

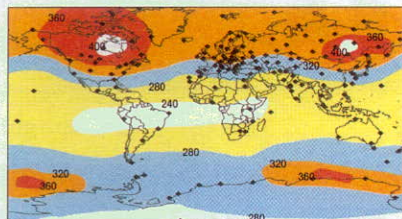


HIGHLIGHTS

ISO 9002 Certificate

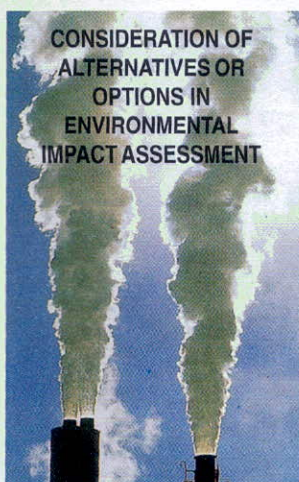


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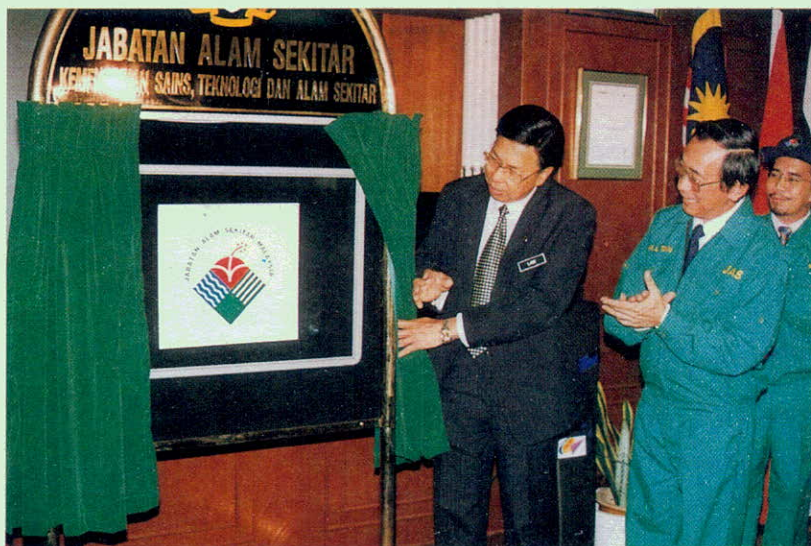
Advisor
Editors

Ir Tan Meng Leng
Che Asmah Ibrahim
Halimah Taib
Amirul Aripin
Tunku Khalkausar
Tunku Fathahi
Norhayati Mohd. Yusof
Nor Hayati
Mohamad Idris

Managing Editor : Salina Nik Naim

Design & Print : Sasyaz Holdings Sdn Bhd

Launching of the Logo & ISO 9002 Certificate Presentation



“..... the Department of Environment is an agency which is proactive in achieving excellence in terms of results, efficiency and quality of service to clients.”

-Y.B. Datuk Law Hieng Ding,
Minister of Science, Technology
and the Environment, Malaysia

In a ceremony which reflected the optimism and commitment of the Malaysian government in promoting environmental conservation while continuing to develop the country, the official logo of the Department of Environment was launched and the ISO 9002 Certificate was presented on 4 June 1997, at the 'Bilik Gerakan', Department of Environment's headquarters in Kuala Lumpur.

Ir. Tan Meng Leng, the DOE's Director-General, in his speech, welcomed the guests, which included the Minister of Science, Technology and



Ir. Tan Meng Leng
Director-General
Department of Environment

There are but a few moments in a person's life when he or she can sit back for a while and feel truly proud. For me, the past two months have held just such moments. With the recent bestowal of the ISO 9002 Certificate upon the Department of Environment, I am truly grateful that the present and past efforts of DOE again bear fruit. And now, we also have a logo which the public can link and recognise 2 decades of Government's effort to better the environment.

During the ceremony to launch the logo and to present the ISO 9002 Certificate, the Minister of Science, Technology and the Environment, Y. B. Datuk Law Hieng Ding has very kindly acknowledged DOE's proactive efforts which he said made it the premier governmental organisation whose service, results and efficiency were second to none in the country.

The DOE sees itself as a force to promote and maintain a high level of management in environmental programmes, and has done much to reach that goal. A consequence of this is that the DOE is helping Malaysia achieve her target of becoming a developed nation who values her natural asset of a rich environmental heritage.

None of this nation building efforts would have been possible without the dedicated service of the staff of the DOE, including those who have retired. Their commitment and diligence have been acknowledged by the numerous national and international awards bestowed upon the DOE, and now the ISO 9002 Certificate is truly a seal of approval of the DOE's efforts.

We pledged to continue with the good work, and appreciated the positive acknowledgement of the people. May the future bring more development to Malaysia in a fashion which rightfully considers the importance and indispensability of the environment.



The official DOE logo consists of a rising wau incorporating a pair of hands, with colours of green, blue and red.

The rising and upright wau represents the country's aspiration and balanced approach to become a developed nation, the pair of hands symbolises the role of the people in protecting and restoring our natural heritage. It also stands for the ability of the DOE in protecting and enforcing environmental laws.

The hibiscus is to show patriotism and patience in facing the future challenges of managing the environment. It also represents the richness of our natural flora and fauna which ought to be preserved and restored.

The green colour represents the greenness of the environment, and conservation of nature's heritage, especially natural vegetation. Blue is to signify the cleanliness of water and air, and conservation of these two precious resources. And finally, red symbolises patience and perseverance in enforcing environmental laws.

CURRENT EVENTS

cont'd from page 1

the Environment, Datuk Law Hieng Ding and the Ministry's Secretary-General, Dato' V. Danabalan.

In his speech, Ir. Tan expressed his pride for the achievements of the DOE since its inception in 1975, which he attributed to the cooperation and dedication of his staff, including those who had retired. He said he hoped that with the launching of the official logo, the staff of the DOE would be further inspired to increase their commitment and efforts towards realising the goals of Vision 2020 as set forth by our Prime Minister.

Before launching the logo and witnessing the presentation of the ISO 9002 Certificate, Datuk Law in his speech, acknowledged DOE's proactive efforts which have made it the premier government organisation in terms of results, efficiency and quality of service to clients. He cited the numerous national and international awards which have been bestowed upon the DOE in recognition of its outstanding work. They include the United Nations Global Ozone Award by the UNEP (1995), the national Efficient Service Award and the Stratospheric Ozone Protection Award by the U.S. Environmental Protection Agency (USEPA) in 1996.

Datuk Law pointed out that the DOE had done a great job in reducing redtape and has achieved a level of self-reliance which has enabled it to save on costs. All this has been done in a relatively short time, which is exceptional for a



civil service department.

