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Highlights

POLISI JABATAN ALAM SEKITAR TERHADAP PENEMPATAN KEMUDAHAN AKTIVITI PENGOLAHAN, PEMEROLEHAN KEMBALI, PENSTORAN DAN PELUPUSAN BUANGAN TERJADUAL.

Oleh
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LATAR BELAKANG

Sejak kebelakangan ini, jumlah permohonan untuk mendirikan kemudahan pemerolehan kembali buangan terjadual telah bertambah dengan pesatnya. Trend ini adalah merupakan satu perkembangan yang baik selaras dengan hasrat kerajaan menggalakkan industri menjalankan aktiviti sedemikian. Masalah timbul apabila tapak yang dicadangkan adalah merupakan kawasan perindustrian untuk industri ringan dan sederhana ataupun kawasan perindustrian umum. Walaupun pengkelasan aktiviti ini sebagai industri berat telah dinyatakan di dalam *Guidelines for Siting and Zoning of Industries*, masih terdapat kekeliruan di pihak pemaju projek dan perunding EIA. Oleh itu polisi ini disediakan untuk memperjelaskam lagi peruntukan dalam *Guidelines for Siting and Zoning of Industries* tersebut. Dengan ini adalah diharapkan dapat membantu pihak-pihak yang ingin melaksanakan aktiviti-aktiviti pemerolehan kembali buangan terjadual memilih tapak yang sesuai dengan aktiviti yang dijalankan.

BUTIRAN POLISI

Mulai pada **9 Ogos 2001**, JAS telah menetapkan polisi berkenaan penempatan sebarang kemudahan bagi aktiviti pengolahan, pemerolehan kembali, penstoran dan pelupusan buangan terjadual. Pemaju projek hendaklah mengambilkira polisi JAS seperti berikut sebelum memilih lokasi tapak projek untuk menjalankan kajian EIA.

A. Penempatan Kemudahan Baru Bagi Aktiviti Pengolahan dan Pelupusan Buangan Terjadual

Kawasan yang dibenarkan:

1. Kawasan perindustrian berat

Bersambung kemukasurat 3

FROM THE DG'S DESK

With the shift from agricultural activities to industrialization in Malaysia's socio-economic development, many industrial estates were established and thereby setting up of industries. Industries ranging from petrochemicals to electronics, resource based etc. were built. Wastes as by-products of industrial activities will be generated , some being toxic and hazardous. The Government through the privatisation scheme awarded a 15-year concession in 1995 to Kualiti Alam Sdn Bhd to build and manage an integrated toxic and hazardous waste treatment and disposal facility in Bukit Nanas, Negeri Sembilan. This facility that has been in operation since 1998, caters for all types of toxic and hazardous wastes generated in the country.

Treatment and disposal of toxic and hazardous wastes does not come cheap. Industries are therefore encouraged to minimise their waste and wherever posibble to reuse, recycle or recover these wastes. As the demand for wastes recovery facilities increases more and more entrepreneurs are jumping on to the bandwagon and siting these facilities wherever there are available land . This has given rise to incompatibility of industries within a specific industrial zone.

The Guidelines for the Siting and Zoning of Industries categorised recovery of toxic wastes as a heavy industry. This means that they must be sited in designated industrial estates with adequate buffer especially from residential areas and be compatible with other land use within the vicinity. To reiterate these requirements the Department of Environment has come up with a policy statement on the siting of facilities for the recovery, storage , treatment and disposal of toxic and hazardous wastes. This policy would assist industrialist in deciding on the best sites to install their facility and also assist EIA consultants to assess the possible site option and advised their clients accordingly. Choosing the most suitable site in terms of environmental requirements would ensure the facility can be operated without undue interference and complaints from the neighbours.

The Department of Environment will continue to facilitate and provide whatever assistance necessary to the industries to ensure that the business of toxic and hazardous recovery is managed in a proper manner and remain viable without resorting to cutting corners. This we hope will also reduce the incidents of illegal dumping of toxic and hazardous wastes. Let us work together to attain sustainable development so that the future generations will not be deprived of their basic needs.

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2. Kawasan perindustrian sederhana atau kawasan perindustrian umum dengan syarat:

i. Zon penampan dari tapak ke kawasan perumahan atau kediaman yang terdekat hendaklah **sekurang-kurangnya 500 meter**; dan
ii. Aktiviti yang dicadangkan adalah sesuai *(compatible)* dengan kilang-kilang berdekatan dalam jarak **250 meter jejari.**

Kawasan yang tidak dibenarkan:

1. Kawasan perindustrian ringan.

2. Tapak yang tidak digazetkan sebagai kawasan perindustrian.

B. Permohonan Untuk Meningkatkan Kapasiti Bagi Kemudahan Pengolahan dan Pelupusan Buangan Terjadual Sediada.

1. Permohonan yang diterima untuk meningkatkan kapasiti melebihi 50% dari kapasiti asal perlu menjalankan kajian EIA baru;

2. Permohonan perlu memenuhi semua kriteria tapak yang telah ditetapkan bagi permohonan kemudahan baru seperti dalam ***Perkara A*** di atas; dan

3. Mempunyai rekod pematuhan lesen 100% bagi kemudahan sediada.

C. Penempatan Kemudahan Pengolahan dan Pelupusan Buangan Terjadual di Kawasan di Hulu Takat Pengambilan Air Minuman.

Permohonan adalah ***tidak digalakkan***. Pemaju yang masih ingin meneruskan permohonan perlu menjalankan kajian terperinci terhadap impak ke atas kualiti air di takat pengambilan air minuman yang terlibat.

