Global Oils and Fats Business:

CHALLENGES in the NEW MILLENNIUM

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ABSTRACT

This paper outlines the world oils and fats supply and demand situation focusing on production and disappearance, which is forecast to grow by 2.3% per annum respectively by the year 2020. Amidst this scenario of continued growth, the oils and fats industry is expected to encounter various challenges, namely resource constraints, lower productivity (yield), rising cost of production, impediments to market access arising from agricultural and export subsidies. In addition, in the effort to maintain continued market growth and increased market share, the oils and fats industry would have to intensify new product development and venture vigorously into more value-added products. Apart from this, the growing health concerns of consumers and how they have dictated food legislation/regulations will also be elucidated. Issues of concern in this category include the formation of trans*-fatty acids arising from hydrogenation. Increasing pressure exerted by non-governmental organizations (*third sector*) will also be highlighted with respect to food standard formulations and environmental protection based on ecological balance. Finally, the paper advocates the need for closer co-operation amongst both producers and exporters of oils and fats so that benefits are mutually reaped.*

WORLD OILS AND FATS STRUCTURE

The world oils and fats structure has indeed undergone major changes in the last four decades. According to a study by Gunstone (Inform, 2000), vegetable oils have displaced animal fats as the major source of oils and fats and secondly, palm oil has witnessed a meteoric rise in the ranking as shown in *Table 1*.

Butter, tallow and lard which were ranked first, second and fourth respectively have dropped to seventh, fifth and sixth positions over the review period. The share of animal fats has declined from 37% of total oils and fats production to only 19%, thus maintaining vegetable oils as the dominant category. Palm oil, which was ranked tenth has moved up to second place.

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TABLE 1. AVERAGE ANNUAL PRODUCTION OF THE MAJOR COMMODITY OILS AND FATS IN THE FIVE-YEAR PERIODS 1958 - 1962 AND 1996 - 2000

	1958 - 1962		1996 - 2000	
	Rank order	Million tonnes	Rank order	Million tonnes
Total		29.16		103.45
Butter	1	4.21	7	5.75
Tallow	2	3.39	5	7.65
Soyabean	3	3.20	1	22.84
Lard	4	3.19	6	6.21
Groundnut	5	2.65	8	4.62
Cottonseed	6	2.26	9	4.00
Sunflower	7	1.90	4	9.14
Coconut	8	1.85	10	3.10
Olive	9	1.30	11	2.42
Palm	10	1.26	2	17.93
Rapeseed	11	1.13	3	12.56
Linseed	12	0.92	12	0.73

Source: Gunstone (Inform, 2000).

The increasing role played by vegetable oils is further confirmed by the production statistics for the period 1980 - 2000 (*Tables 2* and *3*). World oils and fats production grew by 3.4% per annum (p.a) during the period 1980 - 1990 and 3.6% for 1991-2000, attributed mainly to the expansion in oil palm and oilseeds planted area. Production of palm oil in particular rose by 7.2% p.a. to reach 21.7 million tonnes for the period 1991 - 2000, whilst soyabean oil registered a growth of 4.8% to 25.5 million tonnes for the same period.

The increasing supply availability of oils and fats contributed to a subsequent increase in world exports. In this respect, palm oil again featured prominently as the largest traded oil, accounting for 42.0% of world exports, followed by soyabean oil (18.9%), sunflower oil (8.1%) and rapeseed oil (5.2%).

World palm oil exports showed a steady growth at 6.5% and 6.8% p.a. during the periods 1980 - 1990 and 1991 - 2000 respectively, whilst in terms of market share, it grew from 30.5% in 1980 to 42.0% in 2000. Exports of soyabean oil, on the other hand, grew by 9.3% p.a. in 1991 - 2000 compared to 3.0% p.a. for the period 1980 - 1990. Its market share rose from 17.6% in 1980 to 18.9% in 2000. However, exports of sunflower oil declined to 4.8% p.a. compared to 9.9% p.a. in 1980 - 1990. Likewise, rapeseed oil saw a decline in exports to 2.9% in 1991 - 2000 compared to 14.0% in 1980 - 1990 (*Table 2*).

