

USDA Foreign Agricultural Service

GAIN Report

Global Agricultural Information Network

Required Report - public distribution

Date: 6/12/2009

GAIN Report Number: MY9026

Malaysia

BIOFUELS ANNUAL

Annual Report 2009

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Report Highlights:

With declining palm oil prices from the latter half of 2008 to the first half of 2009, Malaysian bio-diesel plants found it profitable to restart or expand production for the export market. Malaysia takes the advantage to fill the gap caused by the EU's slap of duties on US-origin biodiesel or re-exports. The Government continues to put on hold the proposed mandatory blend of 5 percent of palm olein in diesel. In the near term, domestic consumption of biodiesel will be low and most all of the production will be exported, mainly to the European Union and United States.

Post:

Kuala Lumpur

Commodities:

select

Executive Summary:

Executive Summary

In contrast to the rocketing crude palm oil (CPO) prices and subsidized retail petroleum diesel in the domestic market during the first seven months of 2008, the bio-diesel industry has to deal with depressed crude petroleum oil prices which make bio-diesel less competitive. The GOM continues to put on hold the proposed mandatory blend of 5 percent of palm methyl ester in diesel in the domestic market. For a start, the GOM has pledged that all government diesel-powered vehicles would start using biodiesel from February 2009.

Overseas markets remain attractive given the EU's vote in favor of sourcing 20 percent of its energy needs from renewable feedstock by 2020. Malaysian biodiesel exporters seek to fill some of the gap created by the implementation of CVD and AD duties by the EU on US-origin biodiesel or re-exports from the U.S. to the EU. For example, in late 2008, Carotech Bhd inked a US\$7 million contract with Swiss-based Trafigura Beheer BV, the world's third largest independent oil trader to supply 60,000 – 84,000 tons of biodiesel a year to Europe. Many other bio-diesel companies like Wilmar International which has one million tons of bio-diesel production capacity, are firing up their mothballed plants and all are eyeing the EU market.

However, the EU's concerns over negative impacts of oil palm cultivation on environment and land-use have raised fears of emerging barriers for palm methyl ester exports to the EU. A news report indicated that the German government has decided to defer the implementation and also to review the proposed law at the end of this year.

Opportunities for US exports of biofuel or a biofuel feedstock to Malaysia are limited as the country already has in oil palm a plentiful feedstock. Also, retail petroleum prices in Malaysia are subsidized, diminishing the economic viability of importing biofuels as an alternative fuel source.

Jatropha, a tough bush with oil bearing fruit has excellent small-scale potential but needs more research before it could be cultivated on a larger-scale area. The shrub grows on marginal and arid land and needs little care. *Jatropha* is non-edible, so avoiding the food vs fuel controversy. Although fund has been allocated to facilitate research and development of the crop, the GOM has yet to fully endorse the significance of *jatropha*. In early January 2009, Air New Zealand successfully conducted a test flights using a blend of 50:50 *jatropha* and Jet A1 fuel.

Exchange Rate: US\$1= RM3.495 (May 26, 2009)

Author Defined:

BIO-FUEL POLICY

Policies supporting production and use of biofuels

Malaysia, with its large and growing palm oil industry, has the potential to play a major role in the world biofuel market. Malaysia is currently the world's number two producer and remains the top exporter of palm oil. Oil palm has the highest oil yield per hectare of all vegetable oil feedstocks, seven times greater than that of soybeans and three times that of rapeseed. According to one expert, an ideal palm oil price for producing bio-diesel would be below the price of petroleum diesel by at least US\$200 per ton. [In calculating profitability, one has to consider returns from co-products such as glycerine and photo-nutrients (vitamin E and carotene)].

Processed liquid palm oil can be used directly to power normal diesel engines or may be blended with petroleum diesel. The GOM has scrapped the plan to use *Envo Diesel* which is a blend of palm olein with diesel after engine manufacturers argued that it could clog the engine.

Palm oil can also be converted to methyl esters (biodiesel) through a process called transesterification. This process combines refined palm oil, methanol, and a catalyst (sodium hydroxide) to produce the methyl esters. These methyl esters have performance characteristics similar to those of petroleum diesel without the environmental detriment of sulfur emission.