D. Konsep Pemerolehan Kembali Buangan Terjadual.

Peratus pemerolehan kembali *(percentage of recoverable)* bahan logam dari buangan terjadual yang diproses hendaklah mengikuti had yang ditetapkan dalam *Guidance Document on Transboundary Movements of Hazardous Wastes Destined for Recovery Operations* seperti berikut:

Types of Wastes	Recoverable Components	Minimum Percentage (dry weight basis)
Metal Hydroxide Sludges	Copper (Cu)	10
	Gold (Au)	0.05
	Nickel (Ni)	5
	Silver (Ag)	2.5
	Zinc (Zn)	20
Spent Catalysts	Chromium Oxide	10
	Cobalt (Co)	20
	Copper Compounds	10
	Nickel Oxide	10
	Nickel (Ni)	8
	Palladium (Pd)	1.0
	Platinmum (Pt)	0.2
	Zinc Oxide (ZnO)	10

PENUTUP

Dengan wujudnya polisi Jabatan berkenaan penempatan kemudahan menjalankan aktiviti pengolahan, pemerolehan kembali, penstoran dan pelupusan buangan terjadual adalah diharapkan dapat membantu pihak pemaju memilih tapak yang sesuai dengan aktiviti yang dijalankan. Ianya juga dapat membantu mengekalkan *compatability* di kawasan perindustrian dan usaha ini adalah selaras dengan objektif JAS untuk merealisasikan pembangunan lestari. IMPAK

HAZARDOUS WASTES FACILITIES

By Ahmad Kamarulnajuib bin Che Ibrahim and Norsora bte. Mohd. Jadi

INTRODUCTION

More than twelve years Malaysia has implemented regulations for controlling the generation, storage, transportation, treatment and final disposal of toxic and hazardous wastes or *scheduled wastes*. The categories of toxic and hazardous wastes are listed in the First Schedule of the Environmental Quality (Schedules Wastes) Regulations 1989. It is important to refresh our understanding on the basic concepts and terminalogies commonly used for hazardous wastes facilities.

Hazardous Wastes Facilities

A hazardous waste facility may involve the contiguous land, structures, and other improvements and appurtenances used for storing, recovering, recycling, treating or disposing of hazardous waste.

Many hazardous waste generators recognized the need for specialised treatment and disposal of these wastes. Many generators constructed and operated their own hazardous wastes facilities referred to as *on-site* facilities. Other generators, not having a suitable site or not generating a sufficiently large volume of waste to justify the investment on-site facility, transported their waste off-site to specialized facilities for treatment and disposal. Such facilities are referred to as commercial, *off-site* facilities.

A hazardous waste facility may function with just one technology or it may combine multiple technologies (for recovery and treatment of hazardous waste) particularly if it is in a commercial facility serving a number of generators.

Recovery, Treatment and Disposal Technology

The main types of facilities (see Figure 1), other than *storage facilities*, are classified under the following major categories:

(a) *Recovery or recycling facilities* of recovered material as a saleable product (typically solvents, oils, acids or

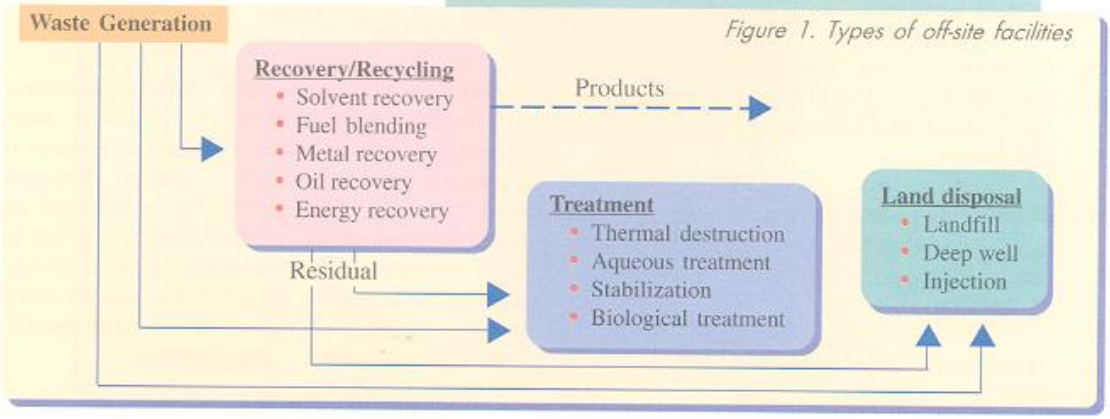


Figure 1. Types of off-site facilities

metals); some recovered energy values in waste.

(b) *Treatment facilities* involve changes in the physical or chemical characteristics, using any of a wide variety of physical, chemical, thermal or biological methods.

(c) *Land disposal facilities* are permanent placement of waste on or below land surface.

