

Environmental Citizenship – A Participatory Model Towards Sustainability

"After decades of rapid economic growth, our environment is now at tipping point. The Living Planet Report 2006 confirms that we are using up the planet's resources faster than it can be renewed. The Ecological Footprint of humanity indicates that our footprint now exceeds the world's ability to regenerate by about 25%. This is evidence of globalisation and therefore the need to address key issues regarding environmental policy implementation has added new dimensions to environmental management all over the world. This has led to closer co-operation on regional or global environmental challenges, further examination of the interfaces between trade, investment and environment, better integration of environmental concerns with sectoral policies, the development of measures to address the social and competitiveness impacts of environmental policies, and closer co-ordination with civil society and the business community. These concerns have created difficulties to governments in promoting sustainability in terms of adopting green policies, which incurs cost or discourages investments. Therefore, a new era of environmental citizenship is introduced to reiterate the known fact that the preservation of environment is an obligation entrusted upon everyone and all governments by virtue of the inherent relationship between people and nature and between citizens and their governments" (United Nations Environment Programme).

Environmental management is a challenge faced by cities throughout the world especially in rapidly developing countries such as Malaysia. While on one hand, we are enjoying the benefits of rapid economic growth and improvements in technology and industrialisation, we are also experiencing huge, unfavourable effects on our surrounding environment. Environmental problems are often said to be the result of economic development. The converse is also true: economic development is very often the key to resolving at least some of the environmental problems. Understanding these issues and their driving forces are paramount to improving environmental problems generally.

Promoting environmental conservation and sustainable development has been deemed crucial in recent years. These twin factors have been recognised as key objectives for local, national and global policy makers and have been propagated through the various policies and declarations such as the Johannesburg Declaration on Sustainable Development, Oslo Declaration on Sustainable Consumption, Rio Declaration (Principle 10), Earth Charter and UNEP Agenda 21. However, the existence of these policies and declarations has not curtailed the degradation of the environment.

One of the reasons is because policy-makers and politicians in many cases especially in developing countries are reluctant to adopt 'green' policies that normally have apparent



economic costs for consumers in terms of increasing fuel taxes or waste charges as well as for businesses in complying to more stringent environmental regulations. Imposing environmental regulations on corporations may discourage investment. Economic 'stick' approaches to promote sustainability may be difficult to enforce and may have negative unintended consequences. For example, introducing a charge for collecting household waste may likely result in fly-tipping, though intended to reduce the amount of household waste sent to landfill sites.

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From the desk of the Director General

Environmental Citizenship



The Living Planet Report clearly shows that we are using the Earth's resources faster than it can be renewed. In Malaysia too, we have not spared ourselves. The quality of our environment continues to be threatened and its resources are being depleted at an alarming rate.

From the environmental perspective, much has been done but it is never enough. It must be noted that since 1904, we have legislated in response to impending environmental problems and depletion of resources. And when we look closely at the quality and nature of such legislations over the last 100 years or so, a pattern begins to emerge. This pattern reflects changing concerns and approaches to environmental management. Going forward, it is imperative that we all understand the reasoning and rationale underpinning these evolving legislations which clearly reflect four stages of development. Only then can we usher in environmental citizenship.

In Stage 1 in 1904, an ordinance was passed to protect several species of wild birds. Then followed notably, the Waters Enactment in 1920, the Mining Enactment in 1929, the Forest Enactment in 1934, the Land Conservation Act 1960, the Fisheries Act 1963 and the Factories and Machinery Act 1967. These were not designed to address environmental problems *per se* but merely promoted proper housekeeping in specific sectors that reflected government policies at the time.

Meanwhile the country's economy burgeoned. Available legislations and the loopholes within them could not cope with the resultant pollution. The impact of development on the environment became more marked, with deterioration in some places. Concerned individuals both within the government and the public and groups such as *Sahabat Alam Malaysia* (SAM), Consumer Association of Penang (CAP), the Environment Protection Society Malaysia (EPSM) and the Malaysian Nature Society (MNS) together with academicians raised the alarm.

Stage II then commenced with the passing of the Environmental Quality Act (EQA) 1974. The EQA 1974 is a comprehensive piece of legislation laying down the groundwork to meet the National Environmental Policy objectives. The EQA 1974 contains specific provisions with respect to licences and prohibition and control of pollution. Subsequently various Regulations and Orders were gazetted. However, many of the measures taken were curative and remedial in nature. It then became obvious that curative measures alone could not fully be effective without preventive and enforcement actions. This led to amendments to the EQA 1974 in 1985 with the most far reaching change effected being the insertion of Section 34A of Part IV of the Principle Act. The submission of the Environmental Impact Assessment (EIA) report became mandatory for prescribed activities. The scenario had been set for the next stage.

The Environmental Impact Assessment Order 1987 became effective on 1 April 1988. Despite certain weaknesses, the Order marks a watershed in the evolution of environmental management in the country. For the first time preventive measures were in place to promote sustainable development. In many ways then, economists had to think like environmentalists and vice versa. "A National Conservation Strategy" (NCS) was drawn up by the Economic Planning Unit (EPU) of the Prime Minister's Department in 1993 to ensure that future development and the environment are properly coordinated in line with the sustainable development concept as defined by the Brundtland Report.

Clearly, as a nation we have not stood by idly whilst the Ecological Footprint of humanity indicates that our footprint exceeds the world's ability to regenerate by about 25%. Why then, despite all our efforts, have we not achieved all that is necessary to conserve the resources of the country? The winds of change in environmental management are blowing again. This time they are blowing in your direction. Yes, you, a member of the public. And with you, we can usher in the next stage of the evolving environmental management process. We had learnt to crawl, then to talk, then to walk and now we must 'walk the talk' through active participation as environmental citizens. In our nation, there is increasing indication of readiness to adopt environmental citizenship as there is more active participation of citizens on issues of sustainability. Recently, two environmental-related acts - the Water Services Industry Act and the National Water Resources Commission Act – were opened for public comment before being presented in Parliament. The Solid Waste and Public Cleansing Bill underwent several rounds of public consultations before being passed by Parliament.

Environmental citizenship is therefore a process of learning which acknowledges that the rational citizen has wider social and environmental interest and concerns. Education and training are therefore key ingredients in the process but of course this process does not stop with education and training. The emphasis is on individual responsibility; in engaging oneself to participate and contribute towards resolving emerging environmental problems. Only in this way can we shift from Government to governance in environmental policy and politics. Good governance is a process of open and inclusive public decision making which seeks the commitment of citizens, stakeholders and interest organisations in a collaborative, consensual and democratic manner. Truly the world in its present environmental predicament, more than ever, needs YOU.

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As a solution, politicians and environmentalists see citizenship as an effective medium to promote sustainable ideals and call for individuals (as well as consumers) to act on environmentally friendly principles. By promoting environmental citizenship, activists and politicians are seeking to change the behaviour of the public, and attempting to create a new social ethic centred on the environment.

Environmental citizenship is about the active participation of citizens in moving towards sustainability. It challenges conventional notions of citizenship to reflect on the nature of environmental problems. It is vital to build a model of the 'self-interested rational actor' that pervades policy, government thinking and economic modeling by acknowledging that the rational citizen has wider social and environmental interests and concerns.

Therefore, increasingly environmental policy is taking a 'participatory turn' with active citizenship, green consumerism and community action being presented as key aspects of the struggle for a greener society. This has been conceptualised as a shift from government to 'governance'. Governance is a process of open and inclusive public decision making which actively seeks the commitment and engagement of citizens, stakeholders and interest organisations. Good governance is collaborative, consensual, democratic and 'bottom up' rather than 'top-down'. While the government retains its role as providing infrastructure, redistributing wealth, passing and enforcing laws, and so on, environmental governance involves greater collaboration with citizens and institutions of civil society at every stage of the policy process - from initial consultation to implementation and evaluation.