World disappearance of oils and fats continued its upward trend during the last two decades, rising by 3.8% p.a. in the 1980s and 3.3% in the 1990s. Nevertheless, oils and fats disappearance continued to lag behind that of world output during 1990s. Amongst the 17 oils and fats, soyabean oil continued to be the major oil consumed, accounting for 22.0% in 2000. This was followed by palm oil (19.3%) and rapeseed oil (12.5 %) (*Table 2*).

World oils and fats production is forecast to grow by 2.7% p.a. to 194.4 million tonnes by the year 2020. Out of this total, palm oil is expected to account for 25.4%, followed by soyabean oil 21.3% and rapeseed oil 12.9% (*Table 3*).

With regards to world exports, it is projected to increase by 3.4% p.a. amounting to 70.5 million tonnes by the year 2020. Palm oil is expected to remain as the leading oil exported, accounting for 51.2% of total exports. World oils and fats disappearance is also expected to follow suit rising annually by 2.6% to reach 193.5 million tonnes by the year 2020. This increase is primarily due to population growth at the rate of 2.1% p.a and rising per capita income, especially in developing countries.

Both palm oil and soyabean oil will continue to play a significant role in all three categories, wherein any fundamental changes in the supply and demand of these two oils will have a significant impact on the overall world oils and fats structure. It is to be noted that beginning 2010, palm oil is expected to supersede soyabean oil as the number one oil in terms of world production and consumption (*Table 3*).

Amidst this scenario of forecast continued growth, the oils and fats industry is expected to encounter various challenges in the global oils and fats market.

CHALLENGES AHEAD FOR THE OILS AND FATS INDUSTRY

Competitive Index

The MPOB has developed a world competitive index for the four major vegetable oils, namely, palm oil (Malaysia and Indonesia), soyabean oil (USA, Brazil and Argentina), rapeseed oil [European Union (EU) and Canada] and sunflower oil (Argentina and USA). This competitive index is based on 10 attributes, which are considered reflective of the competitiveness of oils and fats, namely, price, image, supply assurance, quality, functionality, customer support services, cost of production, yield, R&D and subsidy. The outcome of the competitive index developed by MPOB

is as shown in *Figure 1*.

Among the four major oils, palm oil is the most competitive oil, with an average competitive index of 79.44%, followed by rapeseed oil 58.69%, soyabean oil 56.74% and sunflower oil 54.14%. Within the palm oil category, Malaysia enjoys a slight edge over Indonesia in terms of its competitiveness.

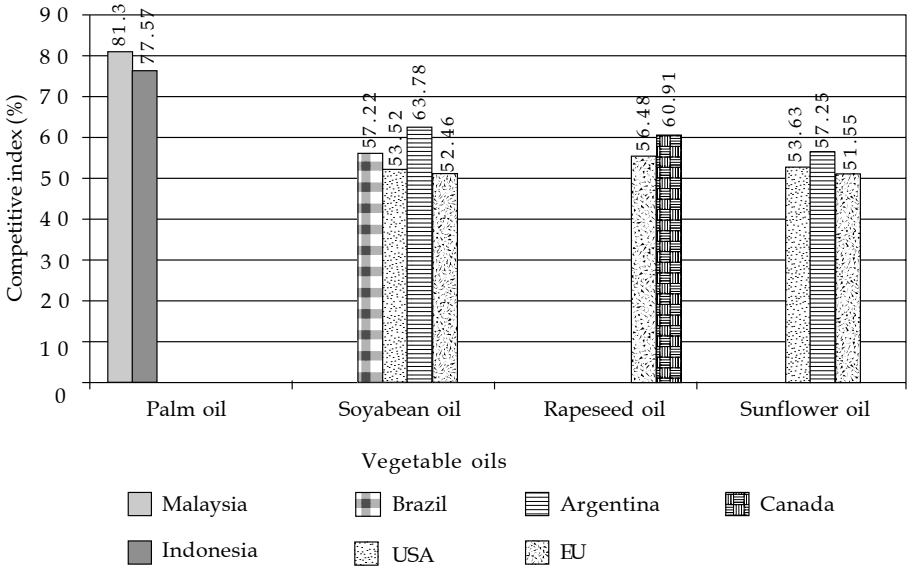

Figure 1. Competitive index of world vegetable oils (%).

