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# The Value Chain for Palm Oil Imported into China

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## Abstract

Palm oil is a very controversial commodity, often linked to issues such as deforestation, destruction of animal habitats, labour exploitation, wildfires, and environmental pollution in producing regions. Several sustainability schemes for palm oil production have been developed, and while the proportion of sustainable palm oil consumption in developed countries is gradually increasing, more and more non-sustainable palm oil flows to developing countries, such as China, Pakistan, and India. China is the second largest importer of palm oil, but certified sustainable palm oil accounts for less than 10 per cent of China's total consumption. This is due to a combination of ineffective Chinese food standards, the concerns of food industry practitioners, high industry concentration, double standards of multinational corporations, and insufficient efforts by the Chinese government to promote sustainable consumption and development. A number of suggestions are made which could gradually increase the proportion of sustainable palm oil in China's total palm oil consumption.

***Keywords***: palm oil, value chain, China, RSPO, sustainability

## Introduction

The oil palm is native to Africa but now is widely grown in other tropical areas, especially in Indonesia and Malaysia. These two countries account for over 80 per cent of global palm oil production. Palm oil is the most important local agricultural product in many regions and is related to the employment of millions of local people. Numerous small stakeholders live on this income. Palm oil also generates billions of revenues for the producing countries. New plantations are being developed in Thailand, Colombia, and Nigeria, as well as other parts of south and central America and Africa.

Palm oil has many unique properties that cannot be substituted by other vegetable oil. First, palm oil is rich in carotenoids and tocopherols, which have a natural antioxidant effect and can extend the shelf life of the product (Pande et al., 2012). Second, the relatively high content of saturated fatty acid, approximately 50 per cent, makes it semi-solid at room temperature, stable at high temperatures and mixes well with other ingredients (Montoya et al., 2014). Third, palm oil is quite versatile in use. "Palm oil is first converted into basic oleochemicals and these oleochemicals will serve as building blocks for many other chemicals" (Yeong et al., 2012). Refined palm oil and its derivates are widely used not only in the food industry but also in the cosmetic, chemical, feed, biofuels, and pharmaceutical industries. Fourth, compared with other vegetable oils, palm oil is a high-yield oil crop. The yield of palm oil per hectare is around four times higher than sunflower or rapeseed oil and 10-15 times higher than coconut or groundnut oil (Ritchie and Roser, 2020). It is efficient in land use. The attributes and the relatively low price of palm oil makes it essential in daily life.

However, the production of palm oil is also very controversial, often linked to issues such as deforestation, destruction of animal habitats, labor exploitation, wildfires, and environmental pollution. For example, between 1973 to 2016 about 19.5 million hectares of old-growth rainforest were destroyed in Sabah (formerly Borneo). The expansion of palm oil plantations was one main reason for that. In 2016, Sabah had 8.34 million ha planted to industrial oil palms (Gaveau, 2017). The rapid expansion of oil palm has brought great losses to biodiversity, resulting in habitat loss for highly endangered species, like the Sumatran tiger, elephants, orangutan, and rhinos. At the same time, it also caused serious social conflict, relevant to labour exploitation, forced labour, and child labour (WWF, 2015).

As consumers pay more attention to environmental protection and sustainable development, a number of sustainability schemes for palm oil production have been developed, such as the Roundtable on Sustainable Palm Oil (RSPO). As a result, the proportion of sustainable palm oil consumption in developed countries is gradually increasing. For example, in the United Kingdom in 2012, the government set an objective of 100 per cent of palm oil should be from sustainable sources, and by 2019 70 per cent of imported palm was sustainable (WWF, 2022). In 2014, in the United States, the uptake of Certified Sustainable Palm Oil (CSPO) reached 63 per cent of total palm oil usage (WWF, 2015). At present, the European Union is the largest consumer of sustainable palm oil, consuming 45 per cent of the world's sustainable palm oil (RSPO, 2022).

In 2015, 12.6 million tonnes of palm oil, approximately 20 per cent of global palm oil production, from 2.6 million hectares of plantations, were certified sustainable by RSPO. In 2022, the certified production area was 3.51 million hectares, and the production of RSPO certified sustainable palm oil had risen to 14.8 million tons, but the proportion had remained steady at 19 per cent (RSPO, 2022).

While the consumption and proportion of sustainable palm oil in developed countries continue to increase, more and more non-sustainable palm oil flows to developing countries, especially emerging economies in Asia, such as China, Pakistan, and India. The rapid economic growth of emerging markets in Asia has led to a rapid increase in demand for palm oil, with imports increasing year by year. This is one of the reasons why the proportion of certified palm oil has stagnated as a share of the world's total production. To address the global social costs of non-sustainable palm oil production, it is necessary to explore how to gradually increase the proportion of sustainable palm oil in these emerging markets.

The focus in this paper is on China. China has the largest population in the world, and in 2020, China’s import volume of palm oil ranked second in the world, and the consumption volume of 6,920 thousand tonnes ranked third in the world. From 2015 to 2020, the average growth rate of domestic palm oil consumption in China reached 7.6 per cent (Nation master, 2020). China is also the second largest destination country for palm oil exports from Indonesia and Malaysia, accounting for 13.8 and 11.2 per cent respectively (OECD, 2020). But by 2020, certified sustainable palm oil accounted for only 4-7 per cent of domestic consumption in China (WWF, 2021). If the proportion of sustainable palm oil imported by China can increase substantially, it will have a significant impact on the sustainable development of the global palm oil industry.

## Sustainable Development of Palm Oil

As palm oil has many irreplaceable advantages and characteristics, palm oil has a wide range of uses, from kitchen cleaners to shampoos, from cookies to biodiesel. Compared to other vegetable oils, palm oil is more efficient in land use. The required area of 1 metric ton of vegetable oil for oil palm is only 0.27ha, rapeseed 1.49ha, sunflower 2.08ha, and soybean 2.63ha (WWF, 2015). Simply boycotting palm oil by emphasizing its negative impacts will lead to more farmland occupation and more

sustainability issues. The only way to go is to use sustainable palm oil to reduce the negative impact of palm oil production.

There are three sustainable palm oil certification schemes that have the greatest impact:

**The Roundtable on Sustainable Palm Oil (RSPO):** "The RSPO is an international, multistakeholder forum that aims to transform the global palm oil sector to make sustainability the industry norm." (RSPO, 2020). Its mission is to advocate for the production, supply, and source of certified sustainable palm oil. The main mechanism for ensuring sustainability is RSPO certification which is based on seven principles and corresponding criteria.

RSPO supply chain certification systems can be divided into four different types: identity preserved (IP), segregated (SG), mass balance (MB), and book & claim (BC) (RSPO, 2010).

- The IP model is the most stringent of the four and requires palm oil from various RSPO-certified plantations to be kept separate from non-certified palm oil at all stages of the supply chain. At the end of this supply chain, the palm oil in each product can be traced back to a certified grower.
- Under the SG model, certified palm oil is segregated from non-certified palm oil at all stages of the supply chain. But in an oil mill, palm oil from different certified plantations is mixed. Although it is impossible to trace back to a single grower, this model still ensures that the palm oil supplied to the end user only comes from RSPO-certified plantations.
- The MB model allows the mixing of certified and non-certified palm oil in the supply chain. This means that at the end of this supply chain only a fraction of the palm oil comes from RSPO-certified plantations.
- The B&C system allows businesses to purchase certified palm oil credits but does not require that they actually purchase the palm oil used from the certified supply chain. There is a "credits" sign on the certification mark.