(d) *Fully Integrated Facility*

Some large commercial facilities employ aqueous treatment, incineration, land disposal, and possibly other components to form a fully integrated facility as shown in Figure 2. Example of this category is Kualiti Alam Sdn. Bhd.

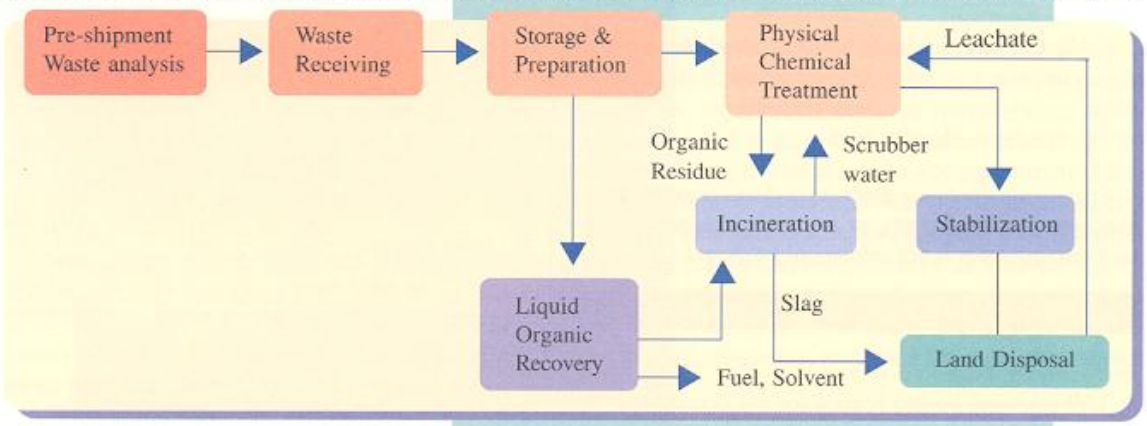


Figure 2. Waste management flow diagram for fully integrated hazardous waste management facility.

Facility Operations

The operations of fully integrated hazardous waste facility consist of five sub systems.

1. Pre-shipment Waste Analysis

A waste analysis plan is a critical part of a facility. The plant specifies the parameter for which each waste will be analyzed, the sampling and analysis methods to be used, and the frequency of analysis. Waste profile is also essential at this stage.

2. Waste Receiving

Waste shipments typically assure by truck at a facility gatehouse. Upon accepting the waste, the facility signs the manifest and sends a copy to the generator.

3. Waste Storage and Preparation

Upon unloading, the wastes are moved into storage that can consist of tanks or impoundment for bulk liquids, hoppers for solids and sludge or pads and warehouses for containers.

The objectives of storage and preparation are:

a) Store the waste safely
b) Provide adequate accumulation time during treatment service
c) Ficilitate mixing, blending and packing of the waste
d) Allow staged input of various wastes with reagents.

4. Waste Treatment

Treatments operations may be carried out on a batch or continous basis. The treatment methods fall into four

categories:

(i) Phase separations (e.g. sedimentation, steam stripping),
(ii) Component separation (e.g. ionexchange, electrodialysis),
(iii) Chemical transformation (e.g. chemical oxidation, incineration),
(iv) Biological transformation (e.g. fixed film aerobic treatment).

5. Residuals Management

Each waste treatment process produces gaseous emissions, wastewater effluents, or residuals requiring subsequent management if not additional treatment.

Scheduled Waste Facilities in Malaysia

In Malaysia, based on record until May 2000, there are 189 premises having licence for the occupations or use of off-site hazardous wastes facilities. Out of 189 premises, it may be breakdown into 34 premises for off-site *recovery,* 10 premises for off-site storage facilities, 39 for off-site treatment and 13 premises for *land disposal* facilities. However, the remaining 93 facilities is categorized as off-site transportation facilities. Figure 3 shows the statistics of off-site hazardous wastes facilities in Malaysia. Types of recovery/recycling, treatment and land disposal technologies are shown in Table 1.

Facilities	Number of Premises
A. Off-site Recovery/ Recycling Facilities	
- Solvent Recovery	15
- Metal Recovery	14
- Oil Recovery	5
B. Off-site Treatment	
- Thermal Destruction	36
- Aqueous Treatment	1
- Stabilization Treatment	1
C. Land Disposal	
- Landfill	13

Table 1 : *Number of-site facilities in Malaysia*

Finally, in the case of hazardous waste facilities, a number of new concepts and terminalogies had evolved in the environmental literatures. Thus, understanding and appropriately used such terms will enhance one to communicate effectively in todays challenging and fast moving environment. IMPAK

ASPECTS OF WASTE MINIMIZATION PRACTICES

by Norhayati Mohd. Yusof

Hazardous material and waste management, as described by W. Lee Kuhre in his book entitled *Practical Management of Chemicals and Hazardous Wastes; 1994*, has four evolution. The first stage was the realization of environmental problems. The second was the birth of numerous regulations, designed to limit discharges to the environment, impose chemical controls and initiate investigation of past problems. The third stage emphasizes the development of waste management. Finally the fourth phase is the present environmental standardization phase, which started in the early 1990's with ISO 9000 certification.