Case Study of Malaysia

In Malaysia, increasing environmental awareness is vital evidence that indicates the readiness to adopt environmental citizenship. For example, there is an increasing number of citizen groups (consumer organisations, NGOs, residential groups) providing dissenting views on development which degrades their surrounding environment. Opposition by local residents to the 'Broga Incineration Project' is one of many examples that come to mind.

Meanwhile, the attempts of the Malaysian government to acknowledge and accommodate public interest by creating a forum for consultation can be seen as an initial step towards a shift from government to governance. Recently, two environmental acts namely Water Services Industry Act and the National Water Resources Commission Act were opened for public comments before they were presented in Parliament, while the Solid Waste and Public Cleansing Bill underwent public consultations before being passed in Parliament.

Environmental citizenship is a continuous learning process. Experiencing something, caring about it, investigating it and discussing the issues are some of the best ingredients of learning, and is likely to result in informed action more than taught knowledge. The key to creating environmentally responsible citizens is through education and training of our younger generation.

This notion has been well accepted and put into practice by public and private organisations in Malaysia. While the Department of Environment (DOE) is doing its fair share of environmental education, the non-governmental organisations namely the Malaysian Nature Society (MNS), World Wide Fund for Nature Malaysia (WWF-Malaysia), Global Environment Center (GEC) and the Federation of Malaysian Consumers Associations (FOMCA) and many others have indirectly taken various steps to enhance environmental citizenship through extensive environmental education efforts especially to our younger generation.

WWF-Malaysia currently runs more than 50 projects on environmental conservation with the mission to stop the degradation of the planet's natural environment and to build a future where humans live in harmony with nature through conservation of biological diversity, promotion of renewable energy and reduction of pollution and wasteful production. One of their recent efforts has been aimed at having an Environmental Education (EE) Policy integrated into the Malaysian National Curriculum. The first step towards this was a national survey conducted on 12,000 respondents on environmental awareness among all segments of society. The survey was intended to identify gaps in knowledge which will help in the drafting of an effective EE policy.

Another example is the efforts by the MNS in collaboration with DOE in introducing the concept of activity books for schoolchildren to raise their awareness on environmental issues. Through this partnership, the Wira Alam programme has sought to motivate and give students an opportunity to contribute towards the creation of a better environment.

Environmental citizenship does not stop with education alone. The emphasis is on individual responsibility in engaging oneself to solve the emerging environmental problems. This is further enhanced by explaining the linkages between environmental conservation and the activities in our daily lives, a perspective which provides an immediate opportunity to the audience to take action and create a pattern of behavioural change.

FOMCA captured this approach through its active promotion of the concept of Sustainable Consumption (also known as green consumerism) in enhancing environmental citizenship. The idea of using resources efficiently, minimising waste, limiting pollution, conserving energy and protecting the diversity of nature by making informed choices on their purchasing activities, allows individuals to see how their consumption patterns are linked to the overall quality and sustainability of the environment. It also provides an avenue for action as environmental citizens.

The Way Forward

The promotion of environmental citizenship, as a set of practices and a mode of thinking adopted by individuals, is also important for building and strengthening the kind of governance relationships that are necessary to reaching a government's sustainability goals. Social learning suggests that a good way to build the kind of relationships that promote citizenship and good governance is to build trust and consent gradually and indirectly, through participation and role modeling. While the implementation of the concept should ensure that citizens may take on responsibilities towards sustainability, they cannot do it alone. The scale of environmental issues can make individual action seem vain or tokenistic. Individuals need to act with others, and citizens need governments to provide the necessary infrastructure. At the same time, in asking citizens to change their lifestyles, governments also need to lead by example, provide funding, lobby other governments and impose regulations on corporations.

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Environmental Management in Malaysia: Changing Concerns and Approaches

Despite public concerns about recurrent transboundary haze episodes in recent years, the increased reports of illegal dumping of toxic and hazardous wastes and the more frequent occurrences of damaging floods and landslides, environmental management and conservation efforts in Malaysia continue to forge ahead and have improved way beyond mere rhetorics and remedial actions. In the ensuing paragraphs, a brief historical review of environmental management in Malaysia since about the end of the 1800s is provided. We attempt to highlight major policy shifts in environmental management approaches during these years and the impact of such policy shifts on development policies, legislation and law enforcement, public education and awareness, socio-economics and trade during the period.

Early Stage: Responding to Environmental Problems

Perhaps an early form of management response to impending environmental problems and depletion of resources was through legislation. The process began as early as 1904 when the Straits Settlement Ordinance No.3, 1904, which protected several species of wild birds, came into being. This was followed by several other environmentrelated pieces of legislation, including the Waters Enactment in 1920, the Mining Enactment in 1929, the Forest Enactment in 1934, the Land Conservation Act 1960, the Fisheries Act 1963 and the Factories and Machinery Act 1967. However, while some 20 environment-related pieces of legislation were available by the end of the 1960s, these were not originally designed to address environmental problems as such but merely to promote sound housekeeping practices in specific sectors in line with government policies at the time. Many of the laws enacted prior to the 1970s were largely sectoral in nature focusing on specific activity areas. Extensive as they were, these sector-based laws did not encourage an integrated approach to environmental policy implementation and it had become obvious that available legislation was unable to cope with pollution produced by modern industries.

At the same time, the impact of development on environment was becoming increasingly visible, with evidence of deterioration observable in many places in the country. Many concerned individuals, both from within the government circle and the general public realised that environmental problems were real and needed to be addressed. Environmental/ consumer groups such as *Sahabat Alam Malaysia* (SAM), Consumer Association Penang (CAP), Environmental Protection Society Malaysia (EPSM), the Malaysian Nature Society (MNS), university lecturers and members of the public began to openly express concerns about uncontrolled pollution and hastened the enactment of a more comprehensive legislation to control pollution and hence the Environmental Quality Act (EQA) 1974.

Second Stage: Preventive Measures for Sustainable Development

This period covers the first 13 years of the EQA 1974. Passed by Parliament in 1974, the EQA has been described as the most comprehensive piece of legislation concerning environmental management in Malaysia. The fundamental need for sound environmental management in planning and implementation of development programmes as contained in the Five-Year Plans provide the guiding principles for the National Environmental Policy objectives.

The Act provides for an advisory Environmental Quality Council (EQC) whose function is to advise the Minister-in-charge of Environment on matters pertaining to the Act. The Act also provides for the appointment of a Director General (DG) of Environment whose duties and functions include the issuing of licences for waste discharge and emissions, the formulation of standards, the coordination of pollution and environmental research, and the dissemination of information and educational materials to the public. To assist the DG, a Division (now department) of Environment (DOE) was established in 1975.

The EQA 1974 contains specific provisions with respect to licences, prohibition and control of pollution, appeal and delegation of powers by the DG. Under Parts III and IV of the Act, it is stated that all "prescribed premises" must be licensed, and that the Minister after consultation with the EQC "may by order, prescribe the premises (herein referred to as prescribed premises) the occupation or use of which by any person shall, unless he is the holder of licence issued in respect of those premises, be an offence under this Act" (section 18). The EQA 1974 also covers provisions relating to restriction on pollution of the atmosphere (section 22), restriction on noise pollution (section 23), restriction on pollution of soil (section 24), restriction on pollution of inland waters (section



25) and prohibition of discharge of wastes into Malaysian waters (section 29).

