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THE INTERNATIONAL COUNCIL ON CLEAN TRANSPORTATION

BRIEFING

JANUARY 2019

International policy and market drivers of Indonesian palm oil demand

Recent policy changes limiting palm oil and palm biodiesel imports in several countries could affect the global palm oil market. Indonesia contributes roughly half of all palm oil consumption and imports globally[1] and would thus be affected by any significant changes to global demand. This briefing paper reviews major policy and market drivers of palm oil demand in China, the European Union (EU), India, Pakistan, and the United States (U.S.). We provide a basic projection of the impact of potential policy changes on global and Indonesian palm oil demand and place these effects in the context of overall global trends.

OVERVIEW OF GLOBAL PALM OIL MARKET

Global palm oil demand has been rapidly growing, with imports almost tripling since 2000. Figure 1 shows total palm oil and palm kernel oil demand by the top five importing countries: India, EU, China, Pakistan, and U.S., as well as the rest of world (ROW). In 2017, India led the world in palm oil imports at approximately 10 million tonnes, followed by the EU (7 million tonnes), and then China (5 million tonnes). Although global imports have risen roughly linearly since 2000, these time trends vary by importing country. In India, for instance, palm oil demand began to accelerate in 2005, while imports in China and the EU have plateaued since about 2010. Since 2000, 51% of global palm oil imports (around 47 million tonnes in 2017) have been sourced from Indonesia, and 39% from Malaysia. The remaining 12% of palm oil exports are from a number of other countries in Southeast Asia, Africa, and South America, including Papua New Guinea, Guatemala, Colombia, Benin, Thailand, Honduras, and Ecuador.

1 All statistics on palm oil production, exports, imports, and consumption are for palm oil and palm kernel oil combined for the period 2000-2017, downloaded from United States Department of Agriculture (USDA), "Production, Supply and Distribution," database, accessed December 11, 2018, https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery

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Acknowledgements: This work was generously supported by the David and Lucile Packard Foundation and the Norwegian Agency of Development Cooperation. Thanks to Chelsea Baldino, Nic Lutsey, Ray Minjares, Zifei Yang, Dhita Rachmadini, and Azis Kurniawan for helpful reviews.

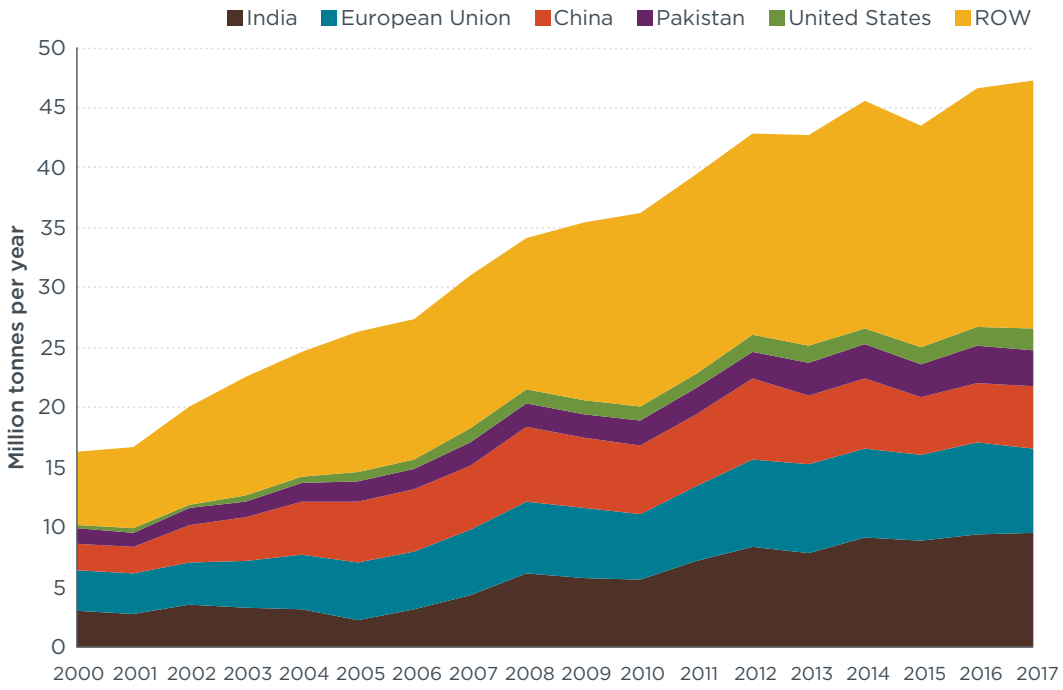

Figure 1. Global palm oil imports (right axis) and imports by top importing countries (left axis)

Palm oil has a variety of uses in food, animal feed, oleochemicals, and other products. One significant use is in biodiesel and renewable diesel production, which can replace diesel fuel in transport and other industries. At its peak, in 2013, Indonesia exported more biodiesel than it was consuming, even though those exports were less than one-tenth of its palm oil exports by weight. By 2017, that had flipped, with Indonesia consuming much more palm oil biodiesel (2.6 billion liters[2]) than it was exporting (190 million liters). Indonesian biodiesel producers have been experiencing a growing market for biodiesel domestically.

Figure 2 shows international demand for Indonesian biodiesel over time for the top five countries that import palm oil. Overall, demand has fallen sharply since 2014. The decline has been largely driven by the EU, where purchases fell from about one million tonnes per year in 2012 to less than 200 thousand tonnes per year between 2014 and 2017. Trade policies of other importing countries also contributed to the recent decline.

2 Arif Rahmanulloh, 2018, "Indonesia Biofuels Annual 2018," United States Department of Agriculture Foreign Agricultural Service, https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual_Jakarta_Indonesia_8-13-2018.pdf

