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Kick the Habit! Towards a Low Carbon Economy

Why the Focus on Carbon?

What role does carbon play in global warming? Why are we talking about carbon trading, alternative energy and energy efficiency? Why does going green mean a reduction in carbon emissions? To make sense of carbon emissions and its effects on climate change, air quality, our health and our economy, let us attempt to understand the basics of carbon. We will therefore start with a brief article on carbon as a prelude to the theme: Kick the Habit! Towards a Low Carbon Economy.

Carbon in Nature

The three most important substances that make life possible are water, oxygen and carbon dioxide. The primary structural and functional element in all living things is carbon. All carbon in protein, fat, carbohydrate and other organic molecules in living things is derived from atmospheric carbon dioxide. Without atmospheric carbon dioxide, life as we know it would not be possible.

The carbon cycle is the biogeochemical cycle by which carbon is exchanged between the biosphere, geosphere, hydrosphere and atmosphere of our planet Earth. Carbon is stored in four major reservoirs:

- The atmosphere
- The biosphere (including freshwater systems and ground soil)
- The oceans (including dissolved inorganic carbon)
- The sediments (including fossil fuels)

Carbon is exchanged between these reservoirs via sequences of various chemical reactions and biological processes. Carbon exists in the Earth's atmosphere primarily as the gas carbon dioxide. Although it is a very tiny percent of the atmosphere (approximately 0.04%), it plays an essential part in supporting life. In nature, carbon can then be released naturally back into the cycle in many different ways with the most common being respiration, decay of animal and plant matter, and the release of dissolved carbon dioxide from the oceans by marine life.

Carbon in Today's World

Disruption of the natural carbon cycle occurs with human intervention and the results of exponential growth in the world's population. Burning of fossil fuels releases stored carbon, increasing the overall percentage of carbon dioxide in the atmosphere. The primary by-product of burning fossil fuels is carbon dioxide. However, this exists naturally in the carbon cycle. Of more significance in impacting human health are the by-products: carbon monoxide, nitrogen oxides, sulphur oxides and hydrocarbons. Suspended particles from these compounds can combine in the atmosphere to form tropospheric ozone, the major constituent of smog. Carbon monoxide is a deadly toxic gas, undetectable by smell that can harm or kill animals, plants and people. Both nitrogen oxides and sulphur oxides are primarily irritants to human health. But it is their by-products which are of major concern: the polycyclic aromatic hydrocarbons (PAHs) which have been identified as carcinogenic, mutagenic and teratogenic.

Today, the debate on global warming continues. But what is certain is that combustion of fossil fuels through industrial activities, vehicle exhaust fumes, smoking, use of petrochemical products in buildings at unprecedented levels produces by-products which have increased the amount of greenhouse gases in the atmosphere affecting the quality of the air that humans breathe as well as the climate that sustains our life on earth.

Source
Kuan You Wai
Email: kuanyouwai@gmail.com

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From the desk of the Director General

Kick the Habit!
Towards a Low Carbon Economy

Today, a good part of humanity realises that we cannot do damage to the Earth without damaging ourselves. And what affects the Earth affects us all in the most profound way. After all, can there be anything more profound than our survival?

To get an idea of the precarious nature of our survival, just visit the agenda of any meaningful international gathering on the Environment. Take for example the agenda of the recent September 2007 Nineteenth Meeting of the Parties to the Montreal Protocol: hydrochlorofluorocarbons (HCFCs) phase out schedule; transboundary movement of ozone depleting substances (ODS); preventing illegal trade; essential use of exemptions for 2008 and 2009; methyl bromide and carbon tetrachloride related issues; compliance to the phase out; production of CFCs for producing metered dose inhalers (MDI); replenishment and issues related to the Multilateral Fund for the Implementation of Montreal Protocol and assessment of new short-lived ODS. Indeed the agenda itself is nothing short of frightening! For the record, Malaysia ratified the Montreal Protocol in 1989. At this recent meeting the then Minister of Natural Resources and Environment, Dato' Seri Azmi Khalid presented our Country Statement. A perusal of the decisions made at this gathering clearly signals that the heat is on.

Yes, the heat of Global Warming is on us. It is here, there and everywhere. There is no place to hide. Not even in our conscience. There is no one to blame or to shame but ourselves. There is no time to "stand and stare'. We can start reducing our own carbon footprints by kicking out some old habits that have contributed to this high carbon economy. Yes, you can save yourself and us by being carbon focused. We must be carbon focused because the use and abuse of carbon is at the centre of global warming and environmental abuse. The carbon cycle is a complex biogeochemical cycle in which carbon is exchanged between the biosphere, geosphere, hydrosphere and atmosphere. As little as a few hundred years ago, a natural equilibria existed in the carbon cycle. Then came 'modern industrial man'. Today, to put it in current lingo, the cycle has gone haywire. And we, the inhabitants of the earth are the culprits. We are already feeling the effects of high CO_2 – increased intensity of extreme weather which has been causing untold misery. The recent episodes in China and Myanmar are cases in point. It is painful and there is more to come unless we take responsibility for our past and present actions.

Even as we speak, our country is undergoing rapid industrialisation and urbanisation. Population growth is also expected to increase from 2.6% to 3% per annum. These factors will lead to an increase in energy consumption and total green house gas emissions. Specifically in relation to carbon dioxide emissions, Malaysia emits 5.45 metric tonnes per capita. The world average is 4.22. Clearly we have much to do. Perhaps we can start with ourselves and our homes.

There are several things that we can do just in our homes that will go a long way towards reducing carbon emissions. We can replace all home lighting with compact fluorescent light bulbs. Just replacing 2 such bulbs would save the Earth from dealing with an additional 150 kilograms of carbon dioxide. We can also run full loads on our washing machine and dishwasher and not leave water running. We can take shorter showers and go on to install a low flow shower. We can keep our old electrical appliances in good order or replace them altogether.

Even a car that is not serviced at proper intervals contributes to higher carbon emissions! Just imagine – if 1% of car owners maintain their cars properly, a billion kilograms of carbon dioxide can be filtered from the atmosphere. That goes for tyres too. Inflating tyres improves fuel efficiency. Every gallon of fuel not used keeps 10 kilograms of carbon dioxide at bay. We can car pool to work or better still use public transport. But of course there needs to be vast improvements made to the public transport system. Bicycle to the neighbourhood shop. Plant a tree which by the way absorbs 1 tonne of carbon dioxide a year! There are simply so may actions that we as individuals can take to reduce carbon emissions instead of waiting for the government to go into agreements. This is the reason why the theme of the World Environment Day this year has been so focused on us. We have to kick old habits and the consequence will be a low carbon economy.

Embrace sustainable consumption. Support green manufacturers. Reduce. Reuse. Recycle. Let us just do it. Let us all start a virtuous environmental cycle. Time's up and it's up to us!

Dato' Hajah Rosnani Ibarahim
Director General
Department of Environment, Malaysia

Towards a Low Carbon Society: Carbon Emissions and the Transport Sector

Malaysia is undergoing rapid industrialisation and high economic growth which demand high energy consumption. As population growth is also expected to increase from 2.6% to 3% per annum, this growth rate is likely to contribute to an increase in energy consumption and total greenhouse gas emissions.

Specifically in relation to carbon dioxide (CO_2) emission, Malaysia emits 5.45 metric tonnes per capita, which is much higher than the Asian (excluding China) (1.25 metric tonnes per capita) and world (4.22 metric tonnes) averages. Malaysia has a relatively high total CO_2 emission which is the second highest in Asia after Japan (9.4 tonnes per capita) and the highest in South-east Asia (Figure 1).

The sector with the highest energy demand is transport (40.5%) followed by industrial (38.6%) and resident/commercial (13.1%). The Malaysian Automotive Association reported an increase of 20.24% in total vehicle sales from 38,619 units in March 2007 to 46,436 units in March 2008 in Malaysia. In terms of transportation, the 3rd Workshop of Japan-UK Joint Research Project (2008) summarised that urban transport will focus on promoting a shift from private vehicles to public transport to reduce greenhouse gas emissions. The present public to private transport ratio in Klang Valley is 16:84 (2003) and needs to be further increased to 30:70 in 2010 (Ninth Malaysia Plan 2006-2010) and to 50:50 in the year 2050. Integrated transport terminals between rail, buses and other modes of public transport and other incentives will be required to attract the private vehicle users to public transport. It is generally recognised that it is private vehicle use that has contributed to the relatively high greenhouse gas emissions in Malaysia compared to the average of the world and other South-east Asian countries.