With all this in mind, Datuk Law said that the time was right for the government to introduce a specially-created official logo for the DOE, which would represent the nation's sincerity and commitment in environment conservation at both the national and international levels. He said that the logo would also enable the public to easily identify the agency responsible for environmental conservation and therefore would be convinced that the quality of life and of the environment would always be protected and continually raised to fulfil Malaysia's vision of sustainable development. Datuk Law ended on a note of optimism and gratitude, expressing his hope that the DOE having won the ISO 9002 Certificate, would continue to uphold its spirit of "Environment Conscience", making sure that our environment would always be



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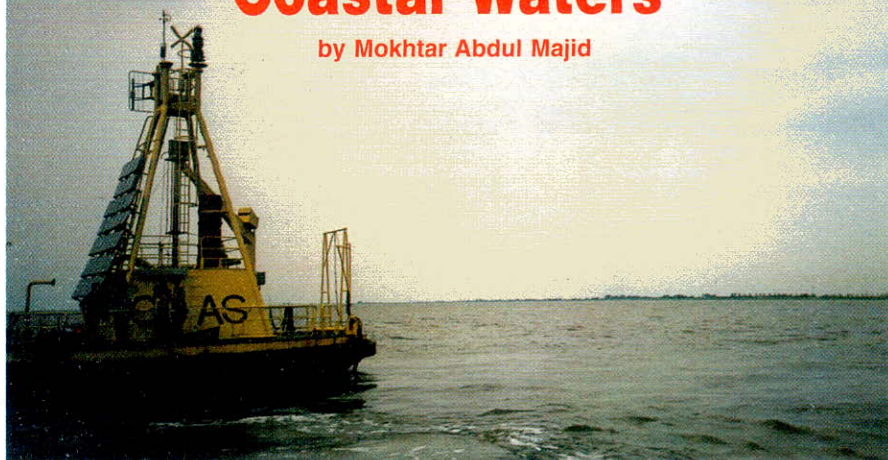
protected so that it would function well for our nation and her people. Finally, he encouraged everyone to work together to achieve a world-class civil service.

After his speech, Datuk Law launched the logo and witnessed the presentation of the ISO 9002 Certificate which has been bestowed upon the DOE on 22 April 1997.



Environmental Protection For Coastal Waters

by Mokhtar Abdul Majid



A Professional Training Course on Environmental Protection for Coastal Waters organised by Carl Duisberg Gesellschaft (CDG) Landestelle Bremen, Germany, was held in accordance with Agenda 21, UN Conference 1992, Rio de Janeiro on Environment and Development. The training course has the following objectives:-

- i. to allow and promote International Know-how-Transfer and exchange of experience;
- ii. to encourage development process; and
- iii. to develop personal contact through foreign experience and world wide cooperation.

PARTICIPANTS

18 participants were selected from Malaysia, Indonesia, Thailand, The Philippines, Vietnam, Cambodia, Sri Lanka, Pakistan and Nigeria to attend the inaugural training course. The participants came from various background such as academicians; corporate and government officials with working experiences in the

field of environmental protection; petroleum; navigation; fertiliser and chemical industries. The course was conducted mostly in Deutsch.

COURSE CONTENTS

The 14-months' course which was conducted in several places throughout Germany consisted of the following modules :-

1. Orientation, basic information and language module in Saarbrücken.
2. Deutsch Active Course in München.
3. Deutsch Technique Language in Dortmund.
4. Ecology module in Bremen.
5. Monitoring module in Kiel.
6. Practical work attachment in Hamburg.
7. Environmental Law in Bremen.
8. Practical work attachment in Oldenburg.
9. Environmental audit in Bremen.
10. Management course in Köln.

The course contents placed emphasis on coastal zone protection. A detailed study on Germany's experience in handling treated wastewater before discharging into

the river and sea was carried out. Participants were also given opportunity to visit "Watten Meer" (Wadden Sea), the most sensitive and precious area to Germany. Efforts have been made to protect this area, which lies on the northern part of the country forming the coastal region along the North Sea. A chain of seven islands (some are inhabited) protect the Wadden Sea from the roughness of the North Sea. Ecologically sensitive and experiencing tidal difference of about 3.0 metres, these vast areas provide food for migratory and local birds. It is also the breeding ground for fishes and sea animals. Besides acting as a filter for inland pollutants, the Wadden Sea are prone to oil and grease from sea vessels, oil spills and residues from the oil exploration of many companies in the North Sea.

The participants were also given management training skills which includes time and work management, public speaking, leadership, personnel development, personality management and technique for counselling.





THE WMO'S GLOBAL ATMOSPHERE WATCH AND OZONE MONITORING PROGRAMME IN MALAYSIA

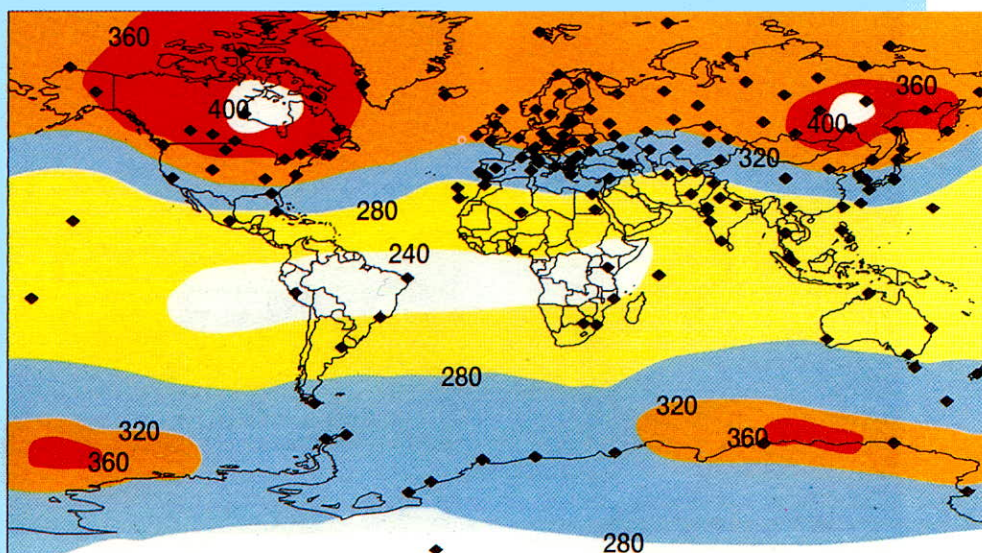
by Amer Sofian b. Mustafa

The World Meteorological Organization (WMO)'s Global Atmosphere Watch (GAW) serves as an early warning system to detect further changes in atmospheric concentrations of greenhouse gases, changes in the ozone layer and in the long-range transport of pollutants, including acidity and toxicity of rain and aerosols.

Baseline measurements of global importance are made at observatory-type stations in remote locations entirely free of the effects of local pollution and nearly free from the influence of regional pollution sources at least 60 percent of the time, evenly distributed over the year. The GAW will endeavour to establish more observatories on data-sparse areas like South Africa, South America and South-East Asia.

The WMO's Global Ozone Observing System (GO₃OS) had observed a very pronounced ozone decline, of close to one percent per year, appearing in the stratospheric layer (between 16 to 22 km above sea level) during the past 20 years. At the same time, tropospheric (0-12 km a.s.l.) ozone concentrations in the northern hemisphere have increased by more than one percent per year, partly due to increases of exhaust gases in the combustion process, as well as to increasing forest fires in the tropics. In addition to its negative effects on health, the increase in lower tropospheric ozone contribute substantially to the greenhouse warming of the global atmosphere.

