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Highlights

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PENGIKTIRAFAN KE ATAS KECEMERLANGAN JAS: MS ISO 9002

Oleh Hajah Kalsom Abdul Ghani/ Mashitah Darus

Komitmen Jabatan Alam Sekitar dalam memberikan perkhidmatan berkualiti kepada pelanggan-pelanggannya telah terbukti dengan kejayaan Jabatan memperolehi sijil sistem kualiti MS ISO 9002 baru-baru ini. Sijil berkenaan telah disampaikan oleh Yang Amat Berhormat Timbalan Perdana Menteri, Datuk Seri Abdullah Ahmad Badawi kepada Ketua Pengarah Alam Sekitar, Puan Hajah Rosnani Ibarahim dalam satu Majlis Penyampaian Anugerah Kualiti Perdana Menteri, pada 23 November 2000 bertempat di Hotel Legend, Kuala Lumpur.

Sambung di mukasurat 3

FROM THE DG'S DESK

With coming of the year 2001, DOE's role in environmental management is definitely going to be more challenging. In light of the current pace of the country's development in various sectors especially in land development and industrial projects, the Department aimed to give priority to the developmental role rather then merely to focus on the control of pollution. At present, DOE is seriously looking into mechanisms in implementing this developmental role in the overall environmental management of the country.

2000, was a year not only with several challenges but also marked by several milestones for DOE. In recognition of the Department's efficiency and quality of services to its clients, on 23rd November 2000 the Department was presented the MS ISO 9002 : 94 certificate by the Honourable Deputy Prime Minister, Y.A.B. Dato' Seri Abdullah Bin Hj. Ahmad Badawi. Having obtained the ISO 9002 certification is but only the beginning, the Department will strive to maintain and continuosly improve on the quality of service to ensure that our environment is protected for the present and future generation

HAJAH ROSNANI IBARAHIM
Director-General of
Environment Malaysia

Sambung dari mukasurat 1

Faktor utama kejayaan ini banyak bergantung kepada dorongan dan sokongan padu pihak Pengurusan Atasan Jabatan serta usaha gigih dan komitmen dari setiap anggota Jabatan Alam Sekitar dalam melaksanakan budaya kerja berkualiti. Faktor ini juga memungkinkan pelaksanaan sistem kualiti ini berjalan dengan lancar dan sistematik. Pelaksanaan sistem kualiti ini adalah selaras dengan kehendak Pekeliling Kemajuan Pentadbiran Awam Bilangan 2 Tahun 1996: Garis Panduan Bagi Melaksanakan MS ISO 9000 Dalam Perkhidmatan Awam. Bertitik tolak dari sini pihak Pengurusan Atasan Jabatan komited untuk menggunapakai sistem kualiti dalam pentadbiran dan tugas harian Jabatan. Jabatan Alam Sekitar (JAS) telah mula mengenalpasti fungsi dan skop kerja utama dalam merangka sistem kualiti Jabatan. Skop pendaftaran pensijilan dimulakan bagi Prosedur Memproses Laporan EIA Terperinci dan Penguatkuasaan Syarat-Syarat Kelulusan EIA. Sebagai permulaan sistem kualiti ini dilaksanakan di Ibu Pejabat Jabatan Alam Sekitar, Kuala Lumpur, Pejabat JAS Negeri Sembilan, JAS Negeri Selangor dan JAS Negeri Pahang. Pada masa akan datang, JAS merancang untuk mengembangkan skop pelaksanaan sistem kualiti ini ke semua pejabat-pejabat Jabatan Alam Sekitar negeri di seluruh Malaysia.

Pengalaman Ke Arah Sistem Kualiti

Komitmen Pengurusan Atasan JAS bermula pada 24 Mac 1997. Satu pasukan 'Task Force' telah ditubuhkan pada 26 Mac 1997 untuk menyediakan dokumen-dokumen berkaitan sistem kualiti bagi skop berkenaan. Ahli-ahli 'Task Force' ini adalah terdiri daripada pegawai dari setiap sektor di Bahagian Penilaian (Seksyen EIA), Bahagian Kawalan (Unit Peralatan), Bahagian Pentadbiran, Bahagian Sistem Maklumat dan pegawai dari JAS Cawangan Temerloh, Pahang. Beberapa siri latihan dan bengkel berkaitan sistem kualiti MS ISO 9000 telah diadakan khusus bagi ahli-ahli 'Task Force' sebagai pendedahan dan memberi kefahaman tentang konsep serta elemen-elemen penting dalam melaksanakan sistem kualiti MS ISO 9000. Bengkel khusus bagi penyediaan dokumen-dokumen kualiti berkenaan juga telah diadakan dengan mendapat bimbingan dari pihak Unit Pemodenan Tadbiran dan Perancangan Pengurusan Malaysia (MAMPU). Selain daripada itu, beberapa siri kolokium dan ceramah penghayatan konsep pelaksanaan sistem kualiti ISO 9000 juga telah diadakan untuk semua warga kerja JAS yang terlibat secara langsung dan tidak langsung dalam melaksanakan sistem kualiti ini.

'Adequacy audit' telah diadakan pada 9 Ogos 1999 oleh pihak MAMPU dan dari situ JAS telah belajar untuk menambah baik dan melengkapkan dokumen kualiti yang disediakan. Pasukan Audit Kualiti Dalaman telah ditubuhkan pada 11 November 1999. Pasukan ini terdiri daripada 2 orang pegawai Bahagian Kawalan dan seorang pegawai dari JAS Wilayah Persekutuan, Kuala Lumpur. Audit Kualiti Dalaman telah diadakan pada 2-5 Mei 2000. Audit Pematuhan (Compliance Audit) ke atas sistem kualiti ini telah dijalankan oleh pihak MAMPU pada 27-29 Julai 2000. Susulan dari Audit Pematuhan tersebut beberapa tindakan pembetulan dan pencegahan telah dilaksanakan untuk penambahbaikan prosedur-prosedur yang berkenaan.

Komitmen JAS

Sebagai agensi yang mentadbir serta menguatkuasa Akta Kualiti Alam Sekeliling, 1974 serta Peraturan-Peraturan yang dibuat di bawahnya, Jabatan Alam Sekitar berperanan dan komited untuk memastikan kualiti alam sekitar terpelihara bagi menjamin kesejahteraan dan keselesaan hidup rakyat pada masa kini dan akan datang.

Justeru itu adalah penting bagi setiap warga kerja JAS mengamalkan budaya kerja berkualiti supaya perkhidmatan terbaik dapat dihasilkan dalam menjaga dan memulihara alam sekitar. JAS sentiasa peka dengan kehendak pelanggannya dan terus berusaha untuk meningkatkan mutu hasil kerja dari semasa ke semasa bagi mencapai kepuasan hati pelanggan JAS. Oleh sebab itu antara objektif sistem kualiti MS ISO 9002 berdasarkan skop ini ialah untuk memastikan tiada sebarang aduan berhubung dengan pemprosesan laporan EIA dan dalam menjalankan aktiviti penguatkuasaan syarat-syarat kelulusan EIA. Di samping itu, JAS akan memastikan pelaksanaan kedua-dua aktiviti tersebut dijalankan dengan lebih sistematik, berkesan, serta mengikut Piagam Pelanggan yang ditetapkan.