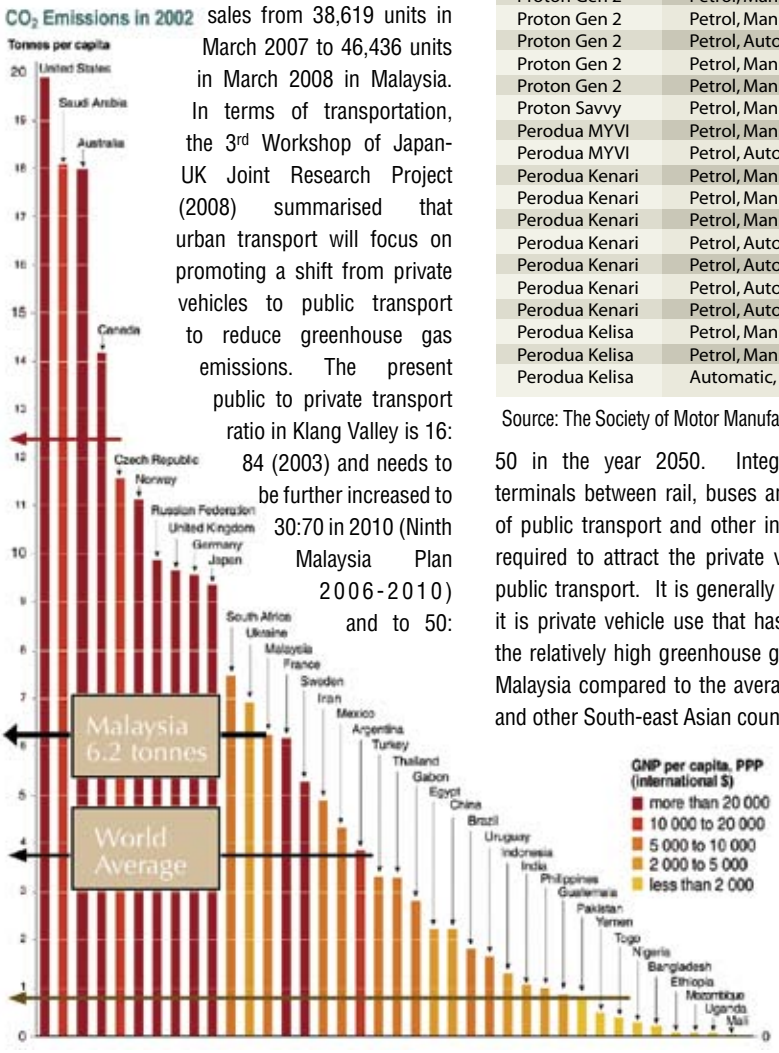

Figure 1: CO_2 emissions in 2002. Source: Ho Chin Siong (2008)

Table 1: Carbon emissions by selected Malaysian cars.

CAR	MODEL	YEAR	Engine (cc)	CARBON EMISSIONS
Proton Persona	Petrol, Automatic, EXI	2007	1834	Not Available
Proton Wira	Petrol, Automatic,LUX	2000	1597	225
Proton Wira	Petrol, Automatic,EXI	2004	1597	236
Proton Wira	Petrol, Automatic,EXI	2002	1597	232
Proton Wira	Petrol, Automatic,EXI	2000	1834	226
Proton Wira	Petrol, Automatic, SRI	2000	1834	226
Proton Wira	Petrol, Automatic, LXI	2001	1468	206
Proton Wira	Petrol, Automatic, LXI	2000	1597	225
Proton Wira	Petrol, Automatic, LUX	2001	1468	209
Proton Wira	Petrol, Automatic, LUX	2000	1468	207
Proton Wira	Petrol, Automatic, LUX	2000	1834	226
Proton Wira	Petrol, Automatic, EXI	2000	1834	226
Proton Wira	Petrol, Manual, SAL	2003	1468	211
Proton Wira	Petrol, Manual, SAL	2000	1597	198
Proton Wira	Petrol, Manual, LXI	2000	1468	201
Proton Wira	Petrol, Manual, SAL	2001	1597	217
Proton Wira	Petrol, Manual, SAL	2003	1299	200
Proton Wira	Petrol, Manual, EXI	2000	1834	217
Proton Wira	Diesel, Manual, TDI	2000	1998	205
Proton Satria	Petrol, Automatic, LXI	2000	1597	217
Proton Satria	Petrol, Automatic, LUX	2000	1468	219
Proton Satria	Petrol, Automatic, LUX Sport	2003	1468	202
Proton Satria	Petrol, Automatic, LUX Sport	2001	1468	219
Proton Satria Neo	Petrol, Automatic, GLS	2007	1597	177
Proton Satria Neo	Petrol, Manual, GSX	2007	1597	157
Proton Savvy	Petrol, Manual, STYLE	2005	1149	134
Proton Gen 2	Petrol, Manual, GSX	2006	1597	197
Proton Gen 2	Petrol, Manual, GSX	2005	1332	Not Available
Proton Gen 2	Petrol, Manual, GLS	2006	1597	169
Proton Gen 2	Petrol, Manual, GLS	2004	1597	169
Proton Gen 2	Petrol, Manual, GLS	2005	1332	165
Proton Gen 2	Petrol, Automatic, GXS	2005	1597	192
Proton Gen 2	Petrol, Manual, GSX	2005	1332	Not Available
Proton Gen 2	Petrol, Manual, GSX	2004	1597	169
Proton Savvy	Petrol, Manual, STREET	2005	1149	134
Perodua MYVI	Petrol, Manual, SXI	2006	1298	137
Perodua MYVI	Petrol, Automatic, EZI	2006	1298	151
Perodua Kenari	Petrol, Manual, GX	2003	989	136
Perodua Kenari	Petrol, Manual, GX	2001	989	133
Perodua Kenari	Petrol, Manual, GX	2000	989	136
Perodua Kenari	Petrol, Automatic, EZ	2000	989	162
Perodua Kenari	Petrol, Automatic, EZ	2003	989	165
Perodua Kenari	Petrol, Automatic, EZ	2001	989	162
Perodua Kenari	Petrol, Automatic, EZ	2000	989	165
Perodua Kelisa	Petrol, Manual, GX	2001	989	121
Perodua Kelisa	Petrol, Manual,EX	2001	989	121
Perodua Kelisa	Automatic, Manual,EZ	2001	989	153

Source: The Society of Motor Manufacturers and Traders Ltd (2007)

Cars are vital source of carbon dioxide emissions. Internal Combustion (IC) will be the dominant technology of the future. Any regulatory approach to carbon reduction in transportation should therefore consider IC technologies. Car manufacturers must also treat this issue with more urgency, though the changes have the potential to modify dramatically the nature of cars and the car manufacturing industry. Table 1 summarises carbon emissions by selected 'Made in Malaysia Cars' compiled by The Society of Motor Manufacturers and Traders Ltd (2007).

In February 2007, the European Union Environment Commissioner proposed a mandatory reduction in average CO_2 emissions from new cars to 130 g/km by 2012. The European Automobile Manufacturers Association (ACEA) suggests that reducing CO_2 emissions to 130 g/km for

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new cars is a major challenge, yet the industry currently offers many vehicles that meet this standard (Table 2) (Nieuwenhuis,2007). Much of this reduction in CO_2 output was achieved by greater reliance on diesel engines. The better efficiency of the diesel engine more than offsets the slightly higher carbon content of diesel fuel. Car manufacturers must also treat this issue as a step closer towards low carbon cars.

Most developing countries are making serious efforts towards reducing carbon emissions from other sources but the transport sector continues to be highest emitter of CO_2 emissions. Developing countries have attempted to reduce CO_2 emissions from cars, either through fuel taxes or restrictions on fuel consumption. In Malaysia, some of the current policies on CO_2 reduction efforts are as in the Ninth Malaysia Plan (2006-2010) where policy strategies were outlined to increase energy efficiency and promote the use of renewable energy.

The National Biofuel Policy is aimed at reducing dependence on depleting fossil fuel, promoting a demand for palm oil by stabilising its price at a remunerative level. Meanwhile in the National Environmental Policy adopted in 2002, strategies towards sustainable development were highlighted. Nevertheless, a comprehensive low carbon emission policy and carbon reduction target is not mentioned officially. On the other hand, in the National Biofeul Policy which contains 5 strategic thrusts, Thrust 1 represents biofuel for transport. Diesel for land and sea transport will be a blend of 5% processed palm oil and 95% petroleum diesel. As this sector is the main user of diesel, it will be given priority in this policy. Moreover, Thrust 5 mentions about biofeul for a cleaner environment with the use of biofeul being increased while the use of diesel being reduced. Thrust 5 mentions minimisation of greenhouse gases (carbon dioxide), carbon monoxide, sulphur dioxide and particulates through the increased use of biofuel which is seen as important in enhancing the quality of the environment.

In addition, the emphasis of the 13th ASEAN Summit in 2007 was on environmental sustainability towards a low carbon society (LCS) roadmap. The low carbon society roadmap requires a combination strategy of country policy scenarios, institutional and technological innovation and behavioural changes. This roadmap (i) promotes Clean Development Mechanism (CDM) under the Kyoto Protocol which encourages the developed countries to support 'green' projects in developing countries to make up for pollution in their own areas; (ii) calls for environmental pollution like the annual haze to be tackled by measures to improve a country's capacity to promote public awareness and law enforcement; (iii) works towards an effective, fair, flexible and comprehensive agreement on climate change to replace the present Kyoto Protocol which expires in 2012; and (iv) promotes innovative green financing to stimulate investment in climate friendly technology and development.

Malaysia's programmes on low carbon cars are based on legislations and building smart partnerships with other private and government agencies, technological innovation and behavioural changes. In the area of transport, there are definite moves to improve Rapid KL and Light Rail Transits (LRTs) to reduce the use of private vehicles, ease traffic congestion as well as to reduce carbon emissions. Besides, the role of corporate social responsibility towards reducing carbon emissions is also crucial. The Government will need to encourage more of the public listed companies to fund, invest and play an active role in green technologies and the renewable energy sector in attempts to reduce CO_2 emissions in the nation.

To achieve the ultimate objective of low carbon cars and stabilising the concentrations of greenhouse gases in the atmosphere, the world must work towards reducing CO_2 emissions on a long-term continuous basis. Our nation has no choice but to work towards building a society that reduces its carbon emissions in a move towards a low carbon society.

Table 2: Nieuwenhuis 2007 Car CO_2 Reduction Feasibility Assessment for < 140g/km cars currently available in the EU.