For the IP and SG models, the certification would guarantee sustainability. But for the MB and BC models, that is not the case. And that is why occasionally RSPO certification is criticized and questioned. However, although the purchasers and users may not purchase or use substantial sustainable palm oil under the MB and BC models, the certification scheme still plays a positive role in advocating the sustainable production of palm oil in the long run, as it ensures the maximum degree of market participation. At the same time, members of RSPO have the obligation of submitting an annual progress report on their claims in the RSPO code of conduct (RSPO, 2020). The certification is still the best strategy for enhancing the sustainability of palm oil production.

**Indonesian Sustainable Palm Oil (ISPO):** ISPO is a mandatory certification for producers and mills in Indonesia. The ISPO is only limited to production. It does not participate in the processing, trading, or end-use of palm oil. The Indonesian oil palm growers' association, locally known as Gabungan Pengusaha Kelapa Sawit Indonesia (GAPKI) is a powerful association and has a strong relationship with the government. Over 400 private palm plantation companies and state-owned plantation companies are GAPKI members.

**Malaysian Sustainable Palm Oil (MSPO):** MSPO was introduced in 2013 and was a voluntary certification for producers and mills until December 2019. Since January 2020, it has become mandatory. It was implemented to help smallholders who cannot afford RSPO certification. It has specific provisions for independent smallholders, plantations, and palm oil mills and the government bears the cost of MSPO certification for small plantation owners (Sinchew, 2019).

There are also several other sustainability schemes related to palm oil:

**Signatories of the Sustainable Palm Oil Manifesto (SPOM**): SPOM includes not only growers, processors and NGOs but also the end users and financial institutions. It strengthens the responsible role of financial institutions. End-users are actively participating in advancing SPOM objectives. Based on RSPO, SPOM works with three specific objectives: traceability and transparency, no deforestation, and positive socio-economic impact on people and communities (SPOM, 2015).

**Palm Oil Innovation Group (POIG):** POIG was established in 2013. It works on continuous improvement of RSPO standards and recognizes the new principle and criteria on the benchmark that builds upon the RSPO. It stopped using the RSPO Credits in 2019 and worked on new ways of palm oil sourcing (POIG, 2021).

**Rainforest Alliance Sustainable Agriculture Standard (RASAS**): RASAS aims at sustainable production and supply chains across all of agriculture. It is a farm certification system. To be certified, palm oil producers must meet a number of critical criteria (Rainforest Alliance, 2020).

**International Sustainability & Carbon Certification (ISCC**): The ISCC standard was developed for the bioenergy industry, including agricultural and forestry biomass, circular and bio-based materials, and renewables. It does not allow agricultural production on lands with high biodiversity value or carbon stocks (ISCC, 2022).

In short, MSPO and ISPO certifications are only for producers and mills. They are about ensuring the legal compliance of producers and mills. The standards for certification are embodied in the form of national regulations or criteria. RSPO certification goes beyond the legal requirement, emphasizing sustainability which is achieved through voluntary actions of various organizations along the whole supply chain, from production to processing and trade and then to the end use. While the other types of sustainability schemes each have their own focus, all are based on the principles and criteria of RSPO certification.

## The Global Market for Palm Oil

### Production

Indonesia and Malaysia are the two most important producers, accounting for 59 per cent and 25 per cent of the world's production respectively (Table 1).

**Table 1. Top 10 palm oil producing countries in 2021**

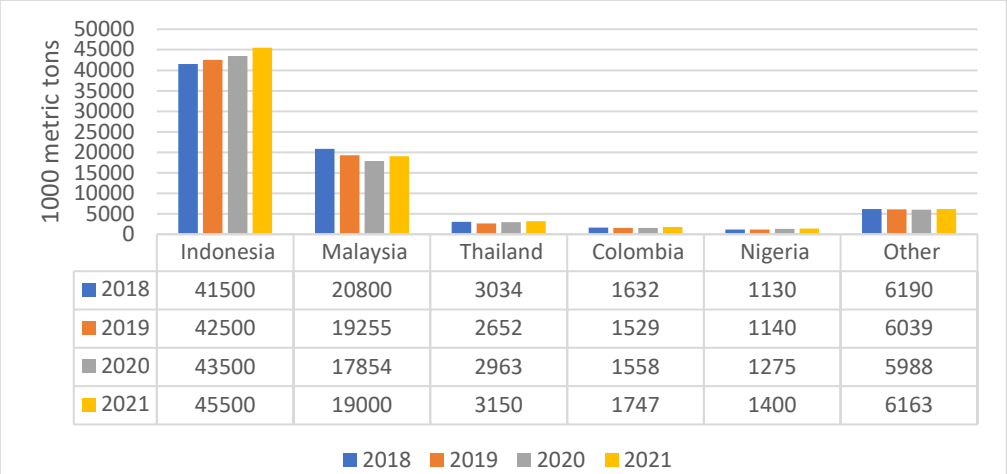
| Ranking | Country | Percentage of World Production (%) | Production (1,000 MT) |
|---|---|---|---|
| 1 | Indonesia | 59 | 45,500 |
| 2 | Malaysia | 25 | 19,000 |
| 3 | Thailand | 4 | 3,150 |
| 4 | Colombia | 2 | 1,747 |
| 5 | Nigeria | 2 | 1,400 |
| 6 | Guatemala | 1 | 880 |
| 7 | Papua New Guinea | 1 | 625 |
| 8 | Honduras | 1 | 600 |
| 9 | Brazil | 1 | 550 |
| 10 | Cote d'Ivoire | 1 | 515 |

*Source*: USDA

Other suppliers such as Thailand, Colombia, and Nigeria, account for about 8 per cent of the world's palm oil production. World production of palm oil in 2021 was 76,960 (1000 MT).

Indonesia has always been the largest palm oil producer, with output increasing at an annual rate of 2-3 per cent from 2018 to 2021 (Figure 1). Malaysia's palm oil production fluctuated and slightly fell between 2018 and 2021. According to Reuters (Chu, 2021), 80 per cent of the workforce in Malaysian plantations are migrant workers, most of them from Indonesia. During the epidemic, Malaysia closed its borders and stopped issuing new work visas. There has been a shortage of labor in the plantations, with about 75,000 fewer workers than needed.

**Figure 1. The output of main palm oil producing countries from 2018 to 2021**




| | Indonesia | Malaysia | Thailand | Colombia | Nigeria | Other |
|---|---|---|---|---|---|---|
| 2018 | 41500 | 20800 | 3034 | 1632 | 1130 | 6190 |
| 2019 | 42500 | 19255 | 2652 | 1529 | 1140 | 6039 |
| 2020 | 43500 | 17854 | 2963 | 1558 | 1275 | 5988 |
| 2021 | 45500 | 19000 | 3150 | 1747 | 1400 | 6163 |

*Source*: USDA

**Exports**

Indonesia and Malaysia are also the most important exporters, jointly accounting for 88 per cent of global palm oil exports. In 2021, global palm oil exports reached 46.4 million tonnes. Indonesia was the largest exporting country with 24.8 million tonnes, or 53 per cent of the total, while Malaysia shipped 16.1 million tonnes, or 35 per cent of the total (Table 2).