The WMO, in collaboration with UNEP, also coordinated the preparation of a series of scientific assessments of ozone depletion-the



Locations of active GO₃OS stations with an indication of the average zone distribution : low in the equatorial belt, high in the middle (and northern polar latitudes)

latest one in 1994. They were based on the work of hundreds of scientists from both developed and developing countries, and on contributions from many national agencies. The assessments confirm that the spectacular stratospheric ozone losses in the southern hemisphere are due to byproducts of artificial CFCs and halon gases trapped in the stratospheric vortex which rotates over Antarctica in winter and spring. Spring-time ozone reductions will occur for many decades, even after the complete phaseout of production and use of CFCs (year 2000 and 2010 for developed and developing countries respectively). Furthermore, the assessment and consequent studies unequivocally established that over the northern hemisphere mid-latitudes, there has been very substantial winter-spring decline during the past two decades, cumulatively exceeding 13 percent of the total ozone column.

The Malaysian Ozone Monitoring Programme was officially launched on 30 October 1992 by the

Malaysian Meteorological Services Department. The ozone parameters measured are vertical ozone profile and total column ozone.

Vertical distribution of ozone is monitored by means of ozonesondes released twice monthly while total column ozone and UV-B are measured continuously with Brewer Ozone Spectrophotometer. The data is used locally to assess changes in ozone concentration over the tropics and is also submitted to the World Ozone Data Centre in Canada for global circulation.

In Malaysia, total column ozone concentrations fluctuate between 220 - 280 Dobson units. A typical annual mean ozone profile has peak ozone levels at a height of between 26-28 km with a much smaller peak close to the surface.

The daily integral UV-B intensity in a typical year fluctuates between the range of 2000 to 5000 Joules/m² with some indication of a seasonal cycle. Peak damaging UV-B of intensity above 200 Joules/m² occurs normally at between 1200 and 1400 local time.



CONSIDERATION OF ALTERNATIVES OR OPTIONS IN ENVIRONMENTAL IMPACT ASSESSMENT

Introduction

Environmental Impact Assessment (EIA) assists developers, project designers, operators, authorities, and the public in the decision-making process through the provision of sufficient information on environmental implications. Consideration of alternatives or options is one of the most important components in EIA.

The Oxford dictionary defines alternatives as 'one or two or more possibilities.' Hence, consideration of alternatives in EIA could be described as 'searching for other possibilities and approaches to carry out project development with less environmental consequences'. This involves rigorous exploration and objective evaluation of the environmental impact of all reasonable project options to select for the better project proposal. Consequently, it would generate new approaches to carry out development that could be harmonised with the environment.

by
Che Asmah Ibrahim

The Importance of Alternatives in EIA

The need to consider alternatives in EIA has been recognised in many EIA procedures. The USA Council on Environment Quality (CEQ 1978) has described discussion of alternatives as 'the heart of the environmental impact assessment'. How alternatives are addressed in an EIA would be the determining factor for the subsequent decision-making process.

The inclusion of alternatives in the Dutch EIA procedure is intended to stimulate thinking about different approaches to minimise the impact of projects that could cause damage to the environment. Alternatives in the Dutch system are also intended to give the competent authority a clear view on the impact of proposed activity as compared to the impact of considered alternatives.

The assessment of alternatives in the Malaysian EIA procedure is regarded as an important consideration right from the earliest stages of project planning, to enable the environmental implication of each option be considered while the options are still open.

In all cases, consideration of alternatives should start early in the planning process, even before any type of development and its location is agreed upon.

Discussion of alternatives would also facilitate the analysis of differences between all the alternatives presented and the preferred choice. It helps to explain the tradeoffs involved for a more rational and structured decision-making. Thus, it provides some framework and stimulates discussion on project proposals among decision-makers, rather than merely justifying a particular proposal. Furthermore it would also assist decision-makers to be more selective in terms of technology transfer, to avoid the transfer of obsolete and polluting industries into a country.



On the other hand, consideration of alternatives would also benefit developers. Usually, developers would only have one specific idea in mind about a project proposal. Consideration of alternatives could encourage developers to consider other approaches in project implementation to prevent environmental damage while meeting the same development objectives. In case of any unforeseen difficulties which may arise later during project implementation, re-examination of alternatives addressed during EIA may assist developers in providing a rapid and cost-effective solution to overcome the problem. The search for alternative solutions to environmental problems would create new ideas to sustain development.

Categories of Alternatives

The categories of alternatives examined in EIA may encompass a wide range, depending on the project. They may include alternative locations, design, project size, construction, operation and no action alternatives. The number of alternatives that need to be investigated in EIA must be restricted, while ensuring that no relevant alternatives have been overlooked. Otherwise, the EIA could be too time consuming and costly. Typically, EIA focuses on three to five alternatives, but a minimum of two should be addressed. We will elaborate on three alternatives, namely alternative locations, alternative design and the no-action alternative.

Alternative Locations

Consideration of alternative locations is basically a site selection process to determine the suitability of a site for its intended usage

through a number of evaluation criteria.

Among the environmental criteria that are normally considered in site selection are natural conservation areas, capacity of the area to receive additional pollution load, the compatibility of the development with present and future surrounding land use, the social acceptability of the project, resettlement, and health and safety factors. Since each location has different capacities and constraints, key evaluation issues involve presenting the differences amongst the alternatives. These issues must be discussed early in the process to ensure that they are not biased towards emerging-site preferences.

Alternative Designs

Alternative designs looks into the possibility of achieving the project objective through different design option, projects scales, processes, site layout, equipment, operating conditions, and mitigation measures. Consideration of alternative designs must be addressed before any detailed plan or engineering design is finalised. In searching for alternative designs, one should aim at applying the least damaging process to the environment at an acceptable cost. This could be done by using the 'Best Practicable Environmental Option' (BPEO) approach. This means designing the construction or production methods that generate less wastes, emissions and fewer risks than usual, at reasonable costs. BPEO could be acquired through process modification, improvement of certain unit operations, or adoption of new, cleaner technologies.

Environmental consideration must be weighted together with relevant technological and commercial constraints. The least

environmentally-damaging 'technology may not necessarily be the best alternative to select. There must be a balance between economic, technical and environmental aspects to arrive at a feasible and practical project design that is friendlier to the environment.

Another factor that needs to be considered in searching for design alternatives is the conflict between different environmental components. Sometimes a solution to one environmental problem may lead to detrimental impact in another environmental compartment. As such, careful evaluation needs to be done on the differences of the alternative solutions. The capacity of the local environment to absorb additional development and pollution load and its environmental sensitivity must also be taken into account.

'No Action' Alternative

The no-action alternative refers to the description of the environmental condition if the project does not proceed. It includes the discussion on the costs and benefits of the project and the evaluation of the benefits of the project that might outweigh the costs. The discussion also includes key sector problems that would continue to grow as a result of the 'no project' decision. The no-action alternative would provide an opportunity for the project developer to highlight any technical, economical, environmental and social benefits that are likely to occur from the project, which would be denied to the public if the project did not proceed.

