CHAPTER 3

ROLES OF THE GOVERNMENT IN GASOLINE MARKET

3.1 Introduction

In the last two decades, there has been a trend towards reducing the role of government in the market economy. The extreme forms of command economies of Eastern Europe collapsed in the later 1980s and were replaced by somewhat more market oriented economies (Crystal and Lipsey 1997). Modern economists believe that government intervention does not necessarily improve the market situation, but some do not view that all government interventions are bad. The practicality of her involvement rather varies from case to case.

Overall petroleum industry in Malaysia is regulated, off course this includes gasoline which is classified as an essential item to the country. The main purpose of regulating gasoline market is to avoid price fixing by the oil companies and to ensure price stability. Comparing the neighbouring ASEAN countries, Singapore, Thailand and Philippines are among the pioneers of having deregulated gasoline markets. In the case of Singapore and Philippines, gasoline prices shot up at a higher level than their regulated prices. In Thailand, a reverse situation was observed. Generally, it is believed that competition would cause a more stringent discipline on petroleum product prices than has the regulated instrument (Asian Business June 1996). However, experience in some of the deregulated gasoline markets do not suggest so as other pressures like land price, supply and demand of gasoline in the region and etc. would influence the product pricing.

In Malaysia, examples where controls, pressures and involvement from Malaysian government can be realised are tabulated as below. This chapter discusses 2 areas of government involvement i.e. taxation and price control as well as environment regulations and how the interventions are made.

Area	Activities	Authority
Entry/exit barrier	Manufacturing license	MITI
	Distribution and retailing license	MDTCA
Safety	Storage and handling	MDTCA
Product quality	Product specifications	SIRIM
Environment	Air quality, Oil spill, soil contamination, effluent water quality	DOE
Taxation and price control	Excise duty	Custom Department
	Automatic Pricing Mechanism	MDTCA
Consumer affairs	Product adulteration and malpractice	MDTCA

Note :

MITI - Ministry of International Trade and Industry

MDTCA - Ministry of Domestic Trade and Consumer Affairs

SIRIM - Standard for Industry and Research Institutes in Malaysia

DOE - Department of Environment, Ministry Environment, Science and Technology

3.2 The Case of Government Intervention in Malaysian Gasoline Market

From economics point of view, government intervention in the marketplace is normally due to inefficient market or market failure. Market failure, according to Chrystal and Lipsey, means the best attainable outcome has not been achieved; it does not mean that nothing good has happened. Market efficiency is commonly termed as productive efficiency and allocative efficiency. The former concerns production of any output at the lowest attainable cost for that level of output whilst the latter describes situation that occurs when resources cannot be reallocated to produce a different bundle of goods that would allow some one to be better off and no one is made worst off. The phenomenon that lead to market failures and inefficient market are classified as monopoly power, externalities, absence of property rights, public goods and information asymmetries (Chrsytal and Lipsey 1997).

In the case of gasoline market in Malaysia, the reason for government intervention is related to the concept of allocative efficiency and price fixing by oligopolysts. Oil market by nature, is oligopolistic. Hence if there be any co-operative behaviour presence among oil companies, the consumers will suffer from high producer surplus. Price stability may be interrupted as well. As known, fuels is one of the essential items in the economy. Together with rental and power, it contributes to 21% in the Consumer Price Index (CPI) good basket (second highest weightage in the good basket). Therefore, any increase in fuel prices will directly cause inflation to the country. The lesson learnt during the 1973/74 World Oil Crisis when the quadrupling of oil prices created series of economic problems including world-wide inflation and recession. Malaysia was not spared of the aftermath of these events. The CPI for Peninsular Malaysia rose from 114 in April 1973 to 136.5 in March 1974, represented an increase of 20% within 12-months period. Compared to the same period in 1972/73, the CPI rose from 105.5 to 109.9 giving an inflation rate of merely 4% (Chee 1981).

Consequently, positive measures were introduced to curb inflation, among others was the Control of Supplies Act 1961 which was gazetted on 31st of October 1973. Under this Act, the Ministry of Primary Industries was empowered to fix prices with consultations with the Prime Minster's Department. The government authorised a licensing system for the trading of staple products, of which the system is carried till now. The system greatly intensified the government's strength in anti-hoarding campaign. Effectively, from 1st of March 1974, gasoline, kerosene and diesel became controlled price.

