



# China's Oils and Fats Market:

## Issues and Opportunities for Palm Oil

CHINA has experienced 30 years of significant growth since 1979, with the value of its national economy rising by 7,351% over this period, from RMB450 billion (RM1 = RMB2.14) in 1980 to RMB33.53 trillion in 2009.

The country's average GDP growth rate has been 9.73% a year for 10 years up to 2004 and over 10% in the past 5 years. The per capita GDP has also soared, increasing by 6,072% from 463 yuan in 1980 to 28,577 yuan in 2009.

At the same time, China's population further increased, by 136% from 987.05 million people in 1980 to 1.34 billion in 2009. This growth accelerated urbanisation, which in turn drove up all forms of consumption, including that of edible oils.

**Table 1: Per Capita Edible Oil Consumption (kg/per person)**

	2001	2002	2003	2004	2005	2006	2007	2008	2009
<b>Urban Residents</b>	8.1	8.5	9.2	9.3	9.3	9.4	9.6	10.3	10.5
<b>Rural Residents</b>	7	7.5	6.3	5.3	6	5.8	6	6.2	6.5

### Oils & Fats Scenario

As the world's largest vegetable oil consumer, China accounts for 22.8% of the global consumption, which came up to 22.69 million MT in 2007.

**Table 2: Three Major Oils Consumed Across the World (million MT)**

	Soybean Oil	Palm Oil	Rapeseed Oil	Total	SO/Total	PO/Total	RO/Total
<b>05/06</b>	33.57	34.97	16.93	115.55	29.05%	30.26%	14.65%
<b>06/07</b>	35.69	37.06	17.46	120.92	29.52%	30.65%	14.44%
<b>07/08</b>	37.63	39.42	18.4	125.45	30.00%	31.42%	14.67%
<b>08/09</b>	35.68	41.65	19.92	129.32	27.59%	32.21%	15.40%
<b>09/10</b>	37.48	44.28	21.46	135.47	27.67%	32.69%	15.84%

Source: USDA



**Table 3: Vegetable Oil Consumption and Its Growth Rate in China (million MT)**

1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
12.11	13.52	14.54	17.56	19.03	20.38	21.51	22.47	23.24	24.32
	11.65%	7.55%	20.73%	8.39%	7.88%	4.78%	4.44%	3.43%	4.68%

Source: epansun.com

China's annual growth rate of vegetable oil production exceeded 10% from 2001 to 2010. The imports of three major oils and fats by China reached 9.3 million MT in 2009, up 1.16 million MT or 14.2% over 2008. Of the imports, palm oil enjoyed an enviable market share of 69.3%, followed by soybean oil at 25.73% and rapeseed oil, 4.98%.

### Soybean Oil Scenario

Nevertheless, soybean oil leads the edible oils in consumption, dominating the proportion of more than 85% of the total edible oils consumed.

**Table 4: Domestic Oils and Fats Consumption in 2009-10**

Soybean Oil	Palm Oil	Rapeseed Oil	Others
39.45%	24.20%	19.59%	16.75%

Source: epansun.com

Soybean oil consumption by the food industry increased 251% from 2.45 million MT in 1996/97 to 8.6 million MT in 2008-09. In the other sectors, such as industrial and pharmaceutical sectors, soybean oil accounted for 10-15% of total edible oil use. However, the rise in use was only 175% over 12 years, from 400,000 MT in 1996/97 to 1.1 million MT in 2008/09. The annual growth rate of soybean production in China has been 0.55% over the last 10 years.

**Table 5: Soybean Oil Production (million MT)**

1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
2.48	3.24	3.30	4.34	4.35	5.77	6.38	6.28	6.92	7.12	8.00

**Table 6: Soybean Oil Imports (million MT)**

1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
0.68	0.36	0.37	1.71	2.73	1.73	1.52	2.40	2.73	2.49	2.45

### Rapeseed oil Scenario

This oil is mainly used for household cooking and in the food and catering sectors. The household demand for rapeseed oil accounted for 99% of the consumption of this oil from the 1960s to the 1980s. Demand by the catering and food processing sectors increased from 36,100 MT in 1980s to 724,800 MT in 1990s, taking up 24.87% of total rapeseed oil consumption.

The 21<sup>st</sup> Century is seeing the proportion of household demand for rapeseed oil dropping to around 60% while the use by the catering and food sector has increased to about 40%.