There are four reasons for examining no action alternative. Firstly, it would provide a benchmark for comparison with an action alternative. Secondly, it could help to clarify the project objectives. Thirdly, the no action



alternative analysis would provide framework for linking project specific planning to comprehensive plan. Finally, the no action alternative could help decision-makers to conclude that an unsolvable problem exists.

Presentation and Comparison of Alternatives

Once alternatives have been investigated, they must be carefully presented so that they are beneficial in decision making. It is unlikely that one particular alternative would emerge to be the most acceptable to all parties concerned. Therefore, the presentation of alternatives in EIA should distil information about a reasonable number of realistic alternatives into a format that would facilitate discussion and decision making. The environmental impact of the proposed action and its alternatives should be presented in a comparative form that defines the issues and provides a clear basis for choosing the preferred option.

Problems Within Alternatives Consideration in EIA

Despite its importance, generation and consideration of alternatives continues to be problematic in EIA practices. In the Malaysian context, it is still lacking and there is still unwillingness among developers to consider alternatives in the project planning stage. More often, project proponents are reluctant to provide consultants with real options to work with because project location and design have been finalised prior to commissioning of an EIA. In the UK, researchers found that only one-third of UK Environmental Impact Statements discuss alternatives, and even there, the

issue is not well handled.

The lack of consideration of alternatives in EIA is mainly due to the attitude of project developers. They view it as costly, complicating, and time consuming. Another important reason for omission of alternatives in EIA is that project location, design and planning are often decided well before the commissioning of an EIA. Project developers frequently resist any changes in the project proposal, particularly of the project location when a site has been purchased. Project developers' attitude towards alternative generation must change in order to improve the process in EIA. Developers must realise that consideration of alternatives is

beneficial to them.

The biggest challenge to overcome this problem is to change developers' attitude towards EIA and the generation of alternatives. More support and effort need to be put into the generation of alternatives.

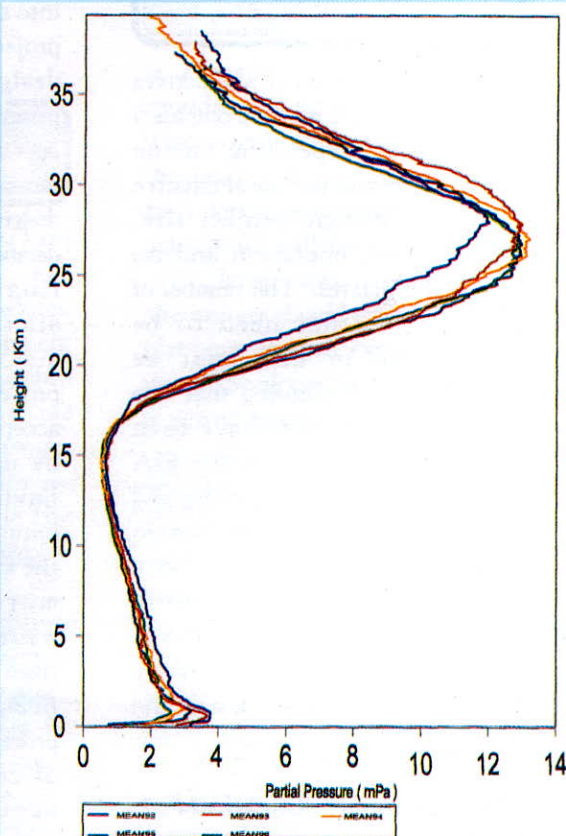
Otherwise, the whole EIA exercise would be project-biased, and conducted to accommodate projects. The EIA process would then become merely a stamp for development projects to proceed.

Proper management would ensure that consideration of alternatives is truly incorporated into the EIA process, thus providing a balanced discussion on project proposals that would eventually led to improved decision making.

cont'd from page 5

Total Ozone is defined as being equal to the amount of ozone contained in a vertical column of base 1 cm^2 at standard pressure and temperature. It can be expressed in units of pressure, a typical value is about 0.3 atmosphere centimetres. More frequently used term is the milli-atmosphere centimetre, which is also known as the Dobson unit. One Dobson unit corresponds to an average atmospheric concentration of approximately one part per billion by volume (1 ppbv) of ozone. Typical amounts range from 230 to 500 Dobson units, with a world average of about 300. Ozone is not uniformly distributed through the vertical column.

Annual Mean Ozone Profiles
Peninsular Malaysia (1992-1996)



Total column ozone has, on average, its lowest values over the equatorial belt and increases with latitude.



“THE WORLD’S WATER : IS THERE ENOUGH?”

WORLD WATER DAY, 22 MARCH



by Norhazni Mat Sari

it is expected to reach 8.3 billion by the year 2025. The world has also witnessed a sixfold increase in water use since the start of the century. By the year 2025, the annual per capita availability of freshwater is estimated to drop from 7,300 m³ in 1995, to 4,800 m³.

In the longer term, climate change has the potential to decrease natural-water availability in many areas of the earth due to probable changes in rainfall distribution.

In its Second Assessment Report of 1995, the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) Intergovernmental Panel on Climate Change reported that “change in the climate will lead to an intensification of the global hydrological cycle and can have major impacts on regional water resources.” Change in the total amount of precipitation and in its frequency and intensity directly affects the magnitude and timing of runoff and the intensity of floods and droughts.

Along with increasing demands on the world’s freshwater resources and competition among users, there will be increased efforts by those who seek to protect resources and the habitats they sustain. If the use of water by humans and the ecosystem is to be renewable and sustainable, it should not exceed the minimum flows of rivers. In the case of groundwater, use should be at the rate at which it is recharged through precipitation.

Awareness of the seriousness of water problems has evolved

Growing Needs and Pressures on Water Sources

Ninety-seven and one half percent of all water on earth is salt-water, found primarily in oceans. The remaining 2.5 percent is freshwater, almost all of which is in the icecaps of Antarctica and Greenland, and as fossil groundwater. The most accessible freshwater resources are in lakes, reservoirs, rivers, and streams.

These resources amount to only 0.26 percent of the total amount of freshwater in storage, or 0.007 percent of all water on earth that is renewable and available for use on a sustainable basis.

Other than providing water for food production, the main problem in many parts of the world will continue to be the supply of drinking water to an increasing population, and for waste disposal, particularly in the fast-growing mega cities. Between 1950 and 1990, world population more than doubled from 2.5 billion to 5.3 billion, and

Water is a basic requirement for all life, yet it is facing more and more demands from, and competition among, users. In 1992, the UN General Assembly designated 22 March of each year as the World Water Day. This year, the theme for the day is “Water Resources Assessment,” and the slogan for promoting it is “The World’s Water: Is There Enough?”