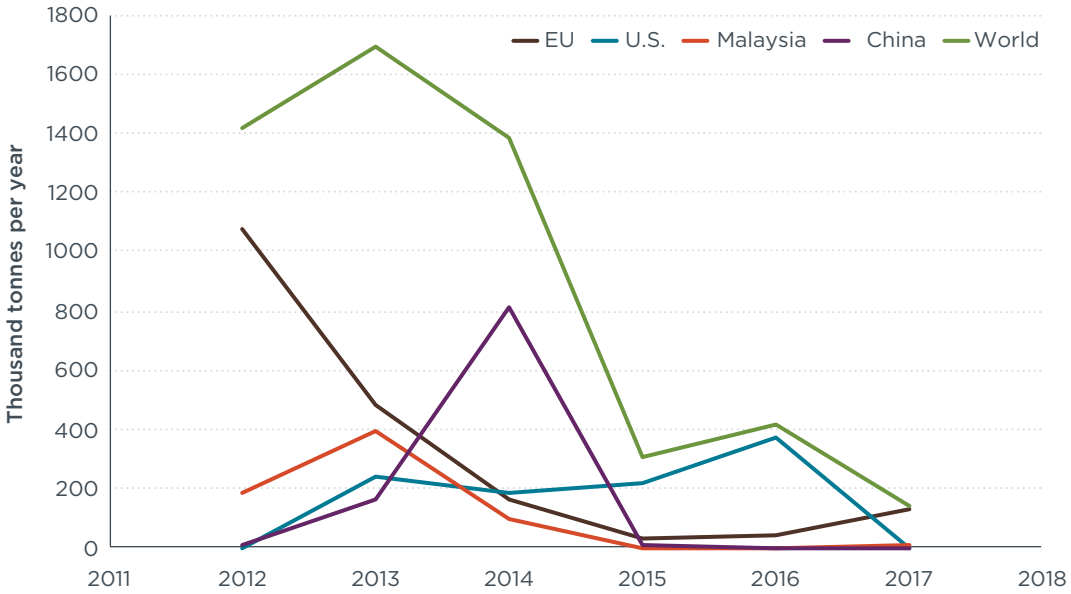

Figure 2. Indonesian biodiesel by importing country (Source: United Nations Comtrade database)

Although demand for Indonesian palm oil-based biofuel has dropped precipitiously in recent years, demand for palm oil remains strong. In the following sections, we review the major policy and market drivers behind historical and expected future imports of palm oil and palm biodiesel in the top five importing countries and regions: China, EU, India, Pakistan, and U.S. We discuss major drivers including biofuel policy, population growth, rising meat consumption, and trade barriers.

CHINA

China's impact on the palm oil industry is almost entirely driven by demand for food, feed, and oleochemical ingredients, rather than for biofuels. The growth in vegetable oil supply since 2008 has come from domestic soy oil production, not from imported oil. The trend upward, beginning in 2000, tracks imports of whole soybeans. Soymeal is a major livestock feed ingredient, and the increased soybean imports are likely tied to growing demand for meat and other livestock products in China. Soybean oil is generally crushed and separated from the soymeal before the latter is mixed into livestock feed. Since the crushing occurs after China receives the soybean imports, the soybean oil counts as domestic production. So, even though domestic vegetable oil consumption has continued to climb at a steady pace, imports of vegetable oil, including palm oil, have stagnated since about 2008 (Figure 1; Figure 8).

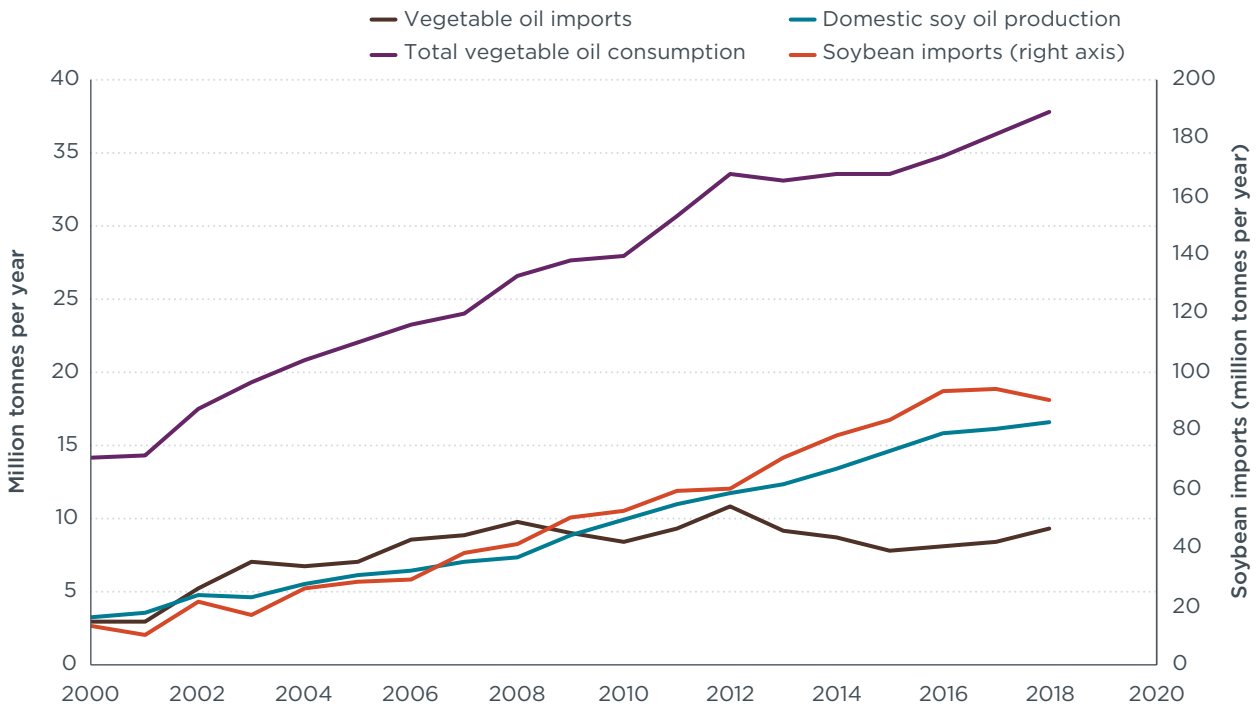

Figure 3. China's vegetable oil production, imports, and consumption (left axis) and soybean imports (right axis)

In April, 2018, China announced a 25% duty on U.S. soybeans, a move that could potentially affect palm oil trade. If China reduces soybean imports from the U.S., domestic production of soybean oil will also fall, and as a result, China could begin importing more palm oil.[3] In May, Chinese Premier Li Keqiang signaled that China would increase imports of palm oil from Indonesia by 500 thousand tonnes per year,[4] an increase of around 15% from 2017. However, some analysts have argued that any increase in palm oil imports would not be prolonged because China still must import soybeans to feed its livestock. China has already begun to import soybeans from Brazil and may even continue buying soybeans from the U.S., as well.[5] If China's livestock production is not substantially reduced as a result of the soybean tariff, its domestic supply of soybean oil will continue to rise, as will domestic production of soybean oil, leaving little room for additional palm oil imports.