Keberkesanan Sistem Kualiti

Sepanjang proses menyedia dan melengkapkan dokumen kualiti, beberapa pindaan dan penambahbaikan ke atas Prosedur Kerja, Arahan Kerja dan Senarai Semak telah dilaksanakan. Sejak sistem kualiti ini dilaksanakan, didapati skop tanggungjawab setiap peringkat pegawai dan kakitangan Jabatan adalah lebih jelas. Ini dapat mengelakkan pertindihan tugas di kalangan pegawai dan penggunaan tenaga kerja yang lebih berkesan dan produktif. Di samping itu didapati pelaksanaan tugas harian adalah lebih sistematik dan terancang. Dengan perancangan kerja yang lebih teratur, pengeluaran output kerja dapat ditingkatkan dan mengikut tempoh yang ditetapkan serta dapat memenuhi kehendak pelanggan JAS.

JAS Boleh

Adalah diharapkan budaya kerja berkualiti dapat dikekalkan dan menjadi amalan setiap anggota Jabatan dalam menjalankan tugas harian. Organisasi dan penjawat awam yang berkualiti serta effisien menjadi aset utama kepada Kerajaan dalam memberi perkhidmatan yang memuaskan hati dan memenuhi kehendak pelanggan khususnya orang awam. Pengiktirafan MS ISO 9002 ini membuktikan bahawa JAS mampu memberi perkhidmatan berkualiti walaupun dengan tenaga kerja yang sentiasa berkurangan dan beban kerja yang sentiasa bertambah dengan masalah alam sekitar yang semakin mencabar. Tahniah JAS!

SAMBUTAN MINGGU ALAM SEKITAR MALAYSIA MASM 2000

PERINGKAT KEBANGSAAN

Oleh Khairuddin Mohd Idris

Sambutan Minggu Alam Sekitar Malaysia (MASM) yang disambut dari 21 – 27 Oktober setiap tahun merupakan salah satu aktiviti terpenting Jabatan Alam Sekitar dalam mempromosikan kesedaran alam sekitar di semua peringkat masyarakat negara ini. Sambutan MASM tahun ini telah di adakan di Shah Alam, Selangor dengan tema 'Alam Sekitar Dihargai Kesejahteraan Dinikmati'.

OBJEKTIF MASM

Objektif utama sambutan MASM adalah untuk meningkatkan tahap kesedaran alam sekitar di kalangan masyarakat Malaysia melalui pelbagai aktiviti kesedaran bagi menggalakkan masyarakat untuk lebih prihatin, peka dan bersama-sama memainkan peranan melindungi dan memulihara alam sekitar.

AKTIVITI – AKTIVITI SEMPENA MASM 2000

Majlis Pelancaran

Majlis Pelancaran MASM 2000 telah disempurnakan oleh YB Datuk Law Hieng Ding, Menteri Sains, Teknologi dan Alam Sekitar yang mewakili YAB Perdana Menteri Malaysia pada 21 Oktober 2000 jam 8.00 pagi di Dataran Shah Alam, Shah Alam, Selangor. Antara dif-dif kehormat yang turut hadir ialah YAB Menteri Besar Selangor Dato' Dr. Mohamad Khir bin Toyo, semua Ahli-Ahli Mesyuarat Kerajaan Negeri Yang Bertanggung jawab Terhadap Alam Sekitar dari semua negeri, Ahli-Ahli EXCO Negeri Selangor, tetamu-tetamu kehormat di peringkat Persekutuan dan Negeri, Perwakilan Kedutaan Negara-Negara Komanwel dan Ketua – Ketua Eksekutif sektor swasta. Antara acara-acara yang diadakan sempena Majlis Pelancaran adalah :

Perbarisan Alam Sekitar

Perbarisan ini telah melibatkan seramai 800 orang peserta yang mana 200 orang terdiri daripada pelajar-pelajar sekolah rendah yang menjunjung replika bumi, 200 orang mahasiswa Pusat Pengajian Tinggi (IPT) di sekitar Shah Alam, 200 orang dari Pertubuhan Belia 4B, Negeri Selangor dan 200 orang wakil dari sektor industri di sekitar Shah Alam. Perbarisan ini menggambarkan penjagaan alam sekitar untuk bumi kita hendaklah dipelihara dan diutamakan terutama untuk generasi yang akan datang.

Perbarisan ini diketuai oleh kontinjen pancaragam dari Sekolah Menengah Sultan Abdul Aziz Shah, Seksyen 2, Shah Alam seramai 46 orang anggota.

Kapsul Masa (2000-2020)

Semasa Majlis Pelancaran MASM 2000, EXCO Alam Sekitar setiap Negeri telah memasukkan "ikrar alam sekitar" masing-masing yang berupa suatu dokumen yang mengandungi wawasan dan harapan setiap negeri-negeri di seluruh Malaysia yang berkaitan perancangan alam sekitar dan telah dimasukkan ke dalam sebuah kapsul masa. Kapsul masa ini telah ditutup dan disimpan sehingga tahun 2020 dan akan dibuka semula pada 21 Oktober tahun 2020 kelak.

Bacaan Ikrar Alam Sekitar

Bacaan ikrar telah melibatkan 20 individu yang mewakili pelbagai sektor seperti industri, pasukan beruniform, petani, nelayan, pelajar IPT, pelajar sekolah, NGOs, Belia, orang awam dan 800 orang yang menyertai perbarisan alam sekitar. Bacaan ikrar ini diketuai oleh ASP Rosli Bin Abdul Rahman dari Polis DiRaja Malaysia.

Persembahan Koir

Persembahan koir telah disampaikan oleh pelatih-pelatih dari Maktab Perguruan Raja Melewar, Seremban yang melibatkan seramai 50 orang. Kumpulan ini telah menyampaikan lagu baru Sambutan MASM 2000 iaitu : Keceriaan Alam dan Alam Gemilang.

Persembahan 'Choral Speaking'

Persembahan 'Choral Speaking' telah melibatkan seramai 46 orang pelajar-pelajar dari Sekolah Menengah Seksyen 24, Shah Alam dan tajuk 'Alam Sekitar Dihargai'.

Upacara Penyempurnaan ' Press Fresh Flower'

Sambutan MASM 2000 tahun ini telah menempa sejarah di mana satu acara penyempurnaan 'Press Fresh Flower' yang diperbuat daripada ratusan bunga anggerik berwarna merah, putih, biru dan kuning telah disusun dan direkabentuk menjadi bendera Jalur Gemilang. Kuntuman bunga anggerik yang terakhir telah disempurnakan oleh isteri YAB Menteri Besar Selangor. Bendera dari 'Press Fresh Flower' bunga anggerik ini yang berukuran 4.6m x 3.0m merupakan rekod baru dan telah dicatatkan di dalam 'Malaysia Book of Records'.