In the following five years after the Act, nine Regulations and Orders were gazetted (Table 1, p.5). For the next six years up until 1985, only the Regulations on the control of lead concentration in motor gasoline in 1985 was gezatted under the EQA.

In many ways, the introduction of these regulations is a reflection of the growing concern and magnitude of pollution problems that existed at the time. In the 1970s and early 1980s, palm oil and rubber wastes were major problems and specific regulations to control them became urgent. From about the second half of the 1970s, the problem of air pollution especially in large urban areas began to surface, hence the regulations on clean air. Similarly, the regulations relating to sewage and industrial effluent, control of lead concentrations in motor gasoline and motor vehicle noise were introduced following increased concerns over their interference with air and water quality and health.

There are several observations that can be made about the first 13 years of the EQA 1974. Firstly, many of the measures taken were understandably curative and remedial in nature. The first 10 years of the EQA 1974 coincided with the Third Malaysian Plan (1976-80) and the Fourth Malaysian Plan (1981-85) - a period when there was rapid industrialisation, urbanisation and infrastructure development which resulted in environmental problems that needed to be addressed quickly. Second, not all the regulations enforced during the first 13 years of EQA 1974 have been equally effective; some have been more successful than others. The regulations on palm oil and rubber wastes, for example, have brought about some significant improvements in

water quality. But it soon became obvious that curative measures alone are not likely to be fully effective without some form of preventive actions and enhancement efforts. The awareness led to the amendment of the EQA in 1985. Perhaps the most far-reaching change that was effected by the Environmental Quality (Amendment) Act 1985 was the insertion of section 34A to Part IV of the Principle Act requiring the submission of environmental impact assessment reports for prescribed activities. This marked the beginning of the third stage of environmental management change in Malaysia.

Third Stage: Environmental Conservation

The Environmental Impact Assessment (EIA) Order 1987 became effective on 1 April, 1988. The EIA Order specified some 19 categories of activities requiring EIA reports prior to project approval for implementation (Table 2, p. 6). It needs to be mentioned nevertheless that while the objectives of the EIA are commendable, the EIA itself is projectand site-specific. Under the law, the EIAs are only mandatory for "prescribed activities" as defined in the EIA Order 1987. For some areas, there are likely to be many development projects for which an EIA will not be mandatory as they fall outside the gazetted definitions of "prescribed activities". Yet much of the area that remains to be developed can be environmentally very sensitive. Under such circumstances, it may be necessary to extend the application of the EIA procedure to developments

that are not currently covered by the law. Environmentally sensitive areas need to be identified, listed and mapped, following which EIAs should be made mandatory for any proposed new development within them. Similarly, EIAs cannot be confined strictly to specific "prescribed activities" only. Malaysia should also seriously consider extending the EIA requirements to public policies which are likely to have environmental impacts.

However, despite all its shortcomings, the introduction of the EIA procedure in 1988 marked yet another significant milestone, if not a watershed, in the evolution of environmental management in Malaysia. The EIA procedures in 1988 marked a serious attempt at preventive measures in order to ensure sustainable development. The post-1988 era then saw not only an increased scope of environmental and environmental-related problems but also a corresponding change in management approaches and styles.

Following the Brundtland Report in 1987 (WCED, 1987) and the UN General Assembly Resolutions 44/228 which called for the "Earth Summit" in Rio de Janeiro in 1992, Malaysia's management style with respect to environment has become more pro-active. And recognising that economic development issues are intricately linked with the environment a "National Conservation Strategy" (NCS) was drawn up by the Economic Planning Unit (EPU) of the Prime Minister's Department in 1993 to ensure that future development and environment are properly coordinated in line with the sustainable development concept as defined by the Brundtland Report.

Malaysia is also now active in environmental issues internationally. The nation is gearing herself not only to cooperate and participate in international programmes but also to contribute actively in all important discussions relating to international and institutional arrangements. In the mean time, the quality of the Malaysian environment and its resources are being depleted. The air and water quality, for example, continues to be threatened and in certain places and under certain circumstances, the situation can be hazardous. The 1997 haze episode, the draught brought about by the recent El Nino and water rationing in the Klang Valley and other parts of the country during the first half of 1998 remind us of the misfortunes that could be appravated by man's interference with nature. Likewise marine pollution due to discharges from development activities on land and vessels plying the Straits of Melaka is

Table 1: Environmental Regulations and Orders gazetted between 1977-1979 in Malaysia

- Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977 (Ammendment 1982), P.U. (A) 342. Effective November 4, 1977.
- 2 Environmental Quality (Licensing) Regulations 1977, P.U. (A) 198. Effective October 1, 1977.
- 3 Motor Vehicle (Control of Smoke and Gas Emissions) Rules 1977 (made under the Road Traffic Ordinance, 1985), P.U. (A) 414, Effective December 22, 1977.
- 4 Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977, P.U. (A) 199, Effective July 1, 1978.
- Environmental Quality (Prescribed Premises) (Raw Natural Rubber) (Amendment) Order 1978, P.U. (A) 250. Effective April 1, 1978.
- **6** Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978 (Ammendment 1980), P.U. (A) 338. Effective December 1, 1978.
- Environmental Quality (Clean Air) Regulations 1978, P.U.
 (A) 280. Effective October 1, 1978.
- 8 Environmental Quality (Compounding of Offences) Regulations 1988, P.U. (A) 281. Effective October 1, 1978.
- **9** Environmental Quality (Sewage and Industrial Effluents) Regulations 1979, P.U. (A) 12. Effective January 1, 1978.

also a problem. Toxic and hazardous wastes which have become an increasingly important issue since the mid-1980s continue to harass us; not to mention, of course, the number of deaths and embarrassments caused by landslides in housing areas and along parts of some major highways in the country during heavy rain.

Outstanding Issues and Challenges

One notable feature of the evolution of environmental management over the last 100 years in Malaysia is the changing concerns and approaches of its core business. The focus has shifted from merely nature protection a century ago to pollution control in the 1970s to pollution prevention in the mid-1980s and later to a more expanded agenda in the 1990s and 2000s to include natural resource accounting, ISO 14000, ecolabeling, environmental auditing and trade and environment linkages. Such development implies that the environmental management approach needs to shift from one which deals solely with mitigating adverse environmental impacts to management of available resources for the present and future generations. The strategy needs to be sensitive not only to environment problems per se but also to externalities that could have an impact on the environment via other related policy issues including trade and politics. Similarly environmental legislations must move beyond mere safety regulations, zoning laws and pollution control enactments. Environmental objectives

> must be built into other areas such as taxation and foreign trade incentives using economic instruments. Such a paradigm shift in environmental management demands that there be strong political will and commitment from the highest authority to the ordinary people in the street.

Human Resource Training and Retraining

A paradigm shift in environmental management also demands that human resource development programmes be in place for training, retraining and capacity building, particularly when the core business of environmental management is shifting from one which is solely concerned with pollution prevention and control to natural resource accounting, trade and environmental linkages and the possible deployment of economic instruments.

The second aspect of human resource development – the education of the masses – is often forgotten but nevertheless equally

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important. Values associated with environmental ethics need to be internalised by all. Indeed, no legislation and no conservation programme, however well designed, will be successful without public support. Success originates from well-informed citizens who are aware of and fully committed to their right to a quality environment. There must be a concerted effort to educate the public and disseminate environmental information. This should involve the participation of government institutions, the media, the private sector and the nongovernmental organisations (NGOs) in order to reach the different target groups.

