebrand products.

Across all countries, the **hotel, restaurant and catering (HORECA) sector has an important role to play in boosting RSPO CSPO uptake**. For instance, 20% of palm oil use in China is in the catering sector, which is equivalent to 1.4 million tonnes or just over 1% of global palm oil use. Large multinationals including Yum! China and McDonald's are making a significant contribution in these markets, but regional and local fast food chains need to be recruited and encouraged to make their own commitments. Singapore-based FoodXervices, which distributes cooking oil to hotels and restaurants is an example of this, sourcing 100% RSPO CSPO, is a commendable example that others should follow.

B. THE INSTANT NOODLES SECTOR

Instant noodle companies are large consumers of palm oil across several Asian markets, with several companies sourcing between 50,000-100,000 tonnes of palm oil. Increasing uptake of RSPO CSPO within this sector can have a notable impact, as less than a third of the 25 largest instant noodle companies are RSPO members. President Nisshin Corp, which has the highest RSPO CSPO uptake of all the instant noodles companies headquartered in Asia, was sourcing 20% RSPO CSPO in 2019.

C. THE OLEOCHEMICALS SECTOR

Oleochemicals — including surfactants, cosmetics, pharmaceuticals and chemicals — is a sector dominated by a few large players supplying products to consumer goods manufacturers. Accelerated action by these players could make a significant contribution. For example, Singapore-based Nikko Chemicals and India-based SAI Fertilizers and Phosphates are leading the way in sourcing 100% RSPO CSPO.

The non-branded sector also has an important role to play in driving RSPO CSPO uptake in the oleochemicals space. Groups such as major hotel chains, commercial property owners, hospital chains and real estate investment trusts should make and follow through on commitments to source 100% RSPO CSPO. Wildlife Reserves Singapore, for example, has committed to 100% RSPO CSPO uptake across their operations.

INCREASED TRANSPARENCY IS NEEDED TO ENCOURAGE AND TRACK PROGRESS

A severe lack of transparency and data on the palm footprint of businesses operating in major Asian markets continues to undermine efforts to boost sustainable palm oil demand in the region. In the same way that many large brands are now making efforts to credibly measure and report greenhouse gas (GHG) emissions of their products, a similar expectation should be made of brand sustainability with respect to sourcing. Such transparency efforts can be aided through the following:

a. **Downstream companies,** particularly vertically integrated processors and traders and multinational FMCGs, should ensure accurate reporting on all palm oil volumes per supply chain segment, including disaggregating certified and non-certified volumes across different application sectors and geographies.

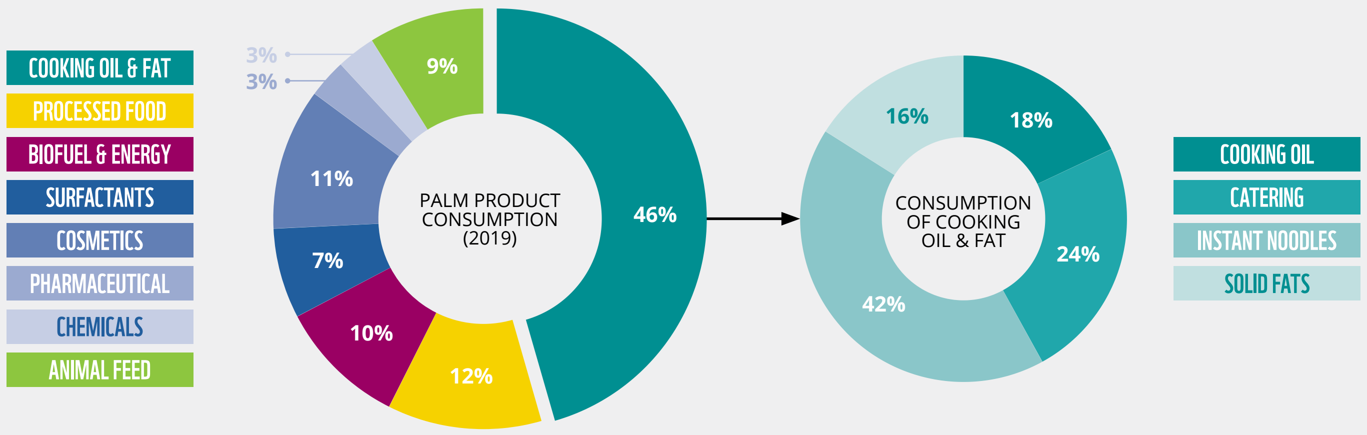
b. **Intermediate goods manufacturers** such as oleochemical companies can also contribute to further transparency by disclosing their estimated palm oil sell-through across different application sectors.

c. **Industry associations** can play a role in consolidating information per sector to highlight industry efforts towards sustainability and encourage RSPO CSPO uptake in priority sectors.