3.3 Taxation and Price Control

3.3.1 The Role of Gasoline Tax

Gasoline tax serves 4 purposes in most of the developing countries. Firstly, gasoline tax is used to collect revenues for the construction and

maintenance of highways. Its implementation could be based on central or provincial level. Secondly, it is earmarked for use as an energy policy to reduce dependency on foreign supply of petroleum products including gasoline, arising from the 1973 energy crisis. Thirdly, gasoline tax could be used to avoid any decline in real gasoline price arising from softness in world market or from particular currency appreciation vis-à-vis the US dollar (Chee 1981). It is used as an instrument to stabilise price of gasoline which is normally one of the essential goods in most of developing countries. Lastly, gasoline tax is also meant for general revenue collection of the Federal Government. Table 4 in the following page shows some examples of the use of gasoline tax in selected Organisation for Economic Co-operation and Development (OECD) countries.

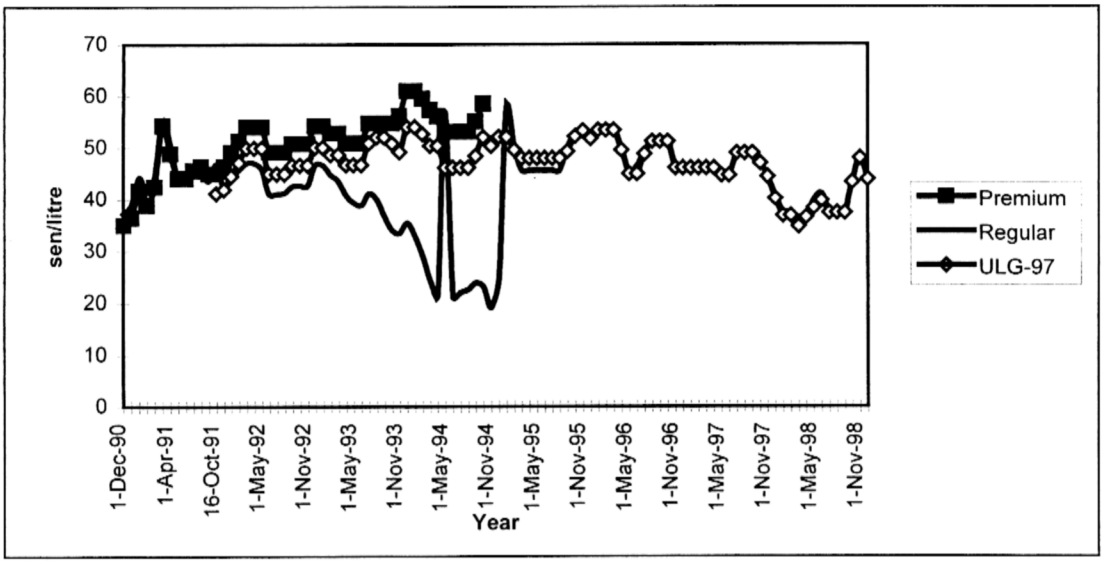
In Malaysia, the roles of gasoline tax in the form of excise duty concentrate along price stabilisation and also to act as a source of income to the federal government. From 1990 to 1998, the revenues from gasoline duty has increased by 10.2% per annum from RM900million to RM 2billion (estimated). This contributed to around 7-8% of total government tax revenue based on past trend since 1970s (Chee 1981). The movement of government duties with regard to various types of gasoline is shown in Figure 6 whilst Table 5 illustrated the effective gasoline tax rate of Malaysia (note : effective tax rate is the percentage of the value of tax to the net-of-tax gasoline price]. On average, the effective tax rate of unleaded gasoline is lower than both premium and regular grade. This is normally termed as tax on lead. The differential in tax for leaded and unleaded grades is an incentive for the motorist to switch to a more environmental-friendly fuel. This policy has created impact on the supply and demand for gasoline in the country since its implementation in 1994.