Resource Constraint

To increase the production of oils and fats by 68 million tonnes over the next 20 years to meet the rising demand for oils and fats will certainly require the marshalling of resources such as land, labour and capital. Although the world witnessed a production increase of more than 51 million tonnes in the last 20 years, it is going to be more difficult to achieve the same feat in the coming years because of the changing paradigm in resource allocation in most countries. In the case of land, it poses the challenge of ensuring land availability for the cultivation of oil-bearing crops. In this respect, it is an established fact that in most countries the existing arable land is limited and new areas will have to be increasingly opened up for agriculture, thus competing with other industries such as manu-

TABLE 2. WORLD OILS AND FATS PRODUCTION, EXPORTS AND DISAPPEARANCE, 1980 - 2000 ('000 t)

	1980	1990	2000	% Average growth p.a. 1980/90	% Average growth p.a. 1991/00
World Production of 17 Oils/Fats	58 040	80 767	114 393	3.4	3.6
Palm oil	4 587	11 027	21 730	9.4	7.2
Soyabean oil	13 423	16 143	25 482	1.9	4.8
Sunflower oil	4 980	7 804	9 630	4.8	2.4
Rapeseed oil	3 476	8 176	14 237	9.1	5.8
Animal fats*	16 783	18 799	21 072	1.2	1.2
World Exports of 17 Oils/Fats	15 055	22 862	35 718	4.3	4.8
Palm oil	4 587	8 195	15 004	6.5	6.8
Soyabean oil	2 645	3 202	6 734	3.0	9.3
Sunflower oil	889	2 136	2 892	9.9	4.8
Rapeseed oil	480	1 588	1 816	14.0	2.9
Animal fats*	3 341	2 919	3 097	1.1	0.8
World Disappearance of 17 Oils/Fats	56 778	82 359	113 934	3.8	3.3
Palm oil	4 425	11 045	21 971	9.7	7.2
Soyabean oil	12 768	16 130	25 097	2.4	4.6
Sunflower oil	4 940	7 792	9 358	4.7	2.1
Rapeseed oil	3 427	8 144	14 261	9.2	5.8
Animal fats*	16 709	20 258	20 969	2.0	0.4

Note: *animal fats including butter, tallow and lard.
Sources: MPOB (2000) and Oil World Annual (1992–2000).

TABLE 3. WORLD OILS AND FATS PRODUCTION, EXPORTS AND DISAPPEARANCE' 2000 - 2020 (>000 t)

Oils and fats	Production				Exports				Disappearance			
	2000	2010 (f)	2020 (f)	% Average growth p.a. 2000-2020	2000	2010 (f)	2020 (f)	% Average growth p.a. 2000-2020	2000	2010 (f)	2020 (f)	% Average growth p.a. 2000-2020
World 17 oils/fats	114 393	154 308	194 428	2.7	35 718	53 348	70 552	3.4	113 934	153 290	193 490	2.6
Palm oil	21 730	35 381	49 420	4.1	15 004	26 180	36 100	4.4	21 971	35 926	50 306	4.1
Soyabean oil	25 482	33 874	41 394	2.4	6 734	9 875	13 031	3.3	25 097	33 132	40 489	2.4
Rapeseed oil	14 237	19 872	25 151	2.8	1 816	2 509	3 323	3.0	14 261	19 839	25 130	2.8
Sunflower oil	9 630	13 193	17 491	3.0	2 892	3 841	5 182	2.9	9 358	12 810	16 998	3.0

Note: f - forecast.
Sources: MPOB (2000) and Oil World Annual (1992–2000).

facturing, property and other land development projects. With increasing urbanization in many of the developing countries, large tracts of agricultural land have been lost to such industries, which give higher returns on the land. The problem is further compounded by the fact that even within the areas identified as being suitable for agricultural use, competition is increasingly taking place between land use for grains, oil-bearing crops and other food crops.