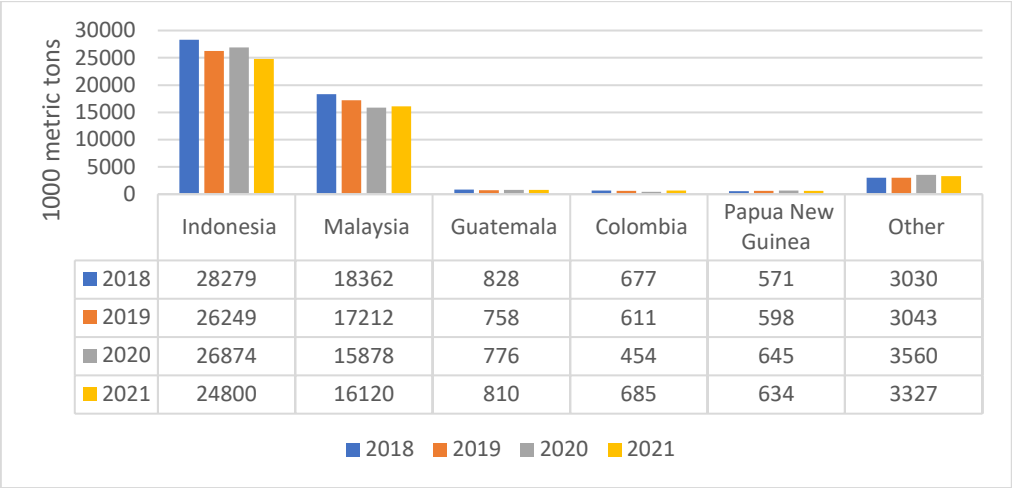
**Table 2. Top 10 palm oil export countries in 2021**

| Ranking | Country | Share of World Exports (%) | Export Volumes (1,000 MT) |
|---|---|---|---|
| 1 | Indonesia | 53 | 24,800 |
| 2 | Malaysia | 35 | 16,120 |
| 3 | Guatemala | 2 | 810 |
| 4 | Colombia | 1 | 685 |
| 5 | Papua New Guinea | 1 | 634 |
| 6 | Thailand | 1 | 620 |
| 7 | Honduras | 1 | 425 |
| 8 | other | 1 | 300 |
| 9 | Cote d'Ivoire | 0 | 230 |
| 10 | Costa Rica | 0 | 225 |

*Source*: USDA

From 2018 to 2021, affected by the logistics chaos and reduced labor force during the epidemic, the export volume of both Indonesia and Malaysia decreased (Figure 2).

**Figure 2. The export volume of main palm oil export countries from 2018 to 2021**




*Source*: USDA

**Imports**

In 2021 the world imports of palm oil were 45,017 (1,000 MT). Major importers of palm oil include India, China, the European Union, and Pakistan (Table 3). The driving force for the continuous growth of the palm oil market mainly comes from Asia, which accounts for 60 per cent of the total consumption (WWF, 2021). Note that recorded imports are slightly different from recorded exports, this can be put down to shipping delays where exports are typically measured at the exporting port but imports are measured at the importing port.

**Table 3. Top 10 palm oil importers in 2021**

| Ranking | Country | Share of World Imports (%) | Import Volumes (1,000 MT) |
|---|---|---|---|
| 1 | India | 17 | 7,800 |
| 2 | EU | 13 | 5,800 |
| 3 | China | 10 | 4,500 |
| 4 | Pakistan | 8 | 3,500 |
| 5 | United States | 4 | 1,625 |
| 6 | Bangladesh | 3 | 1,370 |
| 7 | Egypt | 3 | 1,200 |
| 8 | Philippines | 2 | 1,100 |
| 9 | Kenya | 2 | 1,080 |
| 10 | Russia | 2 | 950 |

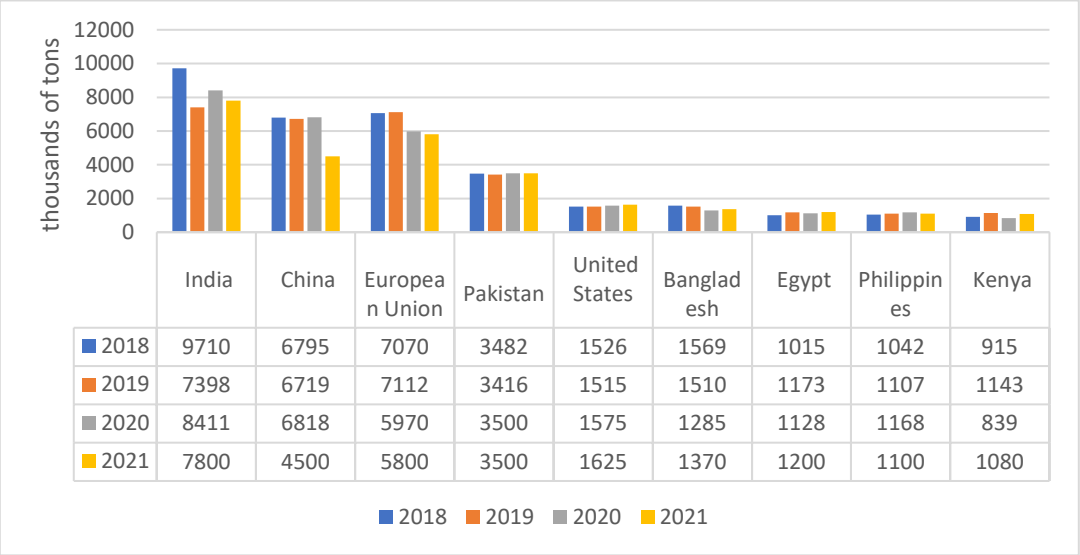
*Source*: USDA

The data in Figure 3 shows that many countries were affected by these shipping delays during 2020 and 2021. In particular, affected by China's adherence to the 'Zero Covid' epidemic policy, many regions in China were locked down in 2021, and palm oil imports declined to a certain extent.

In Europe, due to consumers' strong awareness of environmental protection, the improvement of standards and regulations, and strong promotion and campaign activities of NGOs, the proportion of

certified sustainable palm oil reached 86 per cent in 2021 (Coca, 2021). There is far less demand for certified sustainable palm oil in India, China, or Southeast Asia than in the European Union or the United States. The estimated uptake of certified palm oil as a proportion of domestic consumption is only 2-3 per cent in India, 9-10 per cent in Malaysia, 10 per cent in Singapore, 2 per cent in Indonesia, and 4-7 per cent in China (WWF, 2021). As the import volume continues to increase, more and more unsustainable palm oil flows to China, India, and Southeast Asia.