Table 2: "Prescribed Activities" as prescribed by the Environmental Quality (EIA) (Prescribed Activities) Order, 1987

- **1** Agriculture
- 2 Airport
- **3** Drainage and irrigation
- **4** Land reclamation
- **5** Fisheries
- **6** Forestry
- 1 Housing
- 8 Industry
- **9** Infrastructure
- 10 Ports
- 11 Mining
- 12 Petroleum
- 13 Power generation and transmission
- **14** Quarries
- **15** Railways
- 16 Transportation
- Resort and recreational development
- 18 Waste treatment and disposal water supply
- **19** Water supply

Role of NGOs in Environmental Education

The role of the NGOs in environmental education has long been acknowledged. Of great significance is the role of the NGOs in providing a mechanism for feedback to the government and its regulatory agencies on negative sideeffects of programme implementation. In many respects, they are the public watch-dog for the proper use of natural resources, conservation, professional practices and other activities of the government and the private sector which adversely impinge on the environment. The government, on the other hand, should be willing to listen to alternative views without prejudice. In some cases, this can be difficult as environment and development are very often closely linked and environmental NGOs may easily be dismissed as being anti-development or simply as trouble makers.

This is where local groups such as MNS, EPSM and SAM, either singly or in association with others, including international bodies like the United Nations Environment Programme (UNEP) and United Nations Development Programme (UNDP) can play a part and contribute. Unfortunately, however, environment-related NGOs in Malaysia are generally limited in number and their membership is generally small. With the exception of perhaps MNS, many of the environmental NGOs have a membership of less than 300. More support is needed from the public in order to build a strong and effective group of NGOs.

Effective Enforcement

Many observers both from within and outside the country feel that while Malaysia has one of the best sets of environmental legislations, comparable even with those of some developed countries, the effective implementation of

such legislation is still unimpressive. The institutional and legal structures of local governments are generally not equipped for effective environmental management work despite their direct involvement with the environment. To become effective agents of development, local governments and municipalities need enhanced political. institutional and financial capacity, notably access to financial facilities and support. State governments obviously will need to play a more active role in conservation efforts as many of the present day environmental problems are closely related to activities which are directly under state jurisdiction including forestry, mining and water resources. Now that the EQA 1974 has been amended with all its enabling provisions to conserve environment, its effective implementation and enforcement is of critical importance.

Table 3: Examples of incentives for the protection and conservation of the environment

- Pioneer status/ investment tax allowance (ITA) for companies undertaking a forest plantation project.
- Pioneer status/ ITA for companies undertaking reprocessing of certain waste such as agricultural and chemical wastes.
- **3** Pioneer status/ ITA for companies storing, treating and disposing of dangerous toxic wastes.
- 4 Special capital allowance for companies providing facilities for storing, treating and disposing of dangerous toxic waste produced by its own factory.
- 5 Exemption of import duty, sales tax and excise duty on machinery/ equipment to manufacturing companies for the control of pollution.
- **b** Exemption of import duty, sales tax and excise duty on machinery/ equipment and raw material required for under-taking activity listed in (2) and (4).
- A price differential of 3 cents/litre between leaded and unleaded petrol through a price reduction of unleaded petrol effective from January 1, 1994.
- Import and sales tax exemption on catalytic convertors.
- Import duty for new diesel powered passenger cars reduced to only 120%. Motor vehicle licence fees on road tax reduced for new generation diesel-powered motor vehicles to half of the existing rate.
- Donations to an approved organisation established exclusively for the protection and conservation of the environment be allowed as deductions in the computation of income for tax purposes.
- A forest plantation project is recognised as a strategic project of national interest and is eligible for the following special incentives:
 - (a) Pioneer status with 100% tax exemption for 10 years; or (b) Investment tax allowance at the rate of 100% for 5 years.

The ISO 14000

Apart from effective enforcement of existing legislations, the Malaysian public needs to be constantly reminded that quality environment is not free and should not be taken for granted. The well-known "3P" principles - Pollution Prevention Pays and Polluter Pays Principle - must be allowed to operate without prejudice. Experience has shown that preventive measures tend to become more effective when they are packaged in terms of dollars and cents. Indeed, several of these economic instruments are already in place - many come in the form of economic incentives (Table 3) - and should be expanded further. In this respect, the gradual acceptance of ISO 14000 by Malaysia is a move in the right direction. The ISO 14000 is an effort by the International Organization for Standardization (ISO) to 'standardise' environmental management systems internationally. A system of this

kind enables an organisation to establish, and assess the effectiveness of procedures to set an environmental policy and objectives, achieve conformance and demonstrate such performance to others. The ISO 14000 is expected to have farreaching influence on the manner in which an organisation, industry and even nation operates. In the case of an organisation, ISO 14000 will affect its dealings with suppliers, contractors, clients, banks, equity holders and other parties involved. ISO 14000 will also create great pressure on the industrial sector and businesses that cannot meet with environmental standards. Meanwhile, ISO 14000 is expected to have an impact on international trade and the way in which business is done. This means that if a nation is slow in accepting ISO 14000, it is likely that it will lose out in the competition with other nations that are more ready to accept and implement the ISO 14000.

Malaysia is fully aware of ISO 14000 – its advantages, consequences and possible trade implications both at an organisational level and as a trading nation operating in a highly competitive international environment. Indeed, a number of organisations in Malaysia are already implementing the ISO/ DIS 14001: Environmental Management Systems – Specification with Guidance for use on a voluntary basis.

It was also proposed that the first step, the Draft International Standard (DIS) of the ISO 14000 series be used as provisional Malaysian Standards. Indeed, in 1996 a registration scheme for environmental management system based on ISO 14000 was launched by SIRIM involving a set of training programmes for auditors and industries. The adoption of the ISO 14000 series is an excellent move for Malaysia. This will not only give a head start to Malaysia in the trade arena but also ensure a cleaner and safer environment while moving ahead with her industrialisation programme.

Trade and Environment

Somewhat related to ISO 14000 are the linkages between trade and environment. Following the Marakesh Ministrial Meeting in 1994, a Committee on Trade and Environment was established within the Ministry of International Trade and Industries (MITI) to address several issues linking trade and environment. These include: (a) trade provisions in multilateral environment agreements (e.g. the Montreal Protocol on the Ozone Layer); (b) trade effects of packaging and labelling requirements; (c) impact of environmental measures on market access especially for developing countries; (d) exports of domestically prohibited goods; and (e) trade effects of environmental standards, technical regulations and recycling.

The issue was whether environmental issues should be part of trade provisions in MEAs and World Trade Organization (WTO) rules. European countries particularly Germany, Switzerland, Norway as well as Canada and the United States argued that WTO recognises the legitimacy of trade provisions in the MEAs. They proposed that the WTO rules be amended to include protection from "eco-dumping" and wanted the right to adopt discriminatory trade measures against countries which do not conform to environmental standards.

Malaysia along with other member countries of ASEAN, Brazil and India collectively argued against the use of trade measures to address environmental interests. They feared that trade measures adopted for attaining environmental objectives and standards would negatively impact on the economic growth and trading interests of the developing countries. They argued that the gains arising from trade liberalisation following the Uruguay Round on resource-based sectors could be eroded if compliance with environmental standards were to lead to cost increases from discrimination against their exports. It was generally felt that unilateral and extra-territorial application of product requirements on the use of specific chemicals, packaging regulations and ecolabeling as well as specific production process could easily camouflage trade protectionism.

It is obvious that Malaysia and other developing countries are caught between protecting the environment at all costs and protecting their trade interests. Both are important. While concerned with the danger of legitimising trade provisions in the MEAs, at some point, Malaysia along with other developing countries will have to come to terms that environment is an important issue in international trade. Perhaps what is needed is lead time to allow countries like Malaysia and others to have a sufficient adjustment period so that they will not be at a disadvantage.