**Table 7: Consumption Patten of the Rapeseed Oil Market in China**

Times	Annual Consumption (‘0000 MT)	Household		Other	
		(‘0000 MT)	(%)	(‘0000 MT)	(%)
1960s	22.08	22.06	99.91%	0.02	0.08%
1970s	42.32	42.27	99.87%	0.06	0.13%
1980s	150.17	149.81	99.76%	0.61	0.24%
1990s	291.43	218.94	75.13%	72.48	24.87%
2000s	394.40	225.15	57.09%	169.25	42.91%

Source: [www.fao.org](http://www.fao.org)

**Table 8: Rapeseed Oil Production (mln MT)**

1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
4.915	4.73	4.18	3.66	4.05	4.51	4.11	4.17	3.78	4.50	4.50

**Table 9: Rapeseed Oil Imports ( ‘0000 MT)**

1999/00	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
6.2	7.8	4.1	20.0	32.9	20.9	25.0	27.0	36.0	45.3	65.0

As the largest vegetable oil consumer in the world, China's palm oil usage accounts for more than 15% of the total global consumption. The country imported 6.441 million MT of palm oil in 2009, up 22% over the previous year's figure and hitting the record high for the past decade.

**Table 10: China's Palm Oil Consumption, 2000-09 (million MT)**

2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
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2.028	2.015	3.099	3.57	4.318	4.974	5.138	5.222	5.618	6.33
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**Table 11: Global Vegetable Oil Consumption, 2008-09**

Palm Oil	Soybean Oil	Rapeseed Oil	Sunflower Oil	Palm Kernel Oil	Groundnut Oil	Cottonseed Oil	Coconut Oil	Olive Oil
32.2%	27.6%	15.4%	8.4%	4.1%	3.8%	3.7%	2.6%	2.3%

Source: epansun.com

**Table 12: Palm Oil Imports from 2001-2009 (million MT)**

2001	2002	2003	2004	2005	2006	2007	2008	2009
1.517	2.221	3.325	3.857	4.33	5.141	5.097	5.283	6.442

Source: General Administration of Customs, China

Malaysia and Indonesia, the two traditional palm oil exporters to China, accounted for 97% of China's total imports, with Malaysia's market share being 60.91% and Indonesia's, 38.9%.

**Table 13: Palm Oil Market Share of Malaysia and Indonesia ( '000 MT)**

Country	2001	2002	2003	2004	2005	2006	2007	2008	2009
Malaysia	1,149	1,698	2,432	2,692	2,941	3,433	3,612	3,558	3,924
Indonesia	351	502	876	1,148	1,381	1,633	1,401	1,683	2,506
Others	17	21	17	17	8	75	84	40	12
<b>Total</b>	<b>1,517</b>	<b>2,221</b>	<b>3,325</b>	<b>3,857</b>	<b>4,330</b>	<b>5,141</b>	<b>5,097</b>	<b>5,282</b>	<b>6,442</b>

Source: General Administration of Customs, China

**Table 14: Palm oil Consumption by the Food Sector (million MT)**

Year	Palm Oil Consumption	Palm Oil in Food Sector
2000	2.028	1.42
2001	2.02	1.49
2002	3.10	2.29
2003	3.57	2.64
2004	4.31	3.20
2005	4.97	3.68
2006	5.14	3.80
2007	5.22	4.18
2008	5.62	4.50
2009	6.33	5.06

Palm oil is widely used by the food and non-food sectors. The production of instant noodles takes up 20% of China's palm oil usage, while it is 33% for the food processing and catering sector (including bakery, confectionery, chocolate, ice cream); 22% for



household cooking use; 16% for soaps and 6% for oleochemicals.

### **Traditional Sectors: Key Food Industries**

China has witnessed a surging increase in palm oil imports with the growing domestic demand for vegetable oils. Palm oil has benefited the most in the Chinese people's growing demand, becoming the fourth largest vegetable oil consumed in 2001, and moving on to become the second largest consumed in 2009, after soybean oil.

Consumption of palm oil, which was a mere 16,000 MT in 1980, skyrocketed to 6.33 million MT in 2009, with some 5.064 million MT, or 80% of the total palm oil consumption in 2009, used in the food sector. Of this, over 2 million MT of palm oil is consumed as cooking oil every year.

**Table 15: Palm Oil Usage for Instant Noodle Production (million MT)**

2002	2003	2004	2005	2006	2007	2008	2009
0.39	0.51	0.60	0.71	0.93	1.10	1.08	1.24

Palm oil is also diversely applied in the other food industries, especially in bakeries, as an important raw material for shortening, margarine, as cocoa butter substitute, as ice cream fat, in confectioneries and for frying snack foods. Its application in these sectors allows packaged food items to have a longer shelf life, a good appearance and to remain crisp and flavourful.