The Chinese tariff could also potentially affect U.S. demand for palm oil imports. Without a demand for its soybean exports, the U.S. could find itself with an increase in its domestic supply of soybean oil. That would lower its need to import palm oil. At the same time, a new equilibrium could be reached: some amount of U.S. soybean exports to China may recommence if Chinese demand for livestock feed remains high, and the U.S. may begin exporting to countries that previously bought Brazilian soybeans, mainly the EU. This may occur if China offers Brazilian producers a higher price for soybeans than the EU. If this equilibrium is reached and the U.S. continues exporting soybeans at a similar rate as in the past, U.S. demand for palm oil would not increase as a result of the U.S.-China soybean trade dispute.

3 Tan Xue Ying, "China's soybean tariff unlikely to affect palm oil – analysts," *The Edge Financial Daily*, April 5, 2018, http://www.theedgemarkets.com/article/chinas-soybean-tariff-unlikely-affect-palm-oil-%E2%80%94-analysts

4 Marguerite Afra Sapiie, "China agrees to increase palm oil imports from Indonesia," *The Jakarta Post*, May 7, 2018, http://www.thejakartapost.com/news/2018/05/07/china-agrees-to-increase-palm-oil-imports-from-indonesia.html

5 Shruti Singh, Tatiana Freitas, "Despite Tariffs, U.S. Soy Is Still Headed to China. Here's why," *Bloomberg*, August 7, 2018, https://www.bloomberg.com/news/articles/2018-08-07/despite-tariffs-u-s-soy-is-still-headed-to-china-here-s-why

It seems unlikely that the Chinese tariff on U.S. soybeans will have any significant long-term global impact on palm oil exports. Chinese palm oil demand may increase slightly due to higher costs of importing soybeans, while U.S. palm oil demand may decline slightly due to domestic oversupply of soybean oil. Palm oil demand may also shrink slightly in the EU if the U.S. is forced to sell soybeans at a low price in that market. As long as there is no significant change in global soybean production as a result of the Chinese tariff, there should be little to no impact on overall Indonesian palm oil exports.

Chinese imports of Indonesian palm biodiesel spiked in 2013 when China removed a tax on biodiesel imports (Figure 2). However, much of the biodiesel imported to China reportedly contains as low as 2–5% palm biodiesel blended in diesel in order to avoid China's tax on diesel imports.[6] Biodiesel imports dropped to near zero in 2015, which some analysts have tied to the sudden drop in oil prices at the start of that year.[7]

EUROPEAN UNION

The EU is the second-largest importer of palm oil, bringing in around 7 million tonnes in 2017. This demand is driven heavily by biofuel policy along with uses in food and oleochemicals.

BIOFUEL POLICY DRIVERS AND THE 'PALM BAN'

The EU has historically imported large quantities of palm oil for use in food and, to a lesser extent, industrial uses such as soap and chemical production. Over the past decade, an increasing amount of palm oil imports have been used in biofuel production. Figure 3 shows the use of palm oil in food and livestock feed, biofuel, and other industrial products over time.

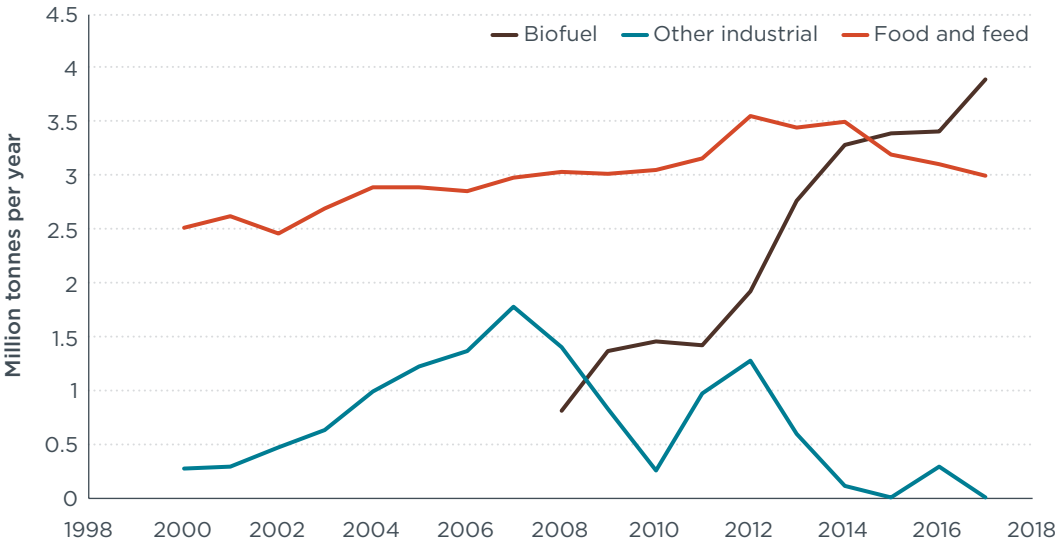

Figure 4. EU consumption of palm oil by use[8]

6 Jessica Jaganathan, Judy Hua, "Tax incentives boost Chinese biodiesel imports, replace diesel," *Reuters*, October 18, 2018, https://www.reuters.com/article/china-biodiesel-imports-idUSL4N0HY2I820131018

7 Thom Wright, Arif Rahmanulloh, "Indonesia Biofuels Annual Report 2015," U.S. Department of Agriculture Foreign Agriculture Service, https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual_Jakarta_Indonesia_7-31-2015.pdf

8 Data on palm oil use in biofuel from Transport & Environment, "Why is palm oil biodiesel bad?", Accessed Dec 11, 2018, https://www.transportenvironment.org/what-we-do/biofuels/why-palm-oil-biodiesel-bad

EU's consumption of palm oil in biofuel has been largely driven by the Renewable Energy Directive (RED).[9] This directive, established in 2009, requires 10% of the energy consumption in road and rail transport in 2020 to be from renewable sources. EU Member States (countries) are required to implement this target with national laws and incentives, such as blending mandates. Palm oil contributes around 20% to the production of biodiesel (fatty acid methyl ester) and renewable diesel (hydrotreated vegetable oil) in the EU. The other major feedstocks for producing diesel substitutes are rapeseed, used cooking oil, and animal fats.[10] Around 80% of EU palm oil is imported from Indonesia. The RED includes sustainability criteria for all biofuel feedstocks, prohibiting the direct conversion of forest, wetlands, and highly biodiverse grasslands to biofuel production. These criteria also require biofuels to reduce greenhouse gas (GHG) emissions by at least 50% compared to diesel and gasoline, rising to 70% in 2021, excluding land use change emissions. The current GHG threshold requires methane capture at most, if not all, palm oil mills in order to be eligible. In 2015, the EU amended the RED to limit the contribution of all food-based biofuels to the target to 7% of transport energy consumption. The 7% limit has not been reached in many Member States yet, but this measure limits future growth in the use of food feedstocks, including palm oil, in EU biofuel production. This decision also introduced a 0.5% subtarget for advanced biofuels made from cellulosic wastes and residues such as wheat straw.[11]