Table 4 : Types of Gasoline Taxation in Selected OECD Countries

Country	Tax	Government	Purpose
Belgium	VAT	Central	Not earmarked
	Excise duty	Central	To finance road infrastructure
Canada	Sales tax	Federal	Not earmarked
	Excise duty	Federal	Not earmarked
	Retail sales tax	Provincial	To finance highway maintenance and construction
Denmark	VAT	Central	Not earmarked
	Excise duty	Central	Earmarked for bridge and highway construction
France	VAT	Central	Not earmarked
	Internal consumption tax	Central	Not earmarked
	Levy for support fund for indigenous hydrocarbons	Central	For research
Germany	VAT	Federal	Not earmarked
	Mineral oil tax	Federal	Protection over coal industry
Italy	General turnover tax	Central	Not earmarked
	Excise duty	Central	Not earmarked
Japan	Gasoline tax	Federal	Earmarked for highway and road construction and maintenance
	Local road tax	Federal	
	Liquefied petroleum tax	Federal	
Sweden	VAT	Central	Not earmarked
	Gasoline tax	Central	To defray road building cost
United Kingdom	VAT	Central	Not earmarked
	Excise duty	Central	Not earmarked
United States	Special taxes	Federal	Both taxes earmarked for highway maintenance
	Special taxes	State	

VAT - value added tax
Source : Chee 1981

Figure 6 : Movement of Government Duties for Gasoline from 1990-1998



Source : MDTCA, oil companies

Table 5 : Average Effective Tax Rate of Gasoline from 1991 to 1998 (%)

Year	Premium Gasoline	Regular Gasoline	Unleaded Gasoline
1991	67.36	76.19	-
1992	83.81	71.26	72.05
1993	92.38	60.18	78.97
1994	98.93	36.74	82.63
1995	-	87.69	82.79
1996	-	89.99	82.64
1997	-	77.46	72.24
1998	-	60.57	55.96

3.3.2 Automatic Pricing Mechanism (APM)

The APM was established in 1983 after joint consultation between the Government and the petroleum industry as a basis to determine retail price for individual petroleum product which falls under the perview of Government price control. This pricing mechanism was formulated with the objectives as follows :

(i) to provide the public with a stable pricing for the controlled products (i.e. no frequent or sudden changes in prices)
(ii) to provide the government with a mechanism by which petroleum product prices can be effectively regulated, and
(iii) to provide an equitable and timely basis for pump price adjustments to reflect changes in product cost and operating expenses as a meant of cost recovery.

(MDTCA Hompage : www.kpdnhq.gov.my)

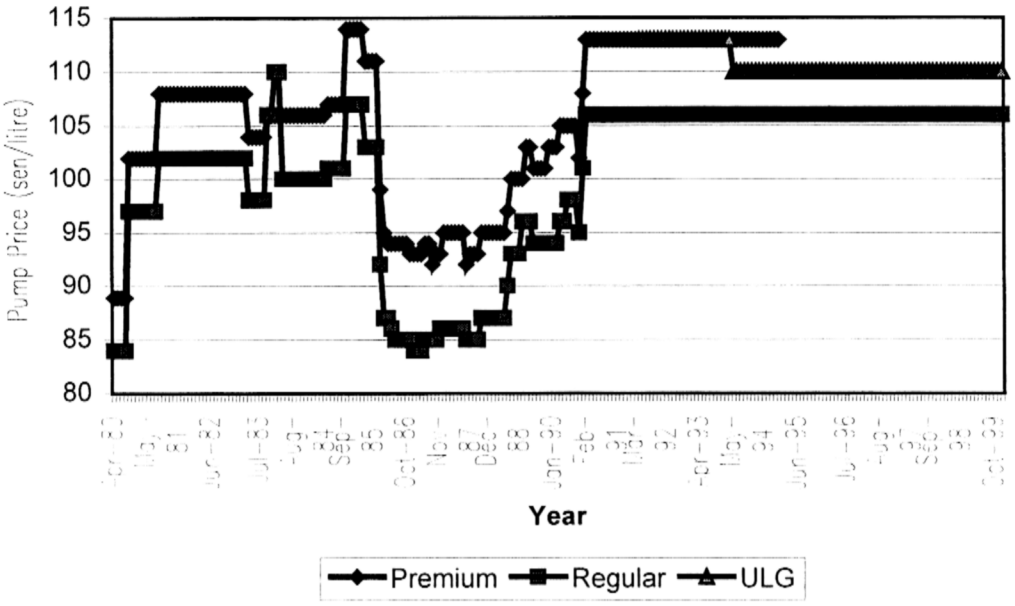
The products which are controlled through this mechanism are :