An equally important point to emphasise is the need to realise that environmental management and conservation are a shared responsibility. While the environment is a common concern, its intensity and extent of use vary from one group of the community to another. Some use it more than others and, in the process, destroy it; some benefit excessively from it. In view of the different contributions to environmental degradation and benefits derived from environmental resources, the 'shared responsibility' should somehow be differentiated, in line with the spirit embodied in principle 7 of the Rio Declaration in 1992. This is important in that it lays the basis for the equitable sharing of responsibilities. While every member of the community is expected to assist in environmental protection, conservation and management, the more endowed sections of the community especially the corporate sector will need to shoulder greater responsibility and contribute substantially more to the environmental cause.

Experience from the United States indicates that the nature of corporate commitment to environmental issues is mixed. While some individual companies are making strong commitments in this area and while there may be consensus on the need to address certain environmental problems, these are still isolated examples. The situation in Malaysia is similar. However, the Malaysian society as a whole is undergoing a remarkable change. If in the past, the interest in unconstrained growth, material consumption and hard technology were unquestioned, now there appears to be some evidence that the country is moving (although much too slowly) toward a more pragmatic, mature ethic that accepts the reality of limits. Unconstrained growth is slowly being replaced by 'smart growth' as a compromise to the apparent conflict between environmental conservation and the need for development. This hopefully will be reflected in increasing corporate sector concern for the environment in the future.

Concluding Remarks

Environmental management in Malaysia today touches on all aspects of our lives – our wellbeing, our health, our trade and our future. Its limited scope of the past has now been extended to include the management of available resources to take care of the present and future generations. Environmental objectives will need to be built into other areas of concern including taxation and foreign trade incentives. At the same time Malaysia should be prepared to take on environmental challenges (in whatever form) mooted by the international countries.

Coping with such wide ranging issues requires that human resource development programmes be in place for training, retraining and capacity building as well as for the education of the masses. Trading for particular skills and areas of expertise alone is not enough. Environmental ethics and a passion for the environment should transcend all sections of the community including politicians, property developers, government officers, the private sectors, professionals, school children and ordinary people in the street.

> Source Emeritus Prof. Dr. Sham Sani and Arif bin Mohd Sham Email:sham_sani@yahoo.com

Water Management for Sustainable Industrial Development

As water is one of the crucial elements in industrial development, the acceleration of industrialisation in Malaysia over the last two decades has inevitably exerted additional pressure on water demand which is concomitantly stretched by increasing domestic need due to increases in population and per capita consumption. The intensification of the related developmental activities has also brought about a significant impact on the environment through the unavoidable generation and discharge of wastes and an increase in the number of polluting sources. The situation is aggravated by the existence of many other non-industrial sources of pollution which impact negatively on the aqueous segment of the environment. The main sources of river water pollution have been identified to be associated with agro-based and manufacturing industries, sewage as well as construction activities. Since surface water remains the major source of water supply in the current state of development in Malaysia, the situation has created concerns about the sustainability of this depleting source in the long term, although aguifers may need to be soon explored and tapped as alternative sources.

Water Demand and Management

Although the rate of increase in water consumption in the country has been declining from an average of 9% per annum to the current level of about 6% per annum, and it is projected to steadily dwindle to 1.2% per annum in 2050, total water demand is expected to double in 2020 to 20.34 x 10^6 m³ per day and to treble in 2050 to 30.93 x 10⁶ m³ per day from the level of $9.54 \times 10^{6} \text{ m}^{3} \text{ per day in } 2000 \text{ (Table 1). While}$ Malaysia is blessed with an abundance of water resources, with the total annual renewable fresh water available being estimated at 456 x 109 m³, the continued threat of pollution to our water sources as described above necessitates prudent planning and management in order to sustain the anticipated developmental and industrial growth, besides meeting the demand of population growth from 18.1 million in 2000 to a projected figure of 38 million in 2050.

Development planning in Malaysia has always been set on the major goal of preparing the country to achieve the status of a fully industrialised nation by 2020. Efforts are, therefore, being directed towards, among others, the development, conservation, utilisation and management of water sources guided by the national perspectives, as well as on an integrated and environmentally sound basis. Measures being adopted include the utilisation of the integrated river basin management approach to enhance river and groundwater quality, and strengthening the control on indiscriminate discharge of inadequately treated wastewater

into river systems. On the other hand, in order to keep abreast with the anticipated ever increasing demand, it is also vital for water supply development to be managed properly, dynamically and holistically, in order that the long-term sustainability of the water sector is ensured. Towards this end, the National Water Services Commission (SPAN) was established on 2 April 2007 to spearhead reform in the water services industry pursuant to the

Water Services Industry Act 2006 (Act 655), which has provisions to cover economic, technical and social regulations as well as for the protection of consumer interest with respect to both water supply and sewerage services in Peninsular Malaysia and the Federal Territory of Labuan. This effort will drive towards achieving a new sustainable industry structure which will result in a more holistic approach in the management of water services.

Sustainable Use of Water in Industry

Water is extensively used in industry either as a feedstock material leading to a product (e.g. beverage) or applied as a reactant (e.g. hydrolysis), or as a utility (such as in the form

Table 1 : Domestic and industrial water demand in Malaysia

Year	1995	2000	2010	2020	2030	2040	2050
Consumption (x10 ⁶ m ³ per day)	6.87	9.54	15.29	20.34	24.49	28.13	30.93
Annual increase (%)	8.0	6.8	6.0	3.3	2.0	1.5	1.2

of a solvent, cleaning, rinsing or cooling agent, transport or energy transfer medium, etc.). In most cases, water is irreplaceable in these uses due to the absence of appropriate alternatives, its unique physico-chemical properties, its relative low cost, or its abundant availability. Many of the industrial processes consume enormous quantities of water, culminating in water pollution that needs proper handling and treatment in order to comply with the environmental regulations in force. Table 2 lists some examples of manufactured products against the volumes of water required for their production based on the current processes

Table 2 : Some examples of water consumption in industrial production

Product	Water used (m ³)	
1 tonne of dyed and finished textile	80 - 600	
1 tonne of pulp	50 – 200	
1 tonne of tapioca starch	15 – 23	
1 kilolitre of ethanol	10 – 12	
1 tonne of crude palm oil	2.5 – 3.5	
1 tonne of refined cane sugar	1 – 2	
1 kilolitre of milk	0.5 – 2.5	

employed. Water use in industry is often overlooked because of its relatively low cost. However, the true value of water as a resource is never fully reflected in its cost as its availability is taken for granted. One significant factor that militates against excessive use of water is the high costs associated with wastewater treatment, particularly for wastewaters contaminated with hazardous materials. Very often these costs erode a business's bottom line. It is therefore obvious that, resource conservation aside, sustainable water use practices to minimise consumption should be institutionalised in an industrial operation based on the concepts of cleaner production and 3Rs - reduction, reuse and recycle. These practices can range from simple good housekeeping measures to process optimisation and modification. From the technical perspective, a flow analysis technique - pinch analysis - has become popular for achieving optimised resource use and minimised waste generation in industrial processes. Developed originally to optimise energy use, this technique has been adapted for use in optimising water and raw material use. Application of utility-

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water pinch analysis to a chloralkali facility, for example, predicted a 23% reduction in freshwater consumption and a 44% reduction in wastewater generation that would result in a cost saving of USD 144,000 per annum. Based on 38 industrial audits undertaken by SIRIM Berhad on small and medium industries, it was found that an average of 11% reduction in water use could be achieved through the adoption of some appropriate cleaner production measures, although there was a wide range of water saving from approximately 5% to more than 50% on an individual basis.