**Figure 3. Import volumes of major import countries from 2018 to 2021**




| | India | China | European Union | Pakistan | United States | Bangladesh | Egypt | Philippines | Kenya |
|---|---|---|---|---|---|---|---|---|---|
| 2018 | 9710 | 6795 | 7070 | 3482 | 1526 | 1569 | 1015 | 1042 | 915 |
| 2019 | 7398 | 6719 | 7112 | 3416 | 1515 | 1510 | 1173 | 1107 | 1143 |
| 2020 | 8411 | 6818 | 5970 | 3500 | 1575 | 1285 | 1128 | 1168 | 839 |
| 2021 | 7800 | 4500 | 5800 | 3500 | 1625 | 1370 | 1200 | 1100 | 1080 |

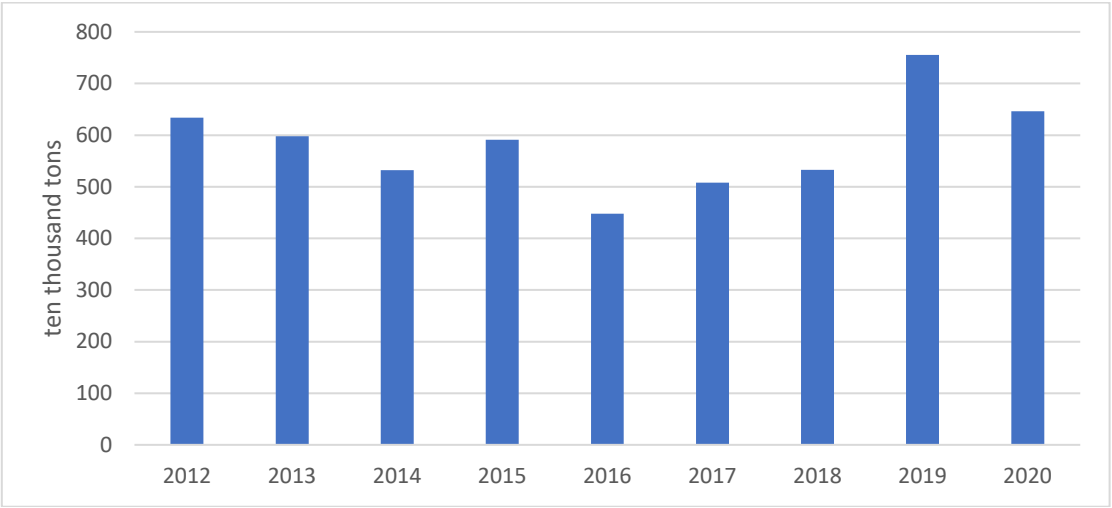
*Source*: USDA

## The Value Chain of Palm Oil in China

### Imports of palm oil into China

China totally relies on importing it's palm oil requirements. In 2020, China imported 6.82 million tonnes of palm oil, surpassing the European Union (5.97 million tonnes) (Figure 4). Most comes from Indonesia, 73 per cent, while Malaysia accounts for about 26 per cent (GACC, 2021).

**Figure 4. Import volumes of palm oil into China from 2012 to 2020**




Source: GACC

China's imported palm oil is mainly palm olein (melting point 19-24℃) (66 per cent of the total) followed by palm stearin (melting point 44-56℃) (26 per cent of the total) (Table 4). There are also smaller quantities of light crude oil (0.02 per cent), other palm oil & fractions (0.48 per cent), and shortening (7.33 per cent).

**Table 4. Palm oil import volume in China, thousand MT, 2017 to 2021**

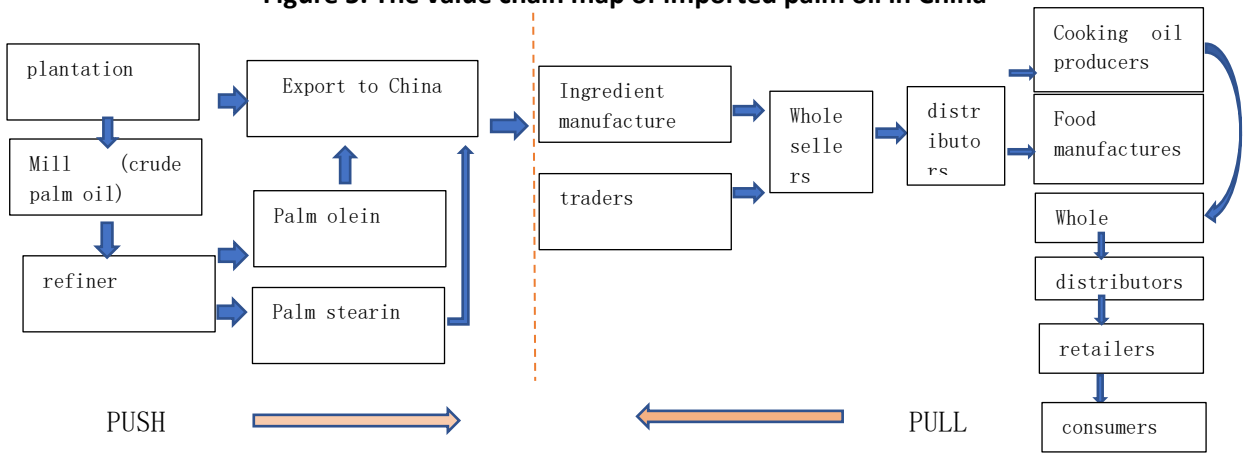
| HS code | Product name | 2017 | 2018 | 2019 | 2020 | 2021 |
|---|---|---|---|---|---|---|
| 15111000 | Crude palm oil | 0.05 | 2.31 | 49.30 | 15.67 | 0.14 |
| 15119090 | Other palm oil & fractions | 34.25 | 26.91 | 31.20 | 33.57 | 31.46 |
| 15119010 | Palm olein (melting point 19-24℃） | 3430.15 | 3542.89 | 5531.93 | 4606.68 | 4619.86 |
| 15119020 | Palm stearin (melting point 44-56℃） | 1614.11 | 1754.73 | 1939.12 | 1805.45 | 1724.84 |
| 15179010 | Shortening | 365.09 | 416.25 | 466.58 | 510.98 | 854.18 |

Source: GACC

From the above data, it is evident that imports of shortening have surged, with a substantial increase of 340 thousand tonnes in 2021, an increase of 68 per cent. This is because the Indonesian government significantly increased export duties and special taxes on palm oil in January 2021. However, shortening enjoys zero import duties under the China-ASEAN Free Trade Agreement, so Indonesian exporters do not need to pay export duties and special taxes. As a result, almost all shortenings imported into China came from Indonesia. Despite the additional processing and packaging costs involved in shortening compared to bulk palm oil, there are significant tariff advantages that offset the additional costs, resulting in a sharp increase in shortening imports in 2021 (Oilcn, 2022).

The value chain map for imported palm oil in China is shown in Figure 5.

**Figure 5. The value chain map of imported palm oil in China**



**Upstream elements of the palm oil supply chain**

Upstream products in the palm oil supply chain are highly homogenous. The selection of products in these categories is mainly based on price. Thus, there is more 'push' power in the upstream palm oil supply chain. For traders and ingredient manufacturers, their supply chain strategy would put more emphasis on efficiency rather than responsiveness.

To achieve high efficiency, they would choose locations with well-developed infrastructure and low cost of transportation which means the location should be close to the port. At the same time supporting facilities such as refining equipment, and cylinder silos as storage devices should be available.

In China, palm oil is mainly imported into three ports: Tianjin, Zhangjiagang, and Huangpu. These three ports account for 74 per cent of the total imports in 2014 (Wang et al., 2015) (Figure 6).

**Figure 6. The three major palm oil import ports in China**


Tianjin is the largest port in northern China and has a well-developed expressway network. There are large-scale palm oil refining companies in Tianjin. It is only 120 km from Beijing. The highway and railway network connects with the central provinces of Shanxi, Hebei, and Henan, and the northern provinces of Northeast China and Inner Mongolia.