The opening up of new land areas is also constrained by the fact that increasingly, governments are committed to maintaining a certain level of forest cover to ensure ecological balance in the interest of protecting the environment. Amongst the various oil-bearing crops, it is a perennial crop like the oil palm that can best serve this objective by providing continuous forest cover for at least 20-25 years. Furthermore, palm oil with its high yield, *i.e.* up to 10 times more than oilseeds, will serve to optimize the use of land to meet the oils and fats needs of the world. It is no surprise therefore that many experts have predicted that the palm oil industry is best placed to meet the forecast rise in global oils and fats demand.

Even in countries that have adequate land with the necessary soil and climatic conditions for cultivation of oil-bearing crops, the lack of finance, technical know-how and management skills have impeded the development of this industry. The possibility of developing such areas through foreign investments has also been hampered by limitations, such as unsatisfactory land tenure terms, security concerns, government bureaucratic red tape, political instability and inconsistent government policies in the host countries. These have been the Malaysian experience in trying to venture overseas in agriculture development. The financial crisis that hit most of the Asian region in 1997/98 is still lingering in the minds of major plantation companies, which, as a result, are increasingly cautious of further offshore investment to overcome land constraints domestically.

Overcoming the Productivity Plateau

Productivity in most cases of oilseeds and vegetable oils has plateaued and remained static in recent years. The world oilseeds yield for the period 1990-2000 has only improved marginally to 0.36 t/ha/yr (oil equivalent), whilst in the case of palm oil, it has been hovering around 3.0 - 3.4 t/ha/yr.

Most of the expansion in production over the years has taken place largely due to an increase in planted area, rather than an improvement in yield. As such, in view of the land limitations, the challenge facing the oils and fats industry in meeting the rising oils and fats demand is to continuously improve on the productivity of oilseeds and vegetable oils.

In the case of oil palm, higher yielding varieties have been attained through advanced biological breeding techniques, which can yield up to 8 - 10 t of palm oil per hectare compared to 4 - 5 t from the current crop. The challenge to Malaysia is to embark on an aggressive replanting programme to replace the palms that are no longer productive with new varieties that are higher yielding. The problem of delayed replanting of old oil palm trees arising from better prices needs to be addressed in order to ensure minimal disruption to global palm oil supply in the years to come. In this case, short-term commercial gains seem to have taken precedence over that of long-term benefits to be derived through higher productivity of palms.

The development of GMO soyabean has contributed to a significant increase in yields. Notwithstanding this achievement in increasing productivity, it is still confronted with reservations on the part of consumers. The prevailing consumer concerns over GMO oilseeds and the subsequent apprehensions

on the part of manufacturers in using these oilseeds for food processing is a set-back to the use of biotechnology to increase yields.

In some countries where labour is a problem, such as in Malaysia, the need for mechanization is all the more compelling as a measure or strategy to increase yield productivity. Although mechanization in oilseeds cultivation has proved to be a success, it has not been necessarily so in the case of perennial crops like oil palm. The physical characteristics of the oil palm tree and the fact that it is grown on undulating terrain poses a challenge in itself to intensify research efforts in coming out with better and commercially viable mechanization techniques to tackle such inherent problems.

Containing the Rising Cost of Production

In recent years, the oils and fats industry has witnessed a situation of rising land, labour and other input/raw material cost (*Table 4*). The challenge here for the industry is to institute the necessary steps to contain or reduce this rising cost of production, particularly so as the prices of vegetable oils have generally declined over the years (*Table 5*). One way of doing so is to increase efforts in improving yield and higher adoption of mechanization and automation in all sectors of the industry, from planting to processing.