Water is vital for sustaining all life on earth. It is crucial for economic and social development, including energy production, agriculture and domestic water supplies. Yet, water is a finite and vulnerable resource, and as such, there is growing competition for it. It is an economic good; therefore water should be used efficiently, equitably, and soundly. The economic role that it generates should be given due attention when apportioning water resources among competing uses, without infringing on the rights to basic services for all people.



gradually over the years and important recommendations have been formulated since the United Nations Water Conference in Mar del Plata, Argentina, in 1977. Other events that have highlighted water issues include the 1992 International Conference on Environment, convened by WMO in Dublin, Ireland, and the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro. In 1994, the United Nations Commission on Sustainable Development requested a comprehensive assessment of the world's freshwater resources, including projections on future needs. The results of the study will be considered by the 1997 special session of the UN General Assembly reviewing the implementation of Agenda 21.

Malaysia's Activities for 1997 World Water Day

Malaysia has been observing World Water Day (WWD) since its enactment in 1992. The International Hydrological Programme undertook the following activities as part of the observance of the World Water Day on 22 March 1997.

- National Seminar and Exhibition on the WWD in conjunction with WWD 97, 15 March 1997, Kuching Waterfront, Sarawak. Posters, pictures, and publications related to water, especially to the 1997 theme, were displayed and presented.
- Facilitation of information exchange among the IHP member committee to promote the national observance events. Information on plans for the Day's observation in the countries

be gathered and compiled in the form of a leaflet in order to share such information with others, aiming to encourage more participation/initiatives in each activities for its national observance.

- Press release and TV/Radio interview; WWD be announced

as a press release by National IHP programme for newspapers and other local periodicals in order to raise the public awareness on the importance of the issue.

- Competition on Discharge Estimation and River Aquatic Life Identification for Secondary School Children.

PELANCARAN PERTANDINGAN MENULIS PUISI BERTEMAKAN ALAM SEKITAR 1997 - HIDUPAN DI DUNIA

Oleh
Zaharah Selamat

Pada 11 Mac 1996 Jabatan Alam Sekitar telah melancarkan pertandingan menulis puisi. Tujuannya adalah untuk memupuk nilai-nilai murni dan melahirkan kecintaan terhadap alam sekitar dalam setiap individu masyarakat. Pertandingan ini telah dilancarkan oleh Y.B. Datuk Law Hieng Ding, Menteri Sains, Teknologi dan Alam Sekitar.

Objektif pertandingan adalah untuk :-

- i) mempertingkatkan kesedaran kita terhadap kepentingan penjagaan alam sekitar;
- ii) menggalakkan kita untuk menyampaikan idea dan kreativiti melalui puisi;
- iii) memberikan peluang kepada para pencinta seni puisi dan sastera untuk menunjukkan bahawa pendidikan dan penjagaan alam sekitar boleh dilakukan melalui aktiviti kesenian;
- iv) membuktikan JAS menggalakkan sikap bekerjasama dalam pengurusan alam sekitar kerana penulisan puisi merupakan suara hati setiap individu dan JAS sentiasa

prihatin terhadap orang ramai; dan

- v) menjadi koleksi bacaan yang bertemakan alam sekitar.

Pertandingan ini adalah terbuka untuk warganegara Malaysia. Puisi-puisi mestilah karya asli dan mematuhi tema "Hidupan Di Dunia".

Pertandingan Menulis Puisi ini terbuka kepada dua kategori iaitu Kategori Awam untuk golongan dewasa yang berumur 18 tahun ke atas dan Kategori Pelajar untuk pelajar sekolah di bawah umur 18 tahun.

Empat puisi terbaik bagi Kategori Awam dan empat dari Kategori Pelajar akan dideklamasikan di Malam Pertandingan Puisi Alam pada 16 Ogos 1997 di Auditorium DBKL pada jam 8 malam. Usaha juga sedang dibuat untuk menjemput Y.A. Berbahagia Datin Seri Paduka Dr. Siti Hasmah Mohd Ali, isteri Perdana Menteri Malaysia.

Orang ramai dari seluruh negara khususnya pencinta seni tanahair di jemput untuk datang beramai-ramai bagi membuktikan keprihatinan dan sokongan terhadap penjagaan alam sekitar.

Pelancaran I N F O K I O S K (Bank Maklumat)

Selain dari aktiviti-aktiviti penguatkuasa undang-undang, JAS juga mengambil berat tentang program-program pendidikan dan kesedaran untuk memelihara keharmonian alam sekitar pada masa jangka panjang. Selaras dengan perkembangan teknologi maklumat yang kian canggih pada masa ini, JAS telah melancarkan penggunaan hompej pada 10 September 1996 di ikuti oleh pelancaran Infokiosk (IK) pada 6 Mei 1997. Setakat ini sebanyak 16 buah IK telah diletakkan di semua pejabat JAS negeri dan Ibu Pejabat.

Penubuhan IK ini adalah untuk :

- 1) menyebarkan maklumat alam sekitar yang terkini dengan cara yang berkesan dan menarik;
- 2) memudahkan dan menjimatkan kos perolehan maklumat alam sekitar; dan
- 3) meningkatkan kualiti perkhidmatan pelanggan.

Dari segi kegunaannya, Homepej JAS yang telah dilancarkan terdahulu dari ini adalah untuk pengguna-pengguna Internet seluruh dunia. Mereka boleh bertanya dan berinteraksi dengan JAS melalui ruangan maklumbalas.

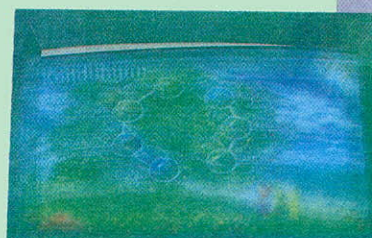
Manakala, IK pula adalah untuk digunakan oleh pengguna yang mengunjungi pejabat-pejabat JAS, samaada di Ibu Pejabat atau di pejabat-pejabat Negeri. IK ini diletakkan di ruang legar pejabat di mana orang ramai boleh terus mendapat maklumat mengenai alam sekitar tanpa perlu membuat temujanji dengan pegawai-pegawai yang berkenaan. Usaha juga sedang dibuat untuk meletakkan IK ini di tempat awam untuk keberkesanannya.



Maklumat yang terdapat di dalam IK tersebut telah dibahagikan kepada beberapa bahagian seperti berikut :-

1. Bahagian Pengenalan
2. Misi Jabatan
3. Struktur Organisasi
4. Berita Terkini
5. Anda dan Alam Sekitar
6. Kehendak Alam Sekitar
7. Aktiviti JAS

Dengan pelancaran ini, JAS akan terus maju ke hadapan dalam meningkatkan kesedaran rakyat terhadap alam sekitar.



CADANGAN PROJEK

Borneo Pulp and Paper Sdn. Bhd. bercadang untuk membangunkan kilang Palpa Terluntur Kraf (Kraft bleached pulp) dengan keupayaan pengeluarannya sebanyak 750,000 tan setahun. Tapak cadangan kilang ini melibatkan kawasan hutan sekunder seluas 6,200 hektar yang terletak di tebing Sungai Tatau iaitu sebatang sungai utama yang penting kepada penduduk pendalaman Daerah Bintulu, Sarawak. Sebuah ladang hutan perindustrian mempunyai keluasan 373,700 hektar akan dibangunkan juga oleh penggerak projek bagi membekalkan bahan mentah kepada kilang palpa ini. Cadangan projek ini dikategorikan di bawah aktiviti 8(g) dalam Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Kepada Alam Sekeliling) 1987.