CAR	MODELS <120 g/km	MODELS 120 -130 g/km	MODELS 130 -140 g/km
BMW	MINI 1.4 d	118 d, 120 d	118 i, MINI 1.4, 1.6
Chevrolet		Matiz 0.8	Matiz 1.0, 0.8 auto
Citroën	C1, C2 diesel, C3 diesel	C4 1.6 d	C2 1.4 stopstart
Daihatsu	Charade, Sirion 1.0		Sirion 1.3
Fiat	Panda 1.3 Multijet; Grande Punto 1.3 Multijet 75	Grande Punto Multijet 90	Panda 1.1,1.2, Punto 1.2; Stilo 1.9 Multijet 90 3 d
Ford	Fiesta 1.4 tdci, 1.6 tdci	Focus 1.6 tdci; C-Max 1.6 tdci	Focus 1.8 tdci
Honda	Civic 1.3 hybrid	Jazz 1.2 dsi-s	Jazz 1.4 dsi; Civic 1.4, 2.2 cdti
Hyundai		Amica 1.1 gsi; Getz 1.1, 1.5 d	Amica 1.1 cdx
Kia		Picanto 1.0, 1.1; Rio 1.5 d; Cerato 1.5 d	
Mazda		2 1.4 d; 3 1.6 d	
Mercedes-Benz		A160 cdi	A180 cdi
MINI			Cooper 1.6
Mitsubishi		Colt 1.1, 1.5 d	
Nissan		Micra 1.5 d	Note 1.5 d
Perodua		Kelisa 1.0	Myvi 1.3 sxi; Kenari 1.0
Peugeot	107 1.0 urban; 206 1.4 hdi	1007 1.4 hdi; 207 1.4 hdi, 1.6 hdi; 206 1.6 hdi; 206 cc 1.6 hdi; 307 1.6 hdi 3d	307 1.6 hdi 5 d
Proton			Savvy 1.2 street
Renault	Clio Campus 1.5 dci; Clio 1.5 dci 86	Modus 1.5 dci; Clio 1.5 dci; Megane 1.5 dci 86 & 106	Scenic 1.5 dci 86 & 106; Grand Scenic 1.5 dci 106 Privilege
SEAT		Ibiza 1.4 tdi	Ibiza 1.9 tdi 100; Leon 1.9 tdi
Skoda		Fabia 1.4 tdi pd	Fabia 1.9 tdi; Roomster 1.4 tdi pd
Smart	For Two Pure; all For Two diesels	For Two Pulse & Brabus; For Four 1.0, 1.5 cdi; Roadster, Roadster Brabus	
Suzuki		Swift 1.3 d	
Toyota	Aygo; Prius	Yaris 1.0, 1.4 d	Auris 1.4 d
Vauxhall		Corsa 1.3 cdti; Tigra 1.3 cdti	Agila 1.0; Corsa 1.0, 1.2 (some); Meriva 1.3 cdti; Astra 1.7 cdti
Volkswagen		Polo 1.4 tdi	Polo 1.9 tdi
Volvo		C30 1.6 d; S40 1.6 d	C30

Source: Nieuwenhuis (2007)

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Source
Sarva Mangala Praveena, Mohd Harun Abdullah & Ahmad Zaharin Aris
Email: smpraveena@gmail.com

The Nineteenth Meeting of the Parties to the Montreal Protocol

The Nineteenth Meeting of the Parties to the Montreal Protocol (MOP 19), held from 17-21 September 2007, was attended by 131 parties, Implementing Agencies, representatives of NGOs and industries. Throughout the meeting, delegates considered decisions and negotiated several issues relating to the hydrochlorofluorocarbons (HCFCs) phase-out schedule; transboudary movement of ozone depleting substances (ODS); preventing illigal trade; essential use examptions for 2008 and 2009; methyl bromide and carbon tetrachloride related issues; compliance; production of CFCs for producing metered dose inhalers (MDI); replenishment and issues related to Multilateral Fund for the Implementation of Montreal Protocol and assessment of new short-lived ODS.

Decisions Adopted by the Nineteenth Meeting

Subsequent to 5 days of discussion and negotiations, the meeting of the parties adopted 31 decisions. These decisions can be retrieved from UNEP's website www.ozone.unep.org.

Country Statement by the then Minister of Natural Resources and Environment (NRE), Dato' Seri Azmi Khalid

The Minister elaborated on Malaysia's success in meeting obligated compliance to reduce CFC consumption. As an Article 5 Country, Malaysia is given until 2010 to phase-out the consumption of the remaining chlorofluorocarbons or CFCs. When Malaysia ratified the Protocol in 1989, our CFCs base level consumption was fixed at 3,271 ODP tonnes. In 2006, consumption of CFCs had been reduced to 565 ODP tonnes which is well below our obligated commitment to the Montreal Protocol.

On the proposed accelerated HCFC phase out, he expressed concern on financial assistance for technology transfer of economically viable, environmentally sound and safe alternatives. As for industries that had undergone the first conversion from CFCs to HCFCs, further funding had to be given for conversion to other alternatives. Malaysia also highlighted the issue on the usage of methyl bromide for quarantine and pre-shipment (QPS) purposes and emphasised that technically feasible and economically viable QPS treatments be in place before making any decisions on methyl bromide replacement. Malaysia also urged the importing countries to accept the technology developed to replace methyl bromide so that the use of this ODS can be reduced.

Malaysia takes cognizance of the key challenges faced by the Parties in protecting the ozone layer which include issues of funding, alternatives substances, technologies, compliance, illegal trade and synergies with other multilateral environmental agreements in particular the climate change convention. An issue that needs to be addressed is the illegal trade in ODS which if not addressed effectively at the early stage would undermine efforts to protect the ozone layer.

Malaysia'a Intervention in Contact Group of HCFC that gained the support of most parties to determine the Freeze as 1 January 2013.

" Before we came to this meeting, we had two consultation meetings with the industries and the Ministry of Trade. We also had a seminar on HCFC on 19 June 2007 to discuss the proposal presented in the Nairobi Meeting and we had the World Bank officer to present the global scenario of HCFC. The industries had the concensus to accelarate phase-out from 2040 to 2030 and accepted the initial proposal from Iceland/Switzerland /Norway that proposed a baseline of 152% of 2005 consumption and Freeze at 2015. We have the mandate to state our country's stand as such but in a spirit of comittment to the protocol, we are willing to consider and meet half way of Freeze year on 1 January 2013. If you look back to our tract record in phasing out CFCs, we were one of the earliest countries to phase out CFCs before year 2000 for the manufacturing sector. We can assure you that we will be able to met the obligation of the Freeze at 2013 and perhaps will be below the obligated quantity as we did for CFCs. We are also concerned about the environmental impact of this chemicals. In fact our country is a peninsula that is likely to be affected by environmental impacts such as climate change and sea level rise. When the tsunami hit Indonesia, we were also affected by it. But we also have the obligation to ensure sustainable economic growth in our country that depends on industrial development as well as tourism. At this juncture, we would like to appeal to all the parties to consider 1 January 2013 as Freeze year for Article 5 countries. We have already compromised on the accelarated phase out from 2040 to 2030, accepted your proposal for 2 years average of 2009/2010 for baseline and to expedite our reduction i.e 10% in 2015, 35-40% in 2020 and 65% in 2030. I would like to reiterate that the Freeze year of January 2013 be considered and accepted...."

Source
Aminah Ali
Email: min@doe.gov.my

Manufacturing Sector Practices in Reducing Carbon Emissions

The atmospheric concentration of greenhouse gases, most notably carbon dioxide (CO_2), has gradually increased over the last century and, in the view of many climate scientists, is warming the global climate. CO_2 emissions worldwide have now surpassed 28 billion tonnes per year annually and at the current pace are projected to reach over 40 billion tonnes per year by 2025. Some greenhouse gases (GHG) like hydrofluorocarbons, methane and nitrous oxide are released as by-products of certain manufacturing industry processes, which adversely affect the ozone layer, leading to global warming.

The Manufacturing Sector

On record, the manufacturing industry which accounts for an average 80% of industrial energy consumption, also accounts for an average 80% of industrial energy-related carbon emissions (agriculture, mining, forestry and fisheries account for the remaining 20%). Three industries namely petroleum, chemicals, and primary metals, emitted almost 60% of the energy-related carbon in manufacturing. The next three largest emitters (paper, food and stone, glass and clay products industry) produced an additional 22% of the energy-related manufacturing emissions.

The carbon intensity of energy use is the amount of carbon emitted per unit of energy used. Both the mix of energy sources used and the uses of energy affect carbon intensity. For electricity that manufacturers purchase, the carbon emissions occur where the electricity is generated, rather than at the manufacturing establishment. These emissions are assigned here to the ultimate user. Overall, the manufacturing industry had a carbon intensity of 17.16 million metric tonnes per quadrillion btu for the past few years. However, industries' carbon intensities differed markedly for different reasons.

The metals industry has relatively high carbon intensity, due to the extensive use of coal (primarily in the iron and steel industry) and electricity (in the aluminum and iron and steel industries). In contrast, the paper industry has relatively low carbon intensity, due to its use of renewable energy sources. The two industries with the highest carbon emissions, the petroleum refining and chemicals industries, have relatively low carbon intensities. These industries use large amounts of energy, but do not use all of that energy as fuel. Instead, these industries convert energy sources, such as liquefied petroleum gases or natural gas, into other products. A portion of the carbon contained in the original energy source is sequestered in the product rather than emitted to the atmosphere.

Is "Carbon Neutrality" Good Enough?

Becoming 'carbon neutral' means that the manufacturing industry has neutralized the effect of its greenhouse gas emissions so that its industrial activities no longer contribute to global warming. An alternative to carbon neutrality is carbon reduction, which describes the effort of manufacturing industry to reduce its future carbon emissions to an earlier volume – for example, proposing that 2015 emissions equal emission levels of 1995. The most direct way of reducing carbon emissions is by using less carbon-based energy. Any effort to reduce the consumption of carbon-based electricity, natural gas and refined crude oil products (gasoline, heating fuels) contributes directly to carbon reduction. Details of other carbon reduction programmes will be described in the following sections.