The EU extended support for biofuels in its recast Renewable Energy Directive (RED II).[12] This directive sets a target of 14% renewable energy consumption in road and rail transport. The contribution of food-based biofuels to this target is limited to 7% or 2020 consumption levels in each Member State, whichever is lower. There is also a subtarget for 3.5% blending of advanced biofuels. While negotiating this directive, the EU Parliament voted on whether to prohibit the contribution of palm-based biofuel to the 14% renewable energy target; this measure became known as the 'palm ban.' The prohibition was not actually a ban on using palm oil in biofuel, but rather an exclusion of incentives for palm biofuel in this particular policy. This measure was not adopted in the final version of the directive.

The palm biofuel exclusion was replaced by a limit on the contribution of biofuel feedstocks classified as "high indirect land use change (ILUC) risk" set at the 2019 consumption level of these biofuels in each Member State, phasing down to zero by 2030. This measure does not explicitly identify palm oil and is intended to reduce the high land use change emissions resulting from any biofuel feedstocks associated with deforestation. The European Commission is required to write criteria on how to classify these high ILUC biofuel feedstocks. But, as of January, 2019, these criteria have not yet been released, and it is unclear whether palm oil will be classified as high ILUC risk. If palm oil is not classified as high ILUC risk, its contribution towards the 14% renewable energy in transport target will be limited only by 7% the overall limit on food-based

9 Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC, Official Journal of the European Union L 140/16, https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32009L0028

10 Bob Flach, Sabine Lieberz, Antonella Rossetti, "EU Biofuels Annual 2017," U.S. Department of Agriculture Foreign Agricultural Service, https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual_The%20Hague_EU-28_6-19-2017.pdf

11 Directive (EU) 2015/1513 of the European Parliament and of the Council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources, Official Journal of the European Union L 239, https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32015L1513

12 General Secretariat of the Council of the European Union, "Interinstitutional file, Proposal for a Directive of the European Parliament and of the Council on the promotion of the use of energy from renewable sources - Analysis of the final compromise text with a view to agreement," 21 June 2018, http://www.consilium.europa.eu/register/en/content/out?&typ=ENTRY&i=LD&DOC_ID=ST-10308-2018-INIT

biofuels. If palm oil is classified as high ILUC risk, the allowed contribution of palm biofuel to the target will be phased down slowly, rather than an immediate exclusion.

Even if a feedstock, such as palm oil, is labelled as high ILUC, individual producers of that feedstock could still qualify as "low ILUC risk" through a third-party certification scheme, which would exempt them from the limit and phase down. Biofuels may be certified as low ILUC risk if their production avoids the displacement of other uses of crops through either improved agricultural practices or cultivation of previously unused land. Like the criteria for high ILUC biofuel feedstocks, the Commission still must define specific criteria on low ILUC risk feedstocks. Depending on what criteria the Commission decides, palm oil produced on, for example, degraded grasslands colonized by invasive grasses could potentially be classified as low ILUC risk. Palm oil certified as low ILUC risk can count towards the 14% target without limit. It is thus very likely that European policy will continue incentivizing the use of some palm oil in biofuel through 2030.

DUTIES ON INDONESIAN BIODIESEL IMPORTS

In November 2013, the EU imposed anti-dumping duties on Indonesian and Argentinian biodiesel,[13] and EU imports of Indonesian biodiesel dropped rapidly starting in 2013 (Figure 2). The World Trade Organization and the European Court of Justice ruled against these duties, and the EU repealed them in March 2018.[14] The United States Department of Agriculture (USDA) Foreign Agricultural Service (FAS) expects total Indonesian biodiesel exports to have increased substantially in 2018 compared to 2017, likely as a result of the expiry of the EU duties.

OTHER MARKET DRIVERS

Domestic biofuel production consumes around half of EU palm oil imports (Figure 3). The remainder is used mostly in food, with a small amount used in feed, soap, and chemicals. Non-biofuel uses of palm oil are not directly affected by the changes in biofuel policy and may continue unabated. The use of palm oil in food has remained roughly stable since 2000 and this trend is likely to continue over the coming decade. The use of palm oil in soap, chemicals, and other industrial uses has declined since the mid-2000s as the use of palm oil in biofuel has ramped up. It is thus possible that biofuel production has competed with other industrial products for palm oil. If so, any reduction in palm biofuel production as a result of changes to EU biofuel policy could result in an increase in the availability and use of palm oil in other industrial uses. This would dampen any impact of EU biofuel policy on total EU palm oil imports.

INDIA

Imports of palm oil in India have risen sharply since around 2005 (Figure 1), and this matches a trend of increasing consumption of vegetable oils overall (Figure 7). Biofuel policy is not a significant factor in India's palm oil imports; palm oil demand depends primarily on uses in food and oleochemicals. Domestic production of vegetable oils has remained fairly flat since 2000 and any growth in demand for vegetable oil consumption has thus been met entirely with increased imports. Between 2005 and

13 Council Implementing Regulation (EU) No 1194/2013 of 19 November 2013 imposing a definitive anti-dumping duty and collecting definitively the provisional duty imposed on imports of biodiesel originating in Argentina and Indonesia, Official Journal of the European Union L 315/2, https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:315:0002:0026:EN:PDF

14 European Commission, "Notice of the impending expiry of certain anti-dumping measures," July 7, 2018, Official Journal of the European Union C 250/8, https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOC_2018_250_R_0008&from=EN

2012, palm oil delivered virtually all growth in vegetable oil imports and, since 2013, other vegetable oil imports have picked up as well, particularly soybean and sunflower seed oils. In 2017, 95% of vegetable oil and 93% of palm oil was used in food, with the remainder devoted to other industrial uses. India's population has increased by around one-quarter over this time period, while vegetable oil consumption has more than doubled. The growth in vegetable and palm oil demand is thus mostly driven by increased per capita consumption.