(i) Motor gasoline (unleaded, regular and premium gasoline)
(ii) Diesel fuel (or gasoil)
(iii) Kerosene and
(iv) Domestic Liquefied Natural Gas (LPG)

The prices of these products, usually known as pump prices, are therefore controlled by the government. The control comes in the form of official ceiling (or maximum) price for each of the product / grade. There is an official maximum price for each of the above products / grades for three different locations namely Kuala Lumpur, Kota Kinabalu and Kuching. Prices for other locations are tagged to these prices via a fixed differential declared by the government previously, i.e. Peninsular Malaysia locations are tagged to the KL price, Sabah locations to the Kota Kinabalu price and Sarawak locations to the Kuching price. Figure 7 shows the movement of gasoline pump price in Kuala Lumpur since 1980s when the prices fluctuated according to product costs. Since 1991, the pump prices stabilise at the current nominal rates

except for ULG where the price dropped by three sen in 1994 as provision for environmental preservations.

Figure 7 : Movement of Gasoline Pump Price (Kuala Lumpur)



Source : MDTCA

There are three parts to the mechanism : Firstly, the mechanism defines what valid elements that can be incorporated into building up the official pump price for each of the products. They are :

(i) Product cost - calculated based on monthly average of the lowest Singapore Postings. It is implemented on 2-month delayed basis. Another consideration of product cost is the currency exchange from US dollar to Ringgit. The average currency exchange rate is applied in APM on one-month delayed basis.

(ii) Company margin - a fix margin to oil companies determined by the government

(iii) Operating costs - based on actual cost of the prevailing year with an inflation factor incorporated

(iv) Dealer commission and

(v) Government duty (and possibly duty exemption and subsidies)

Secondly, it defines the frequency of review for each of these elements. In the case of product cost and government duty (with the associated optional elements), the review period is monthly. The operating cost element is reviewed on a yearly basis and an award would be given by the government and then incorporated into one of the monthly review. There is no specific time frame for the review of the company margin, similar to the dealer commission. Since APM's implementation, dealer commission had been reviewed upward thrice (in November 1983, August 1988 and August 1994) whilst company margin only had one time increase in 1994 (Shell (M) Trading Sdn. Bhd.). Frequency of revision of the-said elements are :

Element in pump price	Review Period
Product cost	Monthly
Company margin	No specific time frame
Operating cost	Yearly
Dealer commission	No specific time frame
Government duty, exemption, subsidy	Monthly

Source : MDTCA

Thirdly, it defines how each element is calculated. All elements remain unchanged, product cost is the element that moves. Any change in product cost can trigger a change in either :

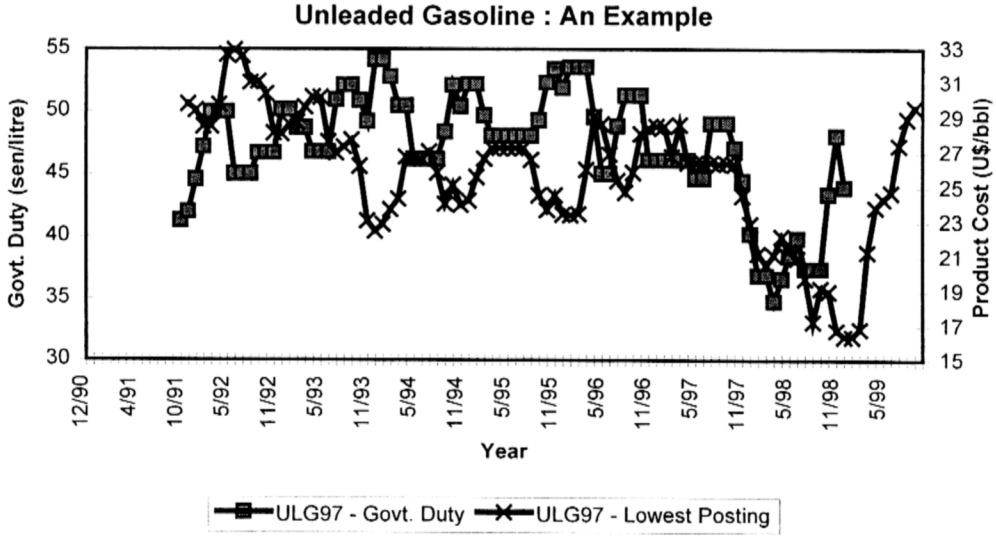
(i) the pump price
(ii) the government duty
(iii) both the pump price and government duty