Huangpu port is the largest coastal and ocean transportation hub in South China. It is located in Guangzhou which is China's most prosperous and economically dynamic city. Guangzhou is the core city of China's Pearl River Delta Economic Zone. The highway network and waterway connect Guangdong, Fujian, and Hunan provinces.

Zhangjiagang port is located in Jiangsu province quite near Shanghai, belonging to the Yangtze River Delta region, one of the most economically developed regions in China. There are a large number of

palm oil refineries in the surrounding area and the manufacturing industry is well-developed. The sales areas of these three locations cover northern, central, and southern China respectively.

From a facilities aspect, a highly centralized location would increase efficiency. The traders and the refining companies can gain economies of scale. As the products in the upstream are primarily homogenous, there is no need to invest in responsiveness. In the surrounding area of Tianjin port, the processing capacity is over 4,500 tonnes per day with a tank storage capacity is about 400,000 tonnes. In the surrounding area of Zhangjiagang port, the processing capacity is about 2,500 tonnes per day and the tank capacity is about 600,000 tonnes. In the surrounding area of Huangpu port, the processing capacity is over 3,000 tonnes per day and the tank capacity is about 400,000 tonnes (Sina finance and economics, 2007) (Table 5).

**Table 5. The key palm oil refiners in China**

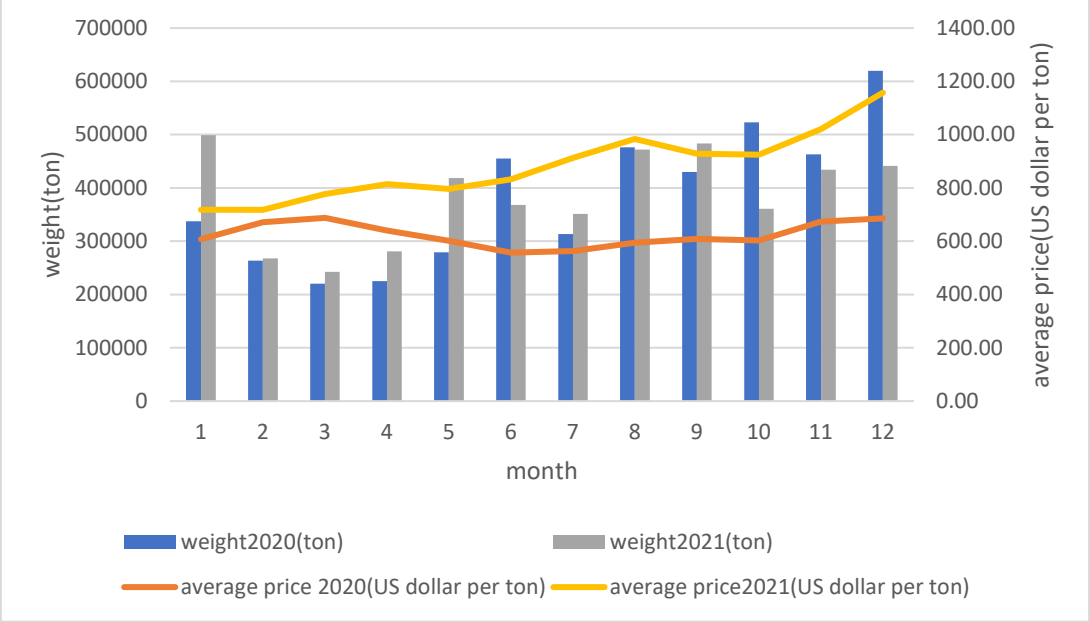
| Refiners | Refining capacity (thousand tonnes, 2019) | RSPO member |
|---|---|---|
| Wilmar-Yihai Kerry (益海嘉里) | 2000-3000 | Yes |
| COFCO Group (中粮集团) | 1200-1800 | Yes |
| Jiusan Group (九三集团) | 400-600 | No |
| Shandong Luhua (山东鲁花) | 400-600 | No |
| Jingliang (京粮控股) | 300-400 | No |

*Source*: WWF (2021)

From a transportation aspect, the sales areas of palm oil in Tianjin port are Beijing, Tianjin, most of Hebei, northern Henan, eastern Shandong, most of Shanxi, Inner Mongolia, part of the northeastern region, Gansu, and Shaanxi. Transportation is mainly by rail and road. From Shanghai's surrounding area the sales to Henan and Shaanxi are mainly through railways, and the sales to other provinces mainly rely on the Yangtze River waterway, which has an important palm oil distribution function. In Huangpu port, palm oil processing enterprises are mainly concentrated in Guangzhou-Dongguan-Shenzhen along the Pearl River estuary. The sales of palm oil in Guangdong and Fujian are mainly by waterway transportation, and the sales to other regions are mainly by railway and road transportation. From an inventory aspect, although the peak season for oil palm fruit production in Indonesia and Malaysia is in September and October, China's monthly imports are not seasonal but fluctuate due to prices (Figures 7 and 8, for palm olein and palm stearin, respectively). Affected by capacity, traders would maintain a safe inventory which is also in line with the supply chain strategy that emphasizes efficiency.

Affected by the epidemic, global trade in palm oil has been greatly reduced, and the price of palm oil rose rapidly. In 2021, the imported palm olein average price was $US882 per tonne, compared with an average price was $US624 per tonne in 2020, an increase of 41 per cent (Figure 7). In December 2021, the price even exceeded $US1100 per tonne, nearly doubling the 2020 average price of $US624 per tonne. The same thing happened with palm stearin, the average price in 2021 rose to $US1043 per tonne, up 50 per cent compared with 2020. In December 2021, the price rose to $US1275, again nearly doubling the 2020 average price of $US679 (Figure 8).

**Figure 7. Monthly import volume and the average price of imported palm olein in China in 2020 and 2021**




Source: GACC

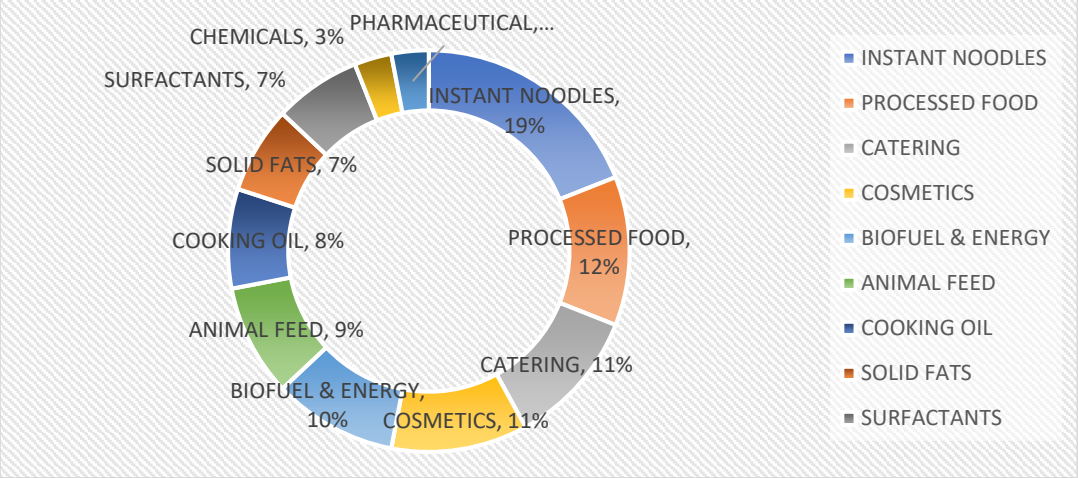
**Figure 8. Monthly import volume and the average price of imported palm stearin in China in 2020 and 2021**


Source: GACC

**Downstream elements of the palm oil value chain**

Palm oil has many different derivatives and a wide variety of different uses. In China, palm oil is mainly used in food processing, especially in instant noodles, catering, cosmetics, biofuel, and cooking oil (Figure 9).

