JABATAN ALAM SEKITAR
KEMENTERIAN SUMBER ASLI DAN ALAM SEKITAR MALAYSIA
Department of Environment
Ministry of Natural Resources and Environment Malaysia

2005

Laporan Tahunan

Annual Report

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56000 Kuala Lumpur.
Tel : 03-9133 2441
Faks : 03-9133 2445
Email : affmas@streamyx.com

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Abbreviations

Bank Pembangunan Asia	ADB	Asian Development Bank
Tahun Alam Sekitar ASEAN	AEY	ASEAN Environment Year
Akta Kualiti Alam Sekeliling	AKAS	Environmental Quality Act
Mesyuarat Menteri-Menteri ASEAN Mengenai Alam Sekitar	AMME	ASEAN Ministerial Meeting on the Environment
Pertubuhan Negera-Negara Asia Tenggara	ASEAN	Association of South East Asian Nations
Pegawai Kanan Alam Sekitar ASEAN	ASOEN	ASEAN Senior Officials on the Environment
Area Watch and Sanction Inspection	AWASI	Area Watch and Sanction Inspection
Buangan Terjadual	BT	Scheduled Wastes
Brunei - Indonesia - Malaysia - Filipina	BIMP	Brunei - Indonesia - Malaysia - Philippines
Keperluan Oksigen Biokimia	BOD	Biochemical Oxygen Demand
Bahan Pemusnah Ozon	BPO	Ozone Depleting Substances
Udara Bersih	CA	Clean Air
Pusat bagi Alam Sekitar, Teknologi dan Pembangunan Malaysia	CETDEM	Centre For Environment, Technology and Development Malaysia
Klorofluorokarbon	CFC	Chlorofluorocarbon
Majlis Industri Kimia Malaysia	CICM	Chemical Industries Council of Malaysia
Pusat Pengurusan Pantai	CMC	Coastal Management Centre
Badan Penyelaras Mengenai Laut Asia Timur	COBSEA	Co-ordinating Body for the Seas of East Asia
Keperluan Oksigen Kimia	COD	Chemical Oxygen Demand
Kelapa Sawit Mentah	CPO	Crude Palm Oil
Decibel	dB	Decibel(s)
Jabatan Alam Sekitar	DOE	Department of Environment
Sistem Pengurusan Dokumen	DOKUMAS	Document Management System
Kawasan Pertumbuhan ASEAN Timur	EAGA	East ASEAN Growth Area
Escherichia coli	*E. coli*	*Escherichia coli*
Zon Ekonomi Eksklusif	EEZ	Exclusive Economic Zone
Penilaian Kesan Kepada Alam Sekeliling	EIA	Environmental Impact Assessment
Persatuan Pelindungan Alam Sekitar Malaysia	EPSM	Environment Protection Society of Malaysia
Unit Perancang Ekonomi	EPU	Economic Planning Unit
Majlis Kualiti Alam Sekeliling	EQC	Environmental Quality Council
Laporan Kualiti Alam Sekeliling	EQR	Environmental Quality Report
Pesuruhjaya Ekonomi & Sosial Asia Pasifik	ESCAP	Economic & Social Commission for Asia and the Pacific
Institut Alam Sekitar Malaysia	EiMAS	Environment Institute of Malaysia
Ahli Mesyuarat Kerajaan Negeri	EXCO	Executive Councillors
Persatuan Pekilang-Pekilang Malaysia	FMM	Federation of Malaysian Manufacturers
Persekutuan Pertubuhan Pengguna-Pengguna Malaysia	FOMCA	Federation of Malaysian Consumers' Association
Institut Penyelidikan Hutan Malaysia	FRIM	Forest Research Institute of Malaysia
Gabungan Persatuan-Persatuan Perdagangan Getah Malaysia	FRTM	Federation of Rubber Trade Association of Malaysia
Kemudahan Alam Sekitar Global	GEF	Global Environment Facility
Sistem Maklumat Geografik	GIS	Geographical Information System

Abbreviations SINGKATAN

Hidro Klorofluorokarbon	HCFC	Hydro Chlorofluorocarbon
Pengurusan Zon Pantai Bersepadu	ICZM	Intergrated Coastal Zone Management
Unit Asap Hartridge	HSU	Hartridge Smoke Unit
Institut Diplomasi & Hal Ehwal Luar	IDHL	Institute of Diplomacy & Foreign Relations
Indeks Kualiti Air Negara	IKAN	National Water Quality Index
Organisasi Maritim Antarabangsa	IMO	International Maritime Organisation
Sistem Rujukan Antarabangsa untuk Sumber-Sumber Maklumat Mengenai Alam Sekitar	INFOTERRA	International Referral System for Sources of Environmental Information
Institut Tadbiran Awam Negara	INTAN	National Institute of Public Administration
Program Antarabangsa mengenai Keselamatan Bahan Kimia	IPCS	International Programme on Chemical Safety
Pendaftaran Antarabangsa bagi Bahan Kimia yang Berpotensi Berbahaya	IRPTC	International Register of Potentially Toxic Chemicals
Institut Kajian Strategik dan Antarabangsa	ISIS	Institute of Strategic and International Studies
Agensi Kerjasama Antarabangsa Jepun	JICA	Japan International Co-operation Agency
Jabatan Perkhidmatan Awam	JPA	Public Service Department
Jabatan Pengairan dan Saliran Malaysia	JPS	Department of Irrigation and Drainage Malaysia
Kementerian Sains, Teknologi dan Inovasi	MOSTI	Ministry of Science, Technology and Innovation
Kumbahan & Effluen-Effluen Perindustrian	KEEP	Sewage & Industrial Effluents
Kilang Kelapa Sawit Mentah	KKSM	Crude Palm Oil Mill
Kementerian Sains, Teknologi dan Inovasi	KSTAI	Ministry of Science, Technology and Innovation
Penyaman Udara Kenderaan	MAC	Mobile Air Conditioning
Pusat “Remote Sensing” Malaysia	MACRES	Malaysia Centre of Remote Sensing
Minggu Alam Sekitar Malaysia	MASM	Malaysia Environment Week
Menteri dan Ahli Majlis Mesyuarat Kerajaan Negeri yang Bertanggungjawab ke atas Alam Sekitar	MEXCOE	Ministers and State Executive Councillors Responsible for Environmental Matters
Dewan Perdagangan dan Industri Antarabangsa Malaysia	MICCI	Malaysian International Chamber of Commerce and Industry
Institut Penyelidikan Ekonomi Malaysia	MIER	Malaysian Institute of Economic Research
Institut Teknologi Nuklear Malaysia	MINT	Malaysian Institute of Nuclear Technology
Persatuan Pemasang Kenderaan Bermotor Malaysia	MMVAA	Malaysian Motor Vehicle Assemblers’ Association
Persatuan Pencinta Alam Malaysia	MNS	Malaysian Nature Society
Kementerian Perdagangan Antarabangsa dan Industri	MITI	Ministry of International Trade and Industry
Pertubuhan Kelapa Sawit Malaysia	MPOA	Malaysian Palm Oil Association
Kementerian Pertanian	MOA	Ministry of Agriculture
Kementerian Kesihatan	MOH	Ministry of Health
Kementerian Pembangunan Sumber Manusia	MOHR	Ministry of Human Resources
Kementerian Pengangkutan	MOT	Ministry of Transport
Memorandum Persefahaman	MOU	Memorandum of Understanding
Majlis Pengeluar-Pengeluar Getah Malaysia	MRPC	Malaysia Rubber Products Manufacturers’ Council
Jawatankuasa Bersama Malaysia - Singapura Mengenai Alam Sekitar	MSJCE	Malaysia - Singapore Joint Committee on the Environment
Pertubuhan Bukan Kerajaan	NGO	Non-Governmental Organisation

Abbreviations SINGKATAN

Kementerian Sumber Asli dan Alam Sekitar	NRE	Ministry of Natural Resources and Environment
Amoniakal Nitrogen	NH_3N	Ammoniacal Nitrogen
Pertubuhan Kerjasama Ekonomi dan Pembangunan	OECD	Organisation for Economic Co-operation and Development
Pertubuhan Kerjasama Alam Sekitar bagi Laut Asia Timur	PEMSEA	Partnership in Environmental Management for the Seas of East Asia
Kebenaran Maklumat Awal	PIC	Prior Informed Consent
Persatuan Pekilang-Pekilang Minyak Kelapa Sawit Malaysia	POMA	Palm Oil Millers' Association
Institut Penyelidikan Minyak Kelapa Sawit	PORIM	Palm Oil Research Institute of Malaysia
Ringgit Malaysia	RM	Ringgit Malaysia
Institut Penyelidikan Getah Malaysia	RRIM	Rubber Research Institute of Malaysia
Urusetia Konvensyen BASEL	SBC	Secretariat for BASEL Convention
Agensi Pembangunan Antarabangsa Sweden	SIDA	Swedish International Development Agency
Institut Standard dan Penyelidikan Industri Malaysia	SIRIM	Standards Industrial Research Institute of Malaysia
Udara Bersih	UB	Clean Air
Universiti Islam Antarabangsa	UIA	International Islamic University
Universiti Kebangsaan Malaysia	UKM	Universiti Kebangsaan Malaysia
Universiti Malaya	UM	Universiti Malaya
Persidangan Bangsa-Bangsa Bersatu Mengenai Alam Sekitar dan Pembangunan	UNCED	United Nations Conference on Environment and Development
Program Pembangunan Bangsa-Bangsa Bersatu	UNPD	United Nations Development Programme
Program Alam Sekitar Bangsa-Bangsa Bersatu	UNEP	United Nations Environment Programme
Universiti Tenaga Malaysia	UNITEN	Universiti Tenaga Malaysia
Unit Perancang Ekonomi	UPE	Economic Planning Unit
Universiti Putra Malaysia	UPM	Universiti Putra Malaysia
Universiti Sains Malaysia	USM	Universiti Sains Malaysia
Yang Berhormat	Y.B.	The Honourable
Polis Diraja Malaysia	PDRM	Royal Malaysian Police
Kompaun Organik Meruap	VOC	Volatile Organic Compound
Wilayah Kualiti Air	WQR	Water Quality Region

Foreword

Prakata

Dato' Hajah Rosnani Ibarahim
Ketua Pengarah / Director General
Kualiti Alam Sekeliling Malaysia /
Environmental Quality Malaysia

Laporan Tahunan 2005 Jabatan Alam Sekitar menggambarkan pencapaian Jabatan Alam Sekitar dalam mentadbir dan menguatkuasakan Akta Kualiti Alam Sekeliling 1974, serta pelaksanaan program-program lain yang menyokong pelaksanaan Akta tersebut.

Sepanjang tahun ini, Jabatan Alam Sekitar menempuhi beberapa cabaran, antara yang utama ialah episod jerebu pada bulan Ogos yang boleh dianggap lebih serius daripada kejadian jerebu tahun 1997. Episod jerebu kali ini juga berpunca daripada pencemaran merentasi sempadan. Kebakaran hutan dan ladang tanpa kawalan di kawasan beratus ribu hektar di negara jiran pada musim panas dan tatkala tiupan angin barat daya menyebabkan habuk-habuk halus (PM10) dibawa ke negara kita. Bagi menangani kejadian jerebu merentasi sempadan, usaha dalam bentuk kerjasama di peringkat dua hala, serantau dan antarabangsa perlu dipertingkatkan lagi.

Pendidikan dan kesedaran alam sekitar merupakan satu perkara penting untuk

The 2005 DOE Annual Report reflects the achievements of the Department of Environment in the administration and enforcement of the Environmental Quality Act 1974 and the implementation of other programs supporting the administration of the said Act.

In the course of the year, Department of Environment had to face several environmental challenges; the most significant was the haze pollution that affected many parts of the country in August which turned out to be much worse than that of 1997. The recurring haze episodes are also due to transboundary pollution. The uncontrolled land and forest fires in the thousands of hectares of land in the neighbouring country during the hot weather and the south-westerly winds resulted in the blowing of particulate matter (PM10) to our country. To overcome this, efforts in terms of bilateral, regional and international need to be further enhanced.

Environmental education and awareness is an important aspect to change the attitude

mengubah sikap di kalangan orang ramai dalam memulihara alam sekitar. Segala usaha yang dibuat termasuk menguatkuasakan undang-undang tidak akan memberikan hasil yang baik tanpa kerjasama orang ramai untuk bersama-sama menjaga alam sekitar. Pelbagai program inisiatif untuk memupuk kesedaran telah dilaksanakan. Pada tahun 2005, satu lagi program kesedaran alam sekitar diperkenalkan iaitu program Bandar Lestari-Anugerah Alam Sekitar. Adalah diharapkan melalui program ini bandar-bandar di seluruh negara akan terpanggil untuk berusaha bersungguh-sungguh meningkatkan mutu alam sekitar bandar masing-masing. Usaha ini penting memandangkan kini bandar menjadi semakin popular sebagai tempat penghijrahan bagi penduduk dari luar bandar dan sekiranya perhatian teliti tidak diberi untuk menjaga alam persekitaran bandar ianya akan dibebani dengan pelbagai masalah pencemaran.

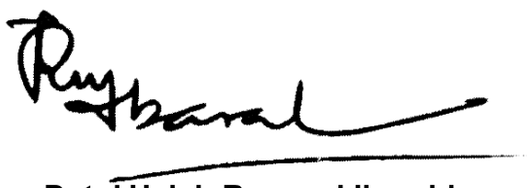
of the public in preserving the environment. All efforts including law enforcement will not be effective without the participation of the public as a whole in taking care of the environment. Various awareness initiatives had been implemented. The most notable in 2005 was the introduction of Sustainable City – Environment Award. Through this initiative, it is hoped that all local authorities will put in their concerted efforts to improve the quality of the living environment.
This effort is vital since cities nowadays have become more popular as a migrating spot for residents from rural areas and if lack of attention is given to preserve the city, it will lead to various pollution problems.

Kejayaan memulihara alam sekitar memerlukan kerjasama padu dari pelbagai pihak lebih-lebih lagi orang ramai. Penguatkuasaan undang-undang semata-mata tidak menjamin kualiti alam sekitar yang berterusan baik. Generasi muda harus dididik demi masa depan alam sekitar negara yang lebih bermutu tinggi.

The success of environmental preservation needs strong cooperation from various parties especially the public. Law enforcement alone will not guarantee a continuous good quality environment. The young generation has to be educated for bringing about a better environment for the nation in the future.

Pemuliharaan Alam Sekitar, Tanggungjawab Bersama
Environmental Conservation, Our Shared Responsibility

Salam Sejahtera / With Best Wishes



Dato' Hajah Rosnani Ibarahim
Ketua Pengarah Kualiti Alam Sekeliling Malaysia
Director General Environmental Quality Malaysia

Visi / Vision

Memastikan keunikan, kepelbagaian dan kualiti alam sekitar dikekalkan bagi menjamin kesihatan, kesejahteraan, keselamatan dan keselesaan hidup rakyat masa kini dan masa akan datang.