There is also significant potential for collaboration amongst organisations working on data, research and company reporting to pool resources and information that can support demand-focused interventions and strategies.

CHINA

PALM OIL CONSUMPTION BY APPLICATION SECTOR



RSPO CSPO UPTAKE BY APPLICATION SECTOR

CHINA	ESTIMATED VALUE OF PALM PRODUCT CONSUMPTION (USD MILLION, 2019)	CONSUMPTION (THOUSAND TONNES, 2019)	RSPO CSPO UPTAKE (2019)	RSPO SUPPLY CHAIN MODEL USED (% CREDITS : % MB : % SG/IP, 2019)
COOKING OIL & FAT	3,080	4,020	Not available	Not available
PROCESSED FOOD	(included above)	1,030	7%	35:48:17
BIOFUEL & ENERGY	500	830	Not available	Not available
SURFACTANTS	370	610	4%	0:100:0
COSMETICS	570	950	2%	22:78:0
PHARMACEUTICAL	160	260	2%	79:14:7
CHEMICALS	130	220	8%	0:87:13
ANIMAL FEED	450	750	2%	Not available

MAJOR REFINERS

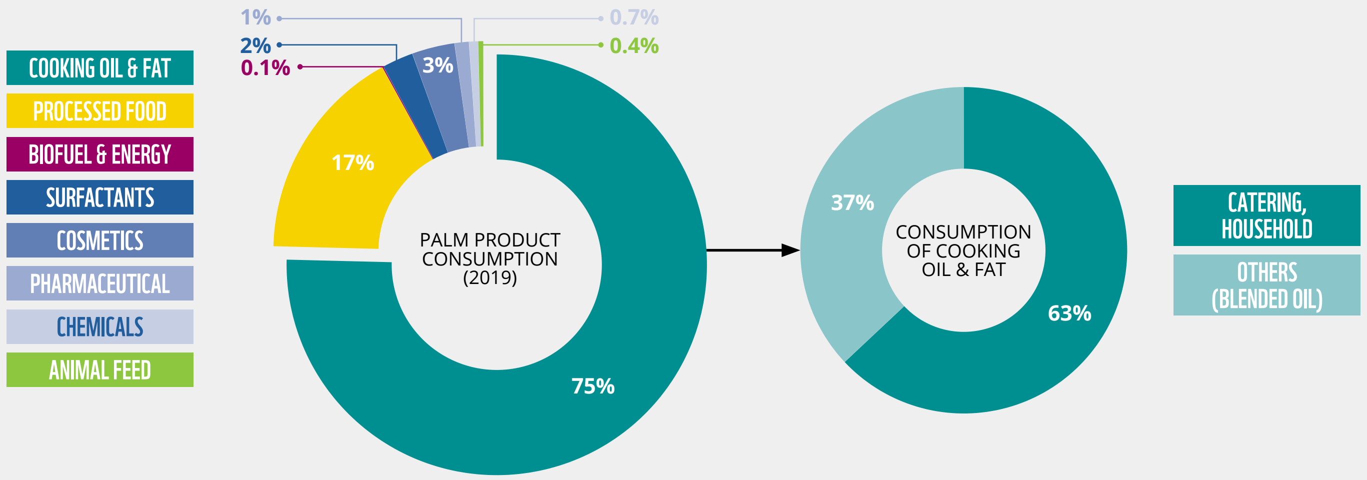
REFINERS	REFINING CAPACITY (THOUSAND TONNES, 2019)
YIHAI KERRY 益海嘉里 (WILMAR-YIHAI KERRY); WILMAR INTERNATIONAL	2,000 to 3,000
COFCO GROUP 中粮集团	1,200 to 1,800
JIUSAN GROUP 九三集团	400 to 600
SHANDONG LUHUA 山东鲁花	400 to 600
JINGLIANG 京粮控股	300 to 400