Governments, industry and the public have become increasingly concerned with the environmental, legal and economic issues associated with the disposal of wastes. The one and possibly the only subject on

which everyone, from the most hardened industrialist to the most radical environmentalist, seems to reach concensus is waste minimization. Generally, waste minimization is the reduction, to the maximum extent possible, of hazardous waste that is generated, treated, stored or ready for disposal. Waste minimization is a multimedia pollution control and management that focuses on reducing the generation and discharge of pollutants (gaseous, aqueous and solid) at their source to avoid subsequent handling, treatment and disposal. Waste minimization encourages industry to reduce its hazardous pollutants at the source, rather than to treat and dispose of pollutants into the environment.

In Malaysia, the Environmental Quality (Scheduled Wastes) Regulations of 1989 stipulate a requirement for reduction the generation of scheduled waste by every waste generator using the best practicable means. However, during the earlier years since the legislation came into force, waste minimization has been widely implemented by waste generators, primarily because it was not recognized as a viable and beneficial alternative to the end-of-pipe approach. The Department of Environment (DOE) views waste minimization as an important activity in hazardous waste management but is aware that its success requires strong commitment from the industry.

In 1996, the DOE launched a project known as the Malaysian Agenda For Waste Reduction (MAWAR) that was to be an industry driven initiative. This project targeted large quantity waste generators from among the chemical industry, paint industry, electronic and semiconductors, industrial gas, printing and packaging industries. The project drew little interest from the industries and reasons were attributed to constraints in technical know-how, financial resources and lack of management's commitment to minimize waste. DOE proceeded to establish the first phase of the MAWAR project and it was then focused on conducting a survey of selected industries to obtain information on companies' plans and programs in minimizing waste. The second stage embarked by the DOE will be to promote industry's participation in this program.

Waste minimization options and priorities

The waste minimization options can either be hazardous material minimization or hazardous waste reduction. Hazardous material minimization sometimes referred to as waste reduction at source, is a preferred option, that prevents any placement of hazardous material in an operation, thus avoiding hazardous waste generation. Alternatively, the use of hazardous material can be reduced if its total elimination is not possible. If possible, the hazardous material should not be allowed to enter the operation in the first place; otherwise, minimize the amount needed.

If it is not possible to further minimize or reduce the usage of hazardous materials at source, hazardous waste reduction should be implemented. At this point, reuse or recycling is the the next best option. This option looks at processes that still generate waste, but it examines part of the waste stream that is possible to be reutilized, thus minimizing the amount of new hazardous material needed for the process and the amount of generated waste requiring disposal.

A comprehensive waste minimization program is likely to affect many functional groups within a company and thus, it is necessary that the program brings these different groups together to reduce wastes. The formality of the program depends upon the size and complexity of the organization and its waste problems. The program structure must be flexible enough to accomodate unforeseen changes. The developmental activities of a waste minimization program shall include getting management commitment, setting waste minimization goals and staffing the program

task force. The management of a company will support a waste minimization program if it is convinced that the benefits of such a program will outweigh the costs. Although management commitment and direction are fundemental to the success of a waste minimization program, commitment throughout an organization is necessary in order to resolve conflicts and to remove barriers to the waste minimization program

The waste minimization program that may affect a number of groups within a company requires a program task force is to establish goals that are consistent with the company's policy. The next phase is the assesssment phase targeting at developing a comprehensive set of waste minimization options and identifying the attractive options that deserve additional, more detailed analysis. In order to develop these waste minimization options, a detailed understanding of the plant's wastes and operations is required. The examination should begin by examining informations about the processes, operations and waste management practices at the facility. One of the first tasks of a waste minimization assessment is to identify and characterize the facility waste streams. The final product of the assessment phase is a list of waste minimization options for the assessed area. The assessment will have screened out the impracti-

cal or unattractive options. The next step is to determine if the remaining options are technically and economically feasible.

Waste minimization options that involve operational, procedural, or material changes should be implemented when the potential cost savings have been determined. For projects involving equipment modifications or new equipment installation, the waste minimization project involves several phases which include planning, design, procument and construction. After the waste minimization option has been implemented, it remains to be seen how effective the option actually turns out to be. Options that don't measure up to their original performance expectations may require rework or modifications.

Measuring waste reduction

One measure of effectiveness for a waste minimization is the project's effect on the organization's cash flow. The project should pay for itself through reduced waste management costs and reduced raw material costs. However, it is also important to measure the actual reduction of waste accomplished by the waste minimization project. The easiest way to measure waste reduction is by recording the quantities of waste generated before and after a waste minimization project has been implemented. The difference, divided by the original waste generation rate, represents the percentage reduction in waste quantity. However, this simple measurement ignores other factors that also affect the quantity of waste generated. In general, waste generation is directly dependent on the production rate. Therefore, the ratio of waste generation rate is a convenient way of measuring waste reduction.