Carbon Off-setting Programmess by Manufacturing Industry

Carbon offsets are a way to reduce the impact of activities that we cannot avoid. The principle is that you work out how much carbon emissions you need or want to counteract, and then support projects that remove carbon emissions from the atmosphere. These projects can include tree planting, methane flares, renewable energy research and development, or manufacturing process and technology improvements, etc.

Offset programs can take several forms – anything that will either remove carbon emissions from the air or reduce how much we are putting in. For example, tree planting programmess calculate the number of trees it will take to absorb the amount of carbon you are making as they grow. Methane flares burn waste methane to avoid it being released into the atmosphere. Methane is 23 times as powerful a greenhouse gas as carbon dioxide, so burning it to transform it into carbon dioxide decreases the amount of global warming due to those emissions. Some offset projects invest in changing manufacturing processes to make them more efficient and less resource-hungry, such as improving a paper mill's system to use more recycled paper. Cogeneration projects use waste energy from manufacturing processes to generate power for the manufacturing plants, meaning a reduction in fossil-fueled power consumption. The following are some of the programs / actions / solutions that can be used as offset programs to shrink CO_2 emissions in manufacturing industries:

• Energy Efficiency

An improvement in energy efficiency occurs when the quantity of energy inputs needed for a given level of output is reduced. Energy efficiency is often the first step for manufacturing industries looking to minimise their emissions, and many have made significant cost savings as a result of action taken in this area. Promoting energy efficiency through policy measures such as building regulations and support and information for business and residential customers is a central pillar of many government initiatives on climate change.

• Fuel Switching

Reducing carbon dioxide emissions by switching to lower carbon-content fuels, such as from coal to natural gas can be a good first step for many manufacturing industries and cities to take when reducing their greenhouse

gas emissions. Fuel switching has been instrumental in reducing the emissions from transportation and electric utilities.

• Management System

In order to make greenhouse gas reductions permanent, actions have to be institutionalised. Alteration of the organisational structure within a company can better enable it to address climate change issues. One of the elements include incorporating safety, health and environmental protection, social equity, economic viability and efficient use of natural resources into business decisions.

• Monitoring and Reporting

An essential step to tackling greenhouse gas emission is to determine what the annual emissions of manufacturing industries are and to provide updated information (including progress on targets set) regularly to the public through, for example, the Carbon Disclosure Project, Annual Safety, Health and Environmental reports or through other means.

• Partnerships

Many manufacturing industries are increasingly working with non-governmental organizations (NGO), cities or other governments to identify best practice emission reduction solutions. Similarly, governments at all levels are seeking out opportunities to partner with business on delivering low carbon solutions for their citizens like what the electronic manufacturers are doing, e.g. energy saving refrigerators.

• Process Changes

Alterations in the chemicals and fuels used for manufacturing procedures during production are often made to reduce greenhouse gas emissions, especially in energy intensive industries like chemicals or steel.

• Product and Services

In addition to reducing their direct emissions, many manufacturing industries have introduced lower carbon products (energy efficient light bulbs and low emissions vehicles, for example) and services (e.g. eco-deliveries, offset car-hire). Changes in products to reduce downstream lifetime emissions of the product and/or production of new technologies that enable carbon reduction for other users can be seen across many sectors. For example, in office-based organizations focus in increasing equipment efficiency for machinery and processes. Improving equipment efficiency reduces costs as well as emissions.

Other elements like to consider on heating, cooling, ventilation and lighting systems, site selection, water use, building materials and indoor air quality, etc.

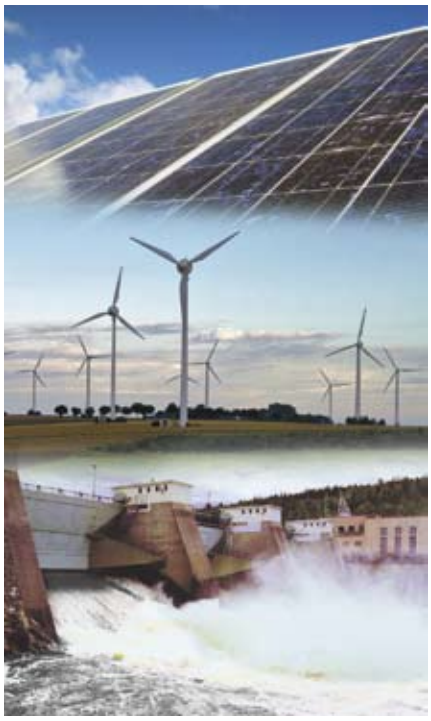
• Strategies and Targets

Once a carbon footprint has been determined, a method by which manufacturing industries will reduce their greenhouse gas emissions must be decided upon. Many manufacturing industries introduce carbon plans and policies, and, as part of these, set targets stating how much greenhouse gas emissions must be reduced over a defined period of time.

• Supply Chain Management

Another way that manufacturing industries address their indirect emissions is to address their material suppliers. Companies have begun to place demands on companies who provide materials that support the reduction of greenhouse gas emissions.

The supply chain is a key leverage point for reducing greenhouse gas emissions. Sustainable supply chain management includes establishing 'Green Procurement' and purchasing policies, working with suppliers to make operations more energy efficient, reducing packaging and shipping waste, and lifecycle analysis.



• Transport and Planning

Emissions from transport are growing in many parts of the world, and efforts to combat these, through sustainable planning and transport policies, are central to many manufacturing industries' emissions reduction programs. Companies too are looking to minimise their climate impact by adopting new ICT technology, introducing low carbon vehicles into their fleets, encouraging car sharing, adopting and implementing transport strategies.

Transportation can contribute up to half of company's GHG impacts, especially when shipping, workforce commuting, and air travel impacts are factored in. Consider commuter benefits for carpooling and transit, flexible work schedules, telecommuting and increased video and teleconferencing with clients, suppliers, subcontractors and remote colleagues.

• Waste Management

Waste management policies which reduce greenhouse gas emissions include landfill gas capture and use and 'Reduce, Reuse, Recycle and Reduce' (4R) concept. Reducing refuse production or using alternative means of disposal that reduce greenhouse gases emissions from waste decomposition and processing can have a large impact.

• Training and Employees

Moving towards climate neutrality is not a technical fix – it requires a change in thinking and culture. Similar to safety or quality, GHG management needs to be involved in every decision the organisation makes. This requires significant employee engagement and training. If done well, it can be an important source of workforce motivation. Champion the Cause! Spread the word on climate change and empower your employees, communities in which you sell and operate, and governments to work toward climate neutrality. Together we can make a difference.

• Tree Planting

Lastly, tree planting is the simplest and most familiar form of carbon offset program. Trees breathe in carbon dioxide, split it into carbon and oxygen, absorb the carbon into their wood and leaves, then breathe oxygen back out. So tree planting directly removes carbon emissions back out of the air rather than reducing how much we put in. Every tree we plant contributes to a climate solution.

Conclusion

Manufacturing industries have a leadership role to play in responding to the global challenge of climate change probably in reducing CO_2 emissions. Fortunately, taking action to reduce carbon emissions has many direct and indirect business benefits, including increased cost savings from energy and waste reduction, brand protection, competitive advantage, and customer and employee satisfaction. Additionally, businesses find climate initiatives drive innovation in technology, product design, and production and distribution processes. "Let's get started and we can change our earth to be a better place to live!"

Source
Ris Ramlee Ab.Hamid & Zailani Aman
Email : Risq.Ramlee@infineon.com

Moving Towards a Low Carbon Economy Through Sustainable Consumption

Consumers in Malaysia could be a faster and efficient driving force by a change of old habits. One way to go forward is to practise sustainable consumption as 27 million Malaysians can make a huge difference if they consume sustainably.

Sustainable Consumption (SC) is defined as the use of services and related products which respond to basic needs and bring a better quality of life while minimising the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle so as not to jeopardise the needs of future generations.

SC received international prominence at the Rio Earth Summit (UNCED) in 1992. The Agenda 21 action plan was adopted, where Chapter 4 highlighted, "Changing Consumption Patterns". Agenda 21 also highlighted that the major cause of continued deterioration of the global environment is the unsustainable pattern of consumption and production, particularly in industrialised countries. The action plan also recommended implementation of national policies, including the utilisation of economic instruments such as taxes and deposit/refund systems that can influence consumer behaviour towards sustainability.

we are using somewhere between 300 liters/day/person to 350 liters/day/person. This amounts to 90 bottles to 123 bottles of 1.5 liter bottles a person a day. That's a lot of water right! But if we can save 1.5 liters a day a person just for one day, it amounts to the total water supply needed by Federal Territory of Labuan for a year.

How is water is related to low carbon? Treatment of water fully depends on energy and a large amount of our energy generation depends on fossil fuels and natural gas. This shows that each one of us must know where our products or services originate from. Sustainable Consumption depends much on Sustainable Production as well. This brings forth the idea of 'Cradle to Cradle'.

What does that mean? It simply means we need to look at the life cycle of products and services. This will lead to more questions such as: How did it come about? How much impact does it have on the environment and on carbon emission? Is there any certification for such products and services? How do we get them?

Let us look at traditional ways of production, the 'Cradle to Grave' approach where the end users throw the resources away (Figure1). This approach also covers the non-environmentally friendly and high carbon emission practices.