Case Studies

In a small-scale electroplating facility providing commissioned plating services for the automotive and electronic industries, a three-stage counterflow rinsing system was implemented aimed at minimising wastewater discharge. Two ionexchange units were installed to clean the final rinse water for recycling back to the countercurrent flow with the products in process, which was balanced to compensate for losses due to evaporation from the plating tanks. The rinse water became increasingly concentrated with plating chemicals dragged out from the plating tanks during the counter-current rinsing process. It was recycled for topping up the plating solution in the process, thus reducing substantially the amount of water used. The improved system achieved over 80% reduction in water consumption and concomitantly substantial savings in plating and treatment chemicals. With a one-time investment of RM 170,000, the company realised savings of RM 160,000 per year.

In another facility producing local fruit juices and cordials, more than 70% of filtered and sterile water meant for production was used in rinsing bottles and floor

washing before being discharged into the drains. With the installation of a water recycling system to effect the return of wash water used in rinsing the filled bottles for floor washing, more than 40% cut in water consumption was achieved, resulting in significant reduction in environmental pollution and wastewater treatment cost.

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Public Consultation and Participation in Environmental Impact Assessment

Though Agenda 21 requires public participation in environmental management, public participation within the Environmental Impact Assessment (EIA) procedure is still ambiguous. Available literature reveals that public participation is not effectively or consistently conducted in EIA. In Malaysia, as in the case of other countries, it is still a challenge to ensure adequate and useful participation in the EIA process. There is therefore an urgent need to establish an appropriate mechanism for public participation in the EIA processes and procedures in Malaysia. The question is: 'Should public involvement take place in the early stages of EIA, and what is the appropriate method or approach to foster this form of participation?'

A survey of studies on EIA shows that there has been greater focus on screening, scoping and prediction rather than the mechanisms of public participation. Sadly, this is because public participation is accorded the lowest priority in the EIA process in certain developing countries, including Malaysia.

Theoretically, the aim of public participation is (i) to get public opinion on a wide range of issues arising from a proposed project, (ii) to educate the public, and most importantly (iii) to avoid or reduce the conflict between economic and social developments. "A good overall definition of public involvement is a process that involves the public in the decision making procedures of an organisation" (Väntänen *et al.*, 2005: 282).

In the Malaysian context, EIA guidelines (DOE, 2000: 6), defines public participation as an approach of:

- identifying the material or psychological impact of a proposal;
- measuring and promoting the social acceptance of a project;
- monitoring community needs and ensuring that development continues to meet those needs; and
- monitoring changing environmental values in the community.

At Which Stage of the EIA Should Public Participation Take Place?

From the preceding discussion, it can be seen that at which stage in the EIA process public participation should be conducted is still not clearly defined. It is suggested that public participation can be solicited in all stages of









the EIA process. Good practice guidelines of the EIA process identifies appropriate methods and mechanisms for the public to be involved in the EIA. According to Wilkins (2003: p. 401) the values of the public, proponents and the assessors engaged in an EIA play a significant role from screening of projects to final decision making. Public participation in environmental decision making naturally originated in the West and it is imperative to get an appropriate method for public participation in the EIA process in Malaysia. Community Value (CV) Surveys use people's willingness to pay for environmental goods and services. Hence CV Surveys could be integrated into the EIA process in Malaysia to allow wider public participation in environmental decisions. Kenyon's (2003: p. 221-232) studies indicate that using Citizens' Juries Approach could enhance environmental decision-making for the environment. Another study using Contingent Valuation Approach by Kenyon (1998: p. 463-475) confirms the validity and reliability of the CV approach showing that the public can act like an expert when evaluating ecological goods. Therefore, CV could be the appropriate method to be incorporated in the EIA process for public participation in the Malaysian context.

The approach and methods for public involvement in the EIA process vary. In the UK, planning applications accompanied by an Environmental Impact Statement (EIS) must be notified in the local press. Any relevant comments made on the EIS, by the public or any other group, must be taken into consideration before any decision on the proposal can be made (Directive 85/337/EEC, 1997).

The concept of a ladder of citizen participation outlined by Arnstein (1969) emphasises eight rungs; as the power of public participation increases, citizens have more power in decision making. The level of participation in the current practices in the EIA process in Malaysia can be analysed using the Arnstein model. The current status of the level of public participation in the EIA process in

EIA Process

Screening

Objective - Identification of public interest values.

Scoping Objective - Encouraging public

understanding of proposed project.

Preparation of EIA report Objectives - Public can contribute local knowledge and values to the prediction, evaluation and mitigation of impacts.

Improved quality and acceptability of EIA report.

Review of EIA report Objective - Public contribute to evaluation of quality and acceptability of report.

Decision-making Objective - Public comments on acceptability of project impacts.

Post EIA monitoring Objective - Public evaluate impacts that occur and support project environmental management process. **Arnstein model**

8. Citizen control

The objective is to allow maximum citizen involvement in the planning.

7. Delegated power

The objective is to allow citizens a majority power to make decisions.

6. Partnership

The objective is to negotiate between citizens and power holders. Planning and decisionmaking responsibilities are shared.

5. Placation

The objective is to allow citizens to advice or plan but retains power for the approving authority to continue right to decide

4. Consultation

The objective is to hear public views. But Arnstein still feels this is just a window dressing ritual.

3. Informing

The objective is to get public participation. But too frequently it is a one-way flow of information. No channel for feedback.

2. Therapy

Non-participative. The objective is to educate people but not to enable people to participate in the planning.

1.Manipulation

Non-participative. The objective is to educate people but not to enable people to participate in the planning.

Figure 1: Public participation in the EIA process in Malaysia and the Arnstein Model

Malaysia can be illustrated in Figure 1 using 5 rungs from the Arnstein model. Only 5 rungs of the Arnstein model are related to the current status of public participation in the EIA process in Malaysia. These are manipulation, therapy, informing, consultation and placation.

Figure 1 shows the current scenario of public participation in the EIA process in Malaysia. The level of public participation in the screening and scoping stages is at the manipulation and therapy levels and people are not involved in planning or decision making. Public participation in the preparation of EIA reports is in terms of manipulation, therapy, informing and consultation. Public meetings are typically conducted and questionnaires are sent out to inform and to consult opinions on a project. In Malaysia, the public is encouraged to participate as early as in the preliminary assessment and in detailed assessments.

The public is notified through the mass media and the homepage of the Department as to when and where the detailed EIA reports will be available for review and comment. Public opinions help define the kind of development that is compatible with a particular society and the environment. Under the current practice, all detailed EIA reports should be in a form that can be made available to the public, and it is the responsibility of the project proponent to provide and distribute sufficient copies to the members of the Review Panel, approving authority, concerned environment related agencies and members of the public. The project proponent is required to inform the public through advertisements in both major Bahasa Malaysia and English newspapers, three times with a weekly lapse. The DOE's homepage will also bear information as to when and where the detailed EIA report will



be made available to the public for review and comments. Comments by the public must be made in writing and forwarded to the Secretariat of the Review Panel within the time specified in the advertisement (DOE, 2000: 39).

Conclusion

As a first step, a critical analysis of public participation in the EIA process in Malaysia is an imperative. It is important that the objectives of public participation and the required level of public participation in decision-making are spelt out clearly. Obviously the move should be towards greater sharing of responsibilities in planning and decision making and ultimately major power should be vested in the public to make decisions about their environment.

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Peatland Fires – It is more than about the Annual Haze!

Malaysians are all too familiar with the occurrence of the haze. In fact, much as we despise having to breathe in such poor quality air, we have begun to accept it as an annual affair; a part of our lives we can do little about. Many have resorted instead to add gadgets such as air purifiers and ionisers to our shopping list to cope with the situation.