Ongoing waste minimization program

The waste minimization program is a continuing, rather than a one-time effort. Once the highest priority waste streams and facility areas have been assessed and those projects have been implemented, the assessment program should look to areas and waste streams with lower priorities. The ultimate goal of the waste minimization program should be to reduce the generation of waste to the maximum extent achievable. Industries that have eliminated the generation of scheduled waste should continue to look at reducing industrial wastewater discharges, air emissions and solid wastes. To be truly effective, a philosophy of waste minimization must be developed in the organization. The most successful waste minimization programs to date have all developed this philosophy within their companies. IMPAK

"OIL SPILL DISASTER IN MALAYSIA"

By :
Hasbullah Bin Zakaria

1.0 BACKGROUND

Definition of Disaster.

Disaster is defined as an incident that occurred without any warning, complicated in nature and can caused/ destroy life, disruption of properties or environment and can disturb the community activities. To handle this situation, a structured and coordinated management efforts in term of resources, equipment and human resource amongst relevant authorities and agencies.

Based on the definition, major oil spill incident also can be categorized as a disaster where crisis management team is needed. For an oil incident, there has been a well coordinated regulations and mechanism and regulation in place and currently being enforced by the Department of Environment. As a result, oil spill preparedness and response is not subjected to the directive MKN 20 issued by the National Security Division, Prime Minister's Department.

Why do we need to protect and prevent oil spill disaster?

Malaysia has a relatively long coastline of about 4,800 km and endowed with valuable marine resources and ecosystem. The unique feature of the Malaysian coastline in the presence of mangrove swamp covering a total distance of 640 km, which forms an important fish spawning ground. Marine organisms, including corals and sea birds, are affected by spills at sea. Spill also affect tourism as they pollute the coastal waters with oil slicks and the beaches with tar ball, and can leave long term negative effect, which will discourage tourists. Therefore, the initiatives to preserve and protect the marine environment from marine pollution especially arising from spill incidents are very important.

Source of oil spill disaster

Oil enters the marine environment from various sources. The most important aspect of oil spill disasters is its ubiquitous and sometimes invisible presence in harbours, coastal region, along oil tankers routes, and in the offshore oilfields. Sources of such oil are from oil spillage during offshore drilling, oil discharges by tankers and cargo ship operation and oil discharges in ports areas.

Some 3.7 million barrels/day of crude oil (14% of the world's sea borne oil) transit the Malacca Straits about 20% of which is destined for Singapore, the remainder passing through the South China Sea to Japan and South Korea. Therefore, the Malacca Straits is particularly at risk from major oil spills incidents/disasters due to its shallow and confined waters, and the high traffic density (ITOPF, 1995). According to the vessels report to Klang VTS, about 43,965 vessels in year 1999 and 55,957 vessels in year 2000 are passing through the Malacca Straits (Source : Marine Department Peninsular Malaysia, 2000).

TYPE OF VESSEL	YEAR 1999	YEAR 2000	TOTAL	%
VLCC/Deep Draft CR	2027	3163	5190	5.19
Tanker Vessel	11474	13343	24817	24.84
LNG/LGP Carrier	2473	2962	5435	5.44
Cargo Vessel	5674	6603	12277	12.29
Container Vessel	14521	18283	32804	32.83
Bulk Carrier	3438	4708	8146	8.15
Roro/Car Carrier	1229	1761	2990	2.99
Passenger Vessel	1919	3301	5220	5.22
Livestock Carrier	42	70	112	0.11
Tug/Tow Vessel	566	774	1340	1.34
Goverment/Navy Vessel	93	117	210	0.21
Fishing Vessel	52	44	96	0.10
Others	457	828	1285	1.29
TOTAL	**43,965**	**55,957**	**99,922**	**100%**

2.0 LAW PERTAINING TO OIL SPILL INCIDENT/DISASTER

(a) National Legislation

The Environment Quality Act, 1974 and its regulations are the main instruments for the control of pollution both on land and at sea in Malaysia. The relevent sections to control oil spill at sea of the Environmental Quality Act, 1974 are the Section 27 and Section 29. This Act provided for a maximum fine of up to RM 500,000 or five years imprisonment for violations.

Other than Enviromental Quality Act, 1974 the related legislations to control oil spill are;

(i) The Exclusive Economic Zone Act 1984. The relevent sections are the Sections in part IV (Marine Environment Protection), Exclusive Economic Zone Act 1984. This act imposes a maximum fine of up to RM 1 million for violations.

(ii)Part V, Merchant Shipping Ordinance 1952 and Merchant Shipping Act 1994. Which specifies the control of ship carrying oil.

Based on the above, it is clearly stated that there exist stringent laws and regulations dealing with the oil spills.

(b) International Legislations

Under the International Legislations many Conventions were developed by the International Maritime Organization (IMO) to protect and preserve the environment from the oil spill. The Convention which are related to oil spill and already accepted by the Government of Malaysia are;

(i) International Convention on Oil Pullution Preparedness, Response and Co-Operation (OPRC) 1990.
(ii) International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).
(iii) Civil Liability Convention, 1969 & International Oil Pollution Compensation FUND (IOPC), 1971.

2.1 Status of Oil Spill Disaster in Malaysia.

Oil spill at sea in Malaysia occur mainly when ships collide or when vessels carry out desludging or illegal discharging. Desludging is the cleaning and removal of oil residues from tankers during repairs or when cargo is changed. Illegal discharging is the accidental or international discharge of oil from vessels, oil platforms and oil installation or terminals. Off these, illegal discharging is the most common source of spills. Other sources include overfilling or explosions at a depot. The number of incidents over the recent years has been on an increase and most of the major spills in Malaysian waters occurs in the Straits of Malacca, notably being one of the busiest shipping routes in the world.