Pameran Alam Sekitar

Pameran Alam Sekitar sempena MASM 2000 telah diadakan sepanjang minggu bertempat di Plaza Alam Sentral, Shah Alam. Pameran ini telah dirasmikan oleh YB Menteri, Sains Teknologi dan Alam Sekitar pada 21 Oktober yang lepas. Sebanyak 29 ruang pameran telah disediakan yang melibatkan penyertaan dari agensi kerajaan, sektor swasta yang terdiri dari perunding alam sekitar, pekilang, syarikat pengeluar air, syarikat pengendali buangan sisa toksid, syarikat pengendali sisa buangan pepejal dan badan bukan kerajaan (NGO's) serta agensi-agensi pelancongan yang bertemakan alam sekitar. Bagi menarik pengujung pameran pihak urusetia bersama pihak Pengurusan Plaza Alam Sentral telah menyediakan beberapa program seperti pertandingan melukis, acara artis bersama kanak-kanak istimewa, acara pertandingan kuiz alam sekitar dan acara-acara hiburan bersama artis bertemakan alam sekitar. Upacara penutup dan penyampaian hadiah telah disempurnakan oleh YB Dato' Hj Mohd Mokhtar B. Hj Ahmad Dahlan, Exco Kerajaan Negeri Selangor.

Pertandingan Melukis Untuk Kanak-Kanak

Pertandingan melukis telah melibatkan murid-murid sekolah rendah dan menengah seramai 350 orang. Pertandingan ini telah diadakan di Kompleks PKNS. Majlis penutup dan penyampaian hadiah telah disempurnakan oleh Timbalan Ketua Pengarah Jabatan Alam Sekitar.

Mesyuarat Ahli-Ahli EXCO Negeri Mengenai Alam Sekitar (MEXCOE)

Mesyuarat telah dipengerusikan oleh YB Menteri Sains, Teknologi dan Alam Sekitar dan telah dihadiri oleh YB Ahli-Ahli EXCO Kerajaan Negeri yang Bertanggungjawab Terhadap Alam Sekitar. Mesyuarat telah berlangsung di Bilik Mesyuarat, Hotel Concorde Shah Alam pada 21 Oktober 2000. Mesyuarat ini diadakan sebagai membuktikan komitmen dan persefahaman Kerajaan Negeri dan Kerajaan Persekutuan dalam setiap keputusan, dasar dan perancangan di peringkat negeri dan negara.

Malam Anugerah Langkawi

Malam Anugerah Langkawi merupakan satu Majlis Makan Malam yang diadakan khusus untuk memberi penganugerahan kepada individu yang telah mencurahkan masa, tenaga dan intelektual ke arah meningkatkan kesedaran alam sekitar bukan sahaja di peringkat kebangsaan malah di peringkat antarabangsa.

Pemenang Anugerah Langkawi akan menerima sebuah 'plaque', sijil dan wang tunai RM10,000.00. Pada tahun ini SPB Yang Di Pertuan Agong XI, Sultan Salahuddin Abdul Aziz Shah dan SPB Raja Permaisuri Agong telah berkenan menghadiri dan menyampaikan Anugerah Langkawi kepada pemenang tahun ini iaitu Prof Dr. Muhammad Awang, Timbalan Naib Canselor, Universiti Putra Malaysia.

Acara Bersama TMS 2000 Sdn Bhd dan Konsert Penghayatan Alam

Konsert Penghayatan Alam merupakan satu program yang diadakan juga bersempena konsert sedia ada yang dianjurkan oleh TMS 2000 sempena tahun melawat Selangor 2000. Konsert ini telah diadakan di Dataran Shah Alam dan telah berjaya menarik seramai lebih kurang 2,500 orang penonton. Antara artis yang telah membuat persembahan ialah Kumpulan Senario, A.R. Badul, Yusni Jaafar, Ruhil dan kumpulan New Boy's yang telah membuat persembahan khas bertemakan alam sekitar.

Pelancaran Kempen Lebuhraya Bersih dan Ceria

Kempen ini telah dilaksanakan dengan kerjasama Projek Lebuhraya Utara Selatan (PLUS). Pelancaran telah disempurnakan oleh YB Dato' Hj Zainal Dahalan, Timbalan Menteri Sains, Teknologi dan Alam Sekitar dan seterusnya telah memberi secara percuma kepada pengguna-pengguna lebuhraya PLUS cenderahati berupa "sunshade" dan yang boleh dilekatkan di dalam kenderaan.

Penyampaian Anugerah Alam Sekitar & Majlis Forum Alam Sekitar

Program ini diadakan bagi memberi pengiktirafan kepada pihak industri di Negeri Selangor yang telah menunjukkan pencapaian yang baik dalam bidang alam sekitar dari segi operasi dan pematuhan. Ini disusuli oleh satu Forum yang khusus untuk membincangkan hala-tuju kemajuan sektor industri negara khususnya di Selangor dengan tajuk "Cleaner Technologies; Towards A Cleaner Environment". Ahli-ahli panel forum terdiri dari Dato' Dr. Ariffin Aton, Presiden dan Ketua Eksekutif SIRIM Berhad, Ir. Shamsuddin Hj A.Latif, Timbalan Ketua Pengarah Jabatan Alam Sekitar, Prof. Dr. Md. Ghazaly dari Jabatan Kejuruteraan Universiti Malaya dan Encik S. Veerasingam dari Business Council for Sustainable Development Malaysia. Forum telah dipengerusikan oleh Cik Ester Tan, Editor-In-Chief NTV 7. Majlis ini telah diadakan di Hotel Concorde, Shah Alam dan telah disempurnakan oleh YB Timbalan Menteri Besar Selangor.

Seminar "SMI Environmental Awareness ISO 14000"

Seminar ini diadakan bagi menggalakkan Industri-Industri Kecil dan Sederhana untuk menggunapakai ISO 14000 iaitu suatu Sistem Kualiti Pengurusan Alam Sekitar yang diiktiraf dan dapat menjamin suatu pengurusan alam sekitar yang cekap oleh industri dalam penghasilan produk dan perkhidmatan mereka. Seminar telah diadakan di Hotel Sheraton, Subang dan majlis perasmian telah dilakukan oleh Y. Bhg. Puan Hajah Rosnani Ibarahim, Ketua Pengarah Alam Sekitar.

Kem Kesedaran Alam Sekitar & Wira Alam Komuniti

Program ini merupakan acara tahunan Jabatan Alam Sekitar untuk golongan sasar pelajar-pelajar sekolah menengah di sekitar Selangor. Pelajar-pelajar yang menyertai kem ini merupakan pelajar-pelajar yang telah melepasi Tahap Satu Projek Wira Alam. Sekolah-sekolah yang terlibat ialah:

- Sek Men (P) Convent Kelang
- Sek Men Bandar Baru Bangi
- Sek Men Kebangsaan Seri Utama, Damansara

Seramai lebih kurang 46 orang pelajar telah menyertai kem ini yang telah diadakan selama 2 hari di Pusat Lapangan Contoh, Kg. Endah, Banting. Program ini telah mendapat kerjasama yang erat dari Persatuan Pencinta Alam Malaysia (MNS), Jawatankuasa Bertindak Kesedaran Alam Sekitar Selangor (BERKESAN) dan JKK Kg. Endah, Banting. Majlis penutup telah disempurnakan oleh YB Dato' Hj Mohd Mohktar Hj Ahmad Dahlan, Exco Kerajaan Negeri Selangor.

Rekreasi Air

Program ini telah diadakan di Jeti Kuala Selangor. Matlamat program ini diadakan bagi menggalakkan penyertaan belia dan orang awam untuk menyertai acara-acara berkaitan dengan sungai dan seterusnya menyemai rasa cinta dan menghargai kebersihan sungai. Seramai lebih kurang 500 orang telah menyertai program ini seperti acara berenang merentas Sg. Selangor. Acara menangkap itik, acara perlumbaan dayung perahu dan lain-lain. Majlis penutup dan penyampaian hadiah telah dilakukan oleh Ir. Shamsuddin Hj. A.Latif, Timbalan Ketua Pengarah Jabatan Alam Sekitar.