**Figure 9. Percentage of palm oil consumption by application sector in China**

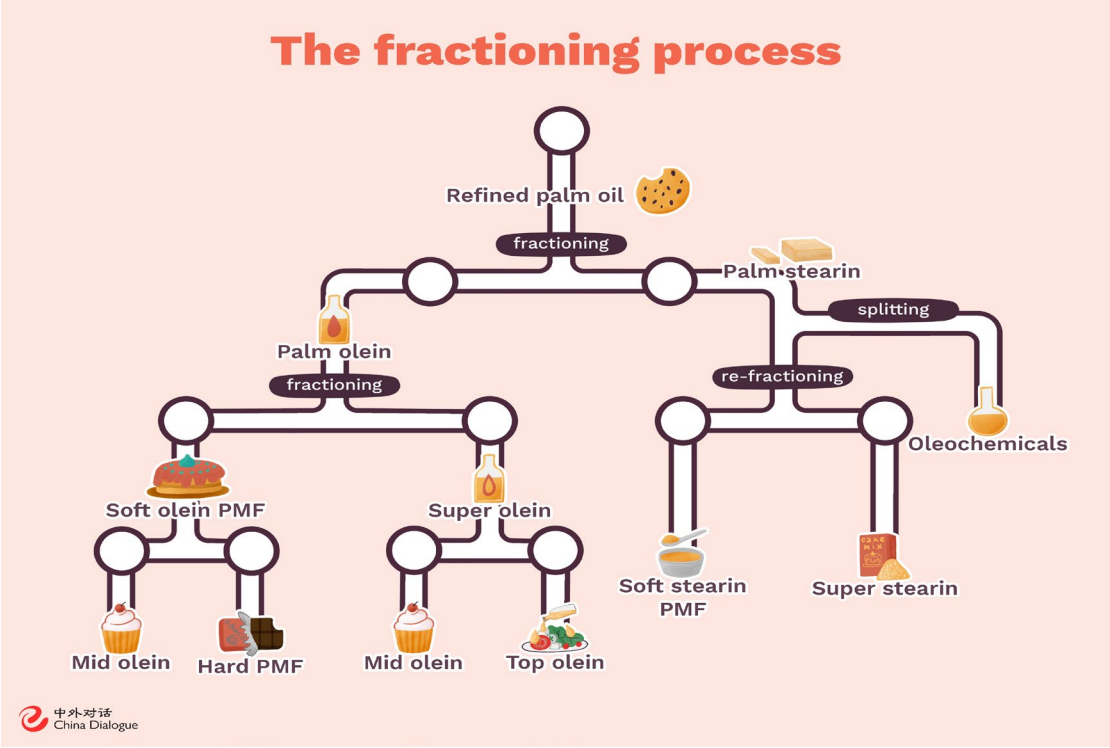



Source: WWF (2021)

In China, palm oil is blended with other kinds of vegetable oil such as rapeseed oil, sunflower seed oil, and soybean oil as cooking oil and sold in the modern retail sector. Unlabelled cooking oil sales in bulk are not allowed in China. In India, palm oil is more used as cooking oil without brand, sold in small retailers and street markets (Schleifer & Sun, 2018).

There are many derivatives of palm oil products in the downstream parts of the chain. Different palm oil derivatives have different uses (Figure 10). Therefore, there is more 'pull' power in the downstream sectors to meet the needs of different industries for palm oil derivatives with different ingredients.

**Figure 10. The fractioning process of refined palm oil**




*Source*: (Lan & Phillips, 2022)

Although palm oil is widely used in the food industry in China, the ordinary consumer is unaware of it. Palm oil has a bad reputation due to its high saturated fatty acid content. In order to avoid consumers having a negative impression of their products, food manufacturers only label palm oil as vegetable oil on most food labels. Therefore, the pulling power that ordinary consumers can exert in the downstream of palm oil supply chain is also very limited. Information is opaque to consumers.

**RSPO in China**

RSPO entered China in 2013. In 2018, RSPO launched the China Sustainable Palm Oil Alliance (CSPOA) with CFNA (China Chamber of Commerce for Import and Export of Foodstuffs, Native Produce, and Animal By-Products) and WWF (World Wildife Fund).

CFNA is a trade association with an official background which is under the supervision of the Ministry of Commerce of China. According to the CNFA website information, it has more than 5,000 members, including traders, distributors, processors, and users in the palm oil value chain.

With the rapid development of RSPO in China, the number of members has increased year by year. According to information on the RSPO website, as of May 31, 2022, there are 212 RSPO members in China, ranking seventh out of 101 countries (Table 6). But being a member of RSPO doesn't necessarily mean the palm oil that is bought and used is sustainable.

At the beginning of RSPO's entry into China, it set a development goal of no less than 10 per cent of China's total consumption of sustainable palm oil by the end of 2020, but currently, China's sustainable palm oil consumption only accounts for 6 per cent (RSPO, 2021). RSPO is still not well known in China, and sustainable palm oil is far from a public topic in China.

**Table 6. Top 10 RSPO members by country (out of 101)**

| Ranking | Country | Number of Members |
|---|---|---|
| 1 | United States | 626 |
| 2 | Germany | 491 |
| 3 | United Kingdom | 471 |
| 4 | Japan | 271 |
| 5 | Italy | 244 |
| 6 | Netherlands | 220 |
| 7 | China | 212 |
| 8 | France | 178 |
| 9 | Spain | 161 |
| 10 | Belgium | 159 |

Source: RSPO

## Constraints on the Palm Oil Value Chain in China

**Imperfect national standards**

The national food safety standard GB7718 (General Rules for Labelling of Prepackaged Foods) was published in April 2011 by the National Health Commission of China and implemented in April 2012. It is stipulated in the standard that: “As a food ingredient, vegetable oil can be labeled in one of the following two ways: First identify the specific source of vegetable oil, such as palm oil, soybean oil, sunflower seeds oil. If the vegetable oil used consists of two or more different sources, it should be labeled in descending order of added amount. Second, label it as vegetable oil or refined vegetable oil

and place it in the ingredient list according to the total added amount. If the vegetable oil used has been hydrogenated, it should be labeled as 'hydrogenated vegetable oil' or 'partially hydrogenated vegetable oil' according to the actual situation and labeled with the corresponding product standard name."

In this case, Chinese consumers may not know whether the products they eat contain palm oil because according to national standard GB7718, it is not mandatory to label the specific type of edible oil.

**Unaware consumers**

In 2018, WWF-China carried out a survey which showed that young consumers in China were willing to pay for sustainable development, and to accept product premiums brought by sustainability. But these results also showed that "Of 5,000 respondents, 46% hadn't heard of palm oil and most were unaware of its usage in everyday products." (Lan, 2021).