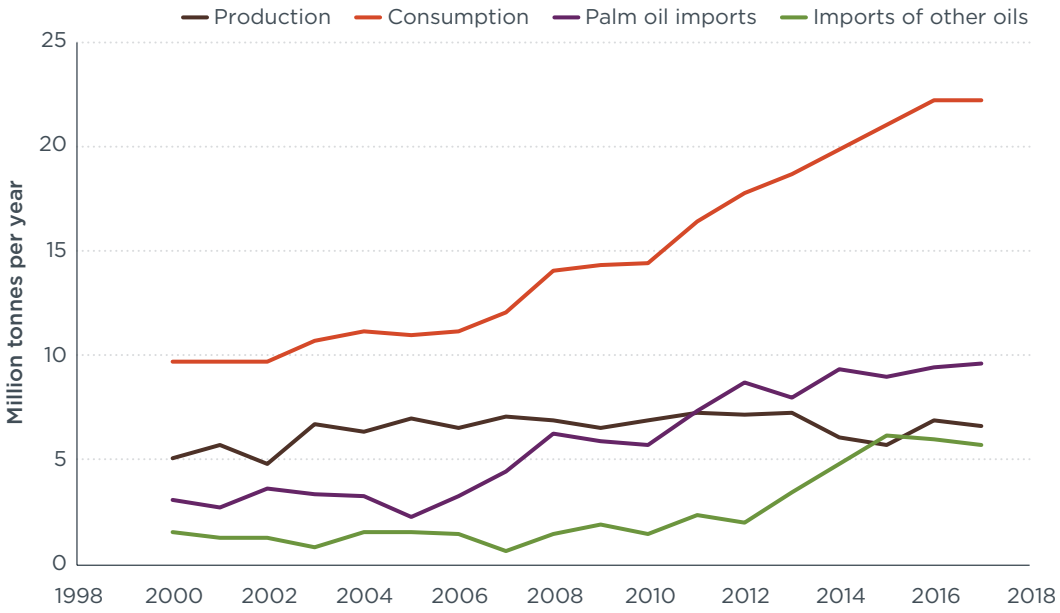

Figure 5. India domestic production, consumption, and imports of total vegetable oil

Imports of palm, soybean, and sunflower oil have been taxed since at least 2007-2008. The tax on palm oil was particularly high in 2007 through early 2008 at 45–58%. Afterwards, the tax rate on palm oil changed frequently and varied from 0–25% from 2008 through late 2017, with generally higher tax rates for refined (i.e. food-grade) compared to crude palm oil. In November 2017, the taxes on crude and refined palm oil were raised to 30% and 40%, respectively,[15] and in March 2018, to 44% and 54%, respectively. Palm oil imports were expected to decline sharply because the taxes on soybean, sunflower, and ground nut oil were significantly lower. A few months later, in June, 2018, however, taxes were raised on these other oils to 35% and 45% for crude and refined oils, respectively. These changes were made to support domestic vegetable oil production.[16] It is not clear how quickly India may be able to increase its domestic vegetable oil production. So as long as vegetable oil demand continues to grow, India is likely to continue increasing imports of palm oil and other vegetable oils for the foreseeable future.

There is currently no policy support for biodiesel and renewable diesel in India, and the biodiesel blend rate has remained below 0.2%. The small amount of biodiesel that is produced in India is made from palm stearin and waste fats.[17] India has recently set

15 "Directorate of Sugar and Vegetable Oils," Government of India, Department of Food & Public Distribution, Ministry of Consumer Affairs, Food & Public Distribution, https://dfpd.nic.in/SAVO-about.htm

16 Wiral Gyan, "Govt hikes import duty on non-palm oils by 10%," *Times of India*, June 13, 2018, https://timesofindia.indiatimes.com/business/india-business/govt-hikes-import-duty-on-non-palm-oils-by-5-10/articleshow/64590550.cms

17 Amit Aradhey, "India Biofuels Annual 2018," U.S. Department of Agriculture Foreign Agriculture Service, https://gain.fas.usda.gov/Recent%20GAIN%20Publications/Biofuels%20Annual_New%20Delhi_India_7-10-2018.pdf

a 5% biodiesel blending target for 2030 in its revised National Biofuels Policy. Eligible feedstocks include waste fats and non-edible oilseeds such as Jatropha. It is thus unlikely that the National Biofuels Policy will be a significant contributor to palm oil imports.

PAKISTAN

Pakistan imports most of its vegetable oils, and the vast majority of those imports are palm oil, followed by soybean oil (Figure 9). Use in food and oleochemicals are the main drivers of palm oil imports in Pakistan; biofuels do not play a significant role. Palm oil imports have been growing rapidly since 2000, while domestic production has remained flat since around 2004.

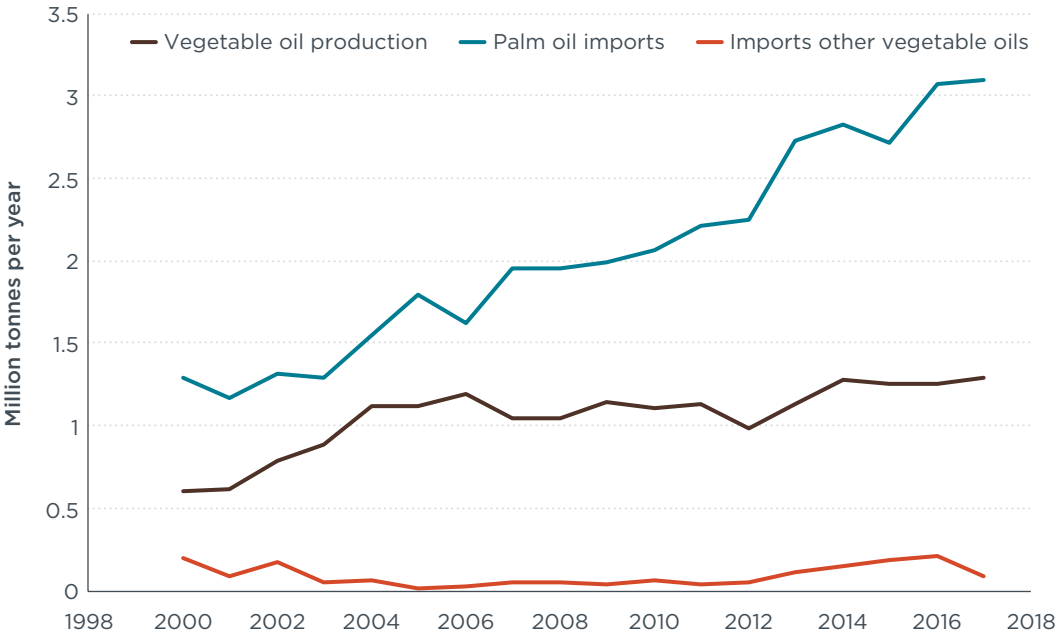

Figure 6. Pakistan production and imports of palm and other vegetable oils

Pakistan has had relatively low duties on vegetable oil imports. These duties have been applied on a per tonne basis, but in 2017 were equivalent to roughly 7% for crude soybean oil and 7–9% for palm oil. In April, 2018, Pakistan increased the duty on crude soybean oil to approximately 9%.[18] Soybean oil imports dropped immediately, down more than 60% in May–June 2018 compared to those same months the year before. By July–October 2018, soybean oil imports had recovered slightly, but were still 50% lower than those months in 2017. Palm oil imports were unaffected and were 6% higher in July–October 2018 compared to that period in 2017.[19] In May 2018, the Pakistan government suggested it may hike the duty on palm oil imports and further increase the soybean oil import duty, but it has been reported that this duty change may not occur.[20] Thus, the steady growth in palm oil imports has not been interrupted in 2018, and if vegetable oil duties are not changed, the trend of increasing palm oil imports will likely continue.