HURAIAN PROJEK

Proses utama bagi kilang palpa yang dicadangkan ini melibatkan langkah-langkah seperti berikut:

- (a) Penyediaan Kayu
K a y u b a l a k y a n g dikumpulkan dari hutan, dibuang kulit dan diracik (chip) mengikut saiz yang ditetapkan.
- (b) Fiber Line (Talian Gentian)
'Chip' kayu yang dihasilkan kemudiannya dimasak pada suhu tinggi di dalam alat penghadam (digester) untuk menghasilkan palpa.

Teknologi memasak yang digunakan oleh kilang ini ialah 'Entended Modified Continuous Cooking' (EMCC). Palpa yang telah dimasak akan disaring (screened), di basuh (washed) dan diuraikan (deknotted). Palpa yang telah dibersihkan kemudiannya dilunturkan dengan menggunakan teknologi terkini pelunturan

CADANGAN PEMBANGUNAN KILANG PALPA DI TATAU BINTULU, SARAWAK

Oleh

Kalsom Abdul Ghani & Halimah Taib

- iaitu 'Elemental Chlorine Free (ECF) Bleaching'. Liquor yang telah digunakan akan dikitar semula.
- (c) Mesin Palpa
Palpa (pulp sheets) yang terhasil, diproses menjadi helaian palpa dan dikeringkan sebelum dipotong ke saiz yang dikehendaki.
 - (d) Sistem Perolehan Semula
Liquor hitam yang terhasil daripada proses pembasuhan dan penyaringan akan dipekatkan di dalam alat perwap (evaporator) dan dibakar di dalam dandang perolehan semula untuk menjana tenaga elektrik. Liquor hijau yang terbentuk hasil daripada proses pembakaran tersebut akan bertindak dengan batu kapur (recausticizing) untuk digunakan semula di dalam alat penghadam.

Disamping itu, pelbagai kemudahan sokongan turut disediakan. Kemudahan-kemudahan ini termasuklah loji kimia yang akan mengeluarkan bahan kimia peluntur untuk digunakan di dalam kilang palpa yang terdiri dari :-

- (i) Loji Chlor-Alkali;
- (ii) Loji Sodium Chlorate;
- (iii) Loji Chlorine Dioxide;
- (iv) Loji Sulfur Dioksida dan Asid Sulfurik;
- (v) Loji Oksigen; dan
- (vi) Loji Hidrogen Peroksida

Selain dari kayu, bahan mentah utama yang digunakan di dalam kilang palpa ini ialah sodium sulfat, garam, sodium karbonat dan batu kapur.

Kilang ini akan mengambil



air mentah Sungai Batang Tatau sebanyak 128,740 m³/hari untuk kegunaan domestik dan proses kilang.

Di samping itu, cadangan projek ini juga melibatkan pembuangan effluen ke Sungai Tatau. Sebelum effluen dilepaskan ke mana-mana alur air daratan ianya perlulah dirawat mengikut standard yang ditetapkan dalam Jadual Ketiga, Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Perindustrian), 1979. Penggerak projek bercadang untuk merawat effluen melalui loji rawatan yang menggunakan Sistem 'Entended aerated activated sludge' dipasangkan bagi mencapai standard pelepasan air buangan yang ditetapkan di Malaysia. Projek ini juga melibatkan penghasilan tenaga elektrik sebanyak lebih kurang 93 MW yang akan dijanakan di tapak ini melalui stim daripada dandang kuasa (power boilers).

KEADAAN SEDIA ADA

Tanah di sekeliling kawasan tapak projek dan keseluruhan tapak projek adalah diliputi oleh hutan sekunder dengan disempadani disebelah barat oleh Sungai Batang Tatau. Kawasan projek ini di salari oleh Sungai Kelabu dan Sungai Senunoh. 70% tapak projek didapati mempunyai topografi beralun dengan cerun tidak melebihi 20°.

Hanya 6% kawasan dikelaskan sebagai berbukit dan 1% adalah cerun.

KESAN KEPADA ALAM SEKELILING DAN LANGKAH-LANGKAH KAWALAN

Diantara kesan kepada alam sekitar yang perlu di beri perhatian di dalam peringkat pelaksanaan projek adalah kesan terhadap kualiti air Batang Tatau akibat daripada pelepasan effluen dengan kuantiti yang banyak. Disamping itu projek ini akan melibatkan kerja-kerja pembukaan tanah yang luas yang boleh menyebabkan hakisan dan banjir kilat di hilir projek. Pembukaan hutan yang luas juga berkemungkinan mengakibatkan permusnahan flora dan fauna.

Langkah-langkah kawalan yang dicadangkan bagi mengatasi kesan-kesan alam sekitar seperti di atas adalah pembinaan loji rawatan effluen menggunakan kaedah sistem 'extended aeration activated sludge' dengan pembinaan 'outfall' dari loji pengolahan ke dasar sungai. Effluen terolah akan dilepaskan menerusi 'diffusers' berlubang. Selain dari itu langkah-langkah kawalan di peringkat proses bagi mengurangkan

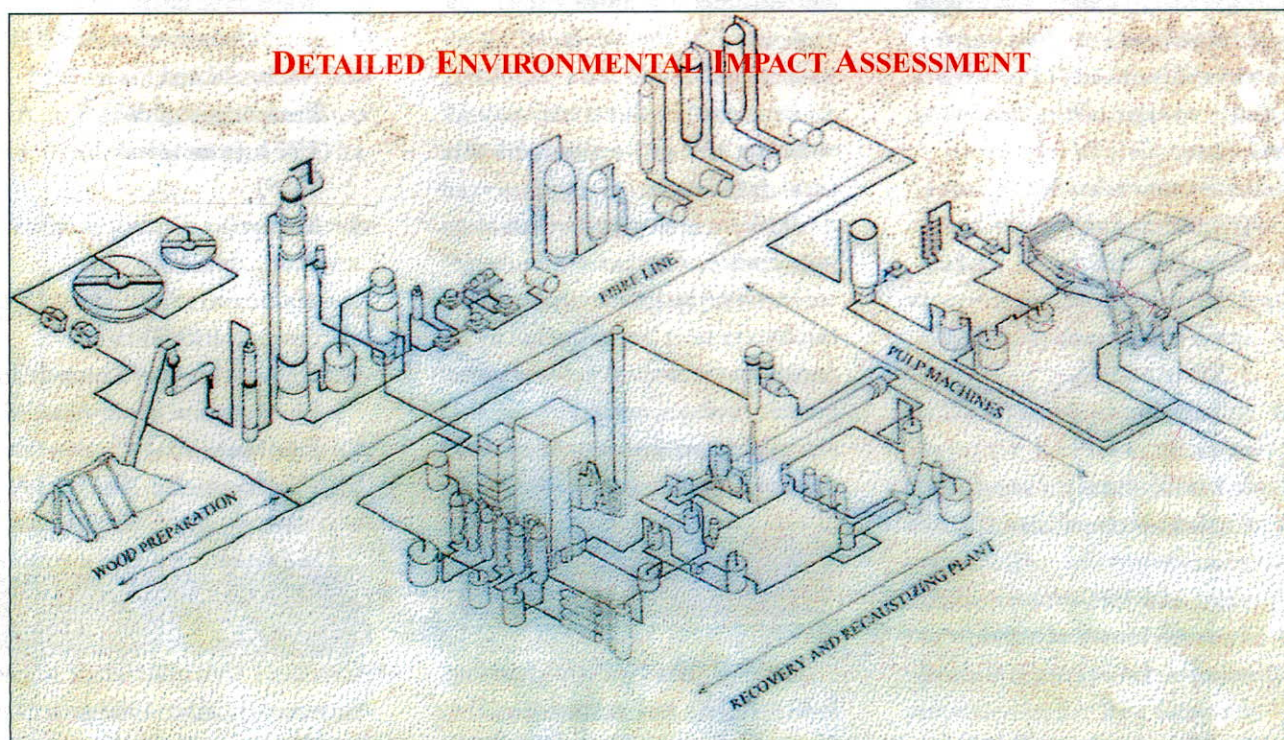
pencemaran yang akan turut dilaksanakan adalah pengumpulan air permukaan untuk kawasan pengendalian kayu yang berasingan serta diolah sebelum dilepaskan ke mana-mana alur air, menggunakan kaedah kering untuk mengopek kulit (Dry debarking method), menggunakan kaedah oxygen delignification bagi menghurai 'lignin' yang terhasil, penggunaan bahan peluntur yang bercirikan mesra alam dan mewujudkan 'housekeeping' yang baik untuk mengelakkan sebarang tumpahan 'liquor'.