Hence, any benefits / losses due to product cost change can be given to the public or the government.

During the Gulf War crisis in 1990/91, prices of crude oils and petroleum products were going up rapidly but the government did not raise the prices of these controlled products by the same quantum. A small percentage of increase was passed to the Public whilst the government

absorb some of the cost and passing the rest to the oil companies. It changed the monthly review period to a forthnightly one, thus cushioning some of the losses suffered by the oil companies. It also gave huge exemptions (and even some subsidies) so that the prices did not escalate with product costs. In this way, the public was protected and the stable economy of the country maintained. Vice versa, the mechanism allows the reverse of high exemption to high taxation when the product costs move the other way round. In most cases, it can be seen that the government duty (with the associated optional elements) acts as the balancing item in ensuring stable prices, as illustrated by Figure 8 below. When the product cost increased, the government duty dropped to cushion the effect of product cost hike and vice versa.

Figure 8 : Relationship between Product Cost and Government Duty



Note : Product cost refers to Lowest Posting by various refineries in Singapore
Source : MDTCA and Shell (M) Trading Sdn. Bhd.

3.3.3 Tax Incentive On Unleaded Gasoline (ULG)

With effect from 1st January 1994, the government has introduced the instrument of tax incentive of three Malaysian Sen to promote the use of unleaded gasoline as a mean of preserving the environment. The pump price of unleaded gasoline with RON 97 was set at RM1.10/litre, a reduction of 3sen as compared to premium grade (leaded) of RON97. Although unleaded

gasoline was only made available by several oil companies, namely Shell and Petronas since 1990, the incentive was only approved years later after many recommendations and lobbying by oil companies, Department of Environment and the public.

In fact, tax instrument has been widely used in other countries like Europe and US to increase the penetration of unleaded gasoline. What has been done to those countries is to introduce a tax differential between unleaded and leaded petrol i.e. the tax on leaded petrol is increased vis-à-vis unleaded gasoline so that the price of the latter is lower at the pump. According to the Technical Manager of Shell Malaysia Trading Sdn. Bhd., Mr C.K.Chang in an interview by AAM in 1989, he said that "*If unleaded gasoline is priced higher than leaded gasoline or at the same level, it is unlikely that its use will increase and become widespread in the country sufficiently and significantly enough to bring down lead in the atmosphere.... A major move to the greater use of unleaded gasoline by the motoring public depends on encouragement by the authorities through the use of fiscal incentives e.g. the reduction (incentive) on unleaded gasoline or higher duty on leaded gasoline (dis-incentive)....Virtually all countries in Western Europe have tax incentives for unleaded gasoline...ranges from about 1 US cent per litre to US 8cents per litre. Obviously, the rate of penetration of unleaded gasoline depends on his incentive where the incentive is greater, the rate of penetration is faster.....*".

The above statement was proven valid in the case of Malaysia, too. It is evident by the increase in consumption of unleaded gasoline from approximately 1416 million litre to 2204 million litre in 1994 whilst sale of leaded gasoline had dropped from 2928 million litre in 1993 to 2,660 million litre in the same period. It showed that between leaded and unleaded gasoline, cross elasticity was high - if the price of product (unleaded gasoline) decreased, the quantity of the substitute product demanded (leaded gasoline) dropped accordingly. Based on the above figures, the cross elasticity for

leaded to unleaded gasoline was estimated to be 3.56 from 1993 to 1994, *ceteris paribus*. This means that for every 1% drop in the price of unleaded gasoline, 3.56% decrease in the quantity of leaded gasoline could be achieved during the changeover period. This contributed to a reduction of 14,278 kg of lead consumption i.e.2.89% reduction in total lead emitted from gasoline-driven vehicles for that particular year. Long run and short run cross elasticity of gasoline will be empirically examined and discussed in Chapter 4.