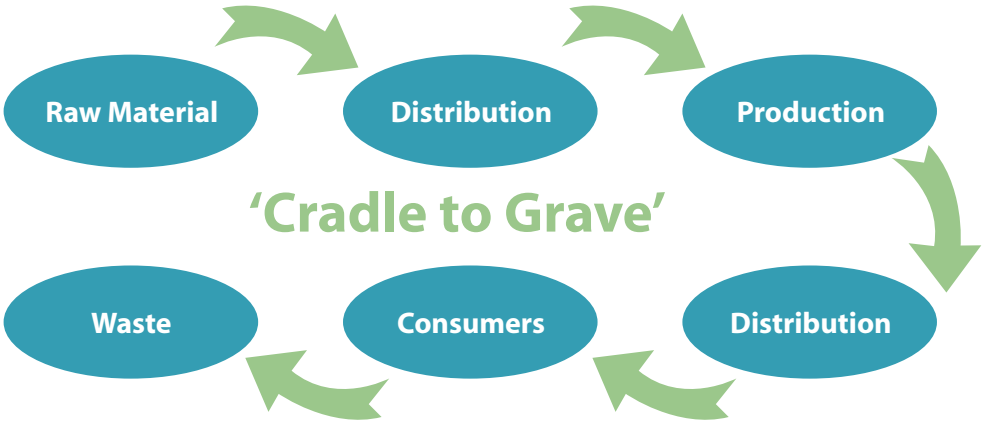


Figure 1: 'Cradle to Grave' approach

Sixteen years after the Rio Convention, we still have a lot to do and catch up with. We do not need to change our current lifestyle to go back to caves. However, we can do simple things that have a reduced impact on the environment individually.

For example, the WHO recommended water usage for individuals is 165 liters/day/person and

When we include the concept of sustainable consumption, consumers begin to be aware of the selection of products that are certified to be Eco-Friendly. The 'Cradle to Cradle' approach involves all stakeholders.

Issues that are highlighted in Figure 2 (page 9) are similar but with a little 'sustainable' twist added to it. That makes it interesting

and also difficult at the same time. Issues that will surface in Raw Materials are whether they are renewable or are they obtained in a sustainable manner. Recycling a metal causes lesser harm to environment and reduced carbon emission compared to mining it from the natural source. Organic farms provide safe and eco-friendly vegetables for production by practicing 'Good Agricultural Practices'.

Distribution should not be over long distances. Buy products that do not travel far, the longer the distance traveled by products, the more the carbon emission involved.

Production becomes an important area to ensure the 'Cradle to Cradle' approach moves forward. The design of products can ensure that raw materials from eco-friendly sources are used; a green manufacturing process with waste reduction is in place, and recyclable packaging is used. The manufacturers must also design the products that can be dis-assembled more easily. This will help waste management after use.

Consumers play an important role when they buy eco-friendly products or use eco-friendly services – they will help such industries to sustain and improve. The issue of enforcement becomes most vital as we want

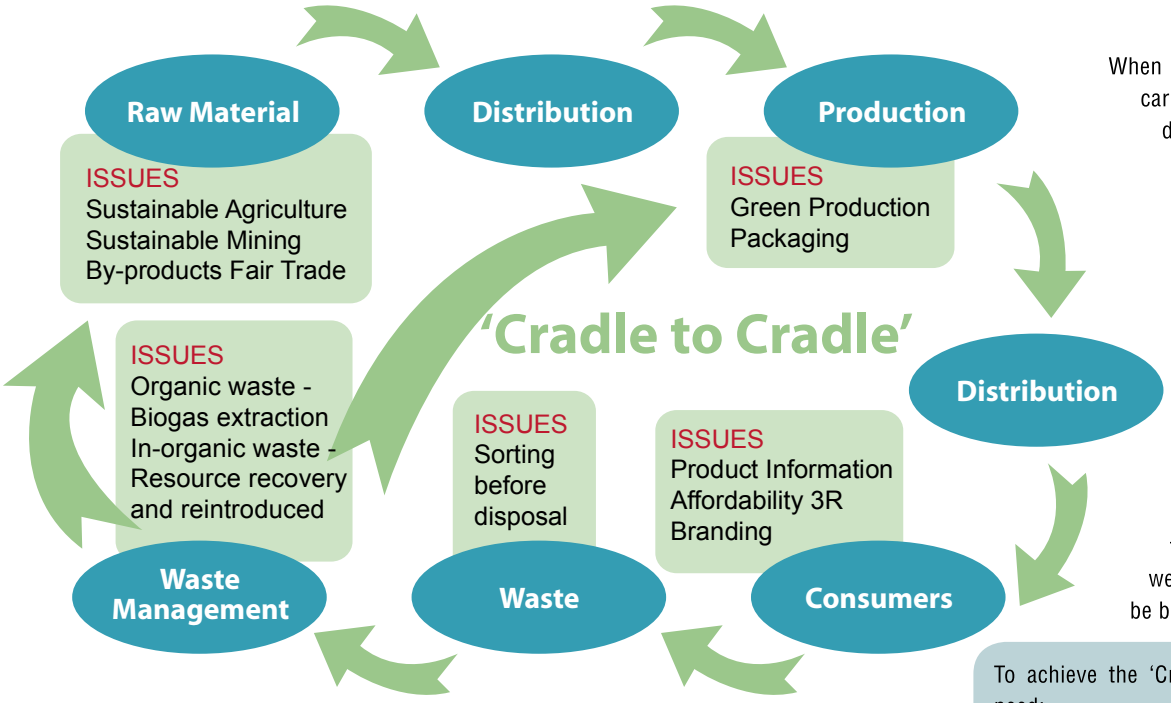


Figure 2: 'Cradle to Cradle' approach

When this cycle is realised, carbon emission can definitely be reduced. But some may ask, is it possible to manage consumption in such manner. We should look at the European Union which is moving fast in this field. They have limited resources and they need to manage it. People in Europe are paying a high price for their delay in reacting. Do we need to wait like them or be better prepared?

To achieve the 'Cradle to Cradle' cycle we need:

- Continuous Consumer Education – to educate individuals on their social responsibility;
- "Carrot and Stick" Approach – incentives should be in place to motivate the move towards this concept and deterrence for those not complying with the concept
- Industry Participation – is a must, either voluntarily or through legislation;
- Policy Implementation and Law Enforcement – this will protect both the industries and consumers to ensure good quality, safe and eco-friendly products and services for the public;
- Towards Sustainable Development – Sustainable consumption will help to achieve sustainable development and will lead to reduced carbon emission.

consumers to buy only certified products and services. Such products and services should also be affordable to middle and low income groups as they hold the biggest purchasing power.

Products that are eco-friendly play the role of an 'educator' to consumers; it ensures they dispose off it correctly. The 3R is the practical approach for every household.

The 3Rs (reduce, reuse and recycle) can be applied to achieve a sustainable consumption pattern among Malaysians. Here planning becomes vital to reduce unnecessary consumption and purchasing only the needed items.

Consumers must also be aware that they should also take packaging of the products into consideration when they buy products. They should support reusable and recyclable packaging materials (refers to containers, bottles, paper based wrapping or boxes that are used to pack the products that we purchase). Choosing proper packaging material reduces the solid waste that consumers' produce.

Consumers should also look into buying glass bottled products, paper based packaging, metal based packaging and rechargeable batteries as they can use those items a couple of times before disposing off it through recycling. Consumers can also bring their own bags to carry goods that they have bought. This will reduce the usage and disposal problem for plastic bags. Bring your own container to buy food, do not feel embarrassed. You can even have it in the premises to prevent packing.

The first R will help consumers in applying the second R, Reuse. Reusing the packaging material is vital to minimise waste generation: reuse containers to store the same product (buy refill packs) or other household goods; old clothes can be used as cleaning cloths, doormats, or even as cushion covers. Using both sides of the paper for printing and boxes for storage will fit into the reuse category. Electrical products, clothes, books, furniture and other materials that are not easy to dispose off should not be kept for a long time in storage. If it is still in good condition, donate them to community centres and schools. If they are not in good condition, dispose them in a proper manner to recycling centres and collection centres.

The last R as we all know promotes Recycling. Some of us are under the impression that recycling is a clean industry. It is not so in the context of environmental impact. Recycling does have an impact on the environment through emission of gasses or chemicals during extraction in the recyclables. However, it is more environmentally friendly compared to usage of raw materials direct from nature.

This last step leads to resource recovery and reintroduces the raw materials back into the production cycle.

We need to look at this approach in an 'integrated' manner. Consumers, industry and the government must work hand-in-hand to achieve this. We need industries to start Life Cycle Assessment (LCA) to look into the processes and approaches available to 'green' themselves. Through long term planning and programmes on consumer education and awareness, we will be able to change our lifestyle and move towards the 'Cradle to Cradle' approach.

Remember this in the only world we have to live. We borrowed it from our children and we have to return to them as they borrowed it from their children.

The future is in your hands.

Source
Piarapakaran Subramaniam
Email : piara@fomca.org.my

ERRATA - Issue 1,2008 on page 5, column1, last line in last para should read "The implementation approach requires the...". The print error is regretted.

Addressing Global Warming in Malaysia

Last November, the United Nations Development Programme (UNDP) released its annual flagship publication, the 'Human Development Report' themed *Fighting Climate Change: Human Solidarity in a Divided World*. The report had positioned climate change as the defining human development challenge of this century. The recent International Panel on Climate Change (IPCC)'s fourth assessment report (2007) has also given us further knowledge on the magnitude of climate change as well as its consequences in greater detail.

The Intergovernmental Panel on Climate Change (IPCC) was established in 1988, jointly by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) to study all aspects of possible climatic changes including its socio-economic implications. For instance, the IPCC has highlighted that the combustion of fossil fuels is the largest single contributor to increased carbon dioxide. The IPCC 2007 report also stressed that global carbon dioxide emissions are growing faster than at any time since 1970 with world economic growth getting stronger, thus causing global warming and ultimately contributing towards climate change problems.