Source of spill	Cause	Cases 1998	Cases 1999	Cases 2000	%
Oil well blow-out	Mechanical failure	1	1	0	2
	Human error	0	0	0	0
Pipeline	Rupture	0	0	0	0
Vessel	Collision	0	0	3	3
	Grounding	0	0	2	2
	Explosion and/or fire	0	1	0	0
	Illegal discharging	12	32	21	68
	Desludging	1	0	2	3
Terminal and depot	Overfilling	0	1	0	1
	Burst hose	0	0	0	0
	Explosion and/or fire	0	0	0	0
	Leaking valves and flanges	1	0	2	3
	Tank washing and deballasting	0	1	0	1
Unknown	Unknown	1	12	3	17
	Total number of cases	16	48	33	100

2.2.1 Accidental spills from tankers.

Accidental spills from tankers contribute about 400,000 tones annually. Analysis of tanker spills occurring throughout the world shows that the majority (some 75%) occurs in port during routine ship operations such as loading, discharging and bunkering. Accidents such as collisions and groundings give rise to less than 10% (ITOPF, 1986)

2.2.2 Offshore oil explostion and production activities.

Major pollution incidents, such as blowouts, are rare but contribute roughly three quarters of the 50,000 tones lost annually from offshore platforms. The risk is less during production than in exploration phase, but a blowout can result in large volumes of oil being lost if the well is not brought under control (ITOPF, 1986).

(To be continued)

ENVIRONMENTAL MANAGEMENT IN MALAYSIA: A WAY FORWARD

By *Pauziah Hanum bt. Hj. Abdul Ghani*

After 20 years of environmental management in Malaysia, many have been achieved, a lot more to be done. The rapid pace of economic growth over the last eight years, Malaysian economy has made a remarkable turn, and have benefitted most sectors. Whether the result of such radical turn a cause to celebrate or concern is questionable. Economic development without environmental element to sustain it will soon wither. Agenda 21, is the major step forward for the international community in approaches to sustainable development in managing natural resources and environment. The challenges for us lie in the guiding principle of the Agenda 21. The path we choose will alter our future, perhaps irrevocably. But strange enough, after 10 years, since the Rio Summit, Agenda 21 is still unknown to many and many are still grasping for the term sustainable development. As it is defined, sustainable development is to meet the present need without compromising the ability of the future generation to meet their own need. Economic growth is part of development, but in itself is not sustainable development, unless the sustainable patterns of consumption and production are align with the principle of sustainable development. The goals of sustainable development require reorganization by the way the industrial society has been built upon. Policies of sustainability must be rooted in the structure of business, industry and commerce. We

A shift in paradigm should be from:

Old paradigm	New paradigm
Profit	Sustainability
Growth	Balance
Control	Integration
Material	Information
Labor	Intelligence
Design for style	Design for environment
Technical eficiency	Environmental efficiency
Domination over nature	Harmony with nature

should move from the old method of making business to innovation as catalyst for sustainbale growth and re-invention across all sectors. Bench marking economic growth,efficiency, productivity, and standard of living to material term must be reassess into depletion of natural resources, increasing contamination of the environment and failure of the socio-economy. Develop new business model based on two pronged marketplaces for innovation of waste minimization, pollution prevention and labelling. We must start now or else we will loose our competitiveness. We must increase and intensify our knowledge in producing environmentally sound product, services, and process.

We should move from the norm of the way we manage our natural resources today to a balance and sustainable way. Lets take a look at the investment opportunities in managing our natural resources in the context of sustainable development. For every problem there is opportunities for investment. The public looks at investment as benefits to the community at large while the private sector, view it as return-on-investment, security and profitability. If opportunities provide a win-win outcome then both parties can become partner in the evolution of sustainable initiatives, instead of one controlling over the other, the need to change consumer pattern from materialization to reducing consumption as a harmonious relationship with the environment instead of dominating over nature. The function of ecosystem is not sold in marketplace as opposed to the concerned with the benefits of preserving nature in the unimpacted state. From this perspective the benefits of pollution control arise from lessened damages to the free goods and services of nature and, from the reduced cost of damages.

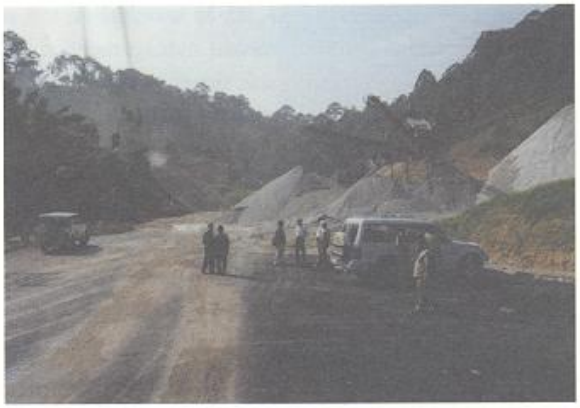
In conclusion, the way forward for the environmental management in Malaysia is to achieve sustainable development which requires re organization, reassessment and also:

- Need to change legacy mindset
- Established new business model based on environment and economy
- Turn data on environmental management into information and knowledge
- Create new industries by the production and distribution based on the use of environmentally sound knowledge and information
- Technology development and innovation as catalyst for sustainable growth and, reinvention across all sectors. IMPAK

Program Pengawasan Projek-projek EIA Tahun 2000

Oleh *Mohd Ismazi Effendy Muda & Mohd Nazry Radzaly*

Program Pengawasan Projek-projek EIA adalah antara usaha-usaha berterusan Jabatan Alam Sekitar dalam memastikan pelaksanaan sesuatu projek mengambil kira kepentingan alam sekitar. Program pengawasan ini melibatkan lawatan pematuhan syarat-syarat EIA ke atas projek-projek yang telah mendapat kelulusan Laporan Penilaian Alam Sekeliling (EIA). Tujuan utama program ini adalah untuk memastikan syarat-syarat EIA yang dikenakan dilaksanakan sepenuhnya oleh Penggerak projek.



Program Pengawasan Projek-projek EIA ini dilaksanakan di peringkat negeri dan cawangan Jabatan Alam Sekitar. Sepanjang tahun 2000, sebanyak 585 lawatan telah dijalankan, satu peningkatan dari 444 lawatan pada tahun 1999. Lawatan yang paling banyak dilakukan oleh JAS Pulau Pinang iaitu sebanyak 77 kali lawatan diikuti oleh JAS Negeri Perak sebanyak 74 kali lawatan. Secara purata, bilangan lawatan yang dijalankan oleh setiap negeri dan cawangan sepanjang tahun 2000 adalah 36 kali lawatan. Program lawatan yang dijalankan oleh JAS Perlis adalah paling sedikit iaitu 1 lawatan disebabkan dari 12 projek EIA yang diluluskan, cuma 1 projek sahaja yang telah bermula. Keseluruhan program lawatan oleh JAS negeri adalah seperti di Jadual I.

Dari keseluruhan 585 kali lawatan yang dijalankan, 44% dari projek yang dilawat telah dikenakan tindakan oleh Jabatan Alam Sekitar. Antara tindakan-tindakan yang dikenakan oleh Jabatan Alam Sekitar adalah mengeluarkan surat arahan dan notis arahan, menawarkan kompaun dan mengenakan tindakan mahkamah. Sebanyak 237 arahan telah dikeluarkan, melibatkan 202 surat arahan dan 35 notis arahan. Sejumlah 3.6% dari jumlah keseluruhan lawatan yang dilakukan telah dikenakan tawaran kompaun (16 kes) atau tindakan mahkamah (5 Kes). Dari segi peratusan projek yang dikenakan tindakan, Negeri Sabah, Melaka dan Perlis menunjukkan peratusan kegagalan projek mematuhi syarat EIA yang tertinggi.

Dari segi tindakan yang diambil, JAS Sabah merekodkan jumlah pengeluaran Surat Arahan yang paling banyak iaitu sebanyak 38 surat arahan. Sementara itu, Negeri Sembilan pula telah mengeluarkan sebanyak 11 Notis Arahan, jumlah yang tertinggi berbanding dengan negeri dan cawangan JAS yang lain. Tindakan-tindakan yang lebih tegas termasuk tawaran kompaun kepada empat (4) buah projek EIA telah diambil oleh JAS Negeri Pahang. Rekod secara keseluruhan pada tahun 2000 menunjukkan JAS Negeri Sabah telah mengambil tindakan paling banyak iaitu 39. Jadual 2 menunjukkan jenis-jenis tindakan secara terperinci yang telah diambil oleh semua JAS negeri dan cawangan sepanjang tahun 2000.

Berdasarkan statistik dari jumlah projek-projek EIA seperti di atas menunjukkan masih banyak pihak yang tidak mengambil berat dalam isu pengurusan alam sekitar. Kegagalan pihak pengurusan mengambil kira syarat-syarat EIA dalam pengurusan projek menandakan betapa kurangnya komitmen dari pihak pengurusan projek dalam memastikan pembangunan lestari. Carta 1 menunjukkan jumlah projek EIA yang dikenakan tindakan sepanjang tahun 2000 berdasarkan negeri dan cawangan JAS.

Bentuk kesalahan yang sering dilakukan semasa lawatan pematuhan

dijalankan adalah kegagalan mematuhi syarat-syarat EIA di samping kesalahan-kesalahan lain seperti yang termaktub di bawah Akta Kualiti Alam Sekeliling, 1974. Perlanggaran syarat EIA yang utama adalah kegagalan pemaju mengemukakan laporan pengawasan alam sekeliling. Kegagalan ini berpunca sama ada pemaju gagal mengemukakan laporan pengawasan bagi kualiti udara, air dan bunyi bising atau kesemuanya semasa pelaksanaan projek. Selain itu, terdapat pemaju yang gagal mengemukakan laporan tersebut bagi tempoh masa yang disyaratkan iaitu setiap tiga bulan kepasa JAS.