18 Calculated from duty levels in, "Pakistan Budget Review 2018 – 19 and Impact on Palm Oil," *Palm Oil Today*, April 30, 2018, http://palmoiltoday.net/pakistan-budget-review-2018-19-and-impact-on-palm-oil/ and from import quantities and values from United Nations Comtrade Database, https://comtrade.un.org/

19 Calculated from Government of Pakistan, Ministry of Commerce, Monthly statements showing exports/imports of selected commodities, http://www.commerce.gov.pk/monthly-statements/

20 "Pakistan tax authority suggests 30% import duty hike for soya, palm oil," *Oils & Fats International*, May 9, 2018, https://www.ofimagazine.com/news/pakistan-tax-authority-suggests-30-import-duty-hike-for-soya-palm-oil

UNITED STATES

The U.S. has grown from a modest importer of palm oil in 2000 to one of the top importers globally, although it still consumes less than one-third of the amount of palm oil used in the EU. This trend is likely largely driven by U.S. biofuel policies.

RENEWABLE FUEL STANDARD

The main policy promoting the use of biofuel in the U.S. is the Renewable Fuel Standard (RFS), which mandates the consumption of increasing volumes of biofuel each year. The RFS has sub-mandates on nested categories of biofuels, shown in Figure 4. These categories are defined in part by GHG performance. Renewable fuel, the overarching biofuel category, can be made from any feedstock and must reduce GHG emissions by at least 20% compared to diesel and gasoline. ILUC emissions are included in the U.S. calculations of GHG performance. Corn ethanol is by far the largest contributor towards the overall renewable fuel target in the RFS.

Advanced fuel is a subset of renewable fuel and includes biofuels that reduce GHG emissions by at least 50%. Within advanced fuel, there are two sub-categories: biomass-based diesel (including biodiesel and renewable diesel) and cellulosic fuel, which must be made from primarily lignocellulosic feedstocks and reduce GHG emissions by at least 60%. Biomass-based diesel is produced primarily from soybean oil and waste oils and fats.[21]

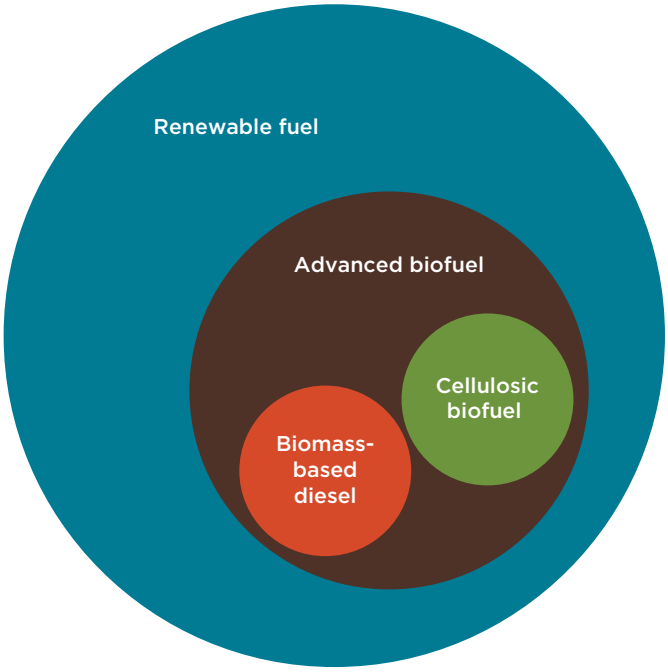

Figure 7. Nested categories of biofuel in the U.S. Renewable Fuel Standard

Palm biofuel is not currently eligible to contribute towards any of these categories. In 2012, the Environmental Protection Agency (EPA), the U.S. government agency in charge of RFS implementation, published a preliminary determination that palm biodiesel does not meet the 20% GHG reduction threshold required for renewable fuel.[22] This

21 U.S. Environmental Protection Agency (EPA), Renewable Fuel Standard Program: Standards for 2019 and Biomass-Based Diesel Volume for 2020, 2018, EPA-HQ-OAR-2018-0167, https://www.epa.gov/sites/production/files/2018-11/documents/rfs-2019-annual-rule-frm-2018-11-30.pdf

22 U.S. Environmental Protection Agency (EPA), Notice of Data Availability Concerning Renewable Fuels Produced From Palm Oil Under the RFS Program, 2012, EPA-HQ-OAR-2011-0542, https://www.gpo.gov/fdsys/pkg/FR-2012-01-27/pdf/2012-1784.pdf

preliminary finding was never finalized. However, biofuel produced at any facility globally that was constructed before 2010 is grandfathered into the program and is eligible to be counted as renewable fuel, even if it produces palm biodiesel. Between 2012 and 2016, Indonesia exported palm biodiesel to the U.S. that had been produced at older facilities, and this biodiesel likely counted towards the RFS mandate.

BIODIESEL AND RENEWABLE DIESEL TAX CREDITS

In addition to the RFS, the U.S. has provided a tax incentive for biodiesel and renewable diesel consumed in the U.S. Imported biofuels, including palm biodiesel, are eligible to claim this incentive of 1.00 USD per gallon. Every 1–2 years since 2010, these tax credits have expired and then have been reinstated (Figure 5). In several cases, the tax credits were reinstated retroactively. For example, the tax credit for 2017 was put in place in early 2018 and paid to all producers and importers of biodiesel and renewable diesel in 2017. For many of these years, it was not possible for producers and importers to know in advance whether the tax credit would be available. There was no tax credit in 2018, although it is possible it will be renewed for 2019 and could be reinstated retroactively for 2018.