The Need to Eliminate Trade Distorting Subsidies

Agriculture is very much a protected and subsidized sector compared to other sectors. The need for self-sufficiency for food and its strategic importance to the survival of a nation have played a central role in shaping government policies with regard to agriculture, including the oilseeds and oils sector. Hence, it was only in the Uruguay Rounds that a serious effort was made to effectively eliminate the adverse trade distorting effects of protectionism and allow comparative advantage and production efficiency to prevail under trade rules that are fair and equitable and enforceable under WTO. Of course, this was not fully realized as many countries including some developed countries strongly resisted the total elimination of subsidies.

However, a start was made under the Uruguay Rounds whereby both the developed and developing countries agreed to reduce agricultural subsidies by 20% and 13% respectively. Although a new round of WTO negotiations has yet to be launched, negotiations on agriculture have commenced as provided for in the Agreement on Agriculture. This presents an opportunity to bring agriculture on the right track. Domestic farm support programmes must be reduced further or abolished completely so that the problem of market distortion is tackled effectively. Oilseeds and oils and fats producing and exporting countries should compete purely on the basis of comparative advantage with the intention to encourage efficient producers. Hence, subsidies on production, such as the Loan Deficiency Programme in the US and the Oilseeds Compensatory Payments in the EU, lead to unfair competition as their producers are able to grow oilseeds even when prices are below their cost of production. This is compounded by the current practice of using export subsidies, such as the US GSM-102, EEP and other food aid programmes, which further distort the free market.

In this respect, the challenge is for countries from the various continents to harness their comparative advantage both in terms of inherent climatic conditions, ample labour supply, land suitability, *etc*. to produce the appropriate oilseed or vegetable oil to meet the growing world oils and fats demand. For example,

TABLE 4. COST OF PRODUCTION, 1984/85 - 1993/94 (US$/t)

Product	Country	84/85	85/86	86/87	87/88	88/89	89/90	90/91	91/92	92/93	93/94	Weighted average 84/85 - 93/94
Soyabean oil	USA	493	437	331	246	290	227	443	418	332	542	376
	Brazil	103	413	107	140	(178)	108	424	213	180	207	169
	Argentina	(9)	112	117	(14)	(194)	(251)	(65)	18	33	57	(22)
Rapeseed oil	EU	653	717	694	687	812	779	900	868	999	920	812
	Canada	489	460	368	401	471	512	480	444	450	415	444
Sunflower oil	Argentina	294	308	328	247	180	231	228	300	296	213	261
	USA	461	464	316	244	439	471	398	333	377	538	382

Source: LMC International (1996).

TABLE 5. ANNUAL AVERAGE PRICES OF SELECTED OILS AND FATS: 1980 - 2000
(north-west Europe market - US$/t)

Year	Crude palm oil	Palm kernel oil	Soyabean oil	Sunflower oil	Rapeseed oil	Coconut oil	Tallow
1980	586	669	598	633	571	674	487
1981	570	588	507	639	484	570	472
1982	445	458	447	528	418	464	422
1983	502	709	527	573	496	730	423
1984	729	1 027	724	767	687	1 155	531
1985	501	551	572	602	540	590	421
1986	257	288	343	373	308	297	296
1987	342	426	330	360	305	442	359
1988	437	539	463	476	427	565	369
1989	350	472	432	482	413	517	366
1990	290	334	447	489	422	337	348
1991	339	417	454	474	414	433	351
1992	394	571	429	452	420	578	366
1993	378	437	480	539	466	450	367
1994	528	629	615	636	616	607	450
1995	628	677	625	693	614	670	521
1996	531	728	552	576	555	752	506
1997	546	652	565	581	565	657	529
1998	671	687	626	728	628	658	466
1999	436	694	427	507	423	737	361
2000	310	444	338	392	347	450	290

Sources: MPOB (2000) and Oil World (2000).

Latin America, which is endowed with suitable soil and climatic conditions, a smaller population and devoid of any farm subsidies, is better placed than countries from North America in terms of producing and exporting oilseeds, such as soyabean. By the same token, tropical countries which are blessed with ample sunshine hours and good rainfall, coupled with ample labour supply, are best suited to producing and exporting palm oil. In this way, the problem of inefficient producers in subsidizing their domestic oilseeds and vegetable oils sector and subsequently exporting subsidized oilseeds/oil and fats which distort the world market oils and fats situation will be reduced or eliminated.