Air kumbahan yang terhasil dari kilang ini akan dirawat menggunakan sistem perawatan kumbahan mekanikal berasingan supaya mencapai perawatan air buangan ke Standard B untuk mengatasi pencemaran kualiti air sungai. Manakala bagi untuk mengatasi masalah hakisan dan kelodakan, pemotongan tanah melebihi 35° akan dielakkan, langkah-langkah kawalan berkesan untuk mengawal kelodakan dan hakisan seperti pembinaan perangkap mendap akan disediakan sebelum kerja tanah dimulakan dan pembukaan tanah akan dibuka secara berperingkat-peringkat atau berfasa-fasa. Kerja-kerja pembersihan hutan

akan dijalankan secara teratur dan mengikut fasa untuk memberi laluan kepada fauna berpindah ke hutan berhampiran. Di samping itu, akan diwujudkan kawasan reserve bagi memelihara flora dan digunakan sebagai rekreasi untuk pekerja kilang.

KESIMPULAN

Laporan EIA ini telah diluluskan tertakluk kepada beberapa syarat pada 13 November 1996. Antara syarat-syarat yang dikemukakan ialah operasi kilang hendaklah diberhentikan serta merta apabila berlaku sebarang kerosakan ke atas alat atau sistem kawalan pencemaran. Kilang hanya boleh beroperasi semula setelah sistem kawalan tersebut sempurna dibaikpulih. Langkah-langkah pencegahan dan kawalan bagi mengelakkan daripada berlakunya banjir hendaklah disediakan. Pelan terperinci yang menunjukkan bagaimana kerja-kerja tanah dan sistem saliran bagi air larian permukaan di kawasan Ladang Hutan Perindustrian hendaklah disediakan terlebih dahulu sebelum kerja-kerja tanah dan kerja-kerja pembalakan dimulakan.





Sustainable Forest Management in Malaysia

by Rohimah Ayub

INTRODUCTION

The tropical rainforests of Malaysia are rich and varied in flora and fauna. It is estimated that there are about 2,650 species of trees, with 408 of them having commercial value in international markets. What most people think of as tropical rainforests are usually lowland and hill dipterocarp forests that extend over large areas of the country. However, tropical rainforests actually consist of the following forest types .

- i) montane ericaceous forest (>1,500 m a.s.l);
- ii) montane oak forest (1,200-1,500 m a.s.l);
- iii) upper dipterocarp forest (750-1,200 m a.s.l);
- iv) hill dipterocarp forest (300-750 m a.s.l);
- v) lowland dipterocarp forest (including coastal forest) (0-300 m a.s.l);
- vi) peat and freshwater swamp forest (0-15 m a.s.l); and
- vii) marine (mangrove) swamp forest.

The tropical rainforest forms an important and valuable natural resource of the country and represents one of the few remaining extensive source of quality tropical hardwoods in the world. Apart from its vital economic value, the rainforest also plays an important protection function in the maintenance of environmental stability, minimisation of damage to rivers and agricultural land by floods and erosion, the safeguarding of water supplies, and is an important source of food, fuel and materials in satisfying the basic needs of the rural population.

With the growing awareness of its importance, discreet measures in conservation and management of the rainforests have been instituted to ensure that it meets the needs of the present, without compromising the ability of future generations to meet their own needs

POLICY AND LEGISLATION

In 1997, the National Forestry Policy (NFP) was accepted by the National Forestry Council (NFC),

and endorsed by the National Land Council (NLC) on 19 April 1978. However, in November 1992, the policy was revised in order to take notice of the current concern expressed by the world community on the importance of biodiversity conservation and sustainable development of forest resources. In September 1984, the National Forestry Act was endorsed by the NLC and later by the Malaysian Parliament on 17 October 1984. The Act was formulated to implement the NFP effectively in each state since the existing Forest Enactment and Rules were deficient and weak in areas of forest conservation and management planning and in forest-renewal operations which are vital for sustainable forest management. However, the Act was amended in 1993 to further strengthen its provisions to curb illegal encroachment of forest areas and timber theft.

Other legislations which are considered of major importance to the forestry sector are as follows :

- i. Wood-based Industries Act, 1984
- ii. Water Enactment, 1935
- iii. Land Conservation Act, 1960
- iv. National Land Code, 1965
- v. Protection of Wildlife Act, 1972 (amended 1976 and 1988)
- vi. Malaysian Timber Industry Board Act, 1973
- vii. National Park Act, 1980 (amended 1983)
- viii. Malaysia Forestry Research and Development Board Act, 1985
- ix. Environmental Quality Act, 1974 (amended 1985)

Under the Environmental Quality Act, 1974 (EQA), the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 1987 prescribed the following activities :



- i) Activity 1(a) - land development schemes covering an area of 500ha or more to bring forest land into agricultural production;
- ii) Activity 3(b) - drainage of wetlands wildlife habitat or of virgin forest covering an area of 100 ha or more;
- iii) Activity 5(c) - land-based aquaculture projects accompanied by clearing of mangrove swamp forests covering an area of 50 ha or more;
- iv) Activity
 - 6(a) - Conversion of hill forest land to other land use covering an area of 50 ha or more;
 - 6(b)- Logging or conversion of forest land to other use within the catchment area of reservoirs used municipal water supply, irrigation or hydropower generation or in areas adjacent to state and national parks and national marine parks;
 - 6(c)- Logging covering an area of 500 ha or more;
 - 6(d)- Conversion of mangrove swamps for industrial, housing or agricultural use covering an area of 50 ha or more;
 - 6(e)- Clearing of mangrove swamps on islands adjacent to national marine park.
- v) Other activities which may effect rainforests such as Activity 4 Coastal reclamation and Activity 17 - resort and recreational development.