Envirohunt

Program ini telah diadakan di Bukit Gasing, Petaling Jaya. Seramai lebih kurang 800 orang pelajar dan orang dewasa sekitar Lembah Kelang dan Selangor telah menyertai acara ini. Tujuan program ini diadakan ialah untuk mengajak para remaja dan orang awam untuk menghayati kehijauan alam sekeliling dan memupuk kesedaran terhadap alam sekitar. Majlis penutup dan penyampaian hadiah telah disempurnakan oleh YB Dato' Hj Mohd Mohktar Hj Ahmad Dahlan, Exco Kerajaan Negeri Selangor.

IMPLIKASI PERTAMBAHAN PENDUDUK TERHADAP SUMBER AIR

Oleh Pauziah Hanum Binti Hj. Abdul Ghani

Air sumber asas keperluan kepada semua manusia. Namun apakah sumber yang dianugerahkan tuhan ini tidak mencukupi untuk menampung kehidupan manusia ataukah kerana manusia itu sendiri yang menyebabkan segala punca kekurangan air. Inilah persoalan yang kritikal buat masa sekarang untuk kita sama-sama mencari jawapannya.

Kita semua ketahui bahawa air yang boleh digunakan adalah didalam jumlah yang kecil daripada sumber yang terdapat di dunia ini. Oleh itu air untuk gunaan bukan sahaja perlu diperolehi dengan mudah bahkan kualitinya perlu dijaga. Postel et.al(1996) mengenalpasti empat masalah utama yang terhasil dari kekurangan air iaitu kemerosotan ekologi,kekurangan untuk kegunaan pertanian dan industri,ancaman kepada kehidupan /kesihatan manusia dan konflik dalaman.

Wiliam (1993) menyatakan bahawa manipulasi terhadap sumber air , pertambahan penduduk , perubahan iklim dan tidak ketinggalan pengurusan yang tidak cekap adalah antara faktor yang mempercepatkan lagi masalah kekurangan sumber air.

Pengurusan lembangan sungai menyeluruh mestilah mengambilkira kedinamikan dan saling perkaitan kitaran hidrologi itu sendiri. Dan setiap komponen didalam kitaran hidrologi itu perlu di integrasikan ke dalam pelan pengurusan. Jika kita gagal mengintegrasikan ke semua komponen didalam kitaran hidrologi ini maka akan berlakulah fragmentasi didalam pengurusan sumber air yang akan menimbulkan masalah pencemaran dan alam sekitar secara amnya.

Manusia telah banyak membuat perubahan dari aspek penggunaan teknologi, industri dan pertanian. Kesemua perubahan ini adalah kos yang signifikan yang melahirkan ketidaksamaan masyarakat kaya dan miskin dan kemerosotan alam sekitar. Negara yang kaya mempunyai makanan dan kemudahan kesihatan yang mencukupi manakala negara miskin tentu dihantui masalah-masalah yang sukar diatasi sehingga menyebabkan sumber asas terjejas. Pertambahan penduduk berserta dengan kemajuan industri telah menyebab permintaan kepada air bertambah 10 kali ganda (Meybeck et.al.1990). Hakikat yang mesti kita terima ialah jika ini berterusan, maka sumber air yang terhad ini tidak akan dapat menampung keperluan manusia yang dianggarkan melainkan kita mengambil tindakan yang radikal dalam penggunaan air di masa sekarang dan juga masalah kependudukan .Tidak terkecuali persekitaran politik , etika , ekonomi dan implikasi sosial menjadi tunggak sesuatu kejayaan yang mesti dicapai.

Union of Concerned Scientist 1992,ada menyatakan ;

" Human being and the national world are on a collision course. Human activities inflict harsh and often irreversible damage on the environment and on critical resources. If not checked, many of our current practices put at serious risk the future that we wish for human society and the plant and the animal kingdom, and may so alter the living world that it will unable to sustain life in the manner that we know."

Walau bagaimanapun, sejauh manakah ancaman ini diterima oleh setiap individu, tidaklah diketahui. Yang jelasnya kepada kita ialah air mestilah dihargai dan dipelihara.

Adalah tidak realistik untuk negara yang sedang membangun mempunyai polisi alam sekitar yang progresif sedangkan masalah kemiskinan dan politiknya tidak dapat diatasi .Oleh itu jurang di antara negara miskin dan kaya hendaklah diatasi dan pengagihan kekayaan dan sumber yang sama rata disamping eksploitasi oleh negara yang tidak mampu.

Akhir kata , isu pertambahan penduduk dan tekanan terhadap keperluan sumber air yang bersih perlu perhatian yang serius dari semua yang terlibat dalam pengurusan sumber air di dunia mahupun setempat.

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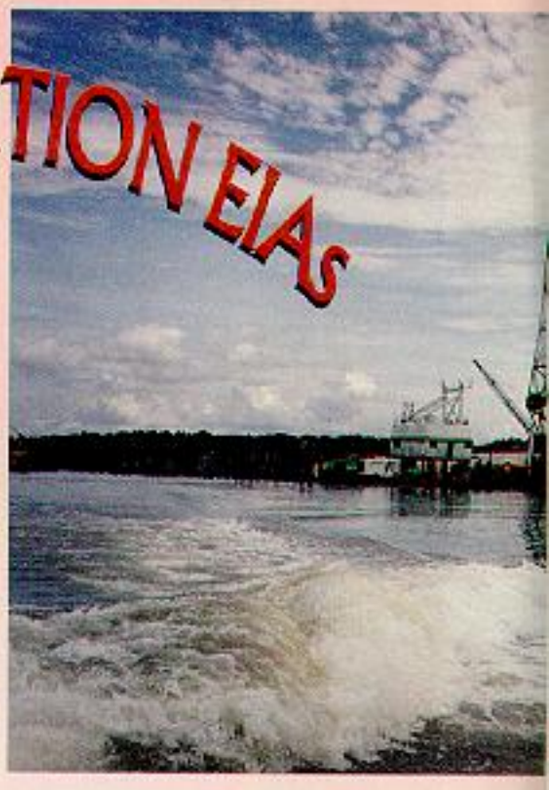
EXPERIENCES IN COASTAL RECLAMATION EIAs

by Lee Heng Keng



INTRODUCTION

Coastal areas are increasingly being sought for development. The unique features of these areas provide ideal sites for ports and harbors, power plants and more recently tourism and resort facilities. The most significant of these shoreline developments are land reclamation being planned by most of the States in the country. These include the coasts of Melaka, Negeri Sembilan, Johor, Kedah, Perlis, Perak, Pahang, Pulau Pinang, Selangor and Sabah. The development of these areas is not without its problems. Various environmental issues and concerns need to be addressed prior to development. It is imperative that the impact on the environment be fully understood and appropriate mitigation measures taken to ensure minimal residual impacts.