MAJOR BUYERS

SECTOR	RSPO BUYERS	OTHER MAJOR BUYERS
COOKING OIL & FAT	Yihai Kerry-Wilmar, COFCO	Luhua, Xiwang
PROCESSED FOOD	Unilever, Mondelez, Ferrero, Yum! China, Namchow, Kerry Group	Ting Hsin (Master Kong, Wei Chuan, Dicos), Uni-President, Want Want
BIOFUEL & ENERGY	Yihai Kerry-Wilmar	Targray, Ninbo, Xinjiang International Yueda Investment, Century Longlive, Tuanguan
SURFACTANTS	Unilever, Procter & Gamble, Guangdong Tsinghua Smart Biotech, Zhuhai Jenny's Choice, Yangzhou Yangfeng	Nice, Liby, Nafine
COSMETICS	Unilever, Procter & Gamble, L'Oréal, Kao, Shiseido, Guangzhou Shifei Bio-Tech	Jianong Chemical, Beijing Sanlu, Owlcare, Soho Aneco Chemicals
PHARMACEUTICAL	IVC Nutrition, Hebei Hejia Pharmatech	Shanghai Pharma, Sinopharm, Hengrui Medicine, Fosun Pharma
CHEMICALS	Yihai Kerry-Wilmar, Solvay, Lianshui Xinyuan Biology, Jintung Petrochemicals	Sinopec, BP, Idemitsu, Nippon, Yuangen Petrochemical
ANIMAL FEED	Yihai Kerry-Wilmar, Cargill	East Hope, Alltech, New Hope

INDIA

PALM OIL CONSUMPTION BY APPLICATION SECTOR



RSPO CSPO UPTAKE BY APPLICATION SECTOR

INDIA	ESTIMATED VALUE OF PALM PRODUCT CONSUMPTION (USD MILLION, 2019)	CONSUMPTION (THOUSAND TONNES, 2019)	RSPO CSPO UPTAKE (2019)	RSPO SUPPLY CHAIN MODEL USED (% CREDITS : % MB : % SG/IP, 2019)
COOKING OIL & FAT	5,340	7,430	Not available	Not available
PROCESSED FOOD	(included above)	1,640	2%	25:51:24
BIOFUEL & ENERGY	10	10	Not available	Not available
SURFACTANTS	140	230	16%	8:86:6
COSMETICS	190	330	1%	30:69:1
PHARMACEUTICAL	60	110	5%	88:4:8
CHEMICALS	40	70	6%	1:69:30
ANIMAL FEED	20	40	9%	Not available

MAJOR REFINERS

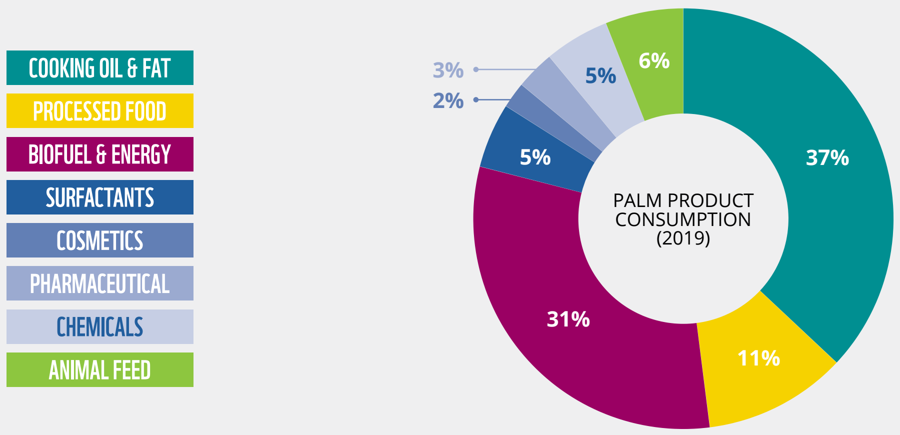
REFINERS	REFINING CAPACITY (THOUSAND TONNES, 2019)
ADANI WILMAR, ADANI WILMAR / KTV	16,800
RUCHI SOYA INDUSTRIES (ACQUIRED BY PATANJALI AYURVED)	9,000
EMAMI AGROTECH	4,000
CARGILL FOODS	3,500
GOKIL AGRO RESOURCES	2,700
BUNGE INDIA	2,000
GUJARAT AMBUJA EXPORTS	1,200
AGARWAL INDUSTRIES	750
VIMAL OIL & FOODS	206
ARJUN INDO AGRO	137