FOREST MANAGEMENT

Traditionally, the forest resources of Malaysia have been

managed under the Malayan Uniform System (MUS) since 1948. The MUS system is basically a system for converting virgin tropical lowland rainforests to a more or less even-aged forest, containing a greater proportion of the commercial species to be managed under the Uniform System. and achieved by a clear-felling release of selected natural regeneration of varying ages, aided by systematic poisoning of unwanted species.

However, while the MUS system has been successfully applied to lowland dipterocarp forests it has been found to be unsuccessful in hill dipterocarp forests because of the comparatively more difficult terrain, uneven stocking, lack of natural regenerating on the forest floor, before logging, uncertain seedling regenerating on the forest floor potential mother trees and heavy seedling mortality due to felling damage on steep slopes, and poor viability of the main commercial species e.g. *shorea curtisii* (seraya). In addition, the risk of erosion on steep slopes and the incidence of secondary growth are increased by such a drastic opening of the canopy. In 1987, the Selective Management System (SMS) was introduced to allow for more flexible timber-harvesting regimes which are consistent with the need to safeguard the environment and at the same time to take advantage of the demands of the timber market. Most importantly, it discourages the poison girdling of a lot of the currently uncommercial species which will not only conserve the wood but also the genetic resources available in the forest for the future.

The SMS has been adopted widely for forest management because of the following benefits:

- i) Conservation and sustainability

- of the forest resource;
- ii) Minimisation of reinvestment in forest rehabilitation work;
- iii) Enhancement of environment stability and quality;
- iv) Minimisation of logging wastage; and
- v) Inducement of optimum utilization of forest resources.

Furthermore, the Forestry Department have also adopted regulations and guidelines for sound forest harvesting such as 'Standard Road Specifications' and 'Forest Harvesting Guide'. These regulations and guidelines supplements the forest management and harvesting plans by emphasizing environment conservation measures. The Forestry Departments have also introduced a few development activities in order to keep our country green.

- i) Plantation forest of fast-growing hardwood species such as **Acacia Mangium, Gmelina Arborea and Paraserianthes Falcataria;**
- ii) enrichment planting for logged-over areas or mangrove areas;
- iii) recreational forest;
- iv) planting in the natural forest fruit trees such as *Parkia speciosa* (Petai), *Durio zibethinus* (durian), *Mangifera* species (macang), *Pithecallobium jiringa* (jering), *P.bubalinum* (kerdas) and *Baccaurea* species (tampoi); and
- v) urban forestry along highways and sidewalks.

The tropical rainforest of Malaysia have been, and will continue to be, managed with strict and technically-sound management practices (that will ensure a sustained supply of timber) which emphasize the need for resources conservation which is vital for environmental protection in the long term.



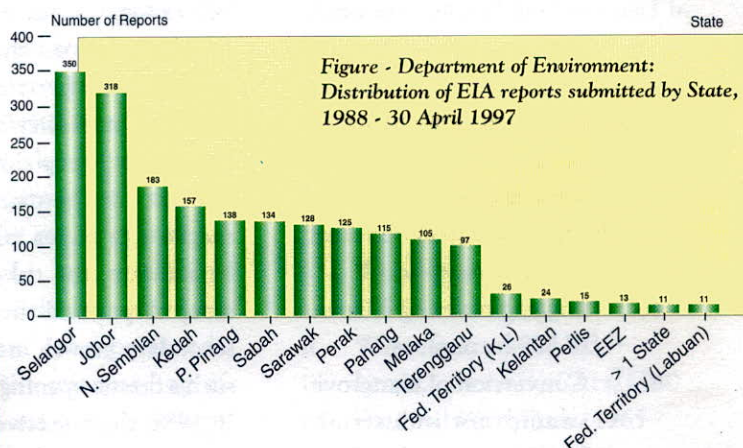
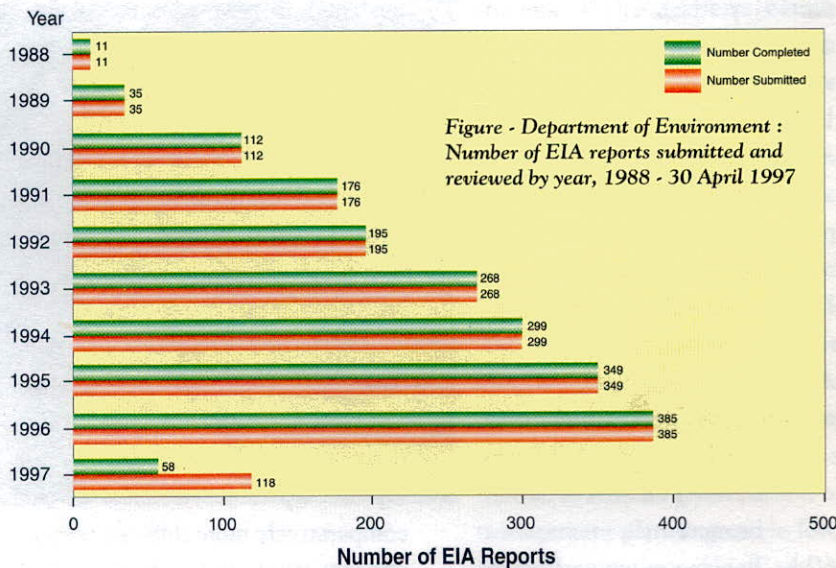
EIA STATUS REVIEW

by Nor Hayati Mohd Idris

The first quarter of 1997 saw 118 new EIA reports submitted to the DOE. Together with 55 reports brought over from 1996, the total for that period was 173 reports. An average of 29 reports per month which is slightly below the monthly average of 32 reports throughout 1996. Compared to the first quarter of 1996, there was an increase of 0.9% on EIA reports submitted.

From 1 April 1988 to 30 April 1997, a total of 1950 EIA reports were submitted. Of these, 1471 were approved, 336 rejected and 82 withdrawn by respective project proponents. The remaining 61 reports (51%) are currently being reviewed.

The highest number of reports submitted by category of prescribed activity were for housing (327), followed by resorts and recreational development (313) and infrastructure (301). The state of Selangor still outnumbers the other states in terms of number of EIA reports received, 350 followed by 318 for the state of Johor.



CALENDAR OF EVENTS JULY '97

Tarikh	Tempat	Perkara
02	JAS IP	Bengkel Penyeragaman Syarat-syarat EIA
03-05	P. Dickson	Kursus Penilaian Kesan Alam Sekitar
03	Kuala Lumpur	Mesyuarat MEXCOE
07-08	Tioman	Sambut Hari Alam Sekitar Peringkat Negeri Pahang
08-14	USM P. Pinang	Debat Alam Sekitar
06-14	JAS IP	Visit by The Technical Experts on Metal Finishing from P. R. China
09-11	JAS IP	Vietnam Delegation on ODS
26	Kuala Lumpur	Pelancaran Pertandingan Kuiz Alam Sekitar