ENVIRONMENTAL ISSUES

Various environmental issues and concerns need to be addressed in coastal reclamation. These include:

(i) changes in the coastal processes (erosion/accretion)
(ii) sand sourcing
(iii) loss of mangroves
(iv) loss of fishing grounds
(v) socio-economic
(vi) resettlement
(vii) water quality
(viii) upstream flooding of rivers
(viii) artifacts

ENVIRONMENTAL LEGISLATIVE REQUIREMENTS

Under Section 34A of the Environmental Quality Act 1974, any person intending to carry out a prescribed activity must submit an Environmental Impact Assessment (EIA) report for approval before the project can be implemented. Coastal land reclamation and sand dredging, with an area of more than 50 hectares is a prescribed activity under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987. Other prescribed activities that are associated with the shoreline development are conversion of mangrove areas into other land uses, resort development and development surrounding waters of national marine parks.

EIA is a study to identify, predict, evaluate and communicate information about the impacts on the environment of a proposed project and to detail out the mitigating measures prior to project approval and implementation. It is essentially a planning tool for preventing environmental problems due to an action. For EIA to be effective, it has to be conducted early in the project cycle, providing options in project siting and technology, adverse environmental impact identified and mitigating measures proposed. Properly executed, the findings of an EIA can enhance the project and ensure its viability, both economically and environmentally.

To assist assessors in undertaking EIA studies for coastal development, a specific EIA Guidelines for Coastal and Land Reclamation was prepared to supplement the Handbook of Environmental Impact Assessment Guidelines. These guidelines are by no means exhaustive, neither are they intended to stifle the creativity and investigative work of any good assessor in introducing innovative approaches and ideas.

EXPERIENCES IN COASTAL RECLAMATION EIAs

Hydraulic models

There are still many uncertainties in the dynamic sea regime. Wave patterns, current direction and speed, tides etc. need to be studied and forecast or predicted. Inadvertently models have to be used to perform this task. The outputs are only as good as the inputs. Assumptions and calibration are important elements that need to be given due consideration. Subsequently decisions have to be made based on the results of the modeling. Is there a high degree of confidence in these models to ensure the decisions made are the best within reasonably limits? Bearing in mind

that many of the things we do now are relative new and experience wanting, perhaps this is the best option.

From the various EIA's that were carried out for reclamation projects, the prediction of impacts especially as regards to coastal erosion or accretion is still not definitive and subject to the methodology and the availability of data. Consultants claimed that time allocated for the EIA study is short hence detailed assessment is not possible. However the EIA Review Panel finds it extremely difficult to make a meaningful decision on the report without detailed analysis. In the 2 cases of macro-EIA, the review process took 11 and 20 months respectively after numerous requests for additional information. In these cases the final approvals were still subjected to detailed hydraulic studies for each individual plot before reclamation can proceed. For individual projects with reclamation component the review also took about 12 months, again due to the inadequacy of hydraulic data. Hence a more accurate and reliable assessment needs to be presented even if it means spending a little more time.This is important because these assessments provide the basis for informed decision.

Perhaps it is now the time for related institutions to gather baseline information (currents, tides etc.) on a routine basis for the whole coastline of the country. These data could then be made available to interested parties at a cost along the line of the air quality data that is being sold by a private company.

Sand sourcing

With the large number of reclamation projects being planned the availability of sand that will ensure the smooth implementation of the project is an important factor that has to be given due consideration. Not withstanding the environmental impacts of sand extraction from the sea, if there is no sand there will be no reclamation. While importing could be an option, it should be borne in mind that environmental concerns could also make the exporting country change its policy overnight and the project will not be able to proceed.

In most of the reclamation EIAs definite sand source sites were not identified hence no impact assessment were conducted. Project proponents often mentioned that import of sand would be an option. The Department's stand on this issue is that any sand for reclamation purpose must be from an EIA-approved site if within the country. Imported sand need to comply with all existing rules and requirements imposed by other agencies.

Socio-economic

In all development projects, the socio-economic impact should not be neglected and for reclamation projects it is vital to take this into consideration at the earliest possible time. Coastal fishermen and mariculture farms will be affected by coastal reclamation. Sometimes trade-offs have to be made and the decision-maker has to decide one way or the other. The lost of fishing grounds especially to coastal fishermen is another contentious issue that need to be addressed judiciously. The other aspect that is found lacking is the assessment of the benefits to the affected community. General statements like creation of employment and better quality of life were often made but no studies were undertaken to determine if the social structure of the local community would enable them to assimilate into the new development.

Mangroves ecosystem

As we are all aware, the mangrove ecosystem is a highly complex one and a natural spawning ground. Destruction of this ecosystem would also jeopardize the marine environment. To preserve the mangrove areas, the island concept has been proposed. Basically parts of the sea are reclaimed into islands thus avoiding the mangroves but the question that arises is how wide should the channel between the islands and mainland be; is 150 m or 400m or even 1000m good enough or is there an optimum width? It has been stated that the island would protect the mainland from erosion but the channel effect can also cause an increase in current speed and aggravate erosion or perhaps even stagnation happening in the channel causing deterioration of water quality.

Here again detailed hydraulic study need to be carried to determine the actual configuration of the island and channel width.

Artifacts

Bearing in mind that artifact survey is expensive, it is of cause important if historical information is available to suggest their existence. Whatever hidden treasures will be lost forever once reclamation has started. The decision-maker has to decide whether the cost of survey and salvage would out weigh the value of the potential loss of the artifacts. Here if historical data indicate the possibility of artifacts, comprehensive survey must be carried out before reclamation starts. In this regards the Melaka State Government has decided as a condition of approval of the project that a detail artifact survey must be carried out before reclamation can proceed.

MACRO-EIA OR SHORELINE MANAGEMENT PLAN

Aware of the impact that one reclamation project can have on the next, an overall EIA study or macro-EIA was carried for the Melaka and Kedah projects. However from experience gained it was found that a macro-EIA is difficult to manage due to the short time frame allocated for EIA studies and the scarcity of data. Macro-EIA study therefore can only provide the overall configuration of the reclamation and act as a master plan for the development. Detailed hydraulic study for each individual plot is still necessary before reclamation can proceed.

Here perhaps an overall shoreline management plan would be useful to determine areas within the study area that can be developed and areas that should not be developed. With this plan in place areas that can be developed would than be subjected to detailed environmental impact assessment. The experience of Sabah in preparing the Shoreline Management Plan and subsequent implementation could provide useful feedback on the effectiveness of such a scheme.

ENVIRONMENTAL MANAGEMENT PLAN

To ensure that the EIA requirements are achieve in the final design, construction and operation, an Environmental Management Plan (EMP) has to be prepared. The EMP should include the following:

(i) the final design that incorporates all mitigation measures and EIA approval conditions;
(ii) detailed environmental monitoring program
(iii) budget and personnel to implement the EMP

The Department has stipulated that the EMP must be submitted for approval at least 3 months before implementation of the project. To assist project proponents and consultants, the Department has prepared the format of the EMP. This is available at the Department's website.

POST-EIA MONITORING AND AUDIT

The need for environmental monitoring and audit is never over emphasized. It is a useful tool in enhancing the effectiveness of the EIA system by reviewing how the predictions and the recommended mitigation measures actually work in reality, and what needs to be done to rectify the deficiencies. Monitoring involves measuring and recording the physical, biological, social and economic variables associated with the development such as air quality, water quality, noise, traffic flows etc. Post development audit refers to a process of comparing the impacts predicted in an EIA with those that actually occurs after implementation in order to assess whether the impacts predicted are correct and if other mitigation measures are required.