Have we tried to look deeper into the issue of the transboundary haze?



Did You Know?

The worst occurrence of the haze in the past few years coincided with the vast fires of 1997-98 that ravaged large areas of peatlands for several months during the dry season (i.e. during the El Niño period). The smoke from these fires covered large parts of Indonesia and neighbouring countries such as Singapore and Malaysia, leading to an increase in respiratory ailments such as asthma, bronchitis and pneumonia and skin as well as eve irritations. and a total of 1108 flights were cancelled in Indonesia, Singapore and Malaysia. It also impacted significantly on tourism revenues. It is clear that the effect of haze is beyond just the reduction in air quality. It also affects business and economic growth.

We had a good excuse then. The induced droughts were a significant contributing factor to major fires in the region. More recently though, many peatlands have become so degraded (and so badly managed) that they are susceptible to burning after short dry spells of less than two weeks. Effects similar to the fires of 1997/1998 were felt again in August 2005, when fires in peatlands in Indonesia and Malaysia resulted in Malaysia declaring a state of emergency in two areas in the Klang Valley, namely Pelabuhan Klang and Kuala Selangor when the air pollution index (API) exceeded 500. In Malaysia, it was estimated that 99% of the fires which caused the haze were found in peatlands.

What Should be Done about Our Peatlands?

How are we then managing our peatlands? In the past 10 years, about 3 million hectares of peatlands have been burnt in the region, causing the release of 2-3 billion tonnes of carbon and damage amounting to an



Most importantly, peatlands are a globally significant store of carbon and thus an important player in the fight to control global warming. Although they only cover 3% of the land surface, they store between 20-35% of the carbon. Tropical peatlands store 2000-6000 tonnes of carbon per hectare compared to the average of 270 tonnes of carbon per hectare in global forest ecosystems. In other words, peatlands in the ASEAN region are estimated to store up to 5% of all carbon present on the world's land surface. Furthermore, a healthy intact peatland actively accumulates carbon, offsetting to some extent carbon emissions from fossil fuels. In fact, peatlands are one of the very few mature ecosystems that can actively accumulate carbon in the long term.





Should We be Concerned?

Records show that crop productivity and yields from plantations were greatly affected due to the reduced sunlight. Airports in Sumatra and Kalimantan were closed for extended periods estimated USD10 billion. Without progress to prevent further degradation of peatlands, it is anticipated that the extent and intensity of fires will remain the same or see an increase in future years. The carbon storage and sequestration functions of peatlands are now being lost due to human intervention. Activities related to land conversion and shifting agricultural pratices (slash-and-burn) release stored carbon to the atmosphere, and in significant amounts it can contribute to climate change and global warming. Drainage releases 50-200 tonnes of carbon per hectare per year and fires may release 500-1000 tonnes of carbon per hectare per fire. About 7 million hectares of peat swamp forests in South-east Asia have been deforested and drained for agriculture. Drainage to 50 centimetres depth results in 50





tonnes of carbon dioxide (CO_2) emission per hectare per year; drainage to 1metre results in 100 tonnes of CO_2 emission (Wösten, 2006). Most degraded peatland areas and areas under cultivation are over-drained, i.e. up to 1 to 1.5 metres. Annual carbon emission in South-east Asia by drainage is estimated at 250 million to 500 million tonnes of CO_2 , or about 3-7% of annual global emissions from fossil fuels.

In the 1997-98 fires, it has been estimated that peatlands in the region released between 1-2 billion tonnes of carbon, equal to 15-40% of the annual global emissions of fossil fuels. In fact, the largest increase in the global carbon dioxide concentration during the period 1959 to 2001 occurred during the 1997-98 fires.

In the region, second to Indonesia, Malaysia has a total of 2.13 million hectares of peatlands in the states of Selangor, Johor, Perak, Pahang, Sabah and Sarawak, with the largest area of more than 1.5 million hectares in Sarawak.



What Are Peatlands and How Are They Formed?

Tropical lowland peatlands are normally formed between rivers in low-lying coastal areas or floodplains where periodic flooding occurs. Partially decomposed organic matter accumulates over thousands of years due to the lack of oxygen under waterlogged conditions to form peat, a soil defined as containing at least 65% organic matter. Forests formed on these peat soils are called peat swamp forests. They possess unique vegetation assemblages adapted to the high degree of water logging, low pH and low available nutrient conditions.



Peatlands have many direct and indirect uses and functions, over and above the role they play in controlling global warming. They are a main source of high quality timber particularly mangrove, fish and peatland plants (such as rattan). They are also a habitat for many animals and are very important for reducing flood peaks and for maintaining base flows in rivers during dry periods.

Offering Regional Solutions – We Need to Act

Recognising that the largest source of transboundary haze (and also greenhouse gas emissions) is from the degradation of peat swamp forests, ASEAN established an ASEAN Peatland Mangement Initiative (APMI) in 2003 to enhance partnership to address this common problem. In November 2006. the Ministers of Environment from the 10 ASEAN Member Countries endorsed the ASEAN Peatland Management Initiaitive (2006-2020) to guide measures to ensure the protection and sustainable management of peat swamp forests and prevention of peatland fires and haze. One of the specific objectives of the strategy is to maintain the role of peatlands for carbon storage. Although it is a major breakthrough, a lot more needs to be done before we see any improvement to the haze situation. In the absence of any intervention, this trend will continue and have a strong negative impact on efforts to reduce the rate of greenhouse gas built-up in the atmosphere.

Peatlands have historically played a significant role in climate regulation, stabilising the levels of carbon dioxide in the atmosphere. Now, with the increasing degradation of peatlands, this function is being lost at the very time it is needed to ameliorate the increase in carbon dioxide caused by the burning of fossil fuels.

The Montreal Protocol: Commemorating 20 Years of Progress_

As Malaysia celebrates 50 years of nationhood on 31 August 2007, the Montreal Protocol on Substances that Deplete the Ozone Layer marks its 20 years of progress in September 2007. The celebration of the International Ozone Day on 16 September will mark the 20th Anniversary of the Montreal Protocol which will be held in Montreal Canada. Following the celebration, the 19th Meeting of the Parties of Montreal Protocol will be held on 17 to 21 September 2007. Many events will be organised such as an Ozone Day Seminar on the Montreal Protocol, its evolution, and its future.

The Montreal Protocol on Substances that Deplete the Ozone Layer

The Montreal Protocol is an international agreement that controls the production and consumption of Ozone Depleting Substances (ODSs) such as Chlorofluorocarbons (CFCs), Halons, Carbon tetrachloride, Methyl chloroform, Methyl bromide, Hydrochlorofluorocarbons (HCFCs), Hydrobromofluorocarbons (HBrFC) and Bromochloromethane. Initially 24 countries signed the document on September 1987 in Montreal, Canada. To date, the Protocol has made tremendous progress in phasing out ODSs with 191 countries having ratified the Protocol. The mandatory phase-out of CFCs for developed countries is by the year 2000 while for the developing countries, is by year 2010. In order to enable developing countries comply with the specific time bound reduction targets

for the chemicals controlled under the Protocol, a Multilateral Fund was established with contribution from 43 developed countries. The Fund is overseen by an Executive Committee (ExCom) made up of 14 parties, 7 from developed countries and 7 from developing countries.

Besides healing the ozone layer, the Protocol has delivered substantial climate benefits because ODSs are also global warming gases. The reduction in ODSs between 1990 (when they reached a peak level) and the year 2000 has yielded a net integrated reduction of approximately 25 billion tonnes of CO_2 weighted global warming gases.

> This significant reduction makes the Montreal Protocol one of the prime global contributors in the fight against global warming.