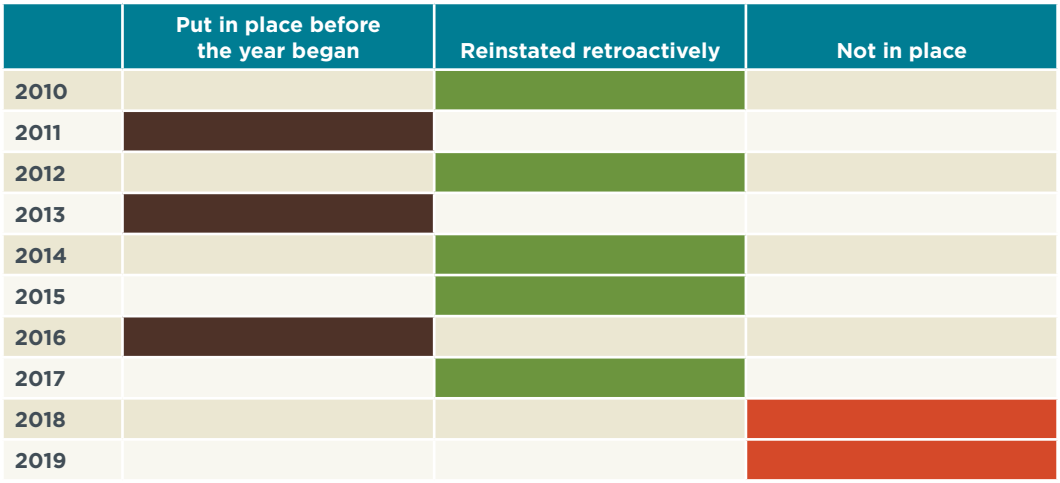

Figure 8. Timeline of when the U.S. biodiesel and renewable diesel tax credits have been active

U.S. TARIFF ON INDONESIAN PALM BIODIESEL IMPORTS

The U.S. placed anti-dumping tariffs on Indonesian and Argentinian biodiesel imports in April 2018, after announcing them in 2017.[23] U.S. imports of Indonesian biodiesel ceased in 2017 (Figure 2) and are likely to remain low as long as the tariffs are in place.

VEGETABLE OIL SUBSTITUTION

Because palm biodiesel is not eligible in the RFS (unless produced at grandfathered facilities, all of which are in Indonesia), no palm oil imported to the U.S. is turned into biofuel. In 2017, three-quarters of U.S. palm oil consumption was directed toward food, with the remaining quarter used in soap, chemicals, and other industrial products. But palm oil is increasingly replacing soybean oil in food and non-biofuel industrial uses. Figure 6 shows the consumption of both soybean oil and palm oil in non-biofuel uses in the U.S. over time. The trends in palm oil and soybean oil are mirrored: as soybean oil has

23 Biodiesel From Argentina and Indonesia: Antidumping Duty Orders, International Trade Administration, April 26, 2018, 83 FR 18278, https://www.federalregister.gov/documents/2018/04/26/2018-08775/biodiesel-from-argentina-and-indonesia-antidumping-duty-orders

been increasingly used in biofuel, with less devoted to food, soap, and chemicals, the U.S. has been importing more palm oil to use in food, soap, and chemicals.

Previous ICCT research has demonstrated that increased demand for soybean oil in biofuel has driven the increase in palm oil imports in the U.S. by increasing the demand for palm oil in non-biofuel uses.[24] Therefore, although palm oil is not used directly for biofuel production in the U.S., imports from Indonesia are indirectly incentivized by U.S. biofuel policy. The amount of soybean oil used in U.S. biofuel production has been rising steadily as a result of the RFS and the biodiesel and renewable diesel tax credits, and this trend is likely to continue for the foreseeable future. It is thus likely that U.S. biofuel policy will continue to indirectly drive increased palm oil imports over the next few years.

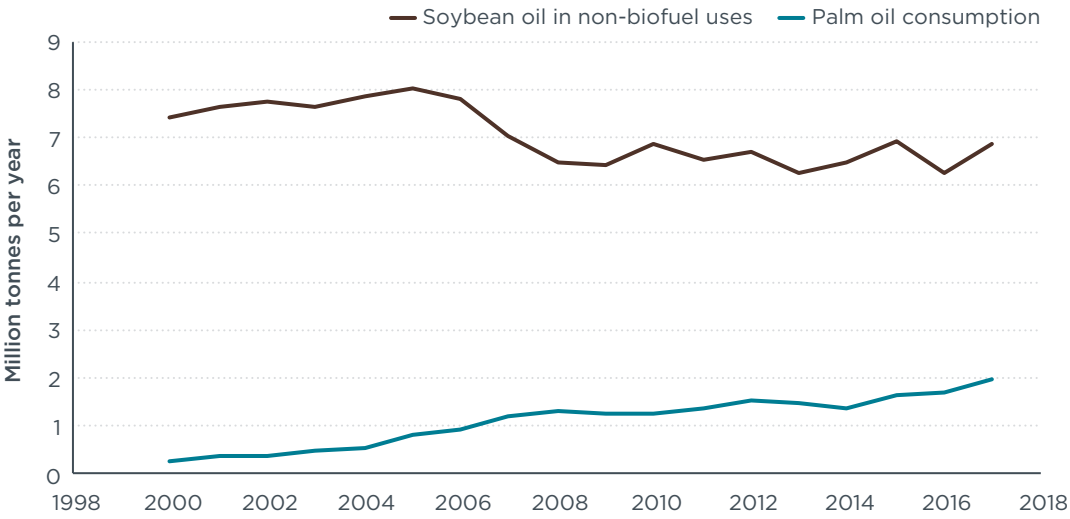

Figure 9. U.S. consumption of palm oil and of soybean oil in non-biofuel uses

PROJECTION TO 2030

Overall, global demand for palm oil exports from Indonesia and Malaysia is likely to continue growing for the foreseeable future. Current trends are likely to continue in each of the top palm oil markets reviewed here. The status quo scenario in Figure 10 shows our projection for global palm oil demand, based on individual regional projections for each of the countries discussed here. For the EU, India, Pakistan, and the U.S., we project linear increases in palm oil imports, and for Malaysia, a linear increase in domestic palm oil consumption, based on data from 2000–2017. Because Chinese palm oil imports have stagnated and we expect overall soybean imports (and thus domestic soy oil production) to continue growing, we assume future palm oil imports to China will remain flat from average levels between 2009 and 2017. We project future domestic palm oil consumption in Indonesia based on extrapolating the historical linear increase of use in food and other non-biofuel products from 2000–2017 and assuming Indonesia reaches its 30% biodiesel blending target starting in 2019.