MAJOR BUYERS

SECTOR	RSPO BUYERS	OTHER MAJOR BUYERS
COOKING OIL & FAT	Adani Wilmar, Bunge, Cargill, Emami Agrotech	Agro Tech Foods, Mother Dairy, Patanjali Ayurved
PROCESSED FOOD	Unilever, Ferrero, Mars, Ravi Foods, Dukes Consumer, Nestle, PepsiCo, 3F Industries, Godrej, McDonald's, Burger King, Yum!	Parle Agro, Parisons, ITC
BIOFUEL & ENERGY	N/A	Biomax Fuels, Universal Biofuels, Kaleesuwari, Emami
SURFACTANTS	Galaxy Surfactants, Unilever, Henkel, Procter & Gamble India, Godrej	Jyothy Labs, Aditya Birla, Dabur, Wipro
COSMETICS	Unilever, Colgate, L'Oréal, 3F Industries, Beiersdorf AG	Himalaya Herbals, Colorbar, Lotus Herbals
PHARMACEUTICAL	GlaxoSmithKline	Cipla, Aurobindo, Sun Pharma, Piramal, Wockhardt
CHEMICALS	Solvay, Jocil, Bc Bavarian Candles, Primacy	Akzo Nobel, Asian Paints, Berger, Kansa
ANIMAL FEED	3F Industries, Cargill	East Hope, Alltech, New Hope

INDONESIA

PALM OIL CONSUMPTION BY APPLICATION SECTOR



RSPO CSPO UPTAKE BY APPLICATION SECTOR

INDONESIA	ESTIMATED VALUE OF PALM PRODUCT CONSUMPTION (USD MILLION, 2019)	CONSUMPTION (THOUSAND TONNES, 2019)	RSPO CSPO UPTAKE (2019)	RSPO SUPPLY CHAIN MODEL USED (% CREDITS : % MB : % SG/IP, 2019)
COOKING OIL & FAT	4,390	6,250	Not available	Not available
PROCESSED FOOD	(included above)	1,800	2%	24:64:12
BIOFUEL & ENERGY	2,830	5,190	0%	Not available
SURFACTANTS	460	840	16%	100:0:0
COSMETICS	210	390	2%	12:88:0
PHARMACEUTICAL	310	570	0%	Not available
CHEMICALS	440	810	0%	Not available
ANIMAL FEED	570	1,050	0%	Not available

MAJOR REFINERS

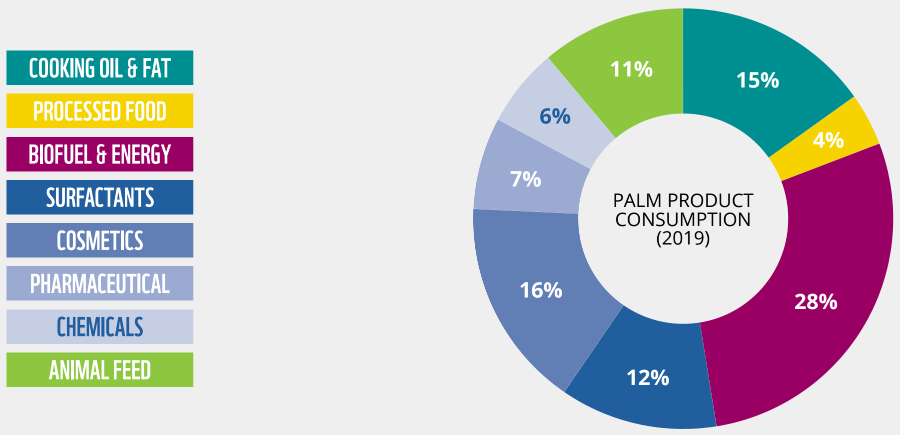
REFINERS	REFINING CAPACITY IN INDONESIA & MALAYSIA (THOUSAND TONNES, 2019)
WILMAR INTERNATIONAL	18,900
MUSIM MAS	7,500
GOLDEN AGRI-RESOURCES	6,100
ROYAL GOLDEN EAGLE (RGE - APICAL); AAA OILS & FATS	4,200
SIME DARBY	3,800
HSA GROUP / PACIFIC INTER-LINK; COMMODITIES HOUSE INVESTMENTS	2,400
PERMATA HIJAU GROUP	2,200
SALIM GROUP	1,700
KLK	1,400
BEST GROUP	1,300