The Compound Average Growth Rate (CAGR) of the bakery sector is 29.3%. Available statistics show that there are more than 10,000 enterprises involved in the production of biscuits, bread, cakes, snack foods and moon cakes which, with an output value of 200 billion yuan, are a main force in China's food industry.

The biscuits segment plays a leading role in China's bakery sector, using up more than 384,000 MT of palm oil every year. For confectionery and chocolate manufacturing, palm oil and palm kernel oil are the key ingredients in this segment, which has been seeing an average growth rate of over 20% in recent years. Ice cream, candy and other products consume over 302,000 MT of palm oil every year.

## Issues in the Palm Oil Industry in China

### Product Classification (HS Code)

There are discrepancies in the Chinese Customs HS Code allocation for oleochemical downstream products. One example is the tariff issue for Medium Chain Triglyceride or Caprylic/Capric Triglyceride (MCT), which was brought up by the Shanghai Customs in October 2009. Derived from the reaction of caprylic acid (C8)/capric acid (C10) in palm kernel oil with glycerine, MCT has wide applications in various sectors, including the confectionery, baking, lubricant, fragrance and flavour and the health drink sectors.

The HS Code for MCT should be categorised as 2915. However, the Shanghai Customs categorises it as 1516 or 3824. The 1516 refers to vegetable fats and oils as raw materials and fractions thereof as well as re-esterified fats and oils and fractions thereof. The HS Code 3824 is suitable for prepared binders for foundry moulds or cores; chemical products and preparations of chemical or allied industries (including those consisting of mixtures of natural products) not elsewhere specified or included.

On the other hand, the HS code in other countries is categorised as 2915, including the nations of Europe, the US, India and Korea. The controversy over the HS code allocation has resulted in trade difficulties for MCT. MPOC has presented an explanation on the origin and production process of MCT to the Chinese Customs in order to smooth its clearance and resume the trade in MCT.

Another Customs issue concerns stearic acid. Palm stearic acid has been imported under the China-ASEAN FTA (CAFTA) Early Harvest Programme. It is traditionally imported under HS Code 3823.1100, which has a 0% import duty imposed as industrial stearic acid. Stearic Acid is C18 carbon chain organic acid and is classified into pure stearic acid and industrial stearic acid.

In the oleochemical industry, content with more than 90% C18 stearic acid is classified as stearic acid with HS code 2915.7010, which has been subjected to a 5% tariff since 2008. Pure palmitic acid will have fatty acid with more than 90% of C16 (palmitic) and it is classified as pure palmitic acid, coming under HS code 2915.7090 and since 2008 subjected to a 5% import tariff. Palm stearic acid or stearic acid derived from animal fats is a mixture normally of stearic acid and palmitic acid, which is classified as industrial stearic acid under HS 3823.1100. Under the ASEAN Early Harvest Programme, this has been subjected to 0% duty since.

### **Image of Malaysian Palm Oil in China**

Palm oil has been perceived, in China in general, as cheap and inferior oil. The cheap, unhealthy and saturated fat image given palm oil has also caused it to be quite widely used to adulterate the other more expensive oils in China. In this context, the Hainan case gave palm oil a bad image in the catering sector. Checks on edible palm oil used in the catering market revealed that the products were rancid, without a legitimate label and that these were also widely used in plenty of canteens, school cafeterias and other food outlets in Haikou in the Hainan province. The haphazard and poor blending as well as improper handling and application of palm oil gave rise to its negative perception and poor image in China.

As a result of this, the local government issued an *Administrative Measures on Edible Palm Oil in Hainan Province* on Sept 23, 2008, three months after the use of rancid palm oil without any legitimate label was discovered. The move has brought standardisation to palm oil processing, distribution, catering hygiene and supervision, as well as ensuring that the packaging and labelling are legitimate. The Hainan incident sounded alarm bells about palm oil in the other parts of China and it was discovered that the problem exists in the other regions as well.

### **Opportunities for Malaysian Palm Oil in China**

In spite of the challenges, the increased use of palm oil in blending has been embraced by some favourable factors. The improvement of fractionation capacity has made palm oil available during different seasons of a year, with different melting points and enabling a wider range for its application in various industries (Table16).

The improving standard of living in China has stimulated a growing demand for quality and healthy edible oil. Palm oil is widely used as the base oil for blending with other oils as it is able to produce well-balanced cooking oils. Blended palm oil is able to achieve a perfect nutrition balance for the people, in an ideal proportion in line with the suggestion made by WHO.

Against this backdrop, the palm oil blending programme is seeing a great opportunity to promote its nutritional goodness and price competitiveness (Table17). Blending, with proper processing, packaging and labelling, will put palm oil in a better perspective and help to promote it to the catering and household sectors.