Tax incentive on unleaded gasoline was well received by the motorists as well as oil companies. To the existing premium gasoline and unleaded gasoline (both RON97) consumers, it brings saving of 3sen for every litre of petrol they consumed. This represents approximately RM5-8 savings per month for an average motorist who make 1800km-3000km mileage (assuming fuel economy of 10sen/litre for a 1500cc passenger car). On the other hand, the motorists using regular leaded petrol were also given an option to upgrade their fuel requirements to a better product, unleaded gasoline of higher octane rating. The price gap between RON97 and RON92 gasoline had been reduced from 7sen/litre to 4sen/litre which became more affordable to many motorists to convert to unleaded gasoline. The ultimate benefit of this conversion is to reduce lead in the environment hence making the airspace cleaner and healthier society.

To the oil companies, the tax incentive reduced their burden for every litre of unleaded gasoline produced. As mentioned earlier, lead is used as a cost effective way of boosting octane rating since 1930s. A low cost non-metallic octane booster has yet to be found. In order to produce ULG of the same octane rating as leaded gasoline, more expensive components have to be added at the refinery. As a result, unleaded gasoline typically costs about 5 sen per litre more in this country (AAM News December 1989). This additional cost had been absorbed by the oil companies since the introduction of ULG. In fact, all oil companies, except the two oil majors Shell and Petronas, were holding back from the launching of their unleaded grade due

to this reason until the 3 sen tax incentive was approved. This is evident by the low consumption of unleaded gasoline from 1993 that accounted to approximately 32.6% of total gasoline demand. Though the real benefit of tax reduction was passed to the public, the oil companies recognised that marketing of unleaded gasoline is an unavoidable trend as the society becomes more environmental-conscious. Indirectly, the gain to the oil companies to market unleaded gasoline was the increase of their brand visibility via media communications and healthier corporate image for being care and responsible towards the environment.

In a nutshell, the reduction in gasoline tax on unleaded gasoline in Malaysia had benefited all relevant parties including the society in general and the gasoline consumers in particular, not forgetting the oil industry as well. This has clearly demonstrated how government involvement can influence the supply and demand in the marketplace.

3.4 Environmental Regulations

Without doubt the single most important factor outside direct market or manufacturing considerations, affecting the gasoline business in many countries is the introduction of more stringent environment regulations. Gasoline, in relations to environmental regulations, has two major concerns - harmful gasoline contents like lead and benzene and exhaust emissions. Emissions from motor vehicles have been identified as the major pollutants in the urban area. There are various ways of cutting down the pollution from motor vehicles. We can ban them completely - and go back in time to the days of the horse drawn carriages. Or we could introduce regulations that specify substantially lower levels of toxic emissions that will necessitate the use of emission control devices to clean the exhaust gases before they reach the end of the exhaust pipes. This is what being done by many car manufacturers which have fitted the catalytic converter that converts emissions like carbon monoxide and hydrocarbons, into less harmful gases.

This is an expensive way but the only way to satisfy the strict regulations of Japan and California (AAM News December 1989).

The concern over lead content in gasoline has led to the introduction of unleaded and low lead grades in most of the developed and developing countries including Malaysia. There are two basic reasons for governmental demands for reduced lead in gasoline. Firstly, catalytic conversion of exhaust gases to remove pollutants requires unleaded gasoline because lead inactivates the catalyst. Secondly, lead is toxic and there is concern that lead emanating from automobile exhausts might be unhealthy. The precise effect of lead on people and the environment, and the extent to which gasoline engines play a part, are matters still being debated. But in most countries, there are regulations to limit the amount of lead that can be used.