In addition to a plentiful palm oil feedstock, the GOM's biofuel aspirations are abetted by a palm oil industry eager to begin biodiesel production, the interest of foreign investors, and also by the existence of the Malaysian Palm Oil Board (MPOB). Pioneering palm biodiesel development since 1985, this government agency continues to develop efficient practices and to create new palm diesel products such as low pour point palm biodiesel, a palm biodiesel that is able to flow at lower temperatures (between -21°C and 0°C).

The GOM is still determined to further develop the palm oil industry by promoting the production and use of palm biodiesel. The Biofuel Industry Act passed in 2007 will allow an orderly development of the biofuel industry. (Please refer to MY7018 for details). The Ministry of Plantation Industries and Commodities has taken over the task of issuing biofuel manufacturing licenses from the Ministry of International Trade and Industry since Nov 1 2008.

The GOM continues to put on hold the mandatory blend of 5 percent of palm methyl esters in diesel (referred to as B5) in the domestic market. The GOM wants to address several impediments first in order to ensure its success. Major issues to be addressed include logistics, infrastructure cost and blending facilities. For example, palm-based methyl esters need to be transported from the factory to a blending depot where it is mixed with diesel. The blend would then be sent to the petrol stations. A possible start could be the beginning of 2010 but the GOM emphasized that the mandate is flexible - meaning that when palm oil becomes too costly, its blending ratio can be lowered. It is estimated that at least 500,000 tons of palm olein (less than 3 percent of current palm oil production) would be required annually to fulfill the B5 mandate.

In Malaysia, the biodiesel industry has to reckon with some of the lowest fuel prices in its region. The GOM sets retail fuel prices below the market price and compensates retailers through subsidies. The GOM cancelled the sales tax on retail petroleum products to alleviate price pressure and the incidence of the sales tax borne by the retail customer. The sales tax on diesel of US\$0.05 per liter was dropped since October 1999. The sales tax on gasoline of US\$0.16 per liter was eliminated since June 2004.

Table 1:
Retail Price of Motor Fuels in Malaysia (per liter)

	Subsidized Retail Price	Without Subsidies or
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		Sales Tax Exemptions
Gasoline	US\$0.52	US\$0.77
Petroleum Diesel	US\$0.49	US\$0.74

The GOM still encourages the production of methyl ester, primarily for export. New energy standards, such as those in the European Union, are making the export of methyl ester increasingly attractive to palm oil companies. The GOM is supporting the construction of biodiesel plants through tax incentives. Under the Promotion of Investments Act of 1986, biodiesel projects are eligible for Pioneer Status or Investment Tax Allowance (ITA). A company with Pioneer Status is granted tax exemption on at least 70 percent of the income derived from biodiesel production for 5 years, with more revenue being eligible under certain provisions. ITA, an alternative incentive that the companies can choose, is an allowance schedule that caters to high capital investment projects with a long gestation period. Under ITA, companies are granted an allowance of 60 percent in respect of qualifying capital expenditure incurred within 5 years of the date of the first capital expenditure. This allowance can be used to exempt up to 70 percent of the statutory income derived from biodiesel production in the assessment year. Any unutilized allowance can be carried over to following years. Under both the Pioneer Status and ITA incentive schedules, the tax allowance increases under certain criteria such as the location of the project in a promoted area. In order to further encourage the domestic palm oil processing industry, the GOM taxes exports of crude palm oil but does not levy export duties on processed palm oil or biodiesel.

Malaysia has expressed concern over a directive by the European Union (EU) to set sustainability criteria for biofuel where the material used should start by reducing greenhouse gas (GHG) emissions by 35 percent by November 2010 and increase the percentage to 60 by 2018. The problem for palm oil production lies in the default GHG savings value of only 19 percent (assigned by the EU). However, a Malaysian palm oil expert claimed that the GHG savings value could go up to 60 percent if palm millers adopt methane gas capture technology. A few Malaysian mills are already using such technology. However, the current economic recession is forcing European buyers to opt for cheaper non-certified palm oil.

The GOM also aims to develop Malaysia's niche in palm oil biotechnology and commercialize these technological achievements. The MPOB is responsible for most of the biotechnological advances and product development in the palm oil and palm biofuel industries. The MPOB has developed many processes which it proceeds to license to the industrial sector. The processes for making low pour point palm biodiesel and methyl esters are just a few of the technologies licensed by MPOB.