Impediments to Market Access

In the area of market access, especially with regard to import tariffs, there has been substantial progress achieved through the GATT/WTO multilateral trade negotiations to lower duties. This process has been assisted by current thinking that market liberalization/globalization, taking into consideration the economic interests of developing countries, is the way forward for enjoying economic growth on a sustained basis.

Nevertheless, there continues to be countries that use the import tariff mechanism to protect their local industries. There is a tendency for these countries to raise import duties whenever international prices of vegetable oils decline so that domestic prices are kept high to protect their farmers. In addition, self-sufficiency programmes espoused by these countries are supported by prohibitive import tariffs on vegetable oils.

However, the concern of competitive vegetable oil producing countries is the tendency by some nations to employ the use of non-tariff barriers to restrict market accessibility.

Cases are a plenty where commercial restrictions in the form of technical barriers are put in place under the guise of protecting the health concerns of consumers, but without sufficient backing or results based on scientific findings. One example is the case where RBD palm stearin is not permitted to be imported and consumed in the food sector in some developing countries when in actual fact that same vegetable oil product has been accepted and widely consumed even in developed countries. A looming threat is the EU's proposal to introduce legislation regarding dedicated vessels for the shipment of vegetable oils to the EU. Such a proposal is certainly unnecessary as there are already adequate measures in place for the safe transportation of vegetable oils. Furthermore, such legislation will not only increase the freight rate charged by ship owners, but

also lead to problems of availability of vessels.

Another area of concern for vegetable oil exporting nations will be to ensure that efforts at multilateral levels, such as CODEX are not used to introduce technical barriers. Whilst it is acknowledged that importing countries need to have food standards/regulations and harmonization of quality standards under CODEX aimed at protecting consumer health and ensuring fair trading practice, it is also pertinent that such standards/regulations should not be trade restrictive and discriminatory in nature. It should be based on the principle of sound scientific analysis and evidence, in order that the standards ensure the quality and safety of the food supply. Deliberations by CODEX on the various standards, codes of practice and guidelines should not only consider the aspect of health protection of consumers, but also ensure that there is minimal disruption to trade so that vegetable oil exporting nations can compete on a level playing field.

Growing Health Concerns of Consumers

Consumers' health concerns are increasingly being manifested in trade today in the form of food standards and regulations, including labelling requirements to keep the public informed. Australia and Japan, for example, set high food standards such as the symbol (✓) from Australian National Heart Foundation (NHF) and Japanese, 'JAS' Standards on food items to meet the varied quality needs of their consumers.

The most recent development is the growing concern over the deleterious effects of *trans*-fatty acid on health. The US Food and Drug Administration is now in the process of drafting regulations to label *trans*-fatty acid. The palm oil industry has made representation to ensure that *trans*-fatty acid is separately labelled to ensure that the public is appropriately informed. Vegetable oils such as palm oil that need not undergo the hydrogenation process in the preparation of certain foods such as margarine will not be faced with this problem.

It is important that producing countries do not resort to unhealthy competition on health grounds that ultimately serve to erode the confidence of consumers in vegetable oils as a whole. One may recall the various smear campaigns on palm oil in the past, with the aim of tarnishing its image and reducing its exports under the guise of health issues. Fortunately for palm oil, the various nutritional studies by various independent overseas researchers have vindicated its health and nutritional attributes. Not only that, the palm oil industry had the good sense and magnanimity not to resort to similar measures to discredit competing oils. The lesson from this experience is not to resort to any unhealthy competition, as consumers today are very informed and would even change eating habits if there is even a specter of doubt on the nutritional and health qualities of vegetable oils. Hence, any form of smear campaigns is not at all prudent business thinking. What should be emphasized is for the producers to highlight or launch promotional campaigns targetted at shifting consumers' interest and usage from animal fats to vegetable oils, which is healthier. However, if this is not done, vegetable oil producers, be it palm oil or soyabean oil, have themselves to blame if in the end, consumers were to ultimately reduce their oils and fats intake so as to take care of their health concerns.