Exhaust emissions is another issue of concern. In Europe, motor vehicles cause half of the man-made nitrogen oxide emissions; more than twice the amount from the next largest source - coal fired power stations. They also contribute 40% of the man-made hydrocarbon emissions, with the major part (25%) coming from gasoline car exhausts. Nitrogen oxides and hydrocarbons are implicated as helping ozone formed in the lower atmosphere by the action of sunlight. Advances in combustion technology now allow a very high proportion of air to gasoline without misfiring. Nitrogen oxides and carbon monoxide emissions can be reduced to very low levels by these lean burn engines, but a comparable reduction of hydrocarbons may require an oxidation catalyst. Three-way catalysts, on the other hand, simultaneously convert exhaust components, carbon monoxide, nitrogen oxides and hydrocarbons into non-toxic products. There are now widely used in Europe and elsewhere following the trend set by the USA, Canada , Japan and Australia to enable motor vehicles to meet very stringent emission limits (Shell Science and Technology 1989).

3.4.1 The Development of International Environmental Regulations For Gasoline

The concern on atmospheric pollution was spur-headed by smog problem in Los Angeles, USA in early 60s. Smog was found to be caused by combustion of hydrocarbons and nitrogen oxides. This discovery led to the introduction of emissions limits in USA in late 1960s. In the initial stage of introduction, these emission limits can be met by carefully tuned engine to run leaner. However, these limits were progressively tightened and in 1970s, "Mushie limits" were proposed - a 90% reduction of 1971's emission limits. Due to technological constraints, the proposed limits were set in 2 phases up to 1981 (Shell ULG Symposium 1990). Table 6 shows the milestone of reduction in US exhaust emission levels from 1920s to 1980s before and after the implementation of stricter emission limits.

Table 6 : Historical US Exhaust Emission Levels

	Emissions (g/mile)		
	Hydrocarbons	Carbon Monoxide	Nitrogen Oxides
1927 (estimated)	24	170	2.1
1960 (estimated)	10.6	84	4.1
1966-67	10	84	4.1
1968-69	6.3	51	-
1970-71	4.1	34	6.2
1972	3.0	28.2	6.2
1973-74	3.0	28.2	3.1
1975	Catalysts required + introduction of unleaded gasoline		
1975-76	1.5	15	3.1
1977-79	1.5	15	2.0
1980	0.41	7.0	2.0
1981-84	0.41	3.4	1.0

Source : Shell Unleaded Gasoline Symposium, 1990

Since then, many automotive manufactures in US including General Motors had embarked in researches in exhaust catalyst as after-treatment for

exhaust. Oxidation catalysts were invented but the reduction in emission levels were found unsatisfactory still. In order to meet the stringent environmental regulations, 3-way catalyst converter were introduced in 1975 in USA. It was proven to be the best available technology then to control exhaust emissions. Japan was the next country to follow. In 1986, Korea and Australia had also made catalytic converter mandatory in newly manufactured vehicles. Similar strategy was adopted and implemented in European countries in 1993. Consequent to that, Unleaded Gasoline was developed and introduced in those countries - on one hand to improve air quality by lowering atmospheric lead content and on the other hand it is essential for cars fitted with catalytic converter to avoid catalyst contamination.

The advancement in air quality control in European countries has set stringent target by year 2000 as shown in Table 7 and 8 :

Table 7 : Air Quality Target in European Countries by 2000

Pollutant	Urban NO_x*	Urban CO_2	Urban Benzene	Urban Particulates	Troposheric Ozone
Air Quality Targets	200μg/m_3 Maximum per hour	10mg/m_3 Maximum per hour	10μg/m_3 Annual mean	50 μg/m_3 Annual mean	180μg/m_3 Hourly 99%

Source : Fuels and Lubes International, 1996

Table 8 : Petrol Driven Passenger Car Exhaust Emission Limit Values (g/km) for European Countries

	Carbon Monoxide (CO)	Hydrocarbon (HC)	Nitrogen Oxides (NO_x)	HC + NO_x
2000	2.3 (2.2)	0.20	0.15	- (0.5)
2005	1.0	0.10	0.08	-