BIO-FUEL MARKET SITUATION

Potential consumption of biofuel

The following tables represent the Post's estimates of the motor vehicle population in Malaysia. Registered vehicles from 1996 to 2008 were assumed to represent the current number of motor vehicles in use. Post estimates that diesel vehicles account for about 5 percent of the motor vehicle population in Malaysia.

Table 2: Number of New Motor Vehicles Registered from 1996 to 2008					
Motorcycles	Cars	Buses Taxis Hire & Drive Cars	Goods Vehicles	Others	Total
4,475,675	5,215,718	99,052	430,006	234,632	10,455,083
42.81%	49.89%	0.95%	4.11%	2.24%	100%

Source: Malaysia Road Transport Department

The Malaysian Automotive Association (MAA) forecasts total industry volume of motor vehicles to drop 12.4 percent in 2009 due to negative economic growth and unfavorable consumer sentiments. Table 3 shows the forecast till 2013.

Table 3: Malaysian Automotive Association (MAA) Forecast of Vehicle Sales						
	2008	2009*	2010*	2011*	2012*	2013*
Passenger vehicles	497,459	436,800	445,900	459,550	482,300	506,415
Commercial vehicles	50,656	43,200	44,100	45,450	47,700	50,085
Total industry volume	548,115	480,000	490,000	505,000	530,000	556,500
Growth	12.5%	-12.4%	2%	3%	5%	5%

Source: MAA *forecast

Post foresees that diesel vehicles could make up a greater share of the total in the future when B5 is introduced and government incentives are promoted. The annual road tax that drivers

must pay has always been significantly greater for diesel motor vehicles. One reason that diesel engines were originally taxed more heavily is because their engines were considered to release comparatively more harmful emissions into the environment. On January, 1 2007, the GOM reduced the annual road tax for petroleum vehicles with engine capacities less than 1600 cubic centimeters (c.c.) by 10 percent while the tax for diesel vehicles with engine capacities less than 1600 c.c. was reduced by 34 percent.

Table 4 Road Tax in Peninsular Malaysia 2009		
Engine Capacity (c.c.)	Petrol Engine	Diesel Engine
1000 and below	US\$5.72	US\$5.72
1001-1200	US\$15.74	US\$31.47
1201-1400	US\$20.03	US\$40.06
1401-1600	US\$25.75	US\$51.50
1601-1800	US\$57.34-US\$80.11	US\$114.68-US\$160.23
1801-2000	US\$80.26-US\$108.73	US\$160.54-US\$197.47
2001-2500	US\$109.01-US\$251.79	US\$223.81-US\$537.91
2501-3000	US\$252.50-US\$609.44	US\$539.63-US\$1,396.28
3001-5000	US\$610.73-US\$3,184.55	US\$1,399.37-US\$7,576.54

US\$1=RM3.495 (May 26, 2009)

Biofuel Production

Ethanol production

Ethanol production is commercially insignificant in Malaysia. There is an opportunity for ethanol production from oil palm biomass but the technology is yet to be commercialized. Ethanol consumption is unlikely as retail gasoline prices are subsidized.

Biodiesel production in the biofuel sector

According to the Malaysian Palm Oil Board's listing, about twelve Bio-diesel plants have been completed. The total combined capacity is about 1.5 million tons. In 2008, bio-diesel output increased by only 5 percent due to high prices for feedstock. Post expects a 30 percent increase in 2009 as companies are cranking up their machines when the margins started to appear during the latter half of 2008. The companies that are making the most profit are

those that have a product-mix which includes the production of vitamin E (a derivative from crude palm oil), carotene and glycerin (a co-product).

With the violent swing of palm oil prices, the GOM has started to look at a promising alternative feedstock, *Jatropha*. It has excellent small-scale potential but needs more research before it could be cultivated on a larger-scale area. The GOM has allocated fund to facilitate research and development of the crop. The Malaysian Palm Oil Board is tasked to carry out performance tests on *jatropha*-based biodiesel. The Malaysian Rubber Board is to engage in seed breeding and the National Tobacco Board is to gauge the suitability of cultivating *jatropha* on bris soil in the northern part of the country. A few private companies are planning to invest in *jatropha* cultivation but the impact on the biofuel sector would not be significant in the next two years.