Figure 10 also includes a few scenarios that illustrate the impact certain policy and market changes could have on the global palm oil outlook, based on our projection that assumes that status quo palm oil demand will follow a linear increase, as it has historically. The scenarios are:

24 Fabio Gaetano Santeramo, Stephanie Searle. "Linking soy oil demand from the US Renewable Fuel Standard to palm oil expansion through an analysis on vegetable oil price elasticities." Energy Policy 127 (2019): 19-23.

- **EU phase-out:** The EU completely phases out the use of palm oil in biofuel by 2030. This is the most stringent outcome that could arise from the current EU policy making process.
- **U.S. ends tariffs:** The U.S. recommences importing biodiesel at 2013–2016 levels without tariffs.
- **Indonesia B20:** Indonesia maintains its current biodiesel mandate at 20% rather than increasing to 30% in 2019 or 2020.
- **No growth in Asia:** Palm oil imports to non-palm producing countries in Asia remain flat at 2017 levels, for example, because of increasing tariffs.

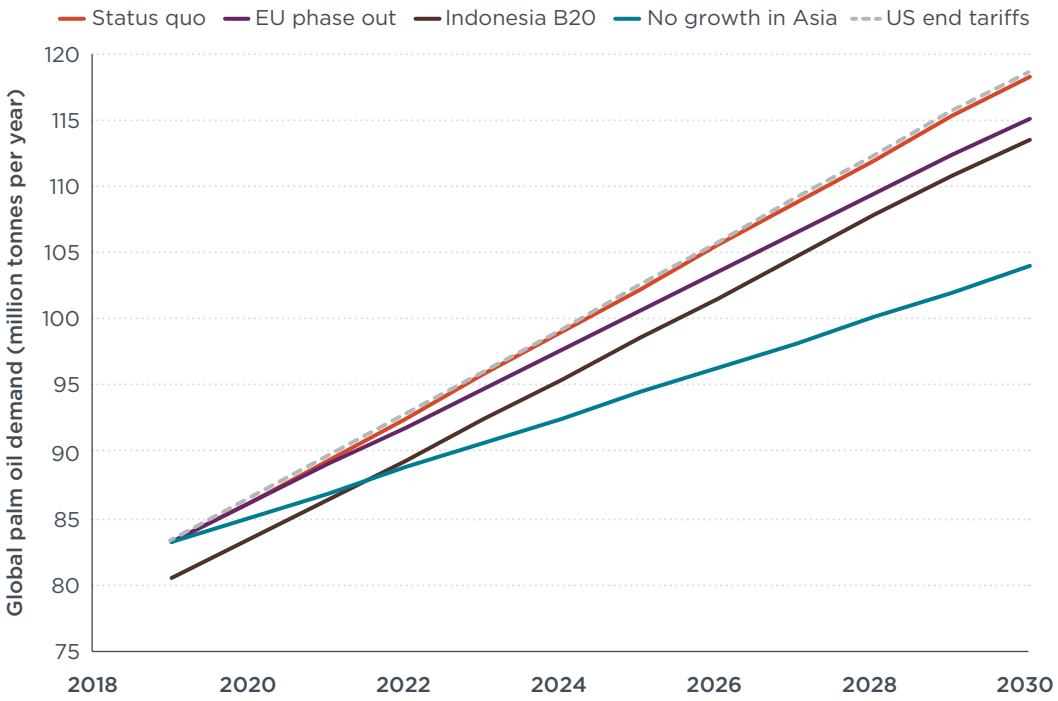

Figure 10. Projection of global demand for palm oil in various scenarios

Figure 10 puts some ongoing policy debates into perspective. The primary takeaway is that global palm oil demand is very likely to continue rising substantially over the coming decade. In our status quo scenario, global palm oil demand will increase nearly 50% from 2017 to 2030. None of the potential policy and market changes we considered change that trend; in an extreme scenario of stagnating Asian imports, global palm oil demand still increases by around 30% by 2030.

The second takeaway is that none of the potential policy changes reviewed here are likely to substantially reduce global palm oil demand compared to the status quo. The U.S. tariff on Indonesian biodiesel imports has almost no effect on global palm oil demand. The amount of palm biodiesel that would be imported to the U.S. in the absence of tariffs (assuming similar imports as in the years 2013–2016) is around 0.3% of global palm oil production in 2017 and around 0.6% of 2017 palm oil production in Indonesia. Reversing these tariffs is not likely to significantly impact total demand for Indonesian palm oil.

EU policy could have a larger impact than the U.S. tariff, but still not much in the context of the global palm oil market. Furthermore, the outcome of the current EU decision-making process is still uncertain, and it is possible that the EU decision could allow unabated use of palm oil in biofuel through 2030. In the most extreme case, if the EU mandated a total phase-out of palm biofuel consumption (as shown in Figure 10), global

palm oil demand would go down by 3% compared to the status quo scenario, but would still rise more than 40% compared to 2017 production. The most likely outcome of the EU process is in the middle, with a slight (less than 3%) reduction in global palm oil demand compared to the status quo scenario.

Current Indonesian policy mandates 20% blending of biodiesel in diesel, and this mandate is set to increase to 30% in 2020.[25] If Indonesia instead remains at 20% blending, this will have a similar effect on global palm oil demand as the most extreme EU policy scenario. It would reduce demand for Indonesian palm oil (including both domestic consumption and exports) by around 7% in 2030 compared to the status quo. But demand for Indonesian palm oil would still increase by over 40% in 2030 compared to 2017.

None of these potential policy decisions are as significant as potential market changes in Asia. More than half of global palm oil exports in 2017 were to countries in Asia. Skyrocketing palm oil demand in India in particular is a major driving force behind growing global demand for this commodity. If demand for Asian palm oil were to stagnate, for example because of an economic downturn or large increases in tariffs in India and Pakistan, the effect on global palm oil demand would be at least three times larger than any of the policy decisions for the EU, U.S., and Indonesian biofuel policies reviewed here. In general, a change to a renewable fuels policy in any country is unlikely to significantly impact global palm oil demand. Regardless, it is difficult to envision a scenario where global palm oil demand does not continue to grow over the next decade.

25 Anastasia Kharina, Chris Malins, Stephanie Searle, *Biofuels Policy in Indonesia: Overview and Status Report*, (ICCT: Washington, DC, 2016), https://www.theicct.org/sites/default/files/publications/Indonesia%20Biofuels%20Policy_ICCT_08082016.pdf