IPCC categorically states that human activity is the key culprit behind global warming, mainly by increasing the amount of greenhouse gas (GHGs) releases. It has been generally noted and agreed that the atmospheric concentrations of carbon dioxide, methane, nitrous oxide and various chlorofluorocarbons, known collectively as GHGs, are continuously increasing at a rapid rate and that the changes in the composition of the atmosphere are the most likely reason for the warmer global climate. Burning fossil fuels such as coal, oil and gas provides about three-quarters of the world's energy, fuelling industrial development as well as global economic growth. However, when these fuels are burned, they emit GHGs, which is the main cause for climate change. Some of the other activities contributing towards these GHG emissions are as listed in Table 1.

Table 1: Sources of human induced GHGs. (*Source*: INC, 2000 & IPCC report, 2007)

GHG	Activities that contribute towards emissions
Carbon Dioxide	Fossil fuels, cement production, land use change
Methane	Fossil fuels, rice paddies, waste dumps, livestock
Nitrous Oxide	Fertilisers, combustion in industrial processes
Hydroflourocarbons	Electronics, refrigerants, industrial processes
Perfluorocarbons	By-products of aluminium smelting, purging agent for semi-conductor manufacturing
Sulphur hexafluoride	Insulation of switchgear in the power station

How do the greenhouse gases act towards causing global warming? Global warming is a result of an increase in average temperature. This is because all the gases that are trapped in the atmosphere near the earth's surface, keep it warmer than it should be (see Figure 1). These gases have been playing a role in keeping the Earth a hospitable place by allowing incoming solar radiation to pass through, but they absorb the outgoing terrestrial radiation emitted by the surface of the earth and re-radiate it back to Earth. Unfortunately, this balance has tipped to an extent where the earth's blanket is trapping more heat, mainly due to the GHGs. As such, the increase in global temperature is now causing a rise in sea level, increasing the intensity of extreme weather events and also changing the amount and patterns of precipitation. Other effects of global warming include effects on agricultural yields, glacial retreats, species extinction and increases in the range of disease vectors around the world.

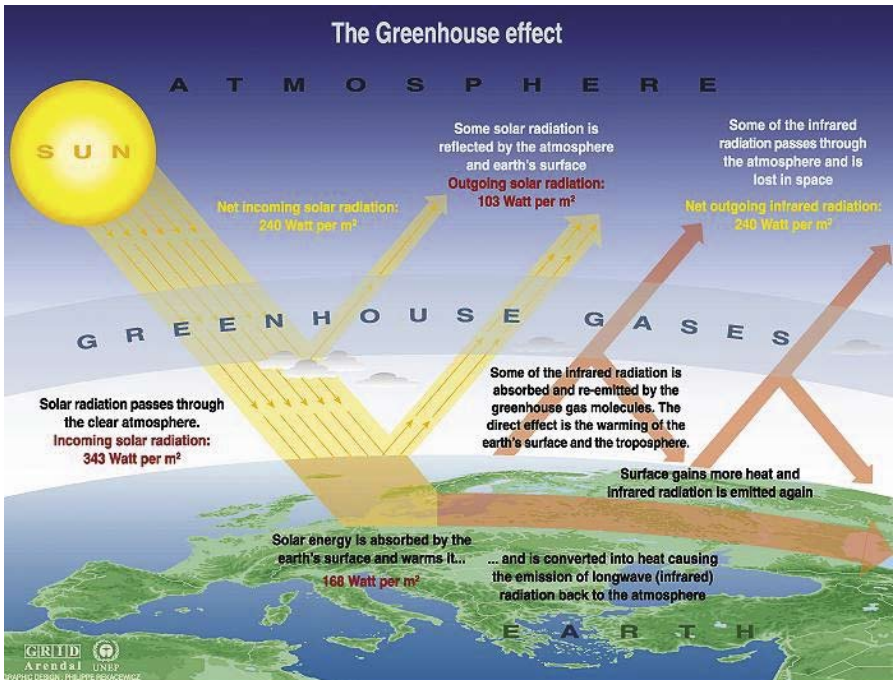


Figure 1: Greenhouse gases (GHGs) trapped in the atmosphere causing the greenhouse effect. (*Source*: http://www.severnsound.ca/images/3.jpg)

What is the situation like for Malaysia? For example, Figure 2 shows the level of carbon dioxide emissions from fossil fuel combustion in 2004 for countries ranked in terms of total emissions as well as the absolute and percentage changes with respect to emissions in 1994. It is clear that the growth of carbon dioxide emissions over time has shown substantial variation among countries. Basically, the relation between this growth and changes is attributed to various factors such as the economy, use of energy as well as the share of fossil fuels in total energy consumption, and the growth of the economy itself which plays an important role. Surprisingly, Malaysia is positioned among the top 20 countries listed, with a 73% increase in carbon dioxide emissions between year 1994 - 2004 (Figure 2 on page 11).

Being one of the many developing countries, Malaysia has experienced a significant

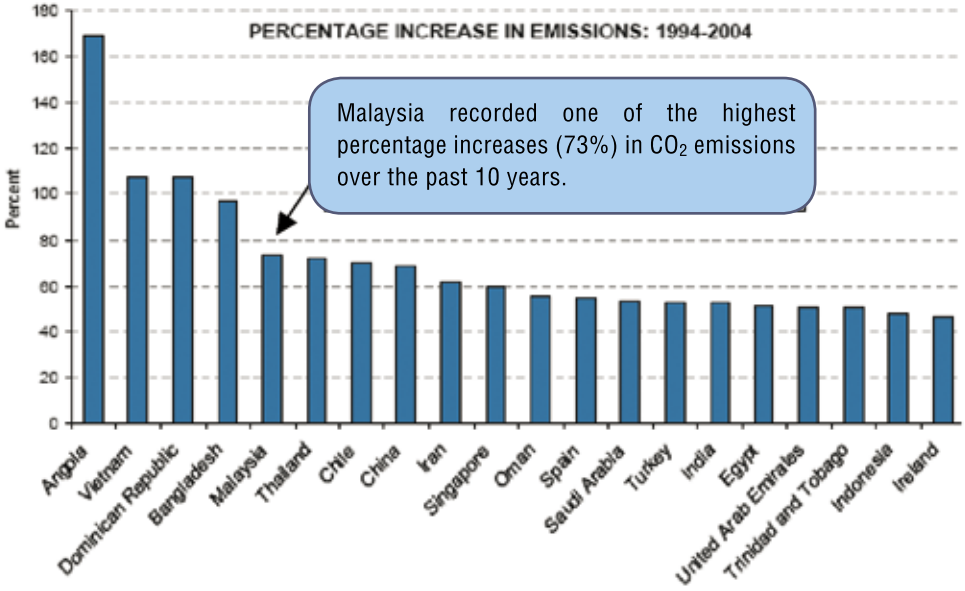


Figure 2: Percentage increase in carbon dioxide emissions for year 2004 in comparison to year 1994 in 20 top emitter countries around the world. (*Source*: Environment Department, the World Bank, 2007)

Table 2: Milestones achieved by Malaysia both at the international and national levels in addressing the climate change issue. (*Source*: INC, 2000)

Year	Milestones achieved
1972	Participation at the 1st Earth Summit held in Stockholm.
1989	Malaysia ratified the Montreal Protocol on Substances that Deplete the Ozone Layer.
1992	Participation at 2nd Earth Summit held in Rio de Janeiro, where the United Nations Framework Convention on Climate Change (UNFCCC) was adopted at the Rio Convention. Following this, calls were made for a stabilisation of GHG emission by 2000.
1994	UNFCCC entered into force. Malaysia ratified the UNFCCC in this year.
1995	Berlin - Malaysia set up the National Climate Committee.
2000	Malaysia submitted the Initial National Communication (INC) to the UNFCCC, where impacts on several sectors as well as identification of possible mitigation measures.
2002	Malaysia ratified the Kyoto Protocol.
2005	The Kyoto Protocol entered into force.

increase in the percentage of carbon dioxide emissions in the past 10-year period. This condition is quite alarming and demands that action be taken for we are also likely to suffer from the direct impacts of climate change. For example, increasing sea-levels will inundate low-lying coastal areas besides obliterating small islands around our waters and threatening the national coastal ports. Altered rain-fall patterns could increase the frequency of floods and drought from the impact of climate change. On the other hand, the increase in temperature would also cause inundation of ecosystems, coral bleaching, and threaten our agricultural sector. All these impacts would naturally affect our national economy in the near future. We are already experiencing some of these impacts at present. One such example is the massive damage caused by the unseasonal floods in Johor last year, causing major financial losses. Besides, we are also aware that the country's highlands (for example the Cameron Highlands) are getting warmer. All these could be related to the effects of climate change in the country.

Fortunately, Malaysia is already playing an active role in addressing the issue. Table 2 illustrates some of the important milestones achieved by the country in relation to global warming. However, there is still more to be done and achieved. For example, the government could play a more important role in developing the country's carbon dioxide emissions reduction targets, perhaps by year 2020. As such, the emission of GHGs should be limited in order to minimise the effects of climate change, in particular the emission of carbon dioxide gas. Besides, reducing climate-related emissions from the energy sector in the country could be through energy saving methods, as well as incentives for the development and use of renewable energy such as solar, biomass, or wind, just to name a few. Public-private partnerships could also be a promising area to address the issue. Besides, it is also important to have the support of the population to tackle the issue, hence there is a need to increase public education and awareness with regard to global warming and climate change matters.