MAJOR BUYERS

SECTOR	RSPO BUYERS	OTHER MAJOR BUYERS
COOKING OIL & FAT	Musim Mas, Able Commodities, Sinar Meadow	Salim Ivomas, Sinar Mas, Bina Karya
PROCESSED FOOD	Unilever, Nestle, PepsiCo, Mondelez, Ferrero, Upfield, Royal FrieslandCampina	Indofood, Wings, Apical, Diamond, Ciif
BIOFUEL & ENERGY	Wilmar, Musim Mas, Tunas Baru Lampung	Darmex, Bakrie Group, Surya Dumari
SURFACTANTS	Budi Jaya Amenities	Reckitt Benckiser, Procter & Gamble, Johnson & Johnson, Sayap Mas
COSMETICS	Kao, L'Oréal, Beiersdorf, Shiseido, Estee Lauder	Mustika Ratu, Mandom
PHARMACEUTICAL	Johnson & Johnson, GlaxoSmithKline	Kimia Farma, BioFarma, Pfizer, Indofarma
CHEMICALS	Henkel, IKEA	Propan Raja, Repsol, MahaChem
ANIMAL FEED	Cargill, BASF	East Hope, Novus, Lautan Luas

MALAYSIA

PALM OIL CONSUMPTION BY APPLICATION SECTOR



RSPO CSPO UPTAKE BY APPLICATION SECTOR

MALAYSIA	ESTIMATED VALUE OF PALM PRODUCT CONSUMPTION (USD MILLION, 2019)	CONSUMPTION (THOUSAND TONNES, 2019)	RSPO CSPO UPTAKE (2019)	RSPO SUPPLY CHAIN MODEL USED (% CREDITS : % MB : % SG/IP, 2019)
COOKING OIL & FAT	630	860	Not available	Not available
PROCESSED FOOD	(included above)	230	10%	16:64:21
BIOFUEL & ENERGY	890	1,540	22%	Not available
SURFACTANTS	400	690	2%	0:79:22
COSMETICS	510	890	5%	11:89:0
PHARMACEUTICAL	240	410	1%	Not available
CHEMICALS	180	320	0.1%	Not available
ANIMAL FEED	340	600	0.4%	0:100:0

MAJOR REFINERS

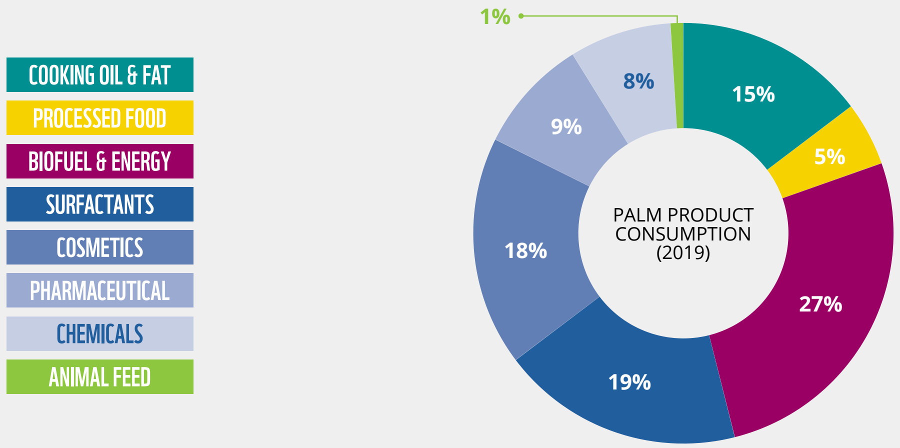
REFINERS	REFINING CAPACITY IN INDONESIA & MALAYSIA (THOUSAND TONNES, 2019)
WILMAR INTERNATIONAL	18,900
MUSIM MAS	7,500
MEWAH INTERNATIONAL	3,200
FGV HOLDINGS (FELDA)	2,500
SIME DARBY	2,500
IOI GROUP	2,400
KLK	1,400
NISSHIN OILLIO	1,000
IFFCO	900
BLD PLANTATION	800
KWANTAS CORPORATION	700

MAJOR BUYERS

SECTOR	RSPO BUYERS	OTHER MAJOR BUYERS
COOKING OIL & FAT	Carotino, Celestial Ventures	Ppb Group, Deoleo, Basso Fedele
PROCESSED FOOD	Unilever, PepsiCo, Nestle, Mondelez, Ferrero, Lam Soon, Kerry Group	MyKuali, Mamee, Malaysia Milk, QSR Stores
BIOFUEL & ENERGY	Carotino, Excelvite, Novozymes, FGV, Sime Darby	Bremfield, BELL
SURFACTANTS	Procter & Gamble, Colgate, Reckitt Benckiser, Lion, Johnson & Johnson	Hayel Saeed, United Detergent
COSMETICS	Shiseido, Estee Lauder, Mary Kay	Hayel Saeed, Liasari
PHARMACEUTICAL	Johnson & Johnson, GlaxoSmithKline	Pharmaniaga, Hovid, Biocon, Haye Saeed
CHEMICALS	Henkel, IKEA	Kansai, KCC Paints
ANIMAL FEED	Budi Feed	DBE Gurney, Teo Seng Farming, Pioneerfeed Bioscience