MONTRE

Malaysia's Commitment as a Party to the Montreal Protocol

Malaysia joined the rest of the world in saving the ozone layer by ratifying the Vienna Convention and the Montreal Protocol on 29 August 1989; the London Amendment on 16 June 1993; the Copenhagen Amendment on 5 August 1993; and the Montreal and Beijing Amendments on 21 October 2001.

Among the developing countries, Malaysia leads the way in phasing out the use of ODSs. Malaysia was an early participant in the global effort to preserve the ozone layer by its proactive role in formulating strategies and policies including legal measures to restrict the use of ODSs way ahead of the time frame granted. Malaysia has successfully reduced her consumption of ODSs of 4193.6 MT in 1990 to 530 MT in 2006. The consumption was in



seven sectors, namely, mobile air-conditioning; refrigeration including servicing domestic and commercial refrigerators; chillers; foams; solvents; aerosol and fire fighting. To facilitate the phase-out, the Government of Malaysia implemented an import control and licensing system in 1994 which cut down the imports of ODS, by 15-20% and increased the import duty. The prohibitions on the use of CFCs in foam production and as a propellant in aerosol were enforced in 1993. Use of CFCs in new installation of refrigeration systems and Halons in fire fighting equipments was prohibited in 1999. Besides the control measures, the grant received from the Multilateral Fund of Montreal Protocol for the first Country Programme (1992- 2001) amounting to USD36.5 million made it possible for Malaysia to meet her mandated reduction obligations.

The ExCom, in December 2001, approved the second phase of the Malaysia National CFC Phase-out plan (NCFCP) with a ceiling grant of USD11,517,005. This grant is to be disbursed between 2002-2010 through the World Bank to phase-out the remaining consumption of 2,092 tonnes of CFCs with ozone depletion potential (ODP) in residual manufacturing activities in foam, solvent and CFC usage in the servicing sector. The main concern of NCFCP is in the service sector that involves the public. CFC is largely used in mobile air-conditioners, domestic and commercial refrigeration systems and building chillers. The activities carried out in the servicing sector are distributing subsidised vouchers to service workshops of mobile air-conditioning and refrigeration systems for purchase of recovery and recycling machine and training the technicians that handle the CFC refrigerant. These activities are in line with the requirements under the Environmental Quality (Refrigerant Management) Regulations 1999



UNEP www.ozzyozone.org

that prohibit venting of refrigerants that affect the atmosphere. Besides investment projects, other activities such as capacity building for customs officers, National Transition Strategy for Metered Dose Inhalers (MDIs), awareness programmes and monitoring and enforcement activities are also carried out to ensure compliance to the Protocol by 2010.

Malaysia is proud of her ODS phaseout accomplishments and pivotal role in contributing towards the saving of the stratospheric ozone layer. The success of Malaysia's ODS phase-out programmes is a result of the implementation of sound policies, legislations and building smart partnerships with other government agencies, like Customs Department, Fire and Rescue Department, Ministry of Industry and International Trade, Ministry of Agriculture and also, most



importantly, with industries. The Multilateral Funds and Implementing Agencies such as World Bank, UNDP, UNEP and UNIDO played an important role as providers for financial and technical support in making the Montreal Protocol a success in Malaysia.

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Sustainable Living in Malaysia (SLiM)

Take the SLiM 2007 Challenge Today

To honour 50 years of Malaysia's nationhood To ensure a more sustainable 50 years ahead and beyond And to show our leaders that we value our environment enough to protect it.

Yes I want to take the **SLIM 2007 Challenge** and conserve our environment for future generations! I agree to do at least three of the items listed and will encourage my family and friends to do so.

Log on to : WWW.CPSM.Org.My Environment Protection Society Malaysia

P.O Box 382, Pejabat Pos Jalan Sultan, 46740 Petaling Jaya

I pledge to do at least three of these 10 simple actions to reduce my impact on the environment.

HOME	Find ways to reduce my electricity use by 10% this year
	Find ways to reduce my water consumption by 10%
	this year
	Reduce, reuse, repair and recycle
	Start a compose heap
FOOD	Choose at least one day a month to eat a meat-free meal
	in my household
TRANSPORT	Maintain my car well, keep the tyres properly inflated and
	abide by the speed limit
	Not use my car for at least one day a month
DEDSONAL	Avoid unnecessary chonning
FENSONAL	Avoid unitedessary shopping
	Say NO to styroroant boxes and plastic bags
OFFICE	Think before I print

Activity Highlights Department of Environment, Malaysia

June 2007

National Action Plan for Land-based Pollution (NAP-LbP) Workshop - UNEP/GEF Project: Reversing Environmental Degradation Trends in the South China Sea and the Gulf of Thailand (SCS Project)



China Sea up to the year 2020.

held from 11-12 June 2007 at the Holiday Villa Hotel, Cherating, Pahang. The one and half day workshop was chaired by the Director of Marine and Water Division, Tuan Hj. Hashim bin Hj. Daud and

The National Action Plan for Land-based Pollution (NAP-LbP) Workshop was

Hashim bin HJ. Daud and saw participation from representatives of various government agencies, universities and the private into plenary and breakup



DOE Environmental Awareness Camp (KeKAS)

Organised by DOE in collaboration with the Ministry of Education, it was held at Taman Negara Gua Niah, Sarawak from 23-26 June 2007. This camp is the third in a series of camps that were held in May and December last year. 56 trainee teachers and lecturers from 4 Teacher's Training Institutes in Sarawak were

groups in a move to detail out action plans aimed at controlling landbased pollution from the States and coastal areas bordering the South

trained as facilitators to conduct future KeKAS camps.



July 2007 17th Inter-University Environmental Debate



Organised by DOE in collaboration with the Malaysian Universities Debate Council (MADUM), Dewan Bahasa dan Pustaka (DBP) and Ministry of Higher Education, the 17th Inter-University Environmental Debate saw participation from 21 teams from 21 institutions of higher learning in Malaysia. Universiti Sains Islam Malaysia (USIM) at Nilai, Negeri Sembilan hosted the event from 27 – 31 July 2007. The finals of the 2007 Inter-Varsity Environmental Debate held at Dewan Kuliah Pusat 3 of Universiti Sains Islam Malaysia was between Universiti Kebangsaan Malaysia (UKM) and Universiti Islam Antarabangs Malaysia (UIAM).

The UIAM team emerged the overall winner of the 2007 Inter-Varsity Environmental Debate, receiving the Minister of Natural Resources and Environment Challenge Trophy, cash prize of RM 8,000.00 and a certificate of participation. UKM, as runners-up received a cash prize of RM 5,000.00 and certificate of participation. The two teams which qualified for the semi-finals, namely Universiti Malaya and Universiti Teknologi Mara, received a cash prize of RM 1,000.00. Mohamad Daud Matdin of UIAM was adjudged the Best Debater and received the Director General of Environment Trophy, together with a cash prize of RM 1,500.00. The prizes were presented by Y. B. Dato' S. Sothinathan, the Deputy Minister of the Ministry of Natural Resources and Environment.

Upcoming Event

" Penambahbaikan Program Kesedaran Alam Sekitar"

The above programme will be held on 25 October 2007 at Palace Beach and Spa, Mines Resort City, Serdang. For further inquiries, please contact dalilahrashid@doe.gov.my

Forthcoming Issue

The last issue of IMPAK for year 2007 will feature articles on current issues and concerns related to the environment.

Article contributions and comments are welcomed. They are to be directed to : lingchui@doe.gov.my Tel: 603 8871 2083 Fax: 603 8889 1042

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Views and opinions expressed by the contributors do not necessarily reflect the official stand of DOE.