New Frontier for Commercial Products

To maintain continued market growth and to increase market share, the oil and fats industry must intensify new product development and venture into downstream activities with greater vigour. In the case of palm oil, some refiners have ventured into further downstream processing of higher value-added specialty fats and oleochemicals. The diversification should not stop here. Instead, the manufacturers should go further into the manufacturing and export of other value-added palm-based products. There are plenty of opportunities to do so, especially in the area of health products as palm oil is an important source of natural minor components (*Table 6*).

Some of these are high value products which are destroyed or removed during the refining process. The minor components, like carotenoids, tocopherols and tocotrienols, sterols, squalene, ubiquinones, triterpenes, phopholipids, glycolipids, terpenic and aliphatic hydrocarbons, which are destroyed or removed, present opportunities for commercialization. So far, only carotenes, tocopherols and tocotrienols have been produced commercially.

The use of vegetable oils to produce biofuel is another potential area for new product development. In this regard, the soyabean industry has initiated a campaign to utilize soyabean oil as diesel fuel and they have formed a Soyabean Diesel Development Authority to help market the fuel. Such a move will help reduce the excess supply of soyabean oil from the market which will impact positively on soyabean prices. When soyabean oil, which is two to three times more costly to produce than palm oil, is promoted for use as diesel fuel, then there is compelling reason for palm oil producers to consider not only promoting, but the full commercialization of the use of palm methyl ester diesel fuel in Malaysia. Currently, with the prevailing high prices of petroleum products (including

TABLE 6. TOCOPHEROL AND TOCOTRIENOL CONTENT IN OILS AND FATS

Oils and fats	Tocopherol (ppm)					Tocotrienol (ppm)					Total
	α-T	β-T	γ-T	δ-T	%T	α-T_3	β-T_3	γ-T_3	δ-T_3	%T3	T + T_3 (ppm)
Palm oil	256	-	316	70	55	143	32	286	69	45	1 172
Soyabean oil	101	-	593	264	100	-	-	-	-	0	958
Safflower oil	387	-	174	240	100	-	-	-	-	0	801
Corn oil	112	50	602	18	100	-	-	-	-	0	782
Cottonseed oil	389	-	387	-	100	-	-	-	-	0	776
Sunflower oil	487	-	51	8	100	-	-	-	-	0	546
Groundnut oil	130	-	216	21	100	-	-	-	-	0	367
Cocoa butter	11	-	170	17	99	2	-	-	-	1	200
Olive oil	51	-	-	-	100	-	-	-	-	0	51
Coconut oil	5	-	-	6	31	5	1	19	-	69	36
Palm kernel oil	13	-	-	-	38	21	-	-	-	62	34
Lard	12	-	7	-	73	7	-	-	-	27	26

Sources: Slover (1971), Gunstone (Inform, 2000) and Ooi (1999).

diesel), this option looks very promising. In the EU, price comparison between vegetable oils and diesel prices indicate that the former is more expensive than vegetable oils (*Table 7*).

With the growing concern for the environment and rising cost of fertilizers, interest generated in biomass utilization in terms of revenue earnings has increased rapidly in the last decade. For example, 1 t of empty fruit bunch (EFB) would have a fertilizer equivalent of 7 kg urea, 2.8 kg rock phosphate, 19.3 kg muriate of potash and 4.4 kg kieserite. At current fertilizer prices, this would have a monetary value of RM 12. Based on the 1999 palm oil production of 10.55 million tonnes (MPOB, 2000), it is estimated that 12.56 million tonnes of EFB was produced in Malaysia with a potential value of RM 151 million.

In addition, oil palm trunk has also been utilized as a cellulosic raw material in the production of panel products, such as particleboard, medium density fibreboard (MDF), mineral-bonded particleboard, blockboard, plywood and furniture. From the viewpoint of logistics and cost, EFB offers the best prospects for commercial exploitation as raw material for production of pulp and paper.