Selain itu, bentuk ketidakpatuhan yang lain adalah seperti kegagalan menyelenggara alat kawalan pencemaran dengan baik dan juga kegagalan mengendalikan bahan buangan terjadual seperti minyak terpakai dengan betul. Antara kesalahan yang dikenakan tawaran kompaun adalah bagi projek yang gagal mendapatkan kelulusan bertulis dari JAS sebelum operasi seperti pemasangan cerobong dan janakuasa. Tindakan mahkamah telah diambil bagi projek yang beroperasi tanpa mendapat kelulusan laporan EIA, melepaskan bahan pencemar melebihi tahap pelepasan yang disyaratkan dan gagal mematuhi notis arahan.

Pengawasan ke atas 19 aktiviti yang tertakluk di bawah Perintah Alam Sekeliling (Aktiviti Yang ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 1987, menunjukkan aktiviti pengkuarian adalah jenis aktiviti yang paling banyak diambil tindakan di atas kegagalan mematuhi syarat-syarat EIA. Berdasarkan kajian ke atas 8 buah negeri dan cawangan yang menjalankan lawatan pematuhan tersebut, 45 buah projek kuari telah diambil tindakan berbanding keseluruhan 143 projek yang dikenakan tindakan oleh negeri dan cawangan terbabit.

Walau bagaimanapun, jenis aktiviti yang dilaporkan bergantung kepada projek yang dilawat dan jenis aktiviti yang terdapat di kawasan terbabit. Sebagai contoh, JAS Langkawi telah mengeluarkan Surat Arahan atau Notis Arahan kepada 12 pengusaha projek peranginan daripada 19 buah projek peranginan yang telah dilawat. Jumlah yang tinggi ini disebabkan lawatan yang dilakukan oleh cawangan terbabit lebih menumpukan kepada projek-projek peranginan di pulau lagenda tersebut.

Lawatan pematuhan syarat-syarat EIA perlu diteruskan dan dipergiatkan untuk memastikan segala syarat EIA dapat memainkan peranan yang berkesan dalam pengurusan alam sekitar. Program pematuhan perlu meningkatkan khidmat nasihat dan bimbingan untuk memastikan pembangunan lestari agar generasi akan datang dapat turut menikmati keindahan alam kita.

Lawatan-Lawatan "Post EIA Monitoring"
Mengikut Negeri Pada Tahun 2000

Negeri	Penggal Pertama *(Jan – April)*	Penggal Kedua *(Mei – Ogos)*	Penggal Ketiga *(Sept – Dis)*
Kedah/Perlis	10	16	1
Langkawi	5	17	12
Pulau Pinang	24	41	12
Perak	34	23	17
Selangor	24	23	9
Kuala Lumpur	8	16	7
N. Sembilan	5	9	8
Melaka	13	11	5
Johor	7	17	18
Pahang	24	13	10
Temerloh	8	10	5
Terengganu	12	17	9
Kelantan	3	6	7
Perlis	-	1	-
Sarawak	9	3	18
Sabah	4	26	8
JUMLAH	**190**	**249**	**146**

Jadual Laporan Penguatkuasaan
Projek-Projek Yang Tertakluk Pada EIA Negeri Bagi Tahun 2000

Negeri	Bilangan Lawatan	Surat Arahan	Notis Arahan	Tindakan Mahkamah	Kompaun
N.Sembilan	22	2	11	-	-
Sabah	38	38	1	-	-
Kelantan	16	11	-	-	1
Kuala Lumpur	31	20	2	-	2
Kedah	27	2	-	-	-
Langkawi	34	18	4	-	-
Terengganu	38	20	-	-	-
Perlis	1	1	-	-	-
Perak	74	11	3	1	-
Melaka	29	24	-	-	4
Johor	42	-	10	-	-
Pahang	47	7	2	2	3
Temerloh	23	-	1	-	1
Sarawak	30	16	1	1	3
Selangor	56	5	-	1	-
Pulau Pinang	77	27	-	-	2
JUMLAH	**585**	**202**	**35**	**5**	**16**

CALENDAR of EVENTS

Date	Place	Events
August		
01	Brunei	*7th Joint RFA Meeting for Sumatera and Borneo, Haze Technical Task Force (HTTF) Meeting, ASOEN Meeting.*
03 - 04	Brunei	*ASEAN Senior Official Meeting (ASOEN)*
08 - 09	Putrajaya	*Mesyuarat Pengarah-pengarah Jabatan Alam Sekitar Bil 2/2001.*
		Majlis Anugerah Khidmat Cemerlang Jabatan Alam Sekitar.
21	Langkawi	*Ceremony of Handing Over the Straits of Malacca and Singapore Revolving Fund.*
27 - 30	Kuala Lumpur	*Simposium Pendidikan Alam Sekitar untuk Pengetua-pengetua Sekolah Peringkat Kebangsaan.*
28	Putrajaya	*Dialog Bersama Pengusaha-pengusaha Kuari dengan Jabatan Alam Sekitar.*
September		
03 - 08	Japan	*ECO Asia 2001*
17 - 18	Belgium	*Second Meeting of ASEAN - EC Sub-Committee on Environment.*
17 - 22	Malaysia	*First ASEAN/UNEP Workshop for the Effective Implementation of the Chemicals and Hazardous Wastes Convention.*