CONCLUSION

Shoreline management must be integrated in to the overall coastal zone management plan. Areas that can be developed and areas to be conserved should be delineated and be included in the Local Plan. As the country is embarking on coastal reclamation on a large scale, it is imperative that the impact on the environment be fully understood and appropriate mitigation taken to ameliorate or minimize these impacts. The EIA consultants must maintain their professionalism in providing credible data and unbiased assessment of the impacts arising from the project. Project proponents must be committed in implementing the EIA recommendations and bear full responsibility in carrying out the mitigation measures. There is a need to balance economic development and environmental requirements. The challenge for sustainable development is to ensure continued economic growth and at the same time decline in environmental degradation.

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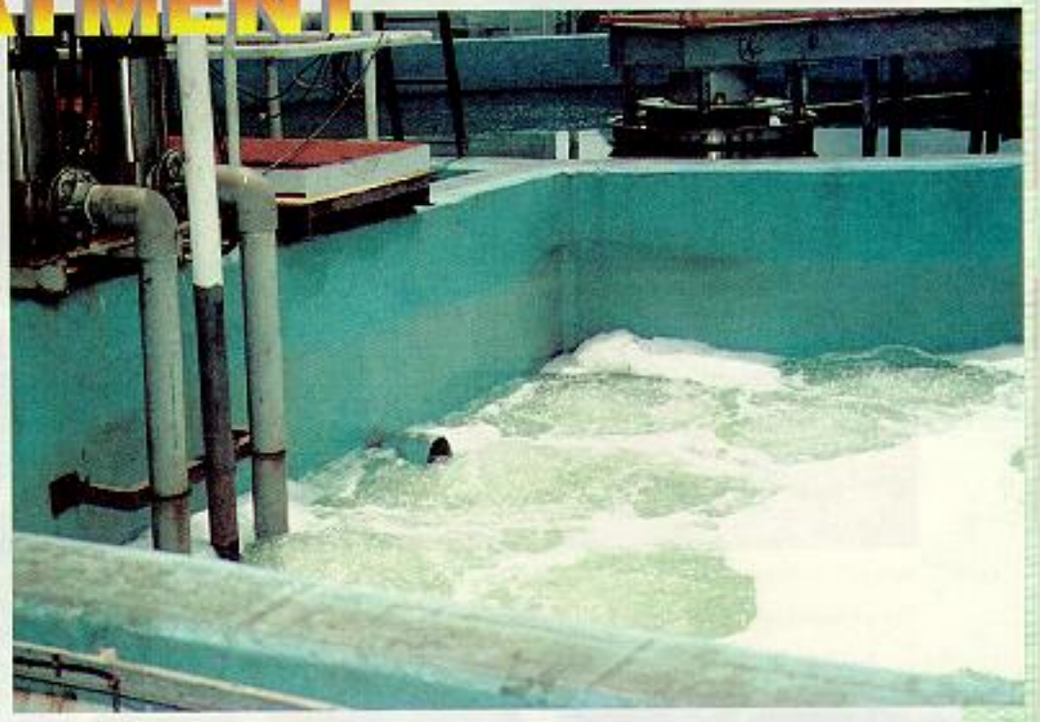
INDUSTRIAL WASTEWATER TREATMENT

by Ir. Shamsudin b. Haji Ab. Latif



INTRODUCTION

The choice of cleaner production concept has been recognized and accepted to be the most preferred option in the manufacturing sector. Nevertheless, in most instances, waste generation cannot be avoided entirely, hence wastes, either in the form of air emission, solid wastes, or wastewaters are produced. End of pipe approach should be the last option for pollution management after all other options and opportunities to minimize the wastewaters have been explored. The wastewaters when so generated need to undergo treatment to comply with the stipulated discharge standards prior to discharge to the environment.

The establishment of new manufacturing industries which have the potential to generate wastewaters requires prior written permission of the Department of Environment. This legal requirement is embodied in Regulation 4 of the Sewage and Industrial Effluents Regulations, 1979. A prerequisite to the granting of approval for the establishment of the industry is the construction of wastewater treatment system to treat the wastewater to comply with the discharge standards.

Industrial wastewaters, unlike sewage exhibit high variability in volume and pollutant concentration. Additionally, industrial wastewaters typically contain a high percentage of soluble Biochemical Oxygen Demand (BOD) and refractory Chemical Oxygen Demand (COD) and are deficient in nutrients. As a contrast, sewage contains high proportion of colloidal and suspended BOD, low refractory COD and is rich in nutrients.

Over the years several technologies have been developed to treat different kinds of industrial wastewaters. This article discusses some of the technologies currently being utilized in Malaysia for the treatment of industrial wastewaters.

PRIMARY TREATMENT

The main purpose of primary treatment is to minimize fluctuations in wastewater flow and concentration. Pretreatment is sometimes necessary to remove nonbiodegredable and toxic pollutants such as heavy metals. Pretreatment and primary treatment are necessary to prepare the wastewater for subsequent treatment, i.e biological treatment. Most of the processes employed in the pretreatment and primary treatment are relatively simple and include the following.

(a) screening to remove large solids such as those found in the canning, brewing and pulp and paper industries;

(b) equalization to minimize variations in flow and concentration as well as to prevent shock load;

(c) neutralization to nuetralize excess acidity or alkalinity to adjust to an optimal range of 6 – 9;

(d) flotation to remove suspended solids and oil and grease;

(e) heavy metals removal which usually employs precipitation process.

The wastewater from the primary treatment stage still contains dissolved organics and inorganics plus colloidal solids and other suspended organic matter. Volatile organics if present should be removed prior to aerobic organic treatment because aeration will release them into the atmosphere and may cause air pollution problems.

BIOLOGICAL TREATMENT

The propose of biological treatment is to remove the soluble and colloidal organic materials in the wastewater via the use of bacteria and other microorganisms. The concentration of organic matter in the wastewater measured in terms of BOD or COD, for example, will then be reduced. it is important to note that not all organics are degraded, the recalcitrant ones still remain.

Biological treatment can be achieved either aerobically (in the presence of oxygen) or anaerobically (in the absence of oxygen). In aerobic process, the wastewater is aerated and the microorganisms metabolize the organic matter and convert it to carbon dioxide and new cells. In anaerobic process, methane, carbon dioxide and cells are produced. In both processes a high concentration of biological cells settle at the bottom of the clarifier and this sludge requires further treatment prior to disposal.

There are several processes that can be used in the treatment of organic wastewaters. The selection of the

most appropriate technology depends on several factors such as the flow rate and strength and characteristics of the wastewater and on the operator skill. These processes include the activated sludge processes, the extended aeration, sequencing batch reactor, aerated lagoon, trickling filters and rotating biological contactors. The processes which have found wide application in Malaysia for treating industrial wastewaters are the activated sludge process, the extended aeration and the sequencing batch reactor and these are described briefly below.

In the activated sludge process, the wastewater is aerated for 4 – 12hrs via the use of mechanical or diffused aeration. Following settling a portion of the settled cells (sludge) is recycled to the aeration tank to maintain the desired microorganism concentration in the aeration tank and a portion is also wasted

Activated sludge process can achieve a high degree of treatment where typically BOD and suspended solid of the effluent of less than 15 and 30 mg/L respectively can be obtained. This process is highly popular in Malaysia and is attractive for wastewater flow above 350 m^3d^{-1} and where land is limited. Its disadvantages include sensitive to hydraulic and toxic shock loads and it requires skilled manpower to operate the process.