Reduction from current level shown in parenthesis

Source : Paramins PostScript, 1998

3.4.2 Gasoline and Environmental Regulations in Malaysia

In Malaysia, there are no regulations concerning the level of emissions from motor vehicle exhausts as yet but most vehicles sold in this country conform to some form of self regulation that the manufacturers apply in cases where no specific regulations exist (AAM New 1989). It is also worthwhile to note that one of the latest environmental guidelines, Malaysia Air Quality Guidelines (1989) actually do not have any legal enforcement (JICA Report : Air Quality Management in Klang Valley 1993). The most important law in Malaysia concerning environmental pollution is the Environmental Quality Act 1974 (amended 1985). This law provides the framework for all states in Malaysia to regulate each environmental policies. It outlines all activities relating to preventing or controlling pollution and protecting and enhancing the quality of environment. Several regulations concerning motor vehicles have been enacted based on this Act. They are :

(i) Environmental Quality (Clean Air) Regulations 1978
(ii) Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations 1985
(iii) Motor Vehicles (Control of Smoke and Gas Emissions) Rules 1977

Traditionally, the environmental regulations in developing countries are less stringent as compared to the developed countries. The air quality target values in Malaysia are far below countries like US and Europe. Although a stricter regulation on air quality e.g. Clean Air Act in USA, was not in placed yet, the Government has been making progress in lead reduction in gasoline as compared to the other neighbouring countries. This move is a major improvement in the history of gasoline market and Environmental Quality Regulation of 1985 (Control of Lead Content in Motor Gasoline) is responsible for this. In July 1985, the regulation required a reduction in lead from the prevailing 0.84g/l to 0.4g/l. As of 1st of January 1989, the oil companies were required to bring the lead content down to 0.15g/litre. While the 0.15g/litre sounds extremely low, there was still a lot of lead being let into the atmosphere when the total consumption of leaded gasoline at that time was

3200 million litres in Malaysia (AAM News December 1989). Comparing to the country like Japan and Canada which had gone 100% on unleaded gasoline and USA with 87% penetration by late 80s, Malaysia has finally moved to totally "unleaded" in January 1999.

Other than issue on lead content, motor vehicle emissions is also a concern in marketing of gasoline. Exhaust emissions from passenger vehicles were found to be the major contributor to the pollution in this country, besides industrial emissions A study by JICA in 1992-1993 on Air Quality Management in Klang Valley revealed that the emissions from petrol-driven vehicles (mainly motorcars and motorcycles) contributed to 88.3% of hydrocarbon, 75.5% of Carbon Monoxide (CO) and 44.9% of Nitrogen Oxides (NO_x) emitted in the airspace. In early 1990s, there were calls from the public for the implementation of Clean Air Act in Malaysia in view of its deteriorating air quality. In response to that, the Government of Malaysia had appointed Minister of Science, Technology and Environment to propose an action plan for Clean Air in Malaysia. A meeting was set on 21st October 1993 with representatives from various government departments and the private sectors to address the concerns of the Government on the above subject. A position paper was submitted in the subsequent month. The summary of the recommendations with regard to gasoline and gasoline-driven motor vehicles are :

1) Two phases of Lead Phase Out :
   (i) Two grade gasoline structure i.e. unleaded gasoline RON 97 and leaded gasoline RON 92 to be implemented in 1994 aimed to increase penetration of ULG with lead specification not exceeding the Malaysian Standard of 0.013g/l
   (ii) Total lead phase out in gasoline by 1996
2) To legislate the use of catalytic converter for all new cars by 1995
3) To promote the use of clean fuels such as Natural Gas Vehicle (NGV) particularly for public transport in urban areas

4) To promote the use of 4-stroke motorcycles through fiscal measures as 2-stroke motorcycle engines produce significantly higher emission than 4-stroke
5) To mandate the use of low smoke 2T motorcycle oils for all existing 2-stroke motorcycles

Unfortunately, not all the above action plans were passed in the Parliament except the recommendation on lead phase out in motor gasoline. This is due to the potentially serious economic impact to the society especially to mandate the use of catalytic converter which costs around RM1000 initial investment per vehicle. The implication of lead phase out in motor gasoline, though not legislated, had switched the supply and demand scenario of gasoline in this country.