TABLE 7. VEGETABLE OIL AND DIESEL PRICES IN THE EUROPEAN UNION (RM/litre)

Country	Vegetable oils	Diesel
United Kingdom	RM 3.18	RM 4.57
France	RM 2.88	RM 2.96
Germany	RM 2.77	RM 3.46
Netherlands	RM 4.44	RM 2.72
Italy	RM 2.85	RM 3.02
Belgium	RM 4.39	RM 3.13
Austria	RM 2.77	RM 2.78
Sweden	RM 5.32	RM 3.48
Denmark	RM 6.90	RM 2.76
Finland	RM 5.76	RM 2.80

Source: MATRADE (2000).

THE CHANGING GLOBAL TRADE PATTERNS

Addressing the Digital Divide

The global oils and fats industry must keep abreast with developments in the arena of world commerce. Undoubtedly, Information and Communication Technology (ICT) is revolutionizing the way business is done. Everyone is jumping on to the e-commerce bandwagon to stay ahead of competition. There is no way that the oils and fats industry can ignore this development and continue to do business in the conventional way. Businesses will have to invest in both human capital and computer systems and technology to be equipped to do business through e-commerce. The challenge is for the industry to ensure that it is not left behind in the fast pace of the world of virtual commerce that is growing at an exponential rate.

Emergence of the Megabusiness Corporations

A related phenomenon is the emergence of megabusiness entities. It is already evident in most sectors including the commodities sector. The challenge to major producing

nations like Malaysia and Brazil is to ensure that their businessmen are fast to realize this and enter into synergistic partnerships with appropriate partners in both the producing and importing countries in order to have a share of the action.

Need for Non-Conventional Marketing Approaches

Even as the world enters into the 21st century, there still remain some segments of society that continue to face problems to pay for their purchase of basic foodstuffs, such as vegetable oils. Many of these countries' consumption of oils and fats is far below the WHO's recommended level of 30 kg per capita/annum. Some of these countries, such as those from Eastern Europe and Central Asia, face serious foreign exchange problems due to the poor performance of their economies, which have yet to fully adjust to the market economy. Others, such as countries in the Sub-Saharan region, face the same problem due to poor management of their economies that has led to abject poverty. The net effect is that these countries do not have the required foreign exchange to pay for their imports, including the purchase of vegetable oils.

In view of this, the challenge that lies ahead for producers and exporters is to increasingly adopt alternative modes of payment like counter-trade and barter trade as viable payment options in Eastern European and Sub-Saharan markets where forex difficulties are already a permanent feature encountered by businessmen. As such, dealing in modes of payments other than cash with markets in this region is inevitable.

THE EMERGENCE OF THE THIRD SECTOR

It is now acknowledged that Non-Governmental Organizations (NGOs) constitute the *third sector* besides the government and private sectors in formulating strategies for the balanced development of nations. The growing pressure exerted by NGOs is being felt across all sectors of the economy, including the oils and fats sector. Everyday more and more of these NGO representatives are increasingly having their voices heard at the various domestic and international fora on how best to use planting materials, to plant, produce and to market oilseeds and oils and fats to meet the growing demand of consumers. For example, the prominence of Green Peace involvement in food legislations and policies in Europe has significant bearing on the marketing of oils and fats throughout the world.

Whilst it is acknowledged that NGOs have a significant role to play, in protecting consumers' health and interests, it is important that they advocate standards which are based on sound scientific analysis and evidence that can be reasonably attained by both developed and developing countries. Coupled with this, their views expressed must fully take into consideration the long-term interests and development needs of the oilseeds and oils and fats sector.

CONCLUSION

The demand for oils/fats will continue to grow in line with world population expansion, with the focus centred on the four major oils. And what is clear is that the oils and fats industry will definitely face numerous challenges and issues that need to be addressed fully and in an effective manner. The oils / fats sector in both Malaysia and the world at large will remain resilient throughout this endeavour and successfully surmount all these challenges. In all this undertaking, close co-operation is paramount not only between vegetable oil producers, but also between them and other related industries. In fact as the saying goes, *There is enough room for every player in the oils and fats sector*.

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