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Source
Cheryl Rita Kaur
Email: cheryl_rk@mima.gov.my

Global Warming: Strategies for Action

In 1999, the human population surpassed 6 billion, having grown roughly fourfold in the twentieth century. This great expansion has been accompanied by an equally unprecedented rise in the mobilisation of resources both to support the growing population and to raise living standards. With the global population increase, human pressures on natural resources are increasing, while many resource bases are deteriorating or are being depleted, creating an increased potential for adverse environmental consequences.

Due to the rapid population increase and the consequent demand for development and growth, the twentieth century also has seen a profound modification of the Earth's global temperature. International scientific consensus has emerged that our world is getting warmer and this increase in temperature is leading toward a long term trend of net global warming. Climate scientists around the world agree that average global temperatures could rise by 1.4 to 5.8 degrees Celsius by the end of this century. Corresponding with this warming, many environmental consequences such as retreating of alpine glaciers, rising sea levels and shifting of climatic zones have emerged. Increasing temperatures will lead to changes in many aspects of weather, such as wind patterns, the amount and type of precipitation, and the types and frequency of severe weather events that may be expected to occur as witnessed in many recent climatic disasters. Such climate change is expected to have far-reaching and unpredictable environmental, social and economic consequences.

The Cause for Global Warming

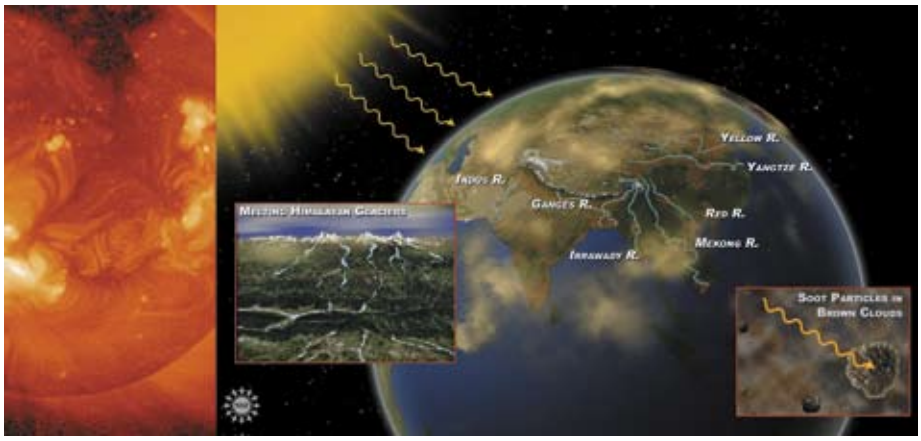
The principal reason for the global warming effects is attributed to human intervention – industrialisation and development – with consequent burning of ever-greater quantities of oil, gasoline and coal, the cutting of forests, and other human activities.

These activities have increased the amount of greenhouse gases (GHGs) in the atmosphere, especially carbon dioxide, methane and nitrous oxide. Such gases occur naturally as they are critical for life on earth; they keep some of the sun's warmth from reflecting back into space, and without them the world would be a cold and barren place. However, human expansion and the associated urbanized lifestyle has resulted in increasing quantities of GHGs in the atmosphere such that they are pushing the global temperature to excessively high levels and causing havoc to the climate.

Addressing the Problem

The current warming trend if uncontrolled is expected to cause extinction of both plant and animal life. Studies have indicated that numerous plant and animal species, already weakened by pollution and loss of habitat, are not expected to survive the next 100 years. Human beings, while not threatened in this way, are likely to face mounting difficulties. Many recent examples include recent severe storms, floods and droughts. What is even more frightening is that computer models predicting more frequent extreme weather occurrences are beginning to be correct.

Global warming will be on of the greatest challenges facing humanity and the entire ecosystem. It is complicated and will involve the entire world, reconciling and together confronting difficult issues such as poverty, economic development and population growth. Dealing with it will not be easy, but to ignore it will be more devastating.



Over a decade ago, most countries joined an international treaty, named the United Nations Framework Convention on Climate Change (UNFCC) to begin to consider what can be done to reduce global warming and to cope with the inevitable temperature increases. Recently a number of nations have approved an addition to the treaty, called the Kyoto Protocol, which has more powerful and legally binding measures. Since 1988, an Intergovernmental Panel on Climate Change has reviewed scientific research and provided governments with summaries and advice on climate problems.

The Kyoto Protocol of the UNFCC, adopted in 1997 and its coming into force in 2005 is a major step forward in tackling the problem of global warming. The Protocol requires developed countries to reduce their greenhouse gas (GHG) emissions of at least 5% against the baseline of 1990. These targets must be met within a five-year time frame between 2008 and 2012, and add up to a total cut in GHG emissions. The Protocol developed three innovative mechanisms - known as Emissions Trading, Joint Implementation and the Clean Development Mechanism (CDM), which provides for developed countries to earn and trade emission credits through projects implemented either in other developed countries or in developing countries. These mechanisms also help identify lowest-cost opportunities for reducing emissions and attract private sector participation in emission reduction efforts.

Emission Curbing Strategies

Without emission-control policies motivated by concerns about climate change, atmospheric concentrations of carbon dioxide are expected to rise with a record of almost 350% increase since the year 1750. Stabilising concentrations at, for example, 450 ppm would require world-wide emissions to fall below 1990 levels within the next few decades. Given an expanding global economy and growing populations, this would require dramatic improvements in energy efficiency and fundamental changes in other economic sectors.

Although Malaysia as a developing country is not required to reduce its gas emissions, the country still needs to commit itself to sustainable development and look into energy efficiency and renewable energy resources. It can offer many opportunities for the country to help reduce GHG emissions and contribute to slowing down climate change. Meeting the challenge of national sustainable development

will require institutional organisations to integrate coherent systems in systems planning, assessment and decision support to reduce the national GHGs emissions. It is essential that scientists, practitioners and citizens be involved in setting national global warming priorities, creating new knowledge, evaluating its consequences and putting it into action. This will require integration of the new knowledge through broader networks of research and monitoring.

One of the best examples of national implementation is to establish a new office of Commissioner for the Environment and Sustainable Development, to deal with national global warming strategies and policies. The Commissioner reports to the Parliament on the progress made by the government towards achieving sustainable development. This can be done through annual reports in which the Commissioner can analyse matters concerning the global warming initiatives and sustainable development mandates of the different federal government departments. Secondly, government departments should be made to prepare global warming and sustainable development strategies addressing both the policies and programmes of the department, as well as environmental stewardship of its own operations. Thirdly, different mechanisms for government accountability to the public should be included. This can be carried out through providing avenues and procedure for the public to inquire and work together in appropriate governmental activities.

A unifying framework for national global warming strategies and sustainable development will ensure that actions at all levels and by all sectors in the country are mutually supportive and not in conflict. Integrated prevention and control strategies are most effective in focusing on the common risk factors of all environmental resources. Synthesis and analytical tools need to be enhanced for information to be usable in the broader policy making sphere.

More detailed and relevant programmes that can help alleviate the global warming strategies include :

- Data collection and analysis, including systematic observation and monitoring networks
- Modeling, in particular related to general circulation models and their downscaling to regional and national levels
- Capacity-building
- Education, training and awareness raising
- Carrying out pilot and demonstration projects
- Integrated climate change impact and vulnerability assessments
- Promoting the transfer of technologies for adaptation
- Preventive measures, planning, preparedness and management of disasters relating to climate change, including contingency planning, in particular for droughts and floods and extreme weather events

Incentives for public and private resource management that can supplement the regulatory environment should be established. New market mechanisms (i.e. new green taxes) can generate new opportunities for business transition to sustainable development practices and reduced GHG emissions. National sustainable development goals must be seen as positive drivers for enhancing corporate performance and ultimately economic competitiveness and economic efficiency. Positive incentives are important to facilitate the transition to sustainability. It is important to recognise that businesses usually react more expediently to opportunity-generating approaches as opposed to command and control approaches that may be seen to constrain and limit enterprise development.

Initiatives Related to Global Warming

Other countries around the globe are initiating and have shown success in their efforts towards reducing their national GHGs. For example, Denmark stabilised emissions between 1990 and 2000 by switching to more efficient methods of electricity generation and by shifting from coal use in industry to renewable energy and natural gas. The country's Gross Domestic Product increased by 27% during the decade. Meanwhile, Germany achieved considerable reduction in carbon dioxide emissions through economic restructuring resulting from the reunification of the country, through the reduced use of lignite, and through greater use of wind energy. There were also substantial cuts in methane emissions from coal production, waste management and agriculture, and in nitrous oxide emissions from agriculture.

The United Kingdom established a 'National Climate Change' policy that set targets for using energy more efficiently, and was able to lower emissions, among other things by using less coal and more natural gas. Malaysia too can follow suit in implementing appropriate policies which will ultimately give tangible results in cutting the nation's GHG emission while pursuing and achieving its national sustainable development targets.

Appropriate actions that can be taken at the national level include:

1. A high-level political mandate to develop a national global warming policy framework by having a committed group of advocates who may be involved with estimating need, advocating for action, and developing the national policy and plans well as initiating international collaboration and providing political and technical support.
2. Wide consultation in the process of drafting, consulting, reviewing and redrafting the policy until endorsement is achieved; an awareness that the process of consultation is as important as the content in generating support and ownership.
3. Development and implementation of a consistent communication strategy for all stages of the process with clarity of vision on a small set of outcome-oriented objectives.

Conclusion

Taking action to halt and turn back the rising environmental problems due to global warming is a pressing challenge in achieving sustainable development for the country and the world. Effective and feasible strategies for doing so already exist in terms of common agreements and coordinated action. A range of effective interventions for pollution prevention and control exist, and many countries have already made major improvements in their environmental management and strategies.