Since consumers are unaware of whether the products they buy or eat contain palm oil or whether the palm oil contained in these products is sustainable, traders, importers, and manufacturers have little incentive to buy sustainable palm oil. So the ordinary consumers' demand is absent for the downstream sustainable palm oil value chain.

**Concerns of food manufacturers**

Sustainable palm oil carries a premium price over regular palm oil. Food manufacturers worry about whether consumers will pay for it if they use sustainable palm oil. According to the survey results carried out by WWF-China, "Consumers were generally willing to accept a premium of 6-10% for sustainable palm oil, especially for cosmetics and personal care products." (Lan, 2021).

But for the food industry, the higher proportion of palm oil costs in the total cost, the more likely it is to fall into the "prisoner's dilemma". They are afraid and unwilling to raise prices. Taking instant noodles as an example, palm oil accounts for about 18 per cent of the total cost, and flour accounts for 30 per cent of the cost (Tan, 2022). There is only one Chinese instant noodle manufacturer among RSPO members. Until now there is no instant noodle manufacturer in China that has committed to using 100 per cent sustainable palm oil (Table 7). The price driver is not obvious in the sustainable palm oil value chain.

**High industry concentration**

Some Chinese-funded enterprises directly invest in plantations. For example, there are four companies that set up their own plantations in Indonesia: Tianjin Julong Group, ZTE (Zonergy), Shanghai Xinjiu Chemical Co. and Henan Jiujiu Chemical Co. These four companies are not members of RSPO. It has been stated that "None of the four companies has a No Deforestation, No Peat, No Exploitation (NDPE) policy in place." (Kuepper et al., 2021).

There are over 1,000 importers and traders involved in palm oil import and distribution in China (Figure 11). But judging from the situation in 2018, only 16 importers controlled 89 per cent of China's total imports, of which five importers: Yihai Kerry (21 per cent), COFCO (11 per cent), Musim Mas (8 per cent), Noble group (7 per cent) and Shengshui (6 per cent) controlled 53 per cent of total imports. The vast majority of domestic companies only participate in onshore transactions (Oilcn, 2019). The upstream sectors of the palm oil value chain are highly concentrated and integrated. Although the big players know whether their palm oil is sustainable, most of the dealers, traders, and producers are only involved in onshore transactions and neither know nor care about the source of palm oil.

**Table 7. Important Chinese food manufacturers and restaurant chains processing palm oil**

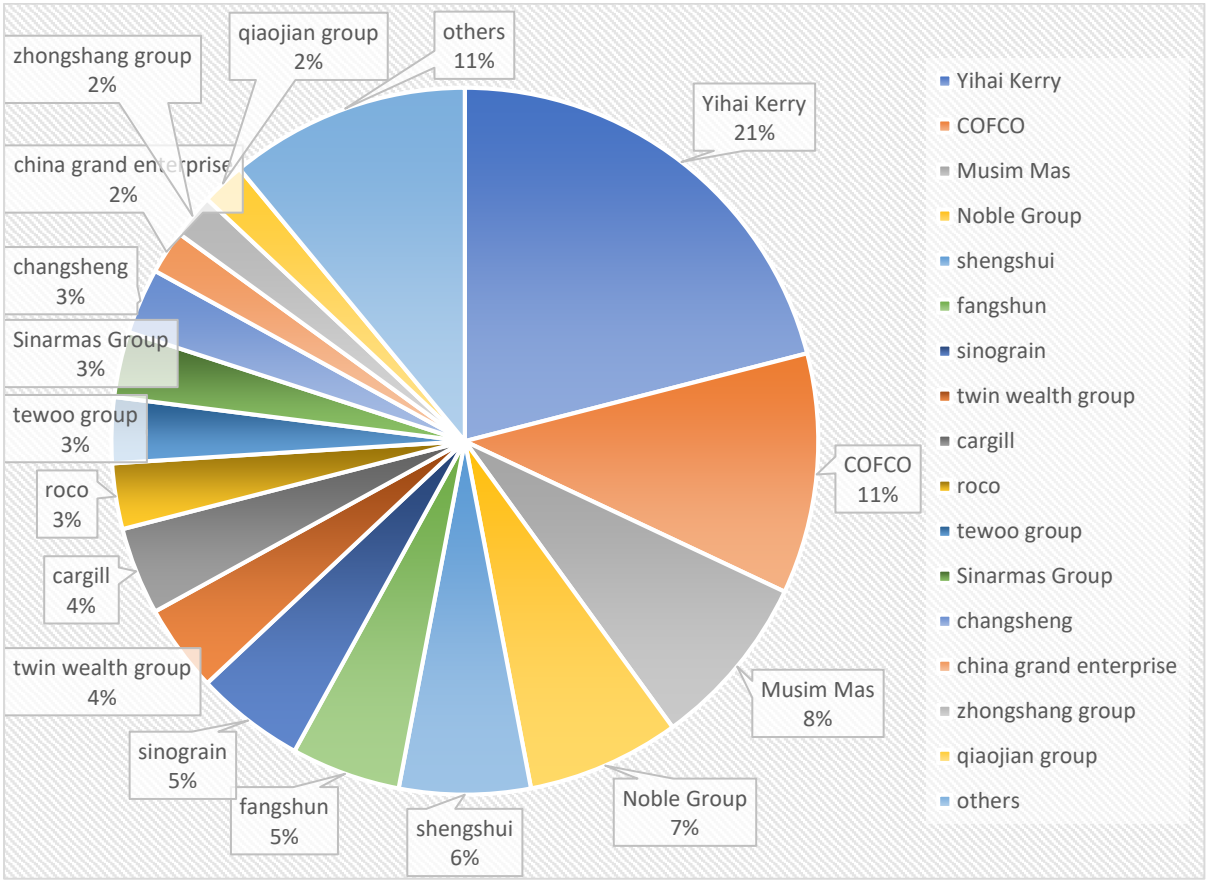
| Segment | Key Companies | RSPO member | Palm oil procurement |
|---|---|---|---|
| Instant noodles | Master Kong (Tingyi Holding, Cayman Islands) 43.3% market share | No | No information |
| | Uni-President (Tainan Group, Taiwan) 19.4% market share (2018) | No | No information |
| | Jinmailang | No | No information |
| | Baixiang | No | No information |
| Restaurant chains | Yum! China (KFC, Pizza Hut, Taco Bell, East Dawning, Little Sheep, Coffii & Joy) | Yes | 100% of 2019 purchases are covered by RSPO credits |
| | McDonald's | Yes | 2,900 tonnes RSPO certified, purchase share unknown |
| | Xiabu Xiabu (Hotpot restaurants) | No | No information |
| | Haidilao International | No | No information |
| | Ajisen (China) | No | No information |
| Processed foods | Dali Food Group | No | No information |
| | Toly Bread | No | No information |
| | Inner Mongolia Yili Industrial Group | No | No information |
| | China Mengniu Dairy | No | No information |
| | Bright Dairy | No | No information |
| | Want Want | Yes | No information |

*Source*: (Kuepper et al., 2021)

**Limited influence of NGOs**

The European Union's sustainable palm oil imports reached 86 per cent in 2019, which is inseparable from the strong leadership and promotion of NGOs（News article, 2020). China's political and social environment makes it difficult for NGOs to play a strong leading role in China.