Table 5:		
BIODIESEL PLANT IN OPERATION IN MALAYSIA		
1	Carotino Sdn.Bhd.	Pasir Gudang, Johor
2	Malaysiavegetable Oil Refinery Sdn. Bhd.	Pasir Gudang, Johor
3	PGEO Bioproducts Sdn. Bhd.	Pasir Gudang, Johor
4	Vance Bioenergy Sdn. Bhd.	Pasir Gudang, Johor
5	Mission Biotechnologies Sdn. Bhd.	Petaling Jaya, Selangor
6	Carotech Bio-Fuel Sdn. Bhd.	Ipoh, Perak
7	Lereno Sdn. Bhd.	Setiawan, Perak
8	Golden Hope Biodiesel Sdn. Bhd.-Carey Island	Pulau Carey, Selangor
9	Golden Hope Biodiesel Sdn. Bhd.-Panglima Garang	Teluk Panglima Garang, Selangor
10	Zoop Sdn. Bhd.	Shah Alam, Selangor
11	Global Bio-Diesel Sdn. Bhd.	Lahad Datu, Sabah
12	SPC Bio-diesel Sdn. Bhd.	Lahad Datu, Sabah

Table 5 shows the biodiesel projects currently in operation. Another four plants with a combined capacity of 190,000 tons are expected to commence commercial production by the end of 2009. The MPOB has worked with the Ministry of Plantation Industries & Commodities as well as Malaysian plantation companies to begin oil palm plantations overseas in Indonesia, Latin America and West Africa. This will further increase the supply of palm oil for Malaysian palm biodiesel companies.

Imports Regimes for Biofuels

There are currently no import tariffs in Malaysia directly levied on biofuels. There is no import tariff on crude palm oil but there is a 5 percent duty levied on processed palm oil. There are no duties on two common biofuel feedstocks: rapeseed oil and sunflower oil. There is however

a 5 percent tariff on soybean oil and its fractions.

According to a Oil World analysis, EU is poised to import more than one million tons of palm oil (mainly from Malaysia and Indonesia) for biofuel production (550,000 tons for biodiesel and 450,000 tons for power generation) in 2009.

BIOFUEL STATISTICS

Quantity of Feedstock Use in Biofuel Production in 1,000 MT						
		2005	2006	2007	2008	2009
Biodiesel						
	Palm oil	178	346	425	445	575

Biodiesel production/consumption/trade (1,000 M Ton)					
	2005	2006	2007	2008	2009
Biodiesel					
Beginning stocks	0	0	0	0	0
Production 1/	167	325	400	420	540
Imports	65	113	133	61	120
Total supply	232	438	533	481	660
Exports	152	318	485	456	600
Consumption	80	120	48	25	60
Ending stocks	0	0	0	0	0

1/ One ton of Palm Oil has a 94% yield in term of methyl ester output.

Imports Trade Matrix

		(1,000 MT)
Rank	Country	2007

1	Singapore	46
2	China	22
3	Thailand	12
4	U.S.A.	8
5	Indonesia	7
6	Australia	7
7	Japan	6
8	Korea, South	5
9	Germany	4
10	Taiwan	3
	Others	13
	--TOTAL	133

Imports Trade Matrix

		(1,000 MT)
Rank	Country	2008
1	China	20
2	Germany	7
3	U.S.A.	6
4	Japan	5
5	Thailand	4
6	Taiwan	3
7	Indonesia	3
8	Singapore	2
9	United Kingdom	2
10	Korea, South	2
	Others	9
	--TOTAL	61

Sources: The Department of Statistics, Kuala Lumpur.

Exports Trade Matrix

		(1,000 MT)
Rank	Country	2007
1	Netherlands	197
2	U.S.A.	136
3	India	24
4	Australia	15
5	Singapore	13
6	Japan	13
7	China	12

8	Indonesia	10
9	Thailand	9
10	Germany	9
	Other	47
	--TOTAL	485

Exports Trade Matrix

		(1,000 MT)
Rank	Country	2008
1	Netherlands	227
2	U.S.A.	97
3	India	22
4	Korea, South	13
5	Taiwan	13
6	Japan	11
7	China	11
8	Singapore	11
9	Spain	7
10	Belgium	5
	Other	39
	--TOTAL	456

Sources: The Department of Statistics, Kuala Lumpur.