Our nation must take prompt action to reduce the causes of climate change, to adapt to its impacts and ensure that the issue is included in all relevant national and international strategies. Concerted efforts and cooperation between the different sectors in the country in a coherent manner are required to help develop and implement the national response to the challenge of climate change. Although the developed nations have been touted as the culprit for much of the past greenhouse gas emissions, developing countries like ours must not be indifferent and complacent in meeting the challenges of adaptation and mitigation.

The government and local governments must take the lead in attaining national sustainability and growth for the country. They have an interest in promoting the national agenda and more importantly the authority to initiate and promote positive change, and the flexibility to tailor suitable and specific global warming programs and policies to suit the national and local circumstances.

Source
Associate Professor
Dr. Sumiani Yusoff
Email: sumiani@um.edu.my

The Heat Is On... You Must Take Action

Global Warming! What exactly is the meaning of this overused phrase? You probably have read about it in the media, spoken about it over coffee and possibly overheard people talking about it at some point. But do you know to what extent it is at and where is it heading?

Earth is being sucked dry of natural resources. Tender green forests are being butchered to make way for sprawling high rise buildings. Age old trees are being chopped off to build highways and byways. Land is being devoured for natural non renewable resources for what we term as development. All for a short lived profit. In the end none of us would win, but our dear Earth will be barren and our children destitute.

Global warming which is also known as greenhouse effect has been here long before you or anybody else out there existed. It's been here for thousands of years. Through these thousands of years, Earth's temperature has increased and so has the effects of global warming. Has it reached an alarming state? Yes it has. Among other indications of global warming are a rise in ocean temperatures and sea level, gradual death of coral reefs, melting of glaciers and polar ice, frequent outbreaks of cyclones, floods, forest fires and droughts. Testimonies to this are the recent cyclone and earthquake tragedy that hit Myanmar and China and not to mention the fatal Tsunami that hit coastal regions stretching from Indonesia to Sri Lanka and India.

At the rate that we are developing, what do you think could be more vital than our basic needs? What's more essential than food, water, shelter, clothing, education and medicine? Ladies and Gentlemen, Earth is under fire! Saving it would be the priority of every single individual and save it we must to ensure posterity. Not only for the sake of posterity but because all of us have contributed to the occurrence of global warming. Thus residents of the world have to joint forces as a single united front to combat this dilemma or else Earth will eventually reach a point of destruction and planetary emergency. So what is the solution?

At this point, most governments and citizens throughout the world are getting wiser and asking how best to accelerate the implementation of earnest global warming solutions. Many global warming solutions will need to happen at the national or global level. But before that materialises, there are many things you as individuals and families can do to reduce your contributions of greenhouses gases to the atmosphere. Here's a list of activities you can start doing starting from this instant.

In your home

Use Compact Fluorescent Light Bulbs

From this day forward make it a point to replace all elongated and semi elongated fluorescent light bulbs with a compact fluorescent light bulb. Reason being the latter uses only 60% of energy. If you replace just two of the former light bulbs with the compact ones, your household would save about 150 kilograms of carbon dioxide per year. If every household in Malaysia did it, we could save over a million kilograms of greenhouse gases from being released into our atmosphere.

Use Dishwashers and Washing Machines Efficiently

Make certain that you run your dishwashers and washing machines with a full load. This maximises the overall efficiency of energy used for washing your dishes and clothes. Running them at half the load will result in more carbon dioxide used in a year. So bottom line, the more clothes and dishes you wash per load (without overloading the units), the more efficiently energy is consumed. You are already doing your part for the environment.

Close the Tap After Use

Never ever leave water running. It is always an excellent idea to turn off the water when you are not actually using it. When hot water is involved, minimising water usage also reduces energy usage. For example, when you're washing your hands, soaping up in the shower, or doing dishes in the kitchen

sink, turn off the water until you actually need it for rinsing. Another way to reduce hot water usage is to take shorter showers. Similarly installing a low flow shower head can save 175 kilograms of carbon dioxide per year.

Replace Old Electrical Appliances

As much as you can, get rid of old electrical appliances and replace them with newer efficient models. Just by using a new efficient refrigerator you can save up to 250 kilograms of carbon dioxide per year. If you replace your current washing machine with a low energy, low water use machine, you will be able to reduce carbon dioxide emissions by 220 kilograms per year. Wouldn't that be great for Mother Earth?

Car Pool to Work

With the recent hike in fuel, it is highly advisable to begin car pooling to work with your colleagues or neighbourhood friends. Sharing a ride with someone just 2 days a week will reduce carbon dioxide emissions by 800 kilograms a year. Or better still use public transport namely Light Rail Transit (LRT) or bus to get to office. These help a great deal. Avoiding just 10 minutes of driving a week would eliminate about 250 kilograms of carbon dioxide emissions a year.

Remove Car Rack if Not in Use

Lastly, as far as your car is concerned, remove your car rack when you are not using it. But that it is so troublesome may be disturbing. As troublesome as it may be, you are helping mother earth function better, simply because the added wind and weight will require more fuel to be used to propel your car. As a result of this, approximately 10% more of carbon dioxide is emitted into the environment. So, you decide! To remove it or keep it? Removing it only takes 10 minutes but leaving it kills Mother Earth 10% faster!

Your car

Service Your Car

Always make it a point to service your car at regular intervals. Consistent maintenance helps improve fuel efficiency and reduces emissions. Just imagine, if 1% of car owners could maintain their cars, nearly a billion kilograms of carbon dioxide could be filtered from the atmosphere.

Service Your Tyres

Apart from servicing your car, check your tyres frequently to ensure they are properly inflated. Proper tyre inflation can improve gas mileage by more than 3%. For the record, every gallon of gasoline saved keeps 10 kilograms of carbon dioxide out of the atmosphere. So bottom line, check your tyres frequently.

In your yard

Plant a Tree

If you are living in a landed property or a condominium for that matter do yourself a favour by planting a tree or a plant. Trees and plants suck up carbon dioxide and produce clean air for the entire human race to breathe. One tree absorbs 1 tonne of carbon dioxide. A thousand trees would suck up about as much carbon dioxide as the average Malaysian breathes in a lifetime.

In conclusion you may argue that these, altogether, would not stop global warming. Well, maybe for now that is true. But with the collective efforts of each and everyone in the planet, even 2 degrees off the present global temperature would be such a major achievement. The most important thing is for all of us to do something worthwhile. As you have noticed, we only have one planet to save. Beyond this, there are no second chances.

Therefore, let's join hands, collaborate and see to it that we do not destroy our very own home. If you can't do it for yourself then do it for your children. A wise man once said, willing to do your part for the environment is not enough, you got to do it. The moment you wake up in the morning to the moment you sleep at night, ensure that you undertake all of the above. Till then don't you dare retire for the day!

Source
Sivakumar Paramasivam
Email : sivashanthi7165@hotmail.com

Event Highlights

Department of Environment, Malaysia

April 2008

The 7th Malaysia - Singapore Joint Committee on the Environment (MSJCE) Working Group Meeting

The 7th Malaysia - Singapore Joint Committee on the Environment Working Group Meeting (WG of MSJCE) was held in Singapore from 28-29 April 2008. The Meeting was co-chaired by Dato' Hajah Rosnani Ibarahim, Director General of Environment, Malaysia and Mr. Lee Yuen Hee, Chief Executive Officer, National Environment Agency, Singapore.

The Malaysian delegates to this meeting were senior officers of the Department of Environment and representatives from the Ministry of Foreign Affairs, Marine Department, Malaysian Maritime Enforcement Agency (MMEA) and Universiti Kebangsaan Malaysia.

The environmental issues discussed at the meeting were vehicular emissions control, water quality in the Straits of Johor, chemical and oil spills along the Straits of Johor and training programmes.

7th Meeting of the MSJCE Working Group
28-29 April 2008, Singapore

June 2008

Conferring of Langkawi Award 2007 & Sustainable City – Environmental Award 2006/2007

The recipient of the Langkawi Award 2007, organised by the Department of Environment (DOE), Ministry of Natural Resources and Environment, the most prestigious Environmental Award, was Dato' Dr. Mohammed Anwar Fazal Mohammed. This Award was given to him for his outstanding contribution in the field of environmental management.

The Sustainable City – Environmental Award 2006/2007 was organised by the Department of Environment (DOE), Ministry of Natural Resources and Environment with technical support provided by the Local Government Department of the Ministry of Housing and Local Government and Institute for Development and Environment (LESTARI) of Universiti Kebangsaan Malaysia.

The winners of the Sustainable City – Environmental Award 2006/2007 were:

Capital Cities	:	North Kuching City Hall
Municipal/Town Councils	:	Subang Jaya Municipal Council
District Councils	:	Pekan District Council

There were 6 winners in Special Mention Awards: Shah Alam City Council, Kota Kinabalu City Hall, South Kuching City Council, Kemaman Municipal Council, Miri Municipal Council and Lipis District Council.

Both events were jointly held on 5 June 2008 at Putrajaya International Convention Centre (PICC) in conjunction with World Environment Day. The awards were presented by Datin Seri Jeanne Abdullah who represented the Prime Minister, Dato' Seri Abdullah bin Haji Ahmad Badawi. Also present at the awards presentation ceremony were Datuk Douglas Uggah Embas, Minister of Natural Resources and Environment and Datuk Suboh bin Mohd Yassin, Secretary General, Ministry of Natural Resources and Environment.

Correspondence address:
Chief Editor, IMPAK
Department of Environment,
Ministry of Natural Resources and Environment
Level 1-4, Podium Block 2&3, Wisma Sumber Asli
No.25, Persiaran Perdana, Precinct 4
62574 Putrajaya

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