Several modifications to the conventional activated sludge process have been made to suit different wastewater characteristics and treatment performance requirements. These include extended aeration and sequencing batch reactors.

Extended aeration is a variant of the activated sludge process typified by low organic loading, low, sludge wasting and long aeration time. High BOD removal can be achieved but due to high micro-organism concentration in the aeration tank suspended solids, carry over may be a problem. Because of long aeration time, sludge production, hence disposal is minimal. Extended aeration is usually considered for flows less then 3000 m^3d^{-1}.

Sequencing batch reactor is a fill-and-draw process operated under a non steady state condition where equalization, biological oxidation and clarification are all carried out in the same tank. SBR is usually employed to treat high-strength industrial wastewaters. Its advantage is the ability to accept prolonged hydraulic shock load without loss of microorganism.

HEAVY METALS REMOVAL

Industrial wastewaters contain various metals which include chromium, zinc, copper, lead, cadmium, nickel, etc depending on the manufacturing operations. Electroplating industries are a typical example and have been implicated to be a problematic industry in Malaysia. If the heavy metal in the wastewater is present in inorganic form, it can be removed by the precipitation process either as hydroxides, sulfides, sulfates or carbonates. Chromium containing wastewaters need a two-step process where hexavalent chromium is firstly reduced to the trivalent form by using reducing agents such as ferrous sulfate or sodium metabisulfite. It is then precipitated as hydroxide by using lime or caustic soda. The presence of cyanide and ammonia presents a problem because they form complexes with many metals rendering them unsuitable for precipitation. Cyanide is normally removed by alkaline chlorination or hydrogen peroxide oxidation and ammonia by chlorination or stripping.

Although other techniques such as ion exchange, reverse osmosis, etc are available for the removal of heavy metals they have not found wide application in Malaysia. Ion exchange columns are sometimes used in the electronics industry not for the purpose of pollution control but for producing high-quality water for the manufacturing process.

SLUDGE TREATMENT AND DISPOSAL

The biological sludge generated from the biological treatment process or the chemical sludge from the heavy metals removal process needs further treatment prior to disposal. Typically biological sludges are dewatered using sand beds while chemical sludges using filter presses. The disposal of biological sludges is controlled under the provision of Regulation 10, Sewage and Industrial Effluents Regulations, 1979. The requirements on storage and disposal of chemical sludges are governed by the provisions in the Scheduled Waste Regulations, 1989. (Article to be continued in other issue)

Status Laporan EIA 1999

Oleh : Mohd Nazry Radzaly

Dalam tahun 1999, jumlah laporan EIA yang telah diterima oleh Jabatan Alam Sekitar bagi negeri-negeri seluruh malaysia adalah sebanyak 142 laporan, jumlah ini jika dibandingkan dengan tahun 1998 didapati telah menurun sebanyak lebih kurang 30% iaitu daripada 215 laporan pada tahun 1998.(Rujuk rajah 1.0)

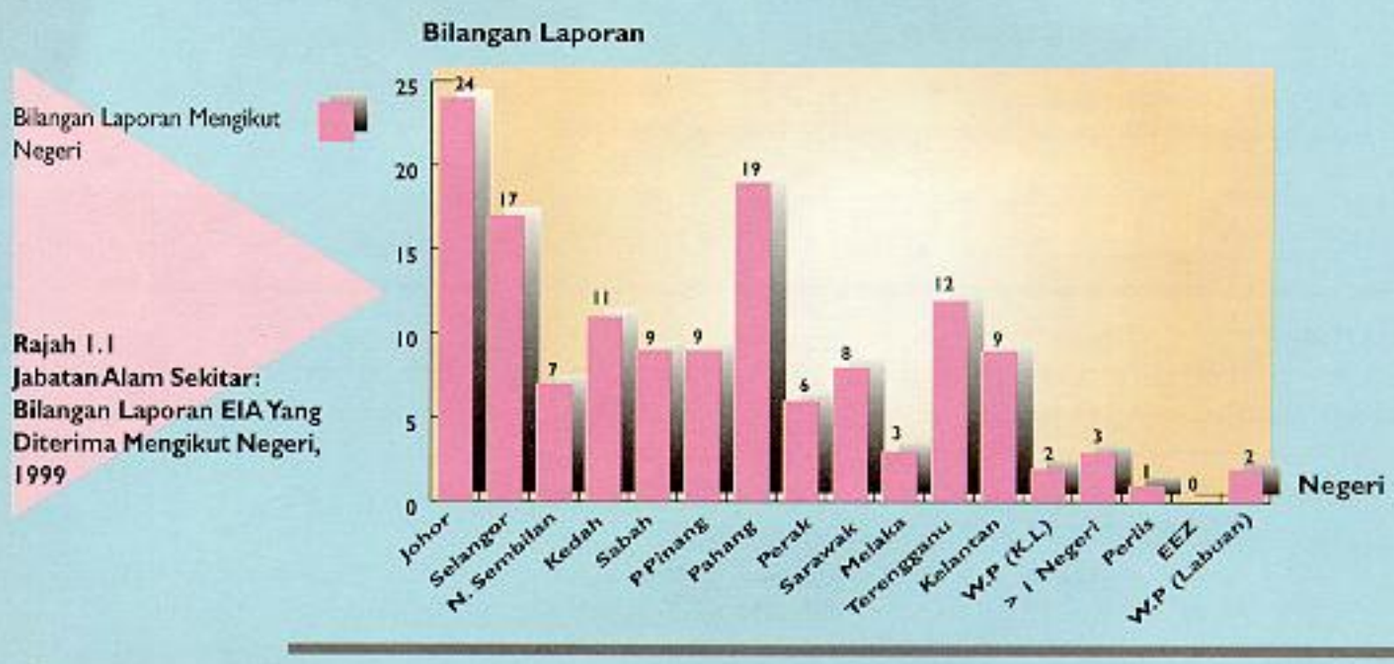
Negeri Johor telah mencatatkan jumlah penerimaan laporan EIA yang paling banyak iaitu sebanyak 24 laporan, ini diikuti oleh negeri-negeri lain sementara negeri Perlis mencatatkan jumlah penerimaan yang paling sedikit iaitu sebanyak 1 laporan.(Rujuk rajah 1.1)

Sebanyak 8 laporan EIA Terperinci telah diterima dalam tahun 1999. Bagi laporan EIA awal pula sebanyak 128 laporan EIA telah diterima dalam tempoh yang sama. Jabatan Alam Sekitar juga telah menerima sebanyak 6 laporan analisa risiko.(Rujuk rajah 1.2)