**Table 16: Palm Oil Fractionation Capacity in China**

Region	Fractionation Capacity (MT/per day)	% of Total
North China	4,700	17.4%
East China	7,350	27.2%
Central China	600	2.2%
South China	13,040	48.2%
Shandong Province	1,350	5%

**Table 17: Nutritional Balance of Palm Blends**

Edible Oils	SFA : MUFA : PUFA
Soybean Oil	1: 1.6: 4.1
Rapeseed Oil	1: 9.9: 4.3
Palm Olein	4.4: 4.2: 1
Soybean Oil: IPalm Olein (50: 50)	1: 1.1: 1.2
Soybean Oil: Palm Olein (30: 70)	1.4: 1.5: 1
Rapeseed Oil: Palm Olein (50: 50)	1.4: 2.8: 1

### Opportunities in Other Sectors

MPOC's biennial oleochemical seminars in China have increased the presence of Malaysian palm oil in many potential oleochemical industries and helped to establish a close rapport with related sectors, such as the printing ink and bio-lubricant sectors.

### Printing Ink Sector

The printing ink sector is enjoying a growth that is even faster than that of China's GDP, with production in 2007 touching 390,000 MT. The soaring crude oil price and growing calls for environmental protection and the use of renewable resources has brought about wider use of vegetable oils in place of industrial oils as the raw material for printing ink production.

China's printing ink manufacturers hardly have sufficient knowledge about the trade, production and availability of palm oil products. Following the oleochemical seminars, MPOC has been invited to introduce palm oil to the printing ink sector. This has aroused great interest in the use of palm olein by the printing ink manufacturers. Endeavours will be made to promote and keep in contact with the sector in order to be abreast with the latest developments. Some of the industry members are keen to use palm oil or its blends



for printing ink in place of soybean oil and rapeseed oil.

### Bio-lubricant Sector

The vegetable oil-based bio-lubricant sector is booming around the world in response to pressure for environmental protection and sustainable development. According to *China Chemical Newspaper*, the global lubricant consumption has reached 35-40 million MT. In Europe, many countries have regulations allowing only biodegradable bio-lubricant to be used in certain areas.

At present, bio-lubricants account for 15% of the lubricant market in Europe, with an annual growth rate of 2-3%. Rapeseed oil and soybean oil are used as the base oil or raw material in bio-lubricants in Europe and the US. There are a few studies and research on the application of palm oil in bio-lubricant production, which is being stimulated to greater growth in China as a result of its rapid economic growth. Lubricant production in China, at more than 6 million MT a year, accounts for 15% of the world's production. Yet China's bio-lubricant sector is still in its preliminary stage. Palm-based lubricants have recognised advantages in terms of the stability of oxidation and as potent anti-oxidants.

**Table 18: Performance of Various Vegetable Oils in Lubricants**

	Kinematic Viscosity @40°C	Kinematic Viscosity @100°C	Viscosity Index	Pour Point°C
High Viscosity Neutral Oil (HVIS)	31.46	5.30	98	-12
Rapeseed Oil- Low Erucic Acid	34.67	8.42	233	-19
Sunflower Oil	31.52	6.13	146	-16
Soybean Oil	28.90	7.6	246	-9
Castor oil	252.0	19.67	89	-29
Palm Oil	39.7	8.2	188	(20)

Source: Ilija Gawrilow, "Palm Oil Usage in Lubricants", presented at 3<sup>rd</sup> Global Oils and Fats Business Forum USA, Oct 8, 2003

### **Palm Kernel Expeller**

China's increasing population and improving living conditions have brought a parallel growth in the consumption of livestock products such as meat, dairy products and grain meal as livestock feed. The growing demand for raw materials for the feed industry provides a good opportunity for palm kernel cake, which is regarded as a ideal raw material in feed formulations for dairy cows, cattle, sheep, poultry and grass carp.

A series of field trails have been carried out locally on the effect of adding different amounts of palm kernel cake to the daily diet of ruminants, poultry and aquaculture species. Feed millers/users are instructed on the proper feeding formulation as they can help to reduce production costs and improve the performance of the animals.

The promotion of palm kernel cake in Inner Mongolia in 2007 and Shenyang in 2009 provided users with practical knowledge in the correct use of PKC in feed materials and has resulted in over 80,000 MT of imports in northeast China, including Inner Mongolia. Further efforts will be made to meet with new animal feed producers and suppliers in South China to promote PKC use in animal feed.

**Table 19: China Palm Kernel Cake Imports ('000 MT)**

2005	2006	2007	2008	2009
1.2	1.3	0.1	11.7	289