That the uniqueness, diversity and quality of the environment are conserved towards maintaining health, prosperity, security and well-being for the present and the future.

Misi / Mission

Menggalakkan, meningkatkan dan mengekalkan pengurusan alam sekitar yang baik dalam proses pembangunan negara.

To promote, ensure and sustain sound environmental management in the process of nation building.

Strategi / Strategies

Pembangunan Lestari melalui Pemuliharaan Sumber Semulajadi
Sustainable Development through Conservation of Resources

Integrasi Faktor Alam Sekitar dalam Perancangan Pembangunan
Integration of Environmental Factors in Development Planning

Pencegahan dan Kawalan Pencemaran
Pollution Prevention and Control

Promosi Pendidikan dan Kesedaran Alam Sekitar
Promotion of Environmental Education and Awareness

Kerjasama antara Agensi dan Persekutuan Negeri
Inter-Agency and Federal-State Cooperation

Penyertaan Awam dalam Pengurusan Alam Sekitar
Public Participation in Environmental Management

Kerjasama dan Hubungan Dua Hala, Serantau dan Antarabangsa
Bilateral, Regional and International Cooperation

Bab 1

Jabatan Alam Sekitar Department of Environment

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Chapter 1

Majlis Kualiti Alam Sekeliling (EQC) 2005
Environmental Quality Council (EQC) 2005

Dalam tahun 2005, Majlis Kualiti Alam Sekeliling (MKAS) telah bermesyuarat sebanyak empat kali:

- Mesyuarat Bilangan Ke 91 pada 8 Mac 2005
- Mesyuarat Bilangan Ke 92 pada 3 Mei 2005
- Mesyuarat Bilangan ke 93 pada 5 September 2005
- Mesyuarat Bilangan ke 94 pada 20 Disember 2005

Tiga mesyuarat tersebut telah diadakan di Ibu Pejabat Jabatan Alam Sekitar, Putrajaya, kecuali Mesyuarat ke 93 yang telah diadakan di Johor Bahru. Majlis juga telah mengunjungi Y. B. Menteri Sumber Asli dan Alam Sekitar pada 13 Julai 2005 di Jabatan Alam Sekitar, Putrajaya.

Keempat-empat Mesyuarat MKAS ini telah dipengerusikan oleh Y. Bhg. Dato' Kok Wee Kiat. Encik Wan Alwi Bin Dato' Seri Wan Hashim telah dilantik mewakili Kerajaan Negeri Sarawak menggantikan Y. Bhg. Datu Hamzah Bin Haji Drahman yang telah bersara. Puan Halmiza Bt. Md. Halil pula telah menggantikan Encik Foo Tew Nam untuk mewakili Ketua Setiausaha Kementerian Pertanian dan Industri Asas Tani. MKAS merakamkan penghargaan kepada semua yang bersara atas sumbangan mereka (LAMPIRAN 1).

Antara perkara yang dibawa kepada perhatian MKAS dalam tahun 2005 adalah:-

1. Kertas EQC Bil.1/91/2005 (Jabatan Alam Sekitar)
   - Pindaan kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan Dan Effluen-Effluen Perindustrian), 1979

2. Kertas Makluman EQC Bil. 2/91/2005 (Jabatan Alam Sekitar)
   - Projek-Projek JAS Di Bawah Rancangan Malaysia Ke 9

3. Kertas EQC Bil. 1/92/2005 (Jabatan Alam Sekitar)
   - Pindaan Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan) (Penilaian Kesan Ke Atas Alam Sekitar), 1987

The Environmental Quality Council (EQC) met four times in 2005:-

- 91st Meeting on 8 March 2005
- 92nd Meeting on 3 May 2005
- 93rd Meeting on 5 September 2005

- 94th Meeting on 20 December 2005

Three meetings were held at the Department of Environment Head Office in Putrajaya, while the 93rd Meeting was held at Johor Bahru. The Council also met the Minister of Natural Resources and Environment on the 13 July 2005 at the Department of Environment.

Y.Bhg Dato' Kok Wee Kiat chaired all four EQC meetings. Y.Bhg, Datu Hamzah Bin Haji Drahman retired and was replaced by Mr. Wan Alwi Bin Dato' Seri Wan Hashim as the representative of the Government of Sarawak. Puan Halmiza Bt. Md. Halil replaced Mr. Foo Tew Nam as representative of the Secretary-General of the Ministry of Agriculture and Agro-based Industries. The Council placed on record its appreciations to the past council members for their invaluable contributions to EQC (APPENDIX 1).

Among the matters brought to the attention of EQC in 2005 were :-

1. EQC Paper No. 1/91/2005 (Department of Environment)
   - Amendments to the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979

2. EQC Information Paper No. 2/91/2005 (Department of Environment)
   - DOE Projects Under the 9th Malaysian Plan

3. EQC Paper No. 1/92/2005 (Department of Environment)
   - Amendments to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order, 1987

4. Sambungan Kertas EQC Bil. 1/91/2005 (Jabatan Alam Sekitar)
   - Pindaan kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan Dan Effluen-Effluen Perindustrian), 1979

5. Kertas Makluman EQC Bil. 2/92/2005 (Jabatan Alam Sekitar)
   - Projek-Projek JAS Di Bawah Rancangan Malaysia Ke-9

6. Sambungan Kertas EQC Bil. 1/91/2005 (Jabatan Alam Sekitar)
   - Pindaan kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan Dan Effluen-Effluen Perindustrian), 1979

7. Kertas Makluman EQC Bil. 1/93/2005 (Jabatan Alam Sekitar)
   - Information Paper on Land Reclamation by Singapore in and around the Straits of Johor

8. Kertas EQC Bil. 1/94/2005 (Jabatan Alam Sekitar)
   - Program "Malaysian Environmental Compliance Rating for Industries" (MECRI)

9. Kertas EQC Bil. 2/94/2005 (Jabatan Alam Sekitar)
   - Cadangan Peraturan-Peraturan Kualiti Alam Sekeliling (Audit Alam Sekeliling)

4. Continuation of EQC Paper No. 1/91/2005 (Department of Environment)
   - Amendments to the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979

5. EQC Information Paper No. 2/92/2005 (Department of Environment)
   - DOE Projects under the 9th Malaysian Plan

6. Continuation of EQC Paper No. 1/91/2005 (Department of Environment)
   - Amendments to Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979

7. EQC Information Paper No. 1/93/2005 (Department of Environment)
   - Information Paper on Land Reclamation by Singapore in and around the Straits of Johor

8. EQC Paper No. 1/94/2005 (Department of Environment)
   - Programme on Malaysian Environmental Compliance Rating for Industries (MECRI)

9. EQC Paper No. 2/94/2005 (Department of Environment)
   - Proposed Environmental Quality (Environmental Audit) Regulations

LAMPIRAN 1 / APPENDIX

Bil.	**Majlis Kualiti Alam Sekeliling 2005** / Environmental Quality Council 2005	
1.	Pengerusi Chairman	Dato' Kok Wee Kiat
2.	Ketua Setiausaha Kementerian Sumber Asli dan Alam Sekitar Secretary-General, Ministry of Natural Resources and Environment	Datuk Dr. Isahak B. Yeop Mohamad Shar
3.	Ketua Setiausaha Kementerian Perdagangan Antarabangsa dan Industri Secretary-General, Ministry of Trade & Industry	Dr. Ibrahim Abu Ahmad (wakil / *representative*)
4.	Ketua Setiausaha Kementerian Perdagangan Dalam Negeri dan Hal Ehwal Pengguna Secretary-General, Ministry of Domestic Trade & Consumers Affairs	Puan Indon Binti Mohd Rashid (wakil / *representative*)
5.	Ketua Setiausaha Kementerian Pertanian dan Industri Asas Tani Secretary-General, Ministry of Agriculture dan Agro-Base Industries	Puan Halmiza Bt. Md. Halil (wakil / *representative*)
6.	Ketua Setiausaha Kementerian Sumber Manusia Secretary-General, Ministry of Human Resources	Tuan Haji Mohamad Bin Jamil (wakil / *representative*)
7.	Ketua Setiausaha Kementerian Pengangkutan Secretary-General, Ministry of Transport	Tuan Haji Zakaria Bin Bahari (wakil / *representative*)
8.	Ketua Pengarah Kementerian Kesihatan Malaysia Director General, Ministry of Health	Datuk Ir. Dr. Mukundan Sugunan Pillay (wakil / *representative*)
9.	Wakil Kerajaan Negeri Sabah Representative from the Sabah State Government	Datuk Monica Chia Mui Foong
10.	Wakil Kerajaan Negeri Sarawak Representative from the Sarawak State Government	Encik Wan Alwi Bin Dato' Seri Wan Hashim
11.	Wakil Industri Petroleum Representative from the Petroleum Industry	Encik Iqbal B. Abdullah
12.	Wakil Industri Kelapa Sawit Representative from the Oil Palm Industry	Encik Teo Leng
13.	Wakil Persekutuan Pekilang-Pekilang Malaysia Representative from the Federation of Malaysian Manufacturers	Tan Sri Datuk Clifford Francis Herbert
14.	Wakil Industri Getah Representative from the Rubber Industry	Encik Lim Sum Teck

Bil.	**Majlis Kualiti Alam Sekeliling 2005** / Environmental Quality Council 2005	
15.	Wakil Kakitangan Akademik, Universiti dan Kolej Representative from the Academic Staff of Universities / Colleges in Malaysia	Prof. Dr. Muhamad Bin Awang
16.	Wakil Pertubuhan Yang Berpengalaman Mengenai Alam Sekitar Representative from registered Societies knowledgeable and having interest in matters pertaining to the environment	Dato' Dr. Salleh Bin Mohd. Nor
17.	Wakil Pertubuhan Yang Berpengalaman Berhubung Alam Sekitar Representative from registered Societies knowledgeable and having interests in matters pertaining to the environment	Ir. Gurmit Singh K.S.

Gambarfoto 1.1 JAS: Mesyuarat Majlis Kualiti Alam Sekeliling kali ke-93, 5 September 2005 Johor Bahru.
Photo 1.1 DOE: 93rd Environmental Quality Council Meeting, 5 September 2005, Johor Bahru.

Bab 2

Jabatan Alam Sekitar Department of Environment

Laporan Tahunan 2005 Annual Report

Chapter 2

Pengurusan Sumber Manusia Dan Kewangan
Human Resources and Financial Management

Sumber Manusia

Sehingga 31 Disember 2005, jumlah tenaga kerja di Ibu Pejabat JAS, Putrajaya adalah seramai 313 orang berbanding 286 pada tahun 2004, manakala jumlah tenaga kerja di Pejabat-Pejabat Negeri dan Cawangan pula bertambah ke 1,108 orang berbanding 856 pada tahun 2004, menjadikan jumlah tenaga kerja JAS secara keseluruhannya seramai 1,421 orang (Rajah 2.1).

Dari jumlah ini, 288 orang (20.3%) pekerja adalah dari Kumpulan Pengurusan & Profesional, 896 orang (63.0%) dalam Kumpulan Sokongan I dan 237 orang (16.7%) dalam Kumpulan Sokongan II (Rajah 2.2 dan Rajah 2.3).

Semua kakitangan baru dikehendaki menghadiri kursus-kursus induksi di Institut Alam Sekitar Malaysia serta menyertai kursus-kursus latihan spesifik yang dianjurkan secara tetap.

Peruntukan Kewangan dan Perbelanjaan

JAS menerima peruntukan sebanyak RM110,108,690.00 bagi tahun 2005. Daripada jumlah tersebut RM92,856,510.00 (84.4%) adalah peruntukan untuk perbelanjaan mengurus sementara baki RM17,252,180.00 (15.6%) merupakan peruntukan perbelanjaan pembangunan. Prestasi perbelanjaan mengurus dan pembangunan bagi tahun 2005 masing-masing pada tahap 97.7% dan 95.7% (Rajah 2.4 dan Rajah 2.5).

Human Resources

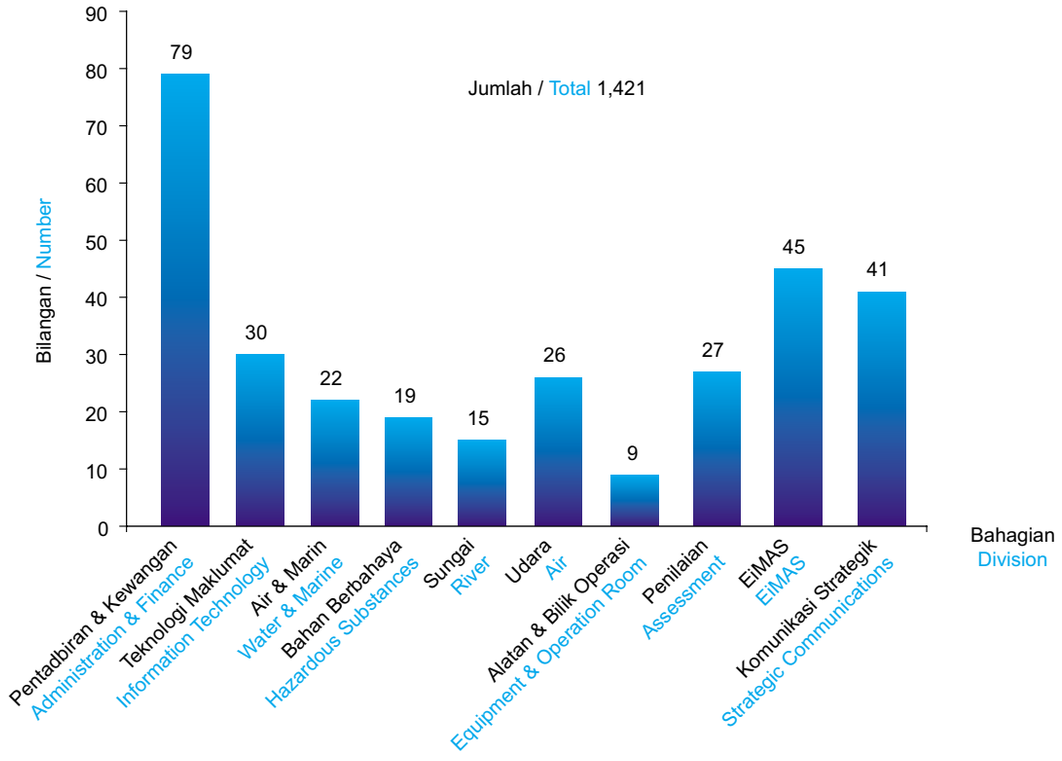
As of 31 December 2005, the number of personnel at the DOE Head Office in Putrajaya totalled 313, compared to 286 in 2004 and the number of personnel at State & Branch DOE Offices increased to 1108 compared to 856 in 2004, bringing the overall total to 1,421 (Figure 2.1).