**Figure 11. The proportion of Chinese palm oil importers' import volume in 2018**




*Source*: Oilcn (2019)

### Double standards for multinational corporations

UNDP (United Nations Development Program) China claimed that the Chinese and global supply chains of some multinational corporations are quite different (UNDP, 2020). Multinational corporations are big players not only in trading but also in manufacturing. They are members of RSPO and make a commitment to a NDPE policy. They should have set a better example, but they use different standards for the Chinese market and the global market.

## Possible Solutions

### Localize sustainable palm oil standards

None of the RSPO, MSPO or ISPO standards are localized in China. For the Chinese government, it seems impossible to directly use international standards or standards from other countries. It is suggested to localize the current sustainable palm oil standard and convert it into China's national recommended standard for promotion and use.

For example, the Forest Stewardship Council (FSC) established a set of Chinese standards in order to take root in China. FSC has developed rapidly in China. As of August 2020, the forest area that has passed FSC certification in China is 1,163,374.37 hectares. Currently there are 10,821 enterprises that have obtained FSC Chain of Custody (CoC) certification and in 2003 this number was only 44. China now has the largest number of CoC certifications and is the fastest-growing country in the world (FSC, CHINARFA, 2020). Good social and economic benefits have been achieved.

Localizing and 'Sinicizing' sustainable palm oil standards will also benefit RSPO itself. This is conducive to its development and expansion in China and enhances public influence. For Chinese consumers, they can understand and identify with the sustainable palm oil program better.

**Start with key industries and big buyers**

The shift toward sustainable palm oil use should start with key industries that consume the most palm oil and are directly targeted at ordinary consumers, such as the instant noodles industry, catering, and the edible oil industry, especially the big buyers (Table 8). The annual consumption of palm oil in the catering industry in China has reached 1.4 million tonnes (WWF, 2021), of which Yum! China was 100 per cent covered by RSPO Credits in 2019, and McDonald's purchased 2,900 RSPO certified palm oil credits. But well-known local chain restaurants such as Xiabu Xiabu (Hotpot Restaurants), Haidilao International, and Ajisen (China) are still not RSPO members (Kuepper et al., 2021) and presumably buy non-certified palm oil. A small shift in sustainable palm oil use in key industries would help.

**Table 8. Major buyers of key industries**

| Sector | RSPO buyers | Other major buyers | RSPO/CSPO Uptake (2019) |
|---|---|---|---|
| Cooking oil & fat | Yihai Kerry-Wilmar, COFCO | Luhua, Xiwang | Not available |
| Processed food | Unilever, Mondelez, Ferrero, Yum!China, Namchow, Kerry Group | Ting Hsin (Master Kong, Wei Chuan, Dicos), Uni-President, Want Want | 7% |
| Biofuel & energy | Yihai Kerry-Wilmar | Targray, Ninbo, Xinjiang International Yueda Investment, Century Longlive, Tuanguan | Not available |
| Surfactants | Unilever, Procter & Gamble, Guangdong Tsinghua Smart Biotech, Zhuhai Jenny's Choice, Yangzhou Yangfeng | Nice, Liby, Nafine | 4% |
| Cosmetics | Unilever, Procter & Gamble, L'Oréal, Kao, Shiseido, Guangzhou Shifei Bio-Tech | Jianong Chemical, Beijing Sanlu, Owlcare, Soho Aneco Chemicals | 2% |
| Pharmaceutical | IVC Nutrition, Hebei Hejia Pharmatech | Shanghai Pharma, Sinopharm, Hengrui Medicine, Fosun Pharma | 2% |
| Chemicals | Yihai Kerry-Wilmar, Solvay, Lianshui Xinyuan Biology, Jintung Petrochemicals | Sinopec, BP, Idemitsu, Nippon, Yuangen Petrochemical | 8% |
| Animal feed | Yihai Kerry-Wilmar, Cargill | East Hope, Alltech, New Hope | 2% |

*Source*: WWF (2021)

**A better development strategy for Chinese enterprise**

China is the world's second-largest importer of palm oil. Chinese companies face increased deforestation risks associated with the palm oil industry chain. The specific type of edible oil should be marked to the standards of developed countries such as the European Union (No 1169/2011) and the United States (21CFR 101.4). Global consumers are increasingly concerned about sustainable development and environmental protection and prefer sustainable and ethical products.

Both consumer preferences and global market needs have to be taken into account when Chinese enterprises formulate their development strategies. It is necessary to take precautions to continuously increase the procurement and use of sustainable palm oil for Chinese producers. Otherwise, there is a high risk that Chinese products might be boycotted by foreign consumers or forced out of international supply chains.

Moreover, according to survey evidence, certified sustainable palm oil does carry a certain premium price. For example, "As a rough estimate, certified sustainable palm oil cost at around $30-50 per ton (around 4-7 per cent) higher than conventional palm oil." (Lan, 2021). Therefore, the impact of the price increase caused by the use of sustainable palm oil is limited. More generally, commodity analysts have stated "if the company were to spend money on a best-in-class process in palm oil policy execution, due diligence and verification, the price of Procter & Gamble's Head and Shoulders shampoo would have to increase by only 0.12% to cover the costs." (Zhang, 2021). The investment in sustainable palm oil is quite worthwhile relative to the company's own image and brand value.

**Multinational corporations should be more responsible**

Multinational companies should not treat Chinese consumers differently and use double standards. If the products they sell in the European market are made with sustainable palm oil, the products they sell in the Chinese market should also be made with sustainable palm oil. The certification logo of sustainable palm oil can be prominently displayed on their products, which can not only establish the corporate image of being socially and environmentally responsible but also bring sustainable palm oil to the attention of Chinese consumers.

**The Chinese government should be more proactive**

As a rapidly emerging country, China is playing an increasingly important role in promoting sustainable development. The Chinese government is currently promoting the Belt and Road Initiative and green and sustainable development. Promoting the use of sustainable palm oil is also in line with the Chinese government's green and sustainable development initiatives.

Instead of a western-style liberal market economy, the Chinese government has a strong power in shaping the market environment through its industrial policy, particularly in the food and agriculture sector (Schleifer & Sun, 2018). A similar view is expressed in a recent UNDA (2020) report. It emphasizes that policy signals to support sustainable production and development should come from the highest levels of government, and it should cover not just palm oil but all natural resources.

China is a major consumer of palm oil, and some large palm oil refiners and importers such as COFCO Group, JIUSAN Group, and Jingliang are all state-owned enterprises. China has an advantage in promoting sustainable palm oil use that some other countries do not have. If the Chinese government can work more proactively and voluntarily to increase the publicity of sustainable palm oil, the proportion of sustainable palm oil consumption will rise steadily.

## Conclusion

The imported palm oil value chain in China is very important in terms of economic value, social value, and ecological value. The constraints on this value chain are also obvious. The reasons include imperfect national standards, unawareness by Chinese consumers, processors' concern about having to charge premium prices, high concentration upstream in the value chain, and the double standards of multinational corporations towards Chinese consumers. Therefore, feasible solutions should also start from the above-mentioned aspects, including the localization of sustainable palm oil standards, the key stakeholders should take a leading role in industry transformation, the Chinese government should play a better role in policy guidance, and multinational companies should eliminate the double standards.

Of course, the sustainable palm oil value chain is not just about RSPO certification, but all participants along this value chain should grow, produce, sell and use the palm oil in a responsible and sustainable manner, and take the No Deforestation, No Peat, No Exploitation (NDPE) policy as the minimum standard.

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