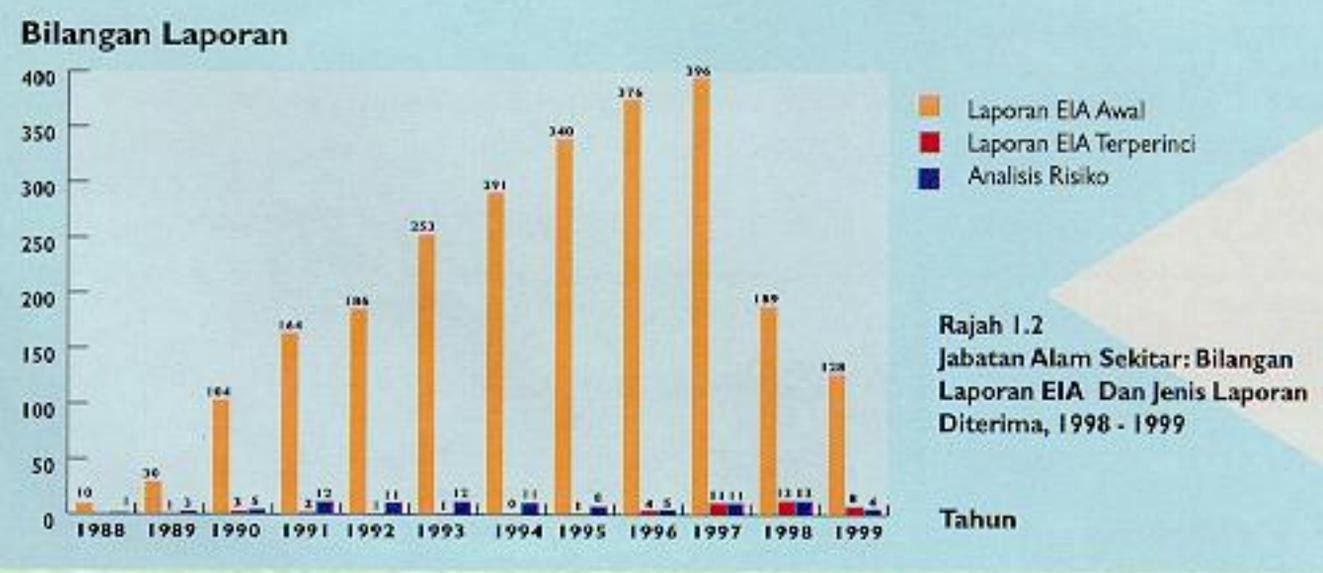
Pembinaan kemudahan-kemudahan yang melibatkan proses pengolahan dan gunasemula telah mencatatkan penerimaan jumlah laporan EIA yang paling tinggi iaitu sebanyak 24 laporan, ini diikuti oleh laporan EIA untuk aktiviti pembinaan kawasan perumahan dan pembinaan kemudahan infrastuktur seperti pembinaan bandar baru dan jalanraya sebanyak 18 laporan. (Rujuk rajah 1.3)

Adalah diharapkan agar pada tahun 2000 ini, keadaan ekonomi negara kita akan pulih seperti sediakala agar pembangunan yang mapan dapat diteruskan dan keadaan alam sekitar Malaysia akan terus terpelihara.

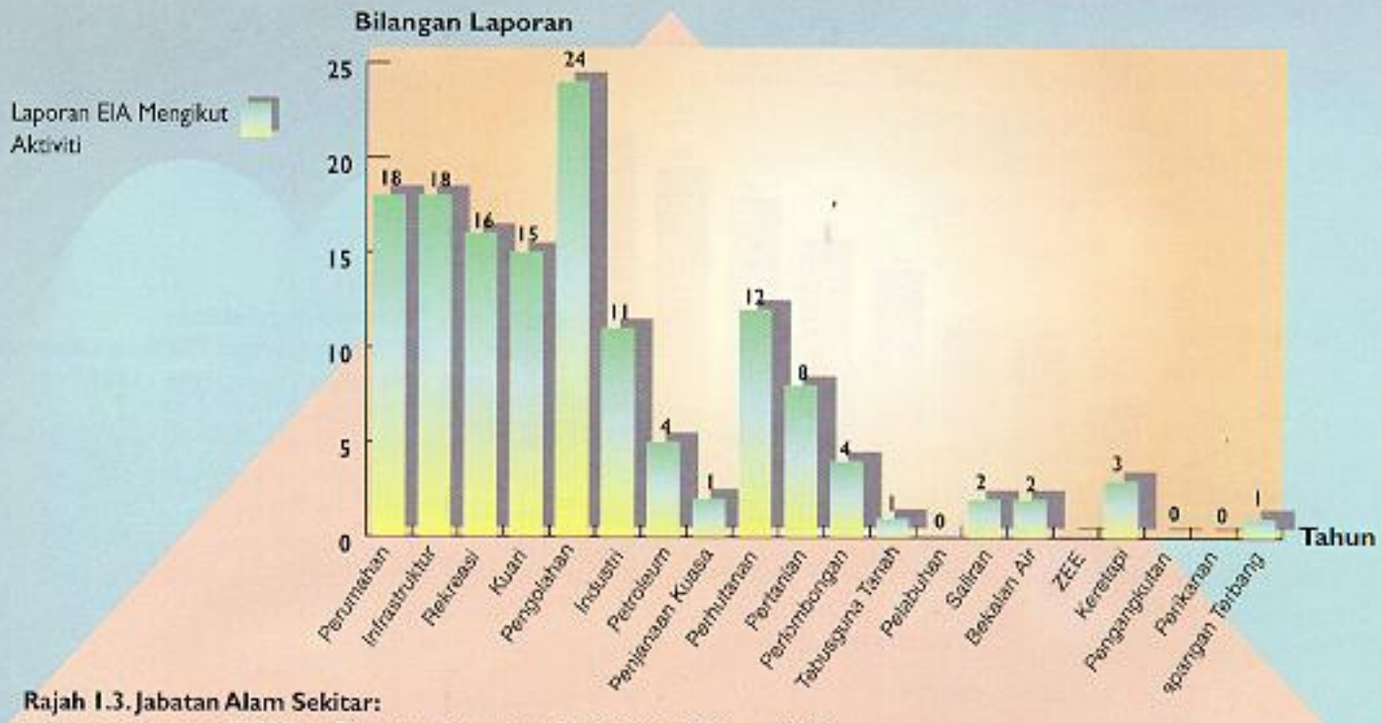
Rajah 1.0
Jabatan Alam Sekitar: Bilangan Laporan EIA Yang Diterima Mengikut Tahun, 1998 - 1999



Rajah 1.1
Jabatan Alam Sekitar: Bilangan Laporan EIA Yang Diterima Mengikut Negeri, 1999



Rajah 1.2
Jabatan Alam Sekitar: Bilangan Laporan EIA Dan Jenis Laporan Diterima, 1998 - 1999



Rajah 1.3. Jabatan Alam Sekitar:
Bilangan Laporan EIA Yang Diterima Mengikut Aktiviti Bagi Tahun 1999

CALENDAR of EVENTS

Date	*Place*	*Events*
November		
6 -11	Kuala Lumpur	Kursus Sistem E-Kawalan Alam Sekitar (E-KAS)
7 – 9	Pulau Pinang	Kursus Kesedaran Kawalan Tumpahan Minyak dan Pembersihan Pantai Negeri Pulau Pinang
13 - 15	Kuala Lumpur	Kursus Asas Perisian ArcView GIS 2000
16 - 17	Kuala Lumpur	Kursus Penyiasatan dan Penguatkuasaan Pembakaran Terbuka (untuk Kementerian Kesihatan)
20 - 25	Kuala Lumpur	Training Course on Industrial Wastewater Engineering
December		
1	Kuala Lumpur	Mesyuarat Kumpulan Kerja Bersama JAS-SIRIM Bhd. Bil. 5
11-12	Kuala Lumpur	Mesyuarat Pengarah-Pengarah JAS Bil.3/2000