Of this total, 288 (20.3%) were in the Management & Professional Group; 896 (63.0%) in the Support I Group and 237 (16.7%) in the Support II Group (Figures 2.2 and 2.3).

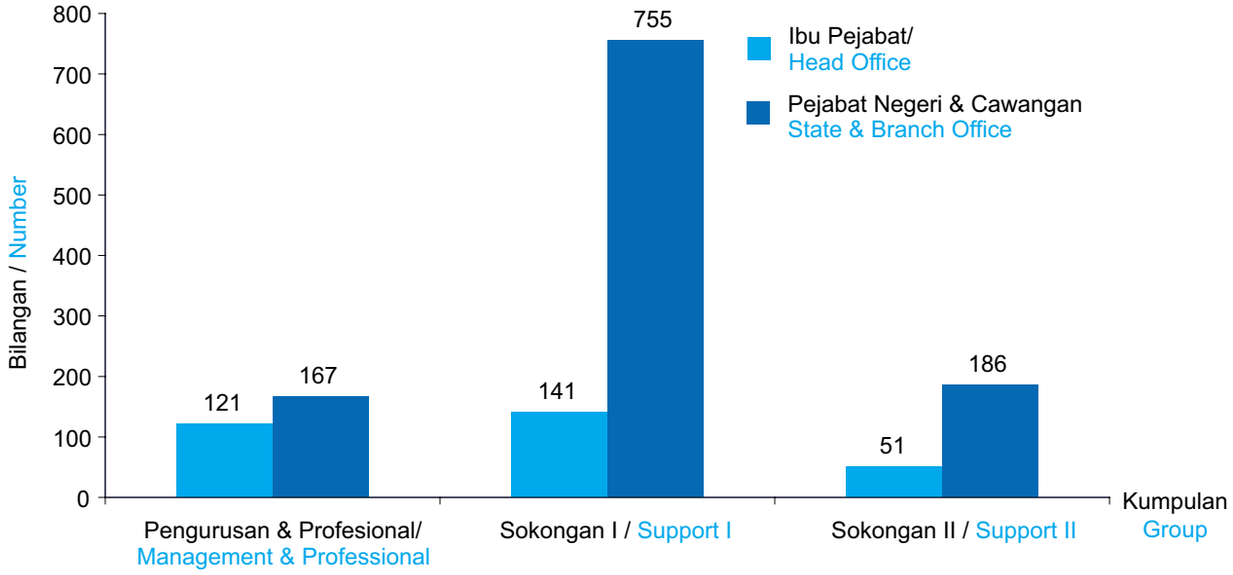
All new staff were required to undergo induction courses at the Environment Institute of Malaysia as well as regular specific training courses.

Allocation and Expenditure

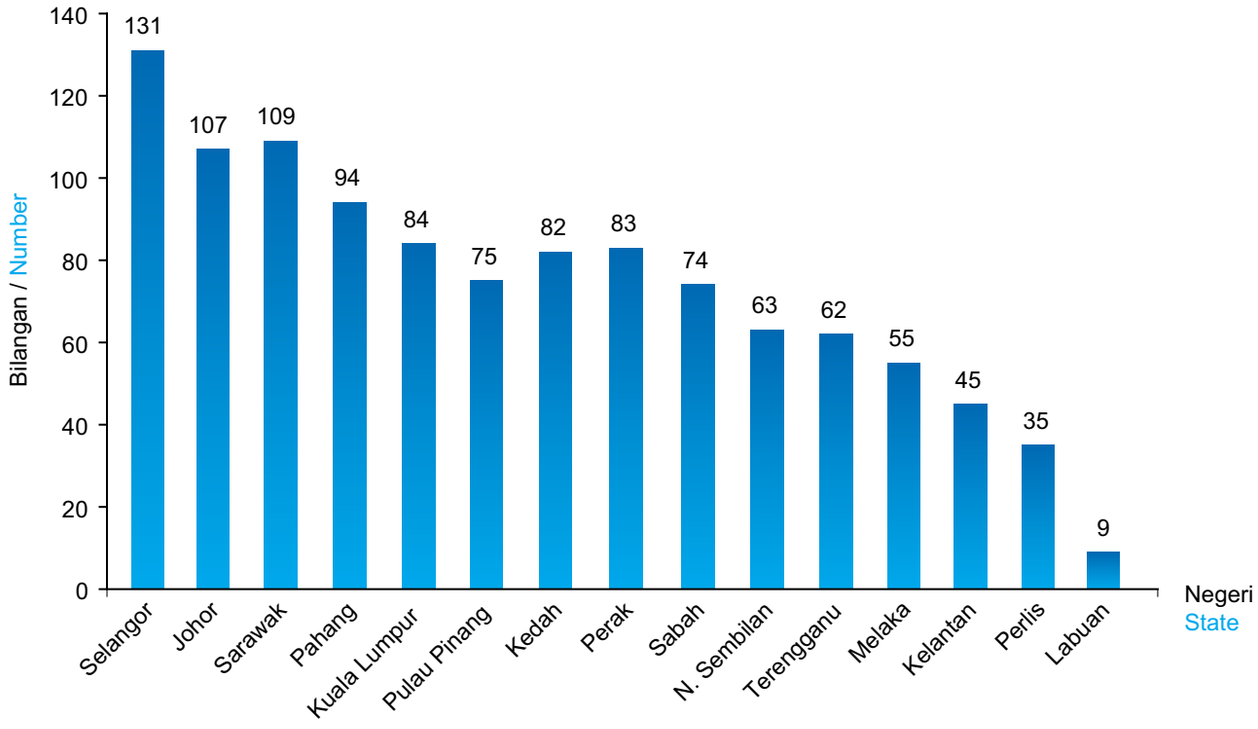
DOE received a total budget allocation of RM110,108,690.00 for 2005. From this amount, a sum of RM92,856,510.00 (84.4%) was allocated for operational expenditure, while RM17,252,180.00 (15.6%) was for development projects. Expenditure performance for the operational and development budgets was 97.7% and 95.7% respectively (Figures 2.4 and 2.5).



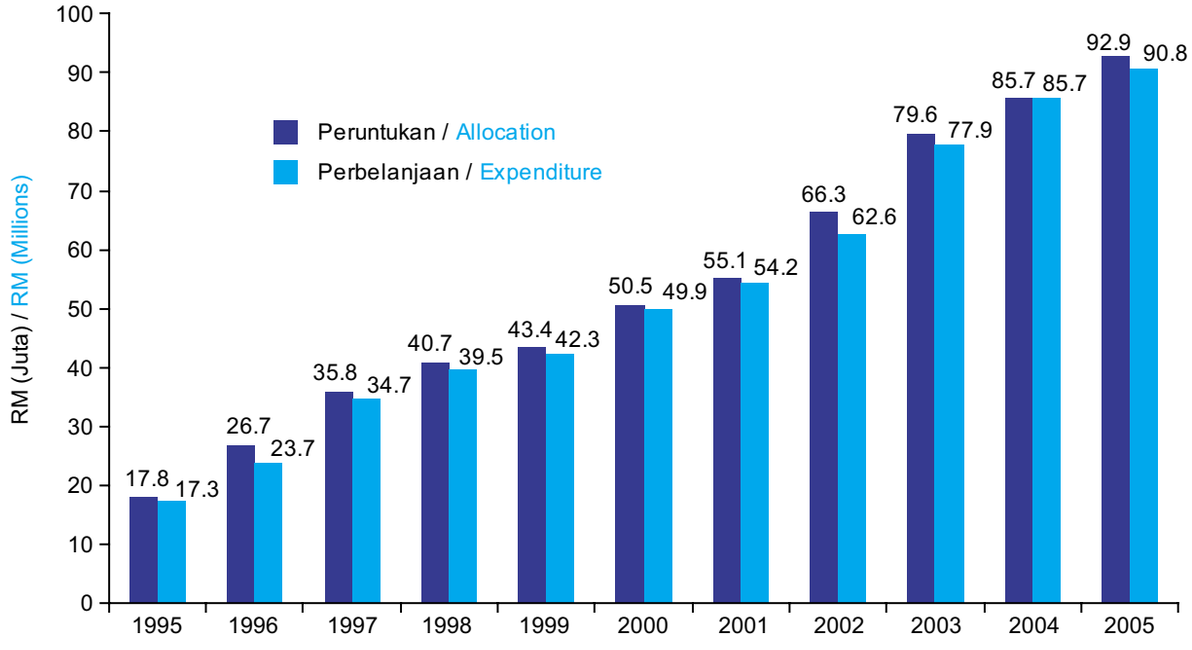
Rajah 2.1 JAS: Taburan Tenaga Kerja di Ibu Pejabat JAS, 2005
Figure 2.1 DOE: Manpower Distribution at the DOE Head Office, 2005



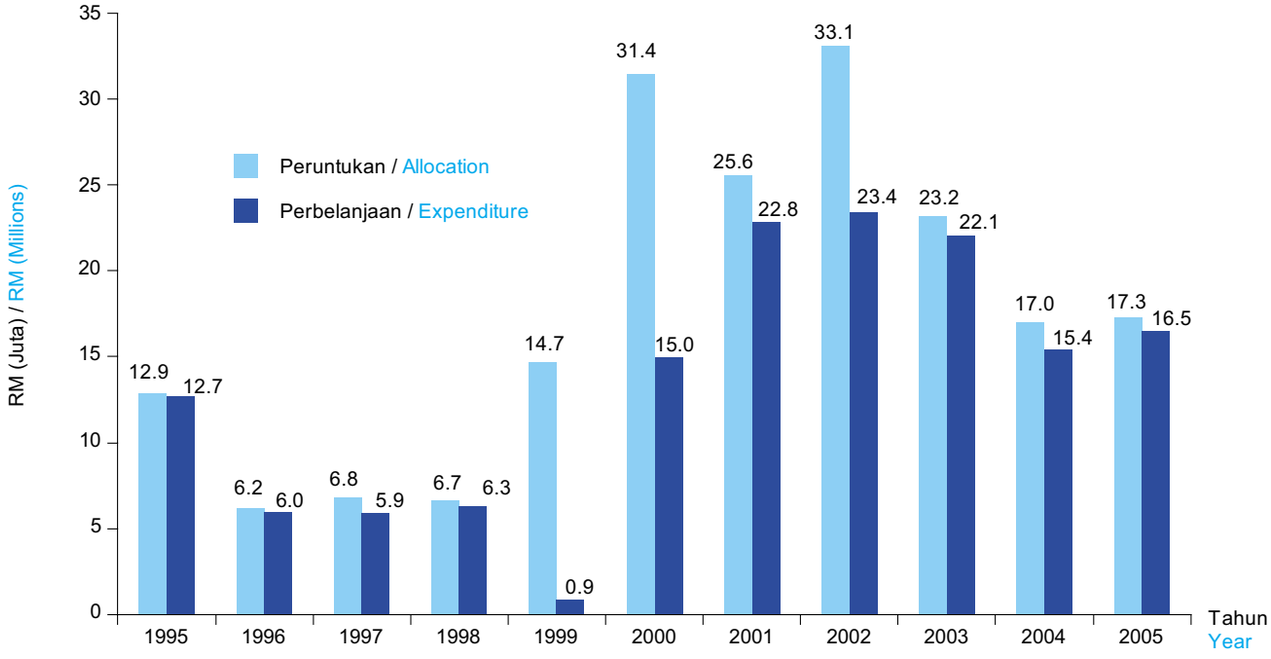
Rajah 2.2 JAS: Pecahan Tenaga Kerja Mengikut Kumpulan, 2005
Figure 2.2 DOE: Manpower Distribution by Group, 2005



Rajah 2.3 JAS: Pecahan Tenaga Kerja Mengikut Negeri, 2005
Figure 2.3 DOE: Manpower Distribution by State, 2005



Rajah 2.4 JAS: Peruntukan dan Perbelanjaan (Mengurus), 1995-2005
Figure 2.4 DOE: Allocation and Expenditure (Operational), 1995-2005



Rajah 2.5 JAS: Peruntukan dan Perbelanjaan (Pembangunan), 1995-2005
Figure 2.5 DOE: Allocation and Expenditure (Development), 1995-2005

Bab 3

Jabatan Alam Sekitar Department of Environment

Laporan Tahunan 2005 Annual Report

Chapter 3

Penilaian Kesan Kepada Alam Sekeliling dan Input kepada Perancangan Pembangunan
Environmental Impact Assessment and Input for Development

Penilaian Kesan Kepada Alam Sekeliling (EIA) merupakan satu alat perancangan untuk mengelakkan dan mengurangkan masalah-masalah akibat tindakan pembangunan. Ianya juga dapat mengelakkan kesilapan dan kerugian besar semasa projek dilaksanakan serta dapat meminimumkan kos projek.

Environmental Impact Assessment (EIA) is essentially a planning tool for preventing environmental problems due to a development activity. It also seeks to avoid costly mistakes in project implementation as well as minimizing project cost.

Di Malaysia, EIA digunakan sebagai alat untuk menggabungkan pertimbangan alam sekitar di dalam perancangan, yang mana apabila disepadukan dalam perancangan sedia ada dan proses membuat keputusan akan memberi maklumat tambahan untuk membuat keputusan yang lebih baik.

In Malaysia, EIA is used as a tool to incorporate environmental considerations into project planning which when integrated into existing planning and decision-making processes provides additional information for better decision-making.

Laporan EIA 2005

Sebanyak 204 laporan telah diterima pada tahun 2005. Daripada jumlah ini, 184 laporan adalah untuk penilaian awal EIA dan 20 laporan adalah untuk penilaian termasuk analisis risiko terperinci (Rajah 3.1 dan Rajah 3.2). Negeri Selangor menerima bilangan laporan EIA tertinggi pada tahun 2005 diikuti dengan Negeri Johor (Rajah 3.3, 3.4 dan 3.5).

EIA Reports 2005

A total of 204 reports were received in 2005. Of these, 184 were preliminary EIA and 18 detailed EIA including risk analysis. (Figure 3.1 and 3.2). Selangor received the highest number of EIA reports in 2005, followed by Johor (Figure 3.3, 3.4 and 3.5).

Lawatan Penguatkuasaan Projek EIA

Sejumlah 1,345 lawatan penguatkuasaan telah dijalankan pada tahun 2005 untuk mengenalpasti status perlaksanaan dan pematuhan syarat-syarat EIA. Berdasarkan lawatan-lawatan tersebut sebanyak 418 notis atau surat arahan dan sebanyak 94 kompaun telah dikeluarkan, manakala 18 kes telah didakwa di mahkamah kerana tidak mematuhi syarat-syarat kelulusan (Rajah 3.6).

EIA Enforcement Visits

A total of 1,345 enforcement visits were conducted in 2005 to check on the progress of projects and compliance of EIA approval conditions. Consequently, 418 notices or written directives and 94 compounds were issued and 18 cases were brought to court for non-compliance (Figure 3.6).

Input Alam Sekitar Kepada Perancangan Pembangunan

Pada tahun 2005, sejumlah 80 input alam sekitar telah dikemukakan berkaitan Penyelarasan Perancangan Pembangunan, Kajian Pelan Spatial Kebangsaan, Polisi Zon Persisiran Pantai Kebangsaan, Pelan Tempatan dan kajian-kajian lain seperti langkah-langkah kawalan banjir, air bawah tanah, permonitoran pulau-pulau dan aktiviti-aktiviti tanah tinggi.

Environmental Input For Development Planning

In 2005, a total of 80 environmental inputs were provided to other agencies regarding Development Planning, National Spatial Plan Study, National Coastal Zone Policy, Local Plans and other studies regarding flood-mitigating measures, ground water island monitoring and highland development activities.

Pendaftaran Perunding EIA

Pada tahun 2005, sebanyak 29 permohonan individu dan 15 permohonan firma jururunding diterima untuk pendaftaran sebagai perunding EIA. Daripada permohonan tersebut, 13 individu dan 4 firma telah diluluskan untuk pendaftaran. Semenjak skim pendaftaran ini diperkenalkan pada tahun 1991 hingga 2005, sebanyak 330 perunding individu dan 85 firma perunding EIA telah didaftarkan.

Penilaian Awal Tapak

Bagi projek-projek pembangunan yang tidak termaktub di bawah Perintah-Perintah Kualiti Alam Sekeliling (Aktiviti Yang Ditetapkan)(Penilaian Kesan Kepada Alam Sekeliling), 1987, Penilaian Awal Tapak (PAT) dijalankan untuk menentukan kesesuaian tapak projek yang dicadangkan. Proses PAT membantu mengenalpasti isu-isu yang boleh timbul pada masa hadapan dan pemantauan ke atas sesuatu projek.

Pada tahun 2005, sejumlah 6,781 permohonan telah diterima. Negeri Johor mencatat permohonan PAT (2732) paling tinggi (Rajah 3.7). Permohonan-permohonan ini dirujukkan kepada Jabatan Alam Sekitar oleh Pihak Berkuasa Tempatan dan Pejabat Tanah. Input alam sekitar dikemukakan bagi membantu di dalam membuat keputusan.

Kebenaran Dan Kelulusan Bertulis

Di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Effluen Perindustrian), 1979 dan Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih), 1978 menetapkan bahawa kebenaran dan kelulusan bertulis daripada Ketua (Pengarah Alam Sekitar KPAS) diperolehi sebelum loji rawatan pengolahan effluen dan alat kawalan pencemaran udara dibina. Pada tahun 2005, Jabatan Alam Sekitar telah menerima 522 permohonan bagi pembinaan loji pengolahan effluen (Rajah 3.8) dan 764 permohonan bagi pemasangan alat kawalan pencemaran udara (Rajah 3.9). Selain daripada peralatan kawalan pencemaran, Jabatan Alam Sekitar juga telah menerima 1271 permohonan bagi kelulusan bertulis untuk pemasangan alat pembakaran bahan api seperti dandang dan alat janakuasa (Rajah 3.10).

Registration Of EIA Consultants

In 2005, 29 new applications from individuals and 15 applications from consultancy firms were received for registration as EIA consultants. Out of these, 13 individuals and 4 consultancy firms were approved for registration. Since the registration scheme was introduced in 1991, by the end of 2005, 330 consultants and 85 consultancy forms had been registered.

Pre-siting Evaluation

Where development projects were not subjected to the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987, pre-siting evaluations of proposed site suitability were carried out. This would help to identify issues that could arise in the future besides complementing project monitoring.

In 2005, a total of 6,781 such applications were received. Johor recorded the highest number (2,732) (Figure 3.7). These applications were mainly referred by Local Authorities and Land Offices. Environmental inputs were given to facilitate decision making.

Written Permission And Approval

Under the Environmental Quality (Sewage and Industrial Effluents) Regulations 1979 and the Environmental Quality (Clean Air) Regulations 1978, written permissions and approvals from the Director-General of Environment are required before construction of wastewater treatment plants and installation of air pollution control systems. In 2005, 522 applications were received for construction of effluent treatment plants (Figure 3.8) and 764 applications for installation of air pollution control equipment (Figure 3.9). In addition 1271 applications for written approvals for installation of fuel burning equipment such as boilers and generator sets were also processed (Figure 3.10).

Seksyen GIS Bahagian Penilaian

Teknologi GIS untuk pengurusan alam sekitar telah dimanfaatkan sepenuhnya oleh Jabatan Alam Sekitar.

Pada tahun 2005, sistem "*Mobile*" GIS telah dilaksanakan untuk mencerap data spatial di lapangan melalui penggunaan GPS dan komputer poket dengan perisian yang bersesuaian dan seterusnya dimuat naik dalam pangkalan data. Dengan adanya data yang telah dikemaskini kerja-kerja yang lebih berkesan dapat dilakukan.

Latihan *"Hands-on"* GIS telah dijalankan untuk pegawai-pegawai JAS Negeri iaitu Perlis, Negeri Sembilan, Pahang, Johor dan Kedah pada bulan Jun dan Julai 2005.

Selain dari itu, maklumat lokasi titik panas (*hotspot*) dibekalkan setiap hari bagi tujuan pemantauan pembakaran terbuka. Input yang berkaitan dengan maklumat spatial yang diperlukan oleh pegawai-pegawai di Ibu Pejabat, Negeri dan Cawangan atau agensi luar juga diberikan.

Pusat Khidmat Nasihat JAS di MIDA

Pusat Khidmat Nasihat JAS di MIDA memberi penerangan dan maklumat serta nasihat kepada bakal pelabur dari dalam dan luar negara mengenai keperluan alam sekitar di dalam pembangunan projek industri.

Dalam tahun 2005, sebanyak 110 ulasan bertulis, 30 pertanyaan melalui telefon dan 15 bilangan temujanji telah diterima. Kebanyakan pertanyaan yang diterima adalah berhubung-kait dengan kesesuaian kedudukan tapak premis, zon penampan, kepakaran perunding alam sekitar dan polisi kerajaan mengenai sisa buangan.

GIS Section Assessment Division

The GIS technology for environmental management is fully utilised by the Department of Environment.

In 2005, the Mobile GIS system was implemented which allowed spatial data captured on-site with GPS and pocket computer equipped with suitable software to be uploaded and updated into the database system. With the updated data more effective work could be conducted.

GIS hands-on training was conducted in June and July 2005 for DOE Offices from Perlis, Negeri Sembilan, Pahang, Johor dan Kedah.

Information on hotspots location was provided daily for the monitoring of open burning. Input relating to spatial information required by officers at the Head Office, State and Branch offices or external agencies were also provided.

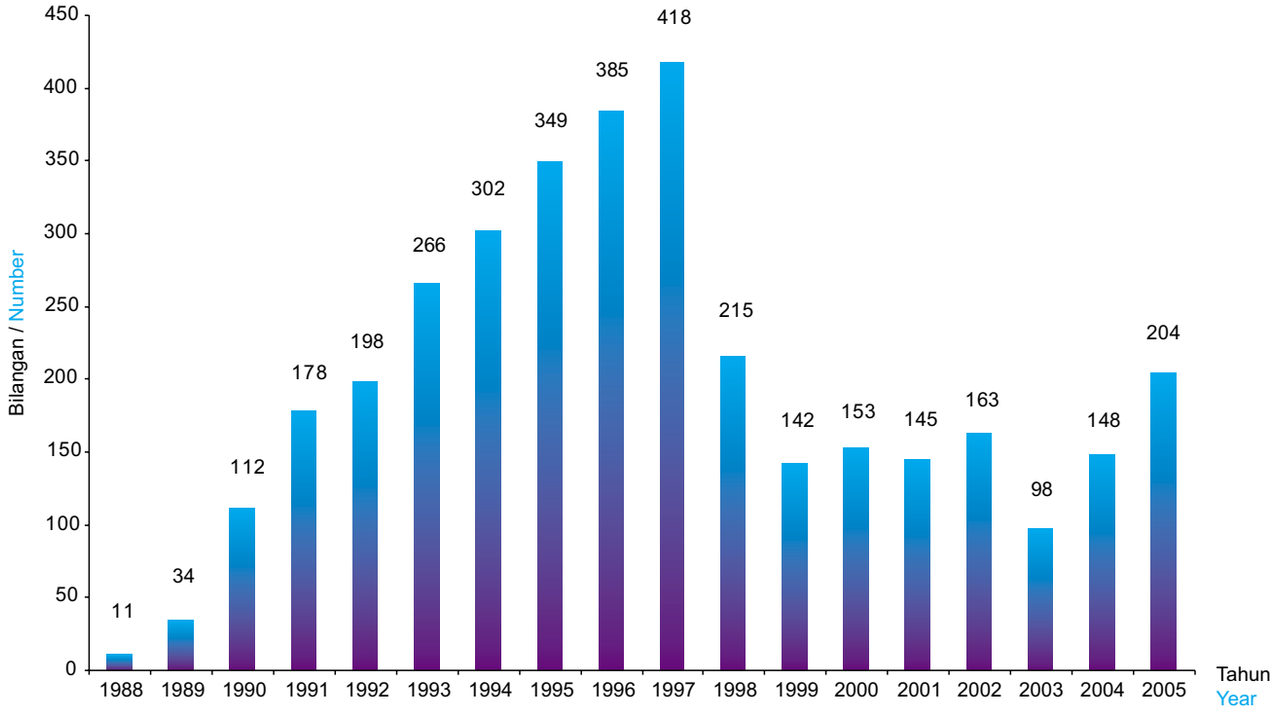
DOE Advisory Services Desk at MIDA

The DOE Advisory Services Desk at the Head Office of the Malaysian Industrial Development Authority (MIDA) has been set up to provide environmental information and advice to prospective local and foreign investors.

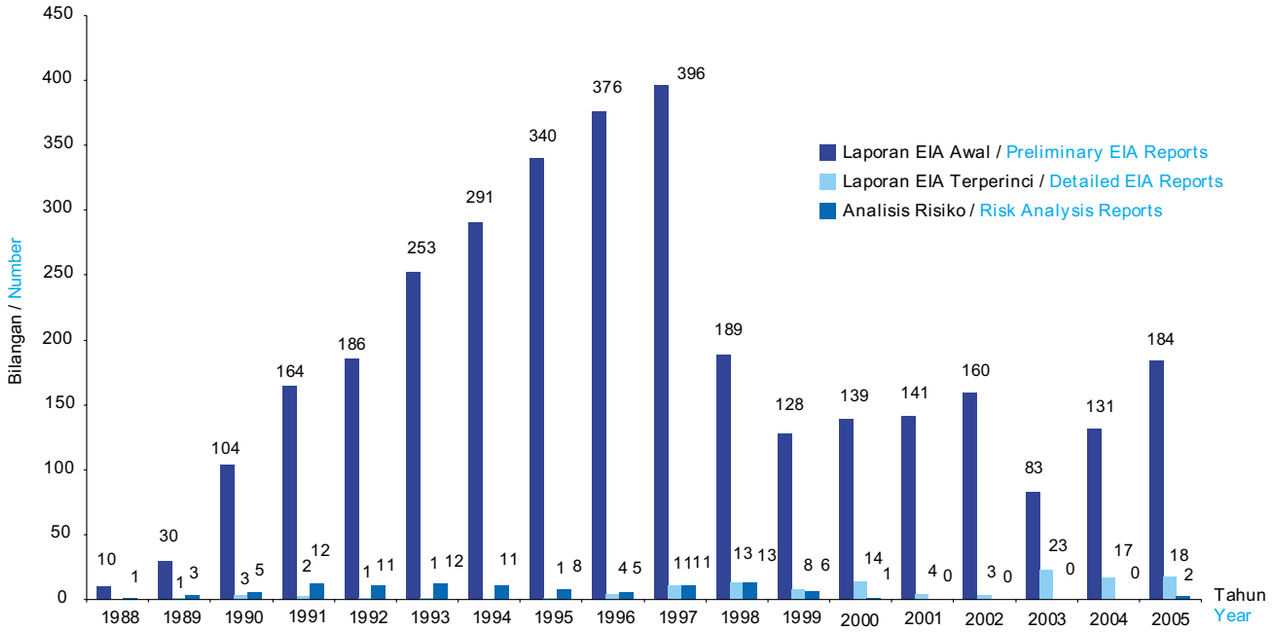
In 2005, 110 written enquiries were received by MIDA, 30 telephone enquiries were attended to and 15 meetings with investors were held. Most of the enquiries received pertained to project site suitability, buffer zones, expertise of environmental consultants and government policy on waste management.

Gambarfoto 3.1 JAS: Pemantauan Udara Ke atas Tapak Pembinaan
Photo 3.1 DOE: Aerial Monitoring of Project Site

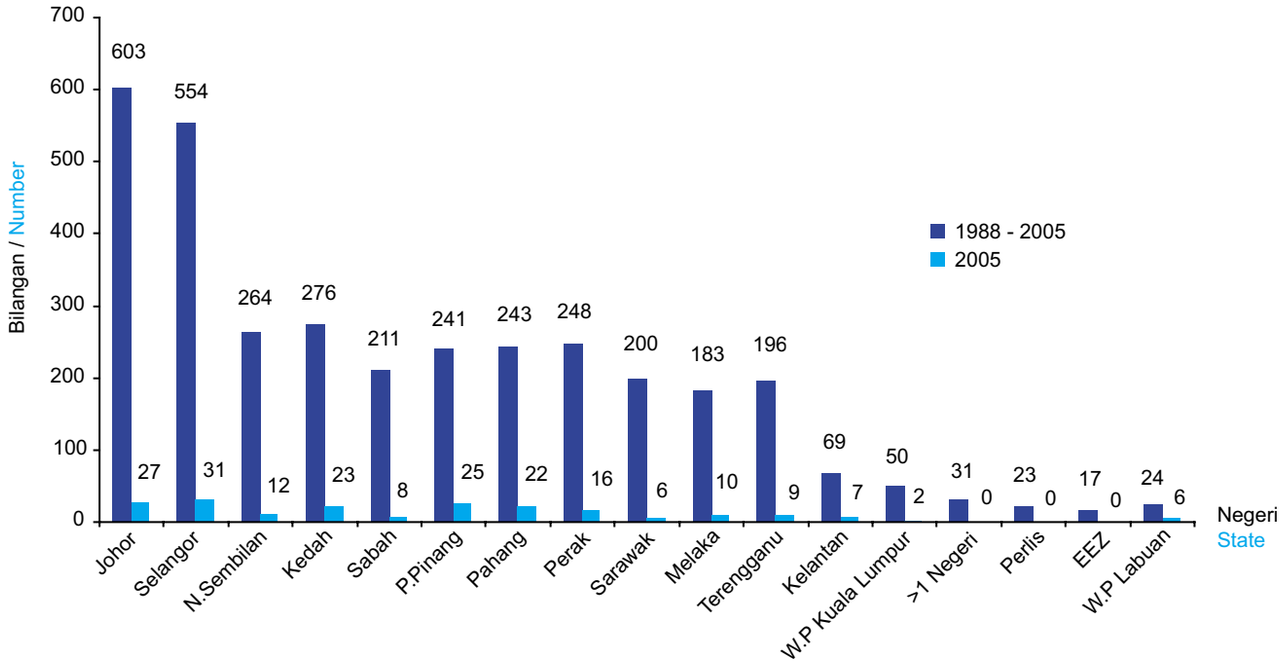
Gambarfoto 3.2 JAS: Lawatan Penguatkuasaan ke Tapak Pembinaan
Photo 3.2 DOE: Enforcement Visit to Project Site



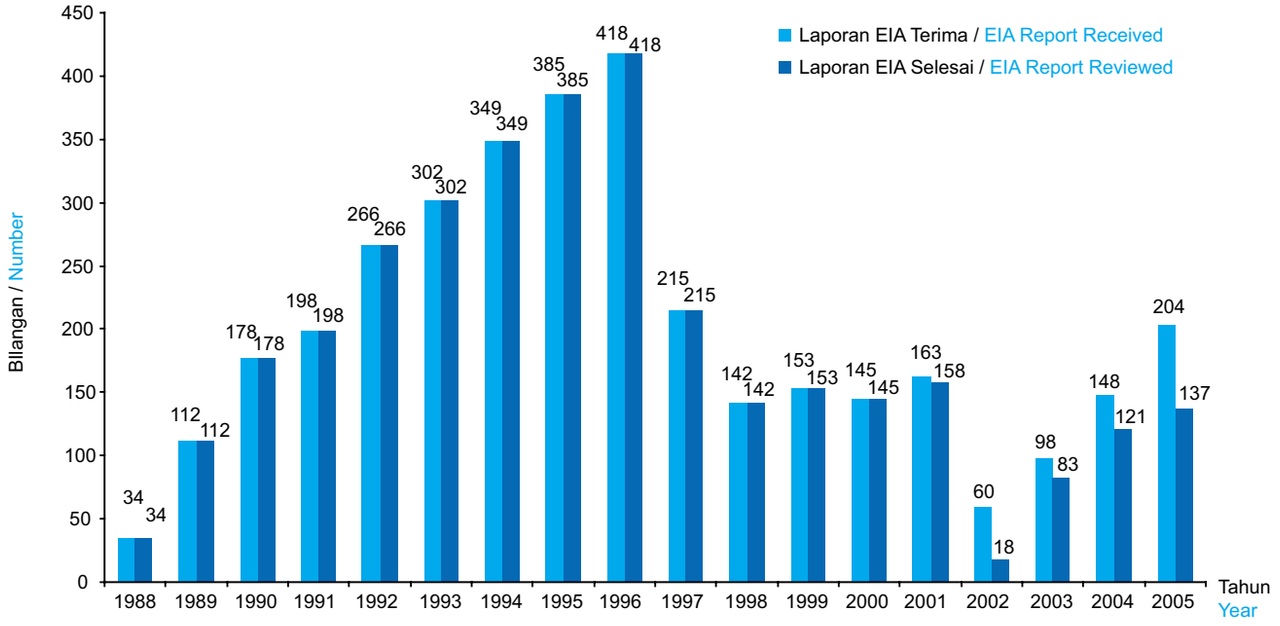
Rajah 3.1 JAS: Bilangan Laporan EIA Yang Diterima, 1988 - 2005
Figure 3.1 DOE: Number of EIA Reports Received, 1988 - 2005



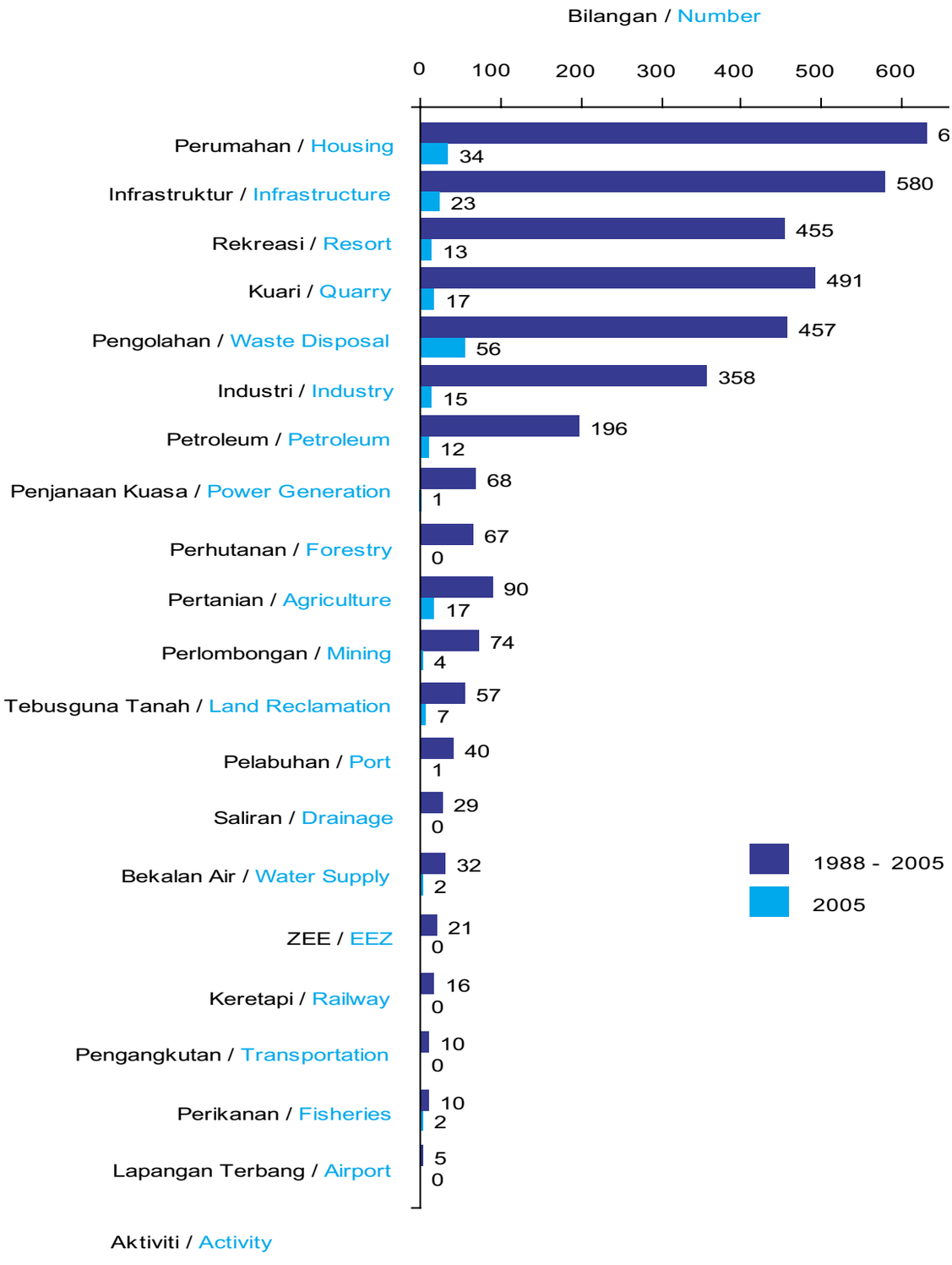
Rajah 3.2 JAS: Bilangan Laporan EIA dan Jenis Laporan Diterima, 1988 - 2005
Figure 3.2 DOE: Number and Type of EIA Reports Received, 1988 - 2005



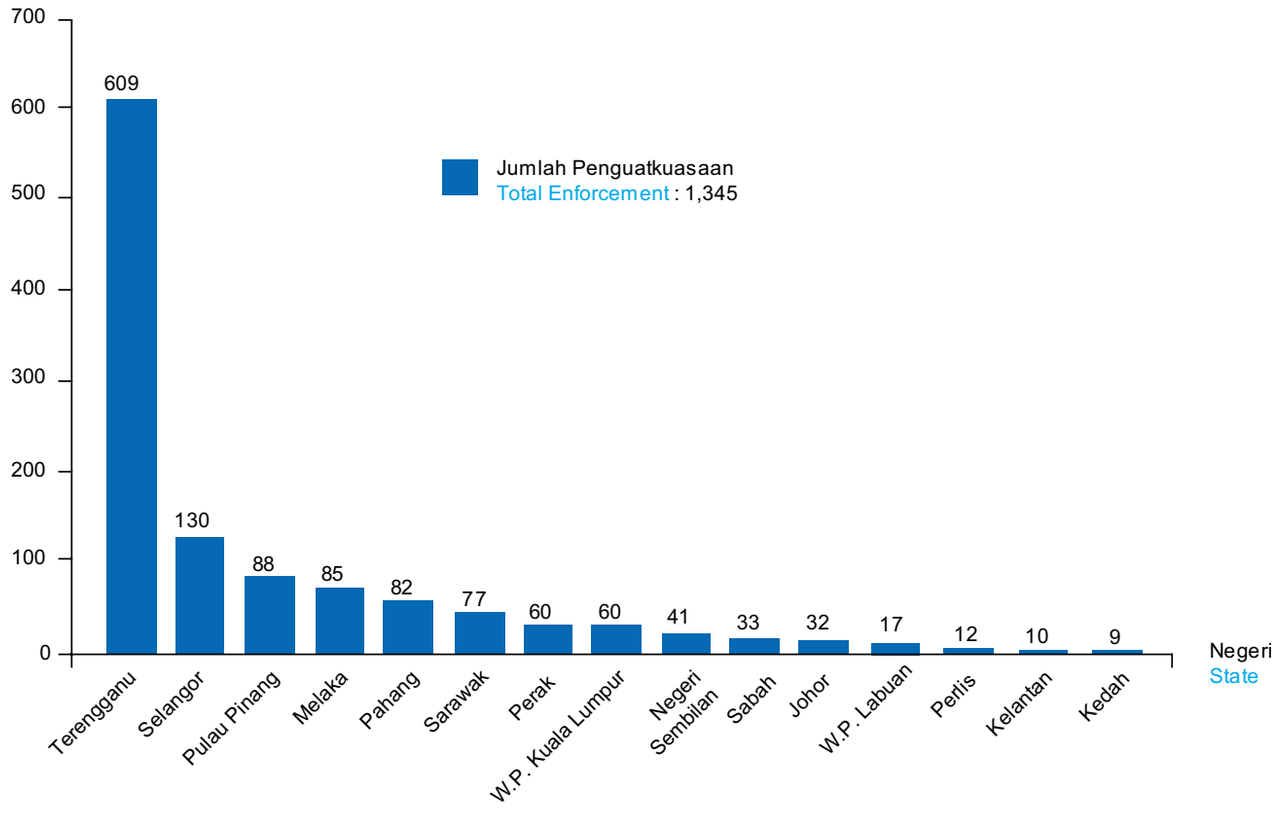
Rajah 3.3 JAS: Bilangan Laporan EIA Yang Diterima Mengikut Negeri, 1988-2005
Figure 3.3 DOE: Number of EIA Report Received by State, 1988-2005



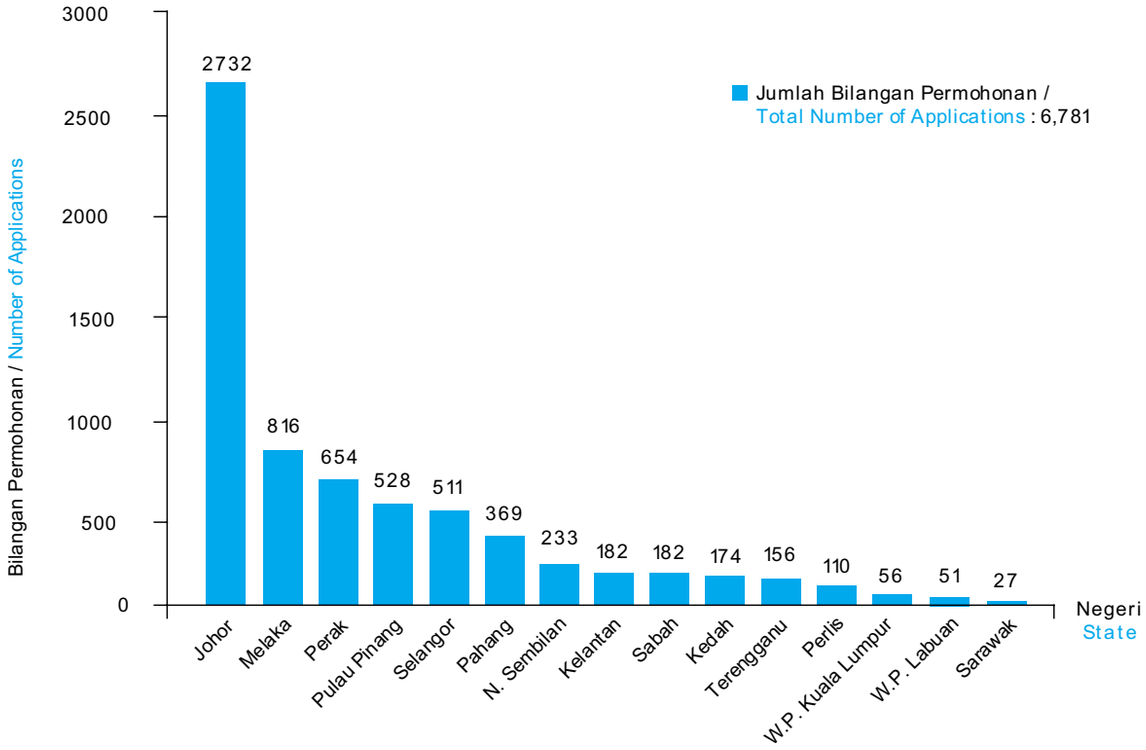
Rajah 3.4 JAS: Bilangan Laporan EIA Yang Telah Selesai, 1988 - 2005
Figure 3.4 DOE: Number of EIA Reports Reviewed, 1988-2005



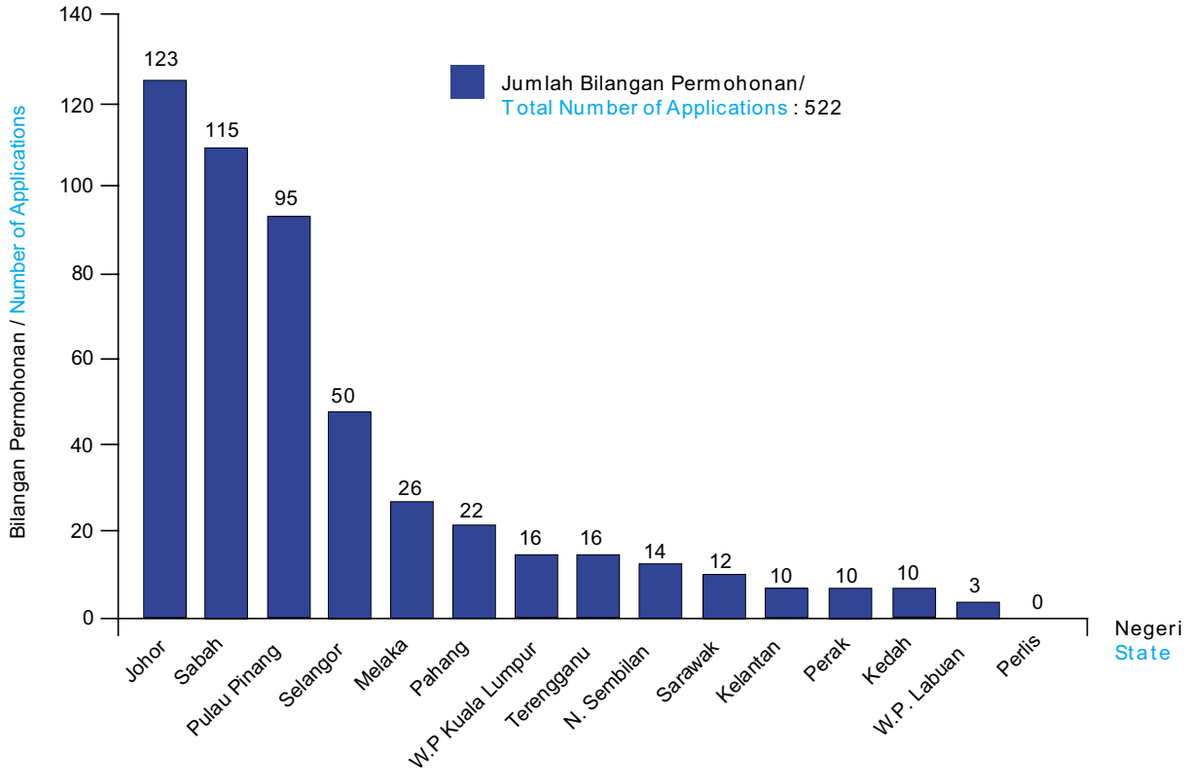
Rajah 3.5 JAS: Bilangan Laporan EIA Mengikut Aktiviti, 1988 - 2005
Figure 3.5 DOE: Number Of EIA Reports by Activity, 1988 - 2005



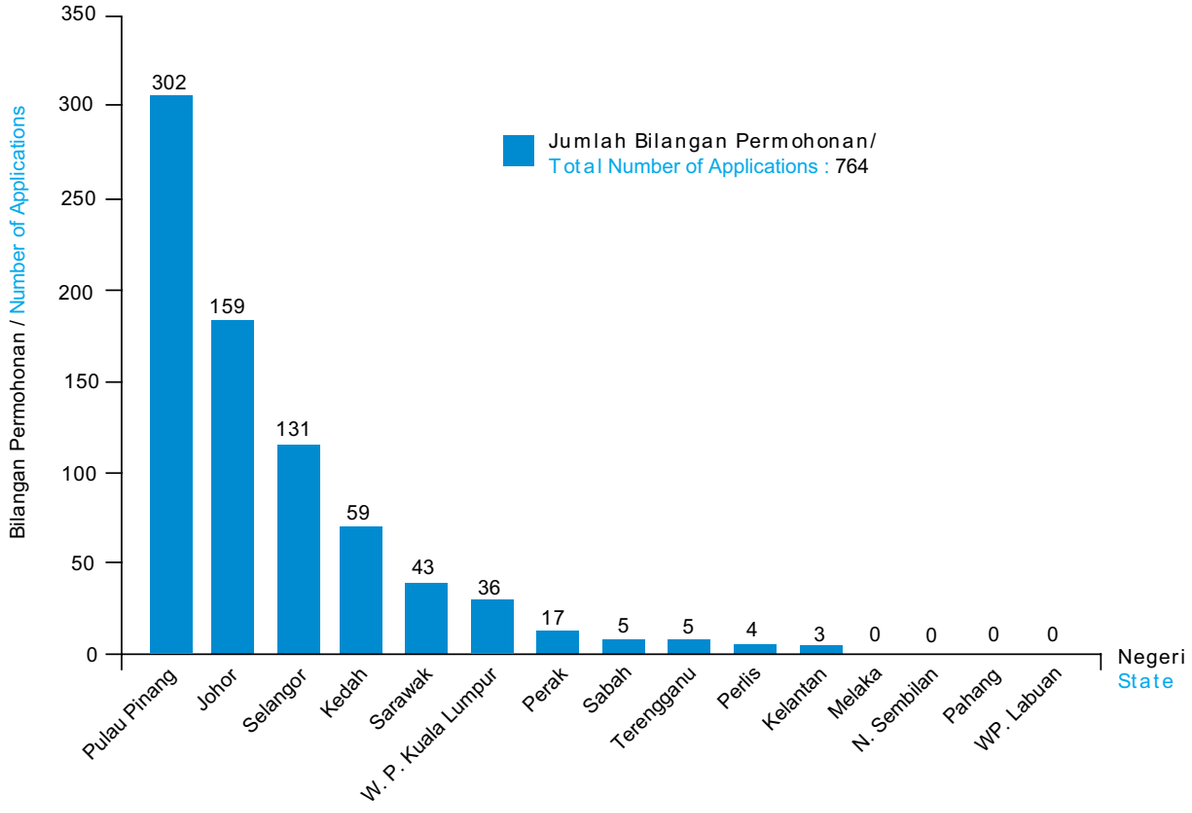
Rajah 3.6 JAS: Lawatan Penguatkuasaan Pasca EIA, 2005
Figure 3.6 DOE: Post-EIA Enforcement Visits, 2005



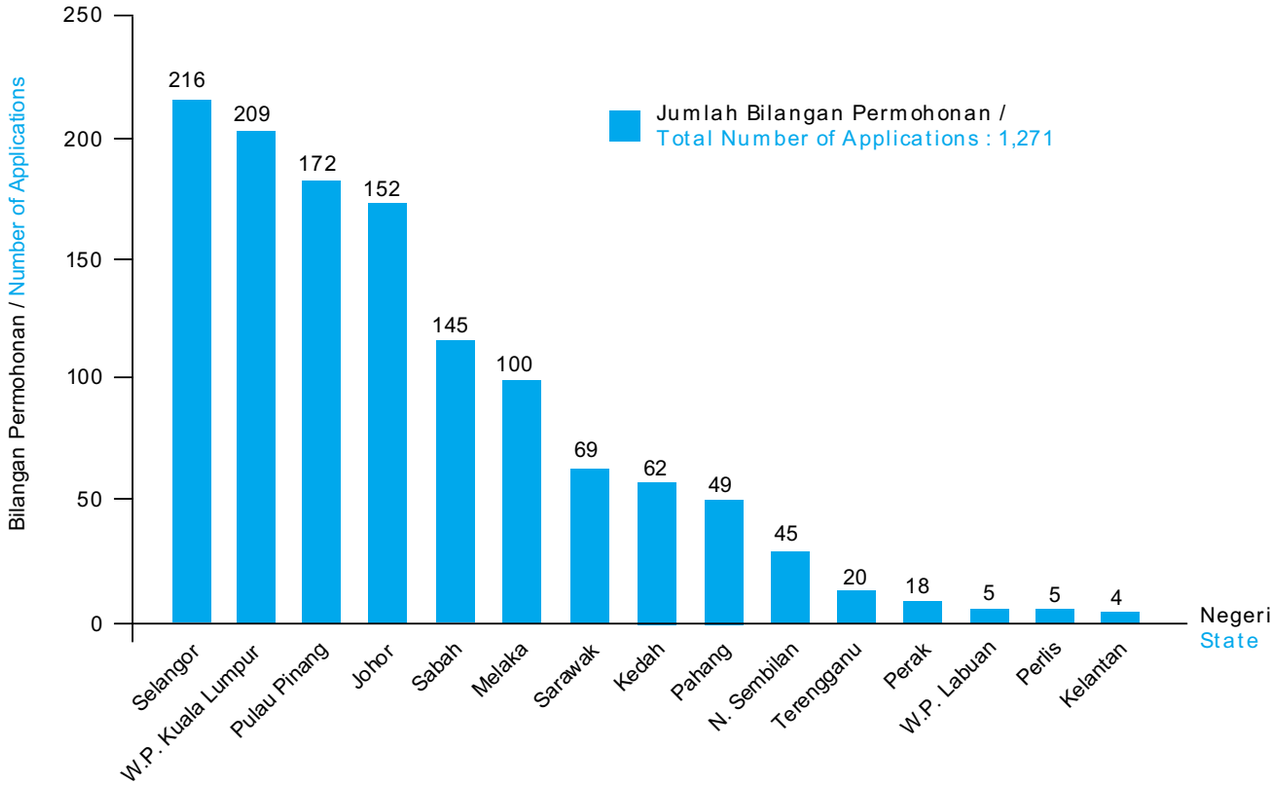
Rajah 3.7 JAS: Penilaian Awal Tapak untuk Pembangunan Projek-Projek Mengikut Negeri, 2005
Figure 3.7 DOE: Pre-Siting Evaluation of Development Projects By State, 2005



Rajah 3.8 JAS: Permohonan Bagi Kebenaran Bertulis Untuk Pembinaan Loji Pengolahan Effluen Mengikut Negeri, 2005
Figure 3.8 DOE: Application for Construction of Wastewater Treatment Plants by State, 2005



Rajah 3.9 JAS: Permohonan Bagi Pemasangan Alat Kawalan Pencemaran Udara Mengikut Negeri, 2005
Figure 3.9 DOE: Application for Installation of Air Pollution Control Equipment by State, 2005



Rajah 3.10 JAS: Permohonan Bagi Pemasangan Peralatan Pembakaran Bahanapi Mengikut Negeri, 2005
Figure 3.10 DOE: Application for Installation of Fuel Burning Equipment by State, 2005

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Chapter 4

Pengawasan Kualiti Udara
Air Quality Monitoring

Pengawasan kualiti udara dilaksanakan oleh Jabatan Alam Sekitar (JAS) menerusi 51 buah stesen pengawasan di seluruh negara bagi memantau sebarang perubahan ketara kepada status kualiti udara yang mungkin memberi kesan kepada kesihatan awam dan alam sekitar. Stesen-stesen pengawasan kualiti udara ditempatkan di lokasi-lokasi strategik (Peta 4.1 dan 4.2) bagi memenuhi objektif program pengawasan yang spesifik. Kebanyakan stesen ditempatkan di kawasan perumahan bagi menentupasti tahap pendedahan pencemar udara kepada penduduk dan selebihnya ditempatkan di dalam kawasan industri dan kawasan yang padat dengan trafik.

The Department of Environment (DOE) continuously monitors ambient air quality throughout the country at 51 locations to detect any significant change which may cause harm to human health and the environment. These monitoring stations are strategically located (Maps 4.1 and 4.2) to meet specific monitoring objectives. Most stations are located in residential areas to determine population exposure level to air pollution, while the rest are located within industrial areas and areas with high traffic volume.

Rangkaian Stesen Pengawasan Kualiti Udara Kebangsaan ini turut dilengkapi dengan stesen-stesen pengawasan kualiti udara manual di 25 buah lokasi yang berbeza. Pengawasan di stesen-stesen ini melibatkan parameter-parameter pepejal terampai, habuk halus di bawah saiz 10 mikron (PM_{10}) dan beberapa jenis logam berat termasuk plumbum yang dipantau bagi setiap enam hari menggunakan alat “High Volume Samplers”.

The National Air Quality Monitoring Network is also complemented by manual air quality monitoring stations located at 25 different sites. At these sites, total suspended particulate, particulate matter (PM_{10}) and several heavy metals including lead are measured at intervals of six days using High Volume Samplers.

Gambarfoto 4.1 JAS: Pencemaran Udara
Photo 4.1 DOE: Air Pollution

Status Kualiti Udara Bagi 2005

Pada keseluruhannya, status kualiti udara pada kebanyakan masa masih berada pada tahap baik dan sederhana kecuali beberapa hari yang tidak sihat telah dicatatkan di beberapa kawasan di Lembah Kelang, Pantai Barat dan Pantai Timur Semenanjung Malaysia serta di Negeri Sarawak. Di lokasi-lokasi tersebut kualiti udara mencatat kemerosotan yang agak ketara berbanding dengan 2004.

Status kualiti udara pada tahap tidak sihat tersebut adalah disebabkan oleh kepekatan PM_{10} yang tinggi akibat dari aktiviti pembakaran terbuka yang berlaku di dalam negara jiran dan negara semasa musim panas dan kering.

Pada bulan Ogos 2005, hampir keseluruhan negara telah dilanda episod jerebu yang serius akibat dari pembakaran hutan dan tanah di Sumatera, Indonesia. Bermula dari 1 Ogos sehingga 15 Ogos 2005, bahagian tengah, timur dan utara Semenanjung Malaysia mengalami keadaan berjerebu yang dianggap lebih serius berbanding kejadian jerebu pada tahun 1997. Pengisytiharan darurat jerebu telah diumumkan oleh Y.A.B Perdana Menteri bagi Pelabuhan Kelang dan Kuala Selangor pada 11 Ogos 2005 apabila Indeks Pencemar Udara (IPU) melebihi paras 500. Pengisytiharan ini ditarik balik pada 13 Ogos 2005 apabila IPU menurun ke paras 300 dan jarak penglihatan bertambah baik di kawasan-kawasan tersebut.

Habuk halus di bawah saiz 10 mikron (PM_{10}) dan ozon (O_3) di sesetengah kawasan masih merupakan pencemar udara utama yang dikesan di seluruh negara.

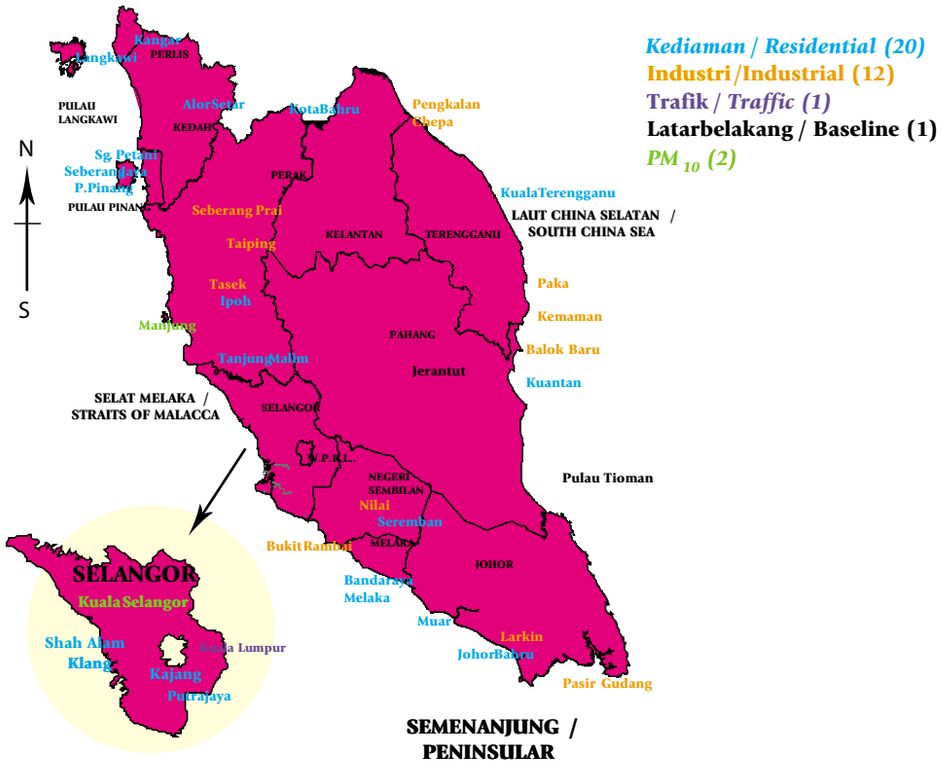
Air Quality Status in 2005

The overall air quality was between good to moderate level most of the time, except for a number of unhealthy days recorded at various locations in the Klang Valley, West and East Coast of Peninsular Malaysia and in the State of Sarawak. The air quality at these locations deteriorated quite significantly compared to 2004.

The unhealthy air quality recorded in those areas was mainly due to high levels of PM_{10} brought about by transboundary pollution and open burning activities within the country especially during the prolonged hot and dry periods.

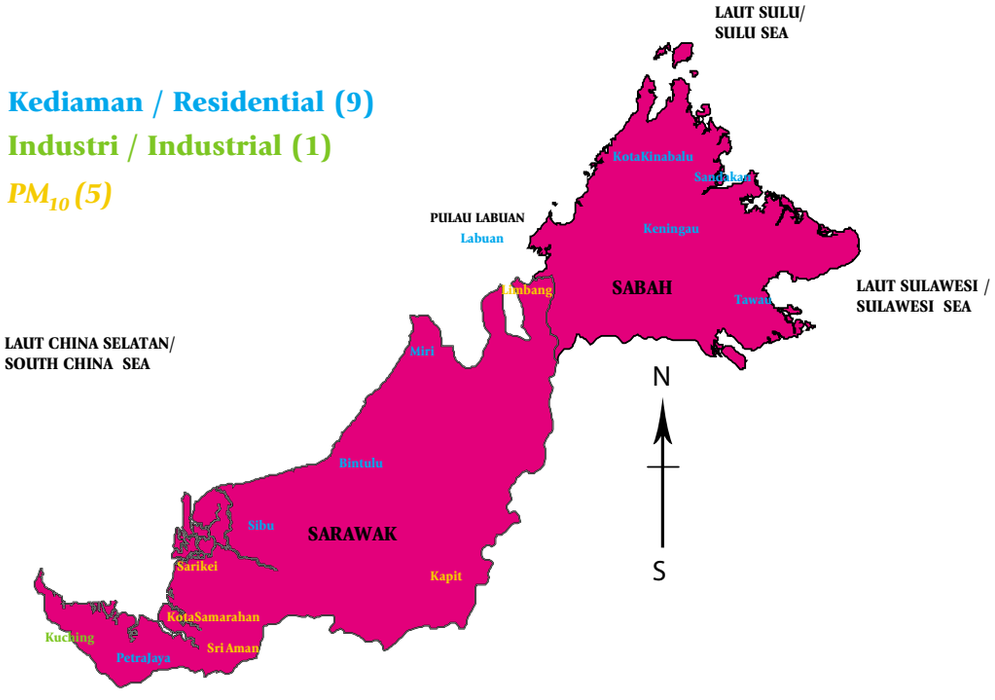
In August 2005, almost the entire country was affected by thick haze resulting from forest and land fires in Sumatra, Indonesia. From 1-15 August 2005, the central, eastern and northern parts of Peninsular Malaysia were enveloped by haze which was more severe than that of 1997. A haze emergency was declared by the Prime Minister for Pelabuhan Klang and Kuala Selangor when the Air Pollution Index (API) exceeded 500. On 11 August 2005, the declaration was lifted on 13 August 2005 when the API dropped below 300 and visibility improved in those areas.

Particulate matter (PM_{10}) and ground level ozone (O_3) in some areas remained the prevailing air pollutants in the country.



Peta 4.1 Malaysia: Lokasi Stesen Pengawasan Udara Automatik, 2005

Map 4.1 Malaysia: Location of Continuous Air Quality Monitoring Stations, 2005



Peta 4.2 Sabah dan Sarawak: Lokasi Stesen Pengawasan Udara Automatik, 2005

Map 4.2 Sabah and Sarawak: Location of Continuous Air Quality Monitoring Stations, 2005

Pengawasan Bunyi Bising
Noise Monitoring

Pengawasan Bunyi Bising Ambien

Pada tahun 2005, pengukuran paras bunyi ambien tertumpu kepada pelbagai tempat seperti aktiviti perindustrian (4 stesen); lalulintas jalan raya (1 stesen); lalulintas keretapi (1 stesen); lapangan terbang (1 stesen); tapak pembinaan (1 stesen) dan pusat komersial (1 stesen). Paras bunyi bising yang diukur dianalisis menggunakan kaedah yang disyorkan di dalam ***'The Planning Guidelines for Environmental Noise Limits and Control'*** terbitan Jabatan Alam Sekitar. L_{Aeq} yang tertinggi telah diukur di pusat komersil bandar. Takat maksimum bunyi bising yang dibenarkan untuk pelbagai kategori gunatanah adalah seperti Jadual 4.1.

Selain daripada garis panduan untuk 'Siting and Zoning of Industries', garis panduan yang spesifik berkaitan kawalan bunyi bising dan kawalan gegaran juga diterbitkan oleh Jabatan Alam Sekitar.

- Planning Guidelines for Environmental Noise Limits and Control
- Guidelines on Noise Labelling and Emission Limit of Outdoor Sources
- Planning Guidelines for Vibration Limits and Control.

Ambient Noise Monitoring

In 2005, ambient noise level measurements were conducted at various sites; industrial (4 stations); highway traffic (1 station); railway (1 station); airport (1 station); construction site (1 station) and commercial centre (1 station). The measured ambient noise levels were analyzed using methods recommended in ***The Planning Guidelines for Environmental Noise Limits and Control*** published by DOE. The highest L_{Aeq} recorded was at the urban commercial centre. The maximum permissible noise limits for various landuse categories are shown in Table 4.1.

In addition to the Siting and Zoning of Industries Guidelines, specific guidelines on noise and vibration control had been published by DOE.

- Planning Guidelines for Environmental Noise Limits and Control
- Guidelines on Noise Labelling and Emission Limit of Outdoor Sources
- Planning Guidelines for Vibration Limits and Control.

Jadual 4.1 / Table 4.1

Takat Bunyi (L_{Aeq}) Maksimum yang Dibenarkan Mengikut Guna Tanah untuk Pelan dan Pembangunan Baru
Maximum Permissible Sound Level (L_{Aeq}) Of Receiving Land Use For Planning And New Development

Receiving Land Use Category	Day Time 7.00 am - 10.00 pm	Night Time 10.00 pm - 7.00 am
Noise Sensitive Areas, Low Density Residential, Institutional (School, Hospital), Worship Areas.	50 dBA	40 dBA
Suburban Residential (Medium Density) Areas, Public Spaces, Parks, Recreational Areas.	55 dBA	45 dBA
Urban Residential (High Density) Areas, Designated Mixed Development Areas (Residential - Commercial).	60 dBA	50 dBA
Commercial Business Zones.	65 dBA	55 dBA
Designated Industrial Zones	70 dBA	60 dBA

Gambarfoto 4.2 JAS: Pengawasan Bunyi Bising
Photo 4.2 DOE: Noise Monitoring

Protokol Montreal Dan Perlindungan Lapisan Ozon
Montreal Protocol And Protection Of The Ozone Layer

Latarbelakang

Setelah ratifikasi Konvensyen Vienna bagi Perlindungan Lapisan Ozon dan Protokol Montreal pada 29 Ogos 1989, Malaysia dikategorikan sebagai negara Artikel 5 di bawah Protokol Montreal untuk Bahan-Bahan Yang Menghapuskan Lapisan Ozon.

Pematuhan Terhadap Protokol Montreal

Bagi tahun 2005 kadar penggunaan Klorofluorokarbon (CFC) per kapita ialah sebanyak 0.047 kg setahun dan kuota import bahan-bahan pemusnah ozon (ODS) ialah sebanyak 898.5 tan metrik. Tren Penggunaan CFC bagi Malaysia (sebenar dan diunjurkan) adalah seperti ditunjukkan dalam Rajah 4.1.

Pelan Kebangsaan Penghapusan CFC (NCFCP) 2002-2010

Di bawah NCFCP 2002-2010, baki metil sebanyak 2,125 ton (termasuk Halon dan Metil Bromid) "ozone depleting potential (ODP)" akan dihapuskan dalam tempoh sembilan tahun. Peruntukan tambahan sejumlah USD 11.5 juta (RM 43.7 juta) telah diluluskan oleh Multilateral Ozone Trust Fund melalui Bank Dunia. Sehingga kini, terdapat beberapa projek bantuan teknikal dan program-program industri yang dijalankan oleh JAS, selaku agensi pelaksana, termasuklah:

i. CFCs-Metered Dosed Inhaler (MDIs) Programme;
ii. Mobile Air Conditioning (MAC) Inspection Programme oleh PUSPAKOM;
iii. Custom-ODS Training Programme (COTP);
iv. MAC Servicing Sector Programme;
v. ODS Solvent Sector Programme;
vi. Refrigeration Service Sector Programme;
vii. Foam Sector Programme; dan
viii. Public Awareness Programme.

Sepanjang Tahun 2005, sejumlah USD 3,030,048 (RM 11,514,182) telah dibelanjakan bagi pelaksanaan projek-projek di bawah program (i), (iv), (v) (vii) dan (viii) (Jadual 4.3).

Background

Upon ratification of the Vienna Convention for the Protection of the Ozone Layer and the Montreal Protocol on 29 August 1989, Malaysia became an Article 5 country under the Montreal Protocol for substances that deplete the ozone layer.

Compliance to Montreal Protocol

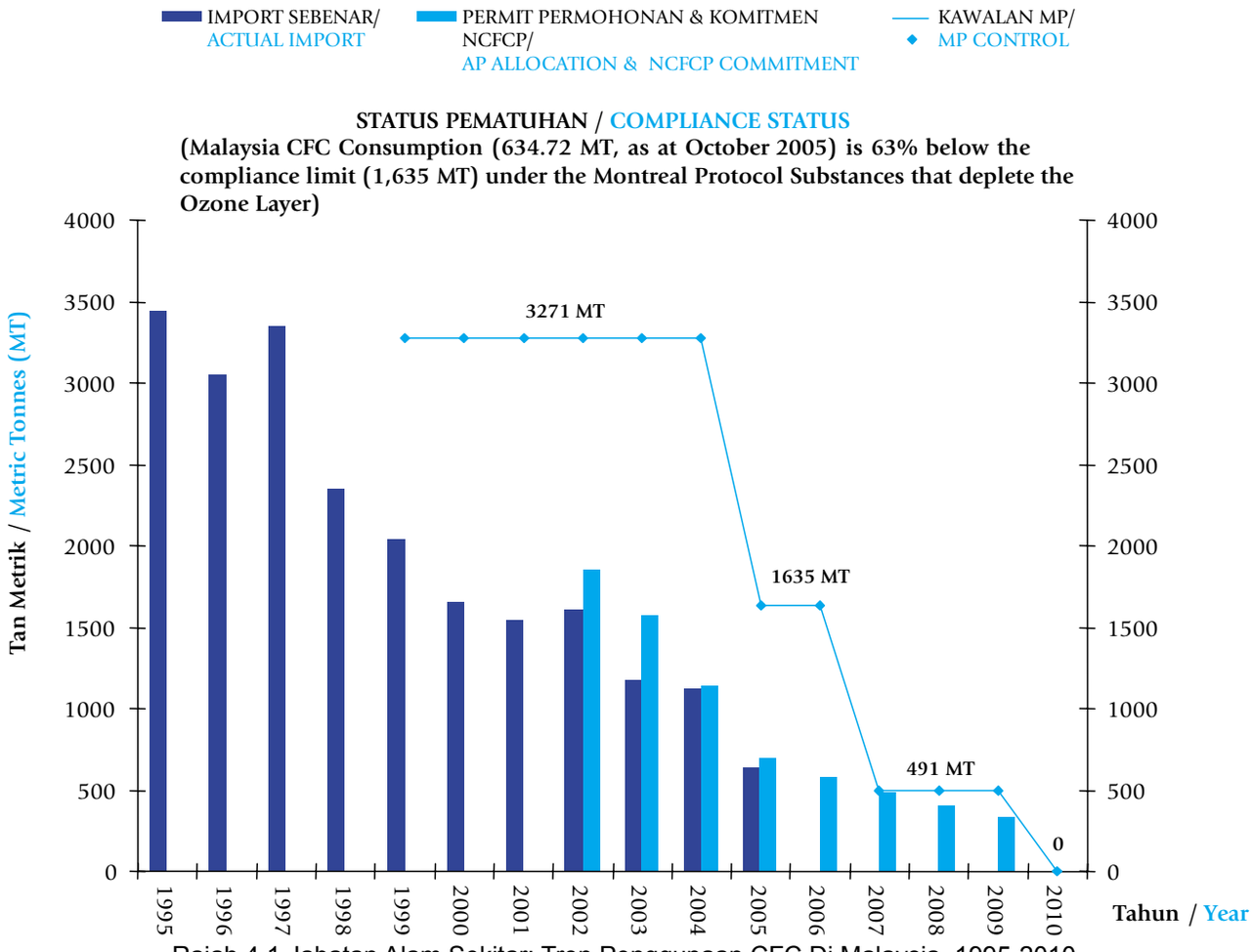
In 2005, the national Chlorofluorocarbon (CFC) consumption per capita was 0.047 kg per annum and the import quota for ODS for 2005 was 898.5 metric tonnes. Malaysia CFC Consumption trend (actual and projected) is shown in Figure 4.1.

National Cholorofluorocarbons Phaseout Plan (NCFCP) 2002-2010

Under the NCFCP 2002-2010 the remaining 2,125 tonnes (including Halon and Methyl Bromide) of ozone depleting potential would be phased out over a period of nine years. An additional allocation of USD 11.5 million (RM 43.7 million) had been approved for Malaysia under the Multilateral Ozone Trust Fund through the World Bank. To date various on-going technical assistance projects and industrial programmes undertaken by the Department of Environment (DOE) as the implementing agency include the following :

i. CFCs-Metered Dosed Inhaler (MDIs) Programme;
ii. Mobile Air Conditioning (MAC) Inspection Programme by PUSPAKOM;
iii. Custom-ODS Training Programme (COTP);
iv. MAC Servicing Sector Programme;
v. ODS Solvent Sector Programme;
vi. Refrigeration Service Sector Programme;
vii. Foam Sector Programme; and
viii. Public Awareness Programme.

In 2005, a total of USD 3,030,048 (RM 11,514,182) was used to implement projects under programme (i), (iv), (v) (vii) and (viii) (Table 4.3).



Rajah 4.1 Jabatan Alam Sekitar: Tren Penggunaan CFC Di Malaysia, 1995-2010
Figure 4.1 Department of Environment: Malaysia CFC Consumption Trend, 1995-2010

Gambarfoto 4.3 JAS: Pusat Servis MAC yang Berlesen
Photo 4.3 DOE: Licensed MAC Service Centre

Pengurusan Halon

Halon tidak lagi digunakan bagi pemasangan baru sistem mengawal kebakaran dan alat-alat pemadam api di Malaysia. Sebaliknya, karbon dioksida atau serbuk kimia kini digunakan sebagai alternatif. Namun demikian, kegunaan halon masih dibenarkan untuk tujuan terhad sistem keselamatan kawalan kebakaran tentera dan penerbangan awam sepertimana dipersetujui di bawah program Protokol Montreal. Halon yang diperolehkembali dan dikitarsemula disimpan di Pusat Bank Halon Kebangsaan di Kuala Kubu Bahru, Selangor.

Halon Management

Halon is no longer used in Malaysia for new installation of fire protection system and fire extinguishers. Instead, carbon dioxide or chemical powders are now being used as alternatives. However, halon is still allowed and restricted for use in military and civil aviation fire safety protection systems, as agreed by the Parties to the Montreal Protocol. Recycled and recovered halon are stored at the National Halon Bank Centre at Kuala Kubu Bahru, Selangor.

Penghapusan Metil Bromid

Seminar bertajuk “Phasing out Methyl Bromide: Possible Alternatives”, anjuran bersama JAS, Jabatan Pertanian, FRIM dan UNDP telah diadakan pada 24 Februari 2005, di Putrajaya. Dana projek sebanyak USD 200,000 bagi bantuan teknikal “to install alternatives and phaseout all remaining non-quarantine and pre-shipment (non-QPS) uses of Methyl Bromide in Malaysia” disediakan oleh UNDP New York.

Methyl Bromide Phase Out

A seminar entitled “Phasing Out Methyl Bromide: Possible Alternatives”, was jointly organized by DOE, the Department of Agriculture, FRIM and UNDP on 24 February 2005 at Putrajaya. A project grant of USD 200,000 for technical assistance to install alternatives to phaseout all remaining non-quarantine and pre-shipment (non-QPS) uses of Methyl Bromide in Malaysia was provided by UNDP New York.

Penggunaan ODS dan Permit Kawalan Import

Kaedah utama untuk mengawal penggunaan ODS di negara ini ialah melalui Sistem Permit Import (AP). Jumlah kuantiti ODS yang dibenarkan diimport setahun ditetapkan oleh Kementerian Perindustrian dan Perdagangan Antarabangsa setelah perundingan dengan JAS dan Jabatan Kastam.

Consumption of ODS and Import Control Permit

The main instrument of control of ODS consumption in Malaysia is the Approved Permit (AP) System. The total quantity of ODS that can be imported in any year is set by the Ministry of International Trade and Industry (MITI) after consultations with DOE and the Customs Department.

Program dan Kempen Kesedaran

Sempena sambutan Hari Ozon Sedunia, JAS telah menganjurkan Kempen Kesedaran Perlindungan Ozon di Karnival Sureheboh TV3 pada 2-4 September 2005 di Stadium Bukit Jalil, Kuala Lumpur. Tujuan kempen ini adalah untuk memberi pendedahan dan menyebarkan maklumat tentang perlindungan ozon terutamanya kepada masyarakat umum. Aktiviti yanag telah dijalankan termasuk pertandingan melukis, kuiz, pameran dan edaran bahan-bahan kesedaran perlindungan ozon. Pengumuman tentang Hari Ozon Sedunia telah dijalankan di sistem televisyen utama dan radio selama tiga hari (Jadual 4.3).

Awareness Programme and Campaign

In conjunction with World Ozone Day, the Ozone Protection Section organized an Awareness Campaign on Ozone Protection at TV3 Sure Heboh Carnival on 2-4 September, 2005 at Bukit Jalil Stadium, Kuala Lumpur. The objective was to create awareness and disseminate information on ozone protection, particularly on NCFCP to the general public. Activities held included: drawing competition, quiz, exhibition and distribution of ozone publications. Announcement on the World Ozone Day was also made via television and radio stations for three consecutive days (Table 4.3).

Jadual 4.2 JAS: Aktiviti-Aktiviti Program Kesedaran NCFCP 2005
Table 4.2 DOE: Public Awareness Programme Activities NCFCP 2005

Tarikh *Date*	**Aktiviti & Program** *Activities & Programme*	**Tempat** *Venue*
Januari 15 / *January 15*	Pengumuman akhir bantuan kewangan di bawah National CFC Phase-out Plan (NCFCP) untuk semua sektor. Diiklankan di Utusan Malaysia, New Straits Times, Nanyang Siang Pau, Sin Chew Jit Poh, Daily Express (Sabah) dan Sarawak Tribune *Final announcement on financial assistance under Malaysia National CFC Phase-out Plan (NCFCP) for all sectors. Advertised in Utusan Malaysia, New Straits Times, Nanyang Siang Pau, Sin Chew Jit Poh, Daily Express (Sabah) and Sarawak Tribune*	
Januari 17 / *January 17*	Iklan senarai Authorized Training Center untuk Penghawa Dingin Kenderaan di New Straits Times, Utusan Malaysia, Daily Express (Sabah) dan Sarawak Tribune *Advertisement on List of Authorized Training Centers for Mobile Air-Conditioning in New Straits Times, Utusan Malaysia, Daily Express (Sabah) and Sarawak Tribune*	
	Mesyuarat Ko-ordinasi dan Kawalan Pencemaran Udara/ *Meeting on the co-ordination of air pollution control*	
Februari 3 / *February 3*	Seminar Pemantauan dan Kawalan Bahan Penghapus Ozon dan Pengendalian Refrigerant Identifier (RI) *Seminar on Monitoring and Control of Ozone Depleting Substances and Handling of Refrigerant Identifier (RI)*	Hotel Putra Palace, Kangar *Putra Palace Hotel, Kangar*
Februari 8 / *February 8*	Pengumuman MDI Bebas CFC *Announcement on CFC Free in MDI*	
Mac 15 / *March 15*	Pengumuman Perlantikan GC dan Program RSS *Announcement on Appointment of GC and RSS Program*	
April 18 / *April 18*	Peraturan Kawalan Pencemaran Udara dan Kursus Semula pengendalian Refrigerant Identifier (RI) *Air Pollution Control Regulation and Re-training on Handling of Refrigerant Identifier (RI)*	Hotel IOI Palm Garden, Putrajaya *IOI Palm Garden Hotel, Putrajaya*
Mei 12 / *May 12*	Sessi Dialog Refrigeration Service Sector (RSS). Dianjurkan bersama oleh JAS & Persatuan P enyejukan dan Penyaman Udara Malaysia (MACRA) *Dialogue Session for Refrigeration Service Sector (RSS). Jointly organized by DOE & Malaysian Air-Conditioning & Refrigeration*	Hotel IOI Palm Garden , Putrajaya *IOI Palm Garden Hotel, Putrajaya*

Jadual 4.2 JAS: (samb)
Table 4.2 DOE: (cont)

Tarikh *Date*	**Aktiviti & Program** **Activities & Programme**	**Tempat** *Venue*
Mei 18 / *May 18*	Association (MACRA) Seminar Penghawa Dingin: Seminar Perubahan Senario oleh Malaysian Oxygen Berhad *Seminar on Refrigerants: A Changing Scenario by Malaysian Oxygen Berhad*	Hotel Eastin, Petaling Jaya *Eastin Hotel, Petaling Jaya*
Jun 13-17 / *June 13-17*	Misi Bank Dunia untuk ODS Phase-out Project *World Bank Mission on ODS Phase-Out Project*	Bahagian Udara, IOI Resort *Air Division, IOI Resort*
Jun 29 - Julai 1 *June 29 - July 1*	Misi Pengauditan World Bank *World Bank Audit Mission*	Bahagian Udara, IOI Resort *Air Division, IOI Resort*
Julai 1-2 / *July 1-2*	Kursus Sistem Penghawa Dingin dan Penyejukan oleh Persatuan Penyejukan dan Penyaman Udara Malaysia (MACRA) *Training on Fundamental of Air-Conditioning Systems and Refrigeration organised by Malaysia Air-Conditioning & Refrigeration Association (MACRA)*	Hotel Eastin, Petaling Jaya *Eastin Hotel, Petaling Jaya*
Julai 11 / *July 11*	Lawatan rasmi ke Halon Bank MALAYSIA oleh Seksyen Perlindungan Ozon *Official visit to Halon Bank MALAYSIA by the Ozone Protection Section*	Kuala Kubu Bharu, Selangor *Kuala Kubu Bharu, Selangor*
Julai 14 / *July 14*	Lawatan rasmi ke DENSO (MALAYSIA) Sdn Bhd oleh Seksyen Perlindungan Ozon *Official visit to DENSO (MALAYSIA) Sdn Bhd by the Ozone Protection Section*	Bandar Baru Bangi, Selangor *Bandar Baru Bangi, Selangor*
September 2-4	Kempen Kesedaran Seksyen Perlindungan Ozon dan Kawalan Pencemaran Kenderaan Bermotor di TV3 Karnival Sureheboh sempena sambutan Hari Ozon Sedunia 2006 *Awareness Campaign on Ozone Protection motor vehicle and Pollution Control of at TV3 Karnival Sureheboh in conjunction with World Ozone Day 2006*	Bukit Jalil, Kuala Lumpur
September 6-7	Kursus untuk Pengurusan Pendingin dan Penghawa Dingin yang dianjurkan oleh Pusat ODS Sdn. Bhd. (MASHRAE)/ *Training for Chiller and Refrigerant Management organised by ODS Centre Sdn. Bhd. (MASHRAE)*	Hotel Singgahsana, Petaling Jaya *Singgahsana Hotel, Petaling Jaya*

Jadual 4.2 JAS: (samb)

Table 4.2 DOE: (cont)

Tarikh *Date*	Aktiviti & Program Activities & Programme	Tempat *Venue*
September 15-17	Pengumuman Umum Hari Ozon Sedunia 2006 *Public Announcement World Ozone Day 2006.*	Ke-udara untuk tiga hari di stesyen televisyen utama (RTM1,RTM2 & NTV7) dan stesyen radio (Nasional FM, Muzik FM, AI FM, Minnal FM & TRaxx FM) *On-air for three days on television RTM1, RTM2 & NTV7 and radio station (Nasional FM, Muzik FM, AI FM, Minnal FM & Traxx FM)*
September 20	Sambutan MInggu Alam Sekitar dan Kursus RI yang dianjurkan oleh JAS Terengganu *Celebration of Environment Week & RI training organised by Terengganu DOE State Office.*	Ibai Golf & Country Club,Terengganu
September 24	Acara penutup Minggu Alam Sekitar dan Kursus RI yang dianjurkan oleh JAS Selangor *Closing Ceremony of the Environment Week & RI Training Organised by Selangor DOE State Office.*	Stadium Millenium, Kuala Kubu Bharu *Millenium Stadium, Kuala Kubu Bharu*
November 18-19	Asas utama Penyelenggaran dan Penyelesaian Masalah Penghawa Dingin yang dianjurkan oleh MACRA *Fundamentals of Air-conditioning Maintenance & Troubleshooting organised by MACRA.*	Bukit Jalil Golf & Country Resort, Kuala Lumpur
Disember 20 / *December 20*	Perbincangan Penggunaan CFC dengan Pengilang yang dianjurkan oleh Majlis Perbandaran Seberang Perai *Talk on CFC Consumption for The Manufacturers Organised by the Seberang Perai City Council.*	Dewan Datuk Hj Ahmad Badawi, Butterworth *Datuk Hj Ahmad Badawi Hall, Butterworth*

Jadual 4.3 JAS: Projek-projek dan Aktiviti-aktiviti yang dilaksanakan di bawah NCFCP 2005

Table 4.3 DOE: Projects and Activities Implemented under NCFCP 2005

Sektor *Sector*	Bil. Aktiviti/Lawatan Yang Selesai *No. of Completed Activities*	Bil. Lawatan Pemeriksaan 2005 *No. of Inspection Visits, 2005*
Metered Dosed Inhaler(MDI)	1	–
Program Pemeriksaan Penghawa Dingin Kenderaan (MAC) oleh PUSPAKOM *Mobile Air Conditioning (MAC) Inspection Programme by PUSPAKOM*	Projek selesai (2004) *Project Completed (2004)*	–
Program Kursus Kastam-ODS (COTP) / *Customs-ODS Training Programme (COTP)*	1	–
Sektor MAC Servis *MAC Servicing Sector* *Latihan Operator Servis MAC (CSTP) *Certification Service Technicians(CSTP)*	1425	–
*Baucar Alat-alat MAC *MAC Tools Voucher*	1182	–

Jadual 4.3 JAS: (samb)
Table 4.3 DOE: (cont)

Sektor *Sector*	**Bil. Aktiviti/Lawatan Yang Selesai** *No. of Completed Activities*	**Bil. Lawatan Pemeriksaan 2005** *No. of Inspection Visits, 2005*
*Lawatan Verifikasi ke bengkel terpilih *Verification visits to selected workshop*	551	551
*Baucar Mesin Kitar-semula (R&R