SINGAPORE

PALM OIL CONSUMPTION BY APPLICATION SECTOR



RSPO CSPO UPTAKE BY APPLICATION SECTOR

SINGAPORE	ESTIMATED VALUE OF PALM PRODUCT CONSUMPTION (USD MILLION, 2019)	CONSUMPTION (THOUSAND TONNES, 2019)	RSPO CSPO UPTAKE (2019)	RSPO SUPPLY CHAIN MODEL USED (% CREDITS : % MB : % SG/IP, 2019)
COOKING OIL & FAT	43	55	Not available	Not available
PROCESSED FOOD	(Included above)	17	54%	26:50:24
BIOFUEL & ENERGY	61	102	0%	0:0:0
SURFACTANTS	35	70	8%	8:86:6
COSMETICS	40	67	2%	21:78:1
PHARMACEUTICAL	20	34	1%	88:4:7
CHEMICALS	17	28	4%	0:67:33
ANIMAL FEED	1	2	2%	Not available

MAJOR REFINERS*

REFINERS	REFINING CAPACITY IN INDONESIA & MALAYSIA (THOUSAND TONNES, 2019)
WILMAR INTERNATIONAL	18,900
MUSIM MAS	7,500
GOLDEN AGRI-RESOURCES	6,100
ROYAL GOLDEN EAGLE (RGE - APICAL); AAA OILS & FATS	4,200
MEWAH INTERNATIONAL - NGO CHEW HONG	3,200

* With offices based in Singapore, but refining capacity elsewhere

MAJOR BUYERS

SECTOR	RSPO BUYERS	OTHER MAJOR BUYERS
COOKING OIL & FAT	Musim Mas	Ngo Chew Hong Edible Oil
PROCESSED FOOD	Unilever, Lam Soon Cannery, Fraser and Neave, Aalst Chocolate	Tong Seng Produce, Sheng Siong
BIOFUEL & ENERGY	Neste Oyj	Alpha Biofuel
SURFACTANTS	Procter & Gamble, Colgate	Giant, Universal Integrated Corporation Consumer Products
COSMETICS	Kao, L'Oréal, Shiseido	Rookie Beauty
PHARMACEUTICAL	GlaxoSmithKline, Johnson & Johnson	Raffles Medical Group, Pharmaskin
CHEMICALS	Palms Resources, IKEA	Sinopec, Lubriplate, Unicorn Oil
ANIMAL FEED	(Wildlife Reserves relisted to food service provider)	Not applicable

ANNEX I

APPLICATION & PRODUCT TYPES	PRODUCT TYPE
EDIBLE OIL	RBD Palm Oil, Hydrogenated Palm Oil, IE Palm, RBD Palm Olein, Hydrogenated Palm Olein, IE Palm Olein, Double Olein, Palm Mid Fraction, Hydrogenated Double Olein, Emulsifier, Palm Mid Stearin, Palm Double Stearin, RBD Palm Kernel Oil, Hydrogenated Palm Kernel Oil, RBD Palm Kernel Olein, RBD Palm Kernel Stearin
BIOFUEL & ENERGY	Palmitic and Oleic Acids, Lauric Acid, Palm Fatty Acid Distillate, Palm Stearin, Palm Olein, Residual Oil from Palm Cake, Waste Palm Oil, Sludge Oil, Fatty Acid Residue, Residual Palm Oil from Palm Oil Mill Effluent
SURFACTANTS	Crude Palm Oil Oleochemicals, RBD Palm Stearin, Palm Kernel Fatty Acid Distillates
COSMETICS	Palm Kernel Oleochemicals
PHARMACEUTICAL	Hydrogenated Palm Kernel Olein
CHEMICALS	RBD Palm Stearin, IE Palm Stearin, Palm Kernel Oleochemicals, Palm Kernel Fatty Acid Distillates
ANIMAL FEED, OTHERS	Palm Fatty Acid Distillates, Palm Kernel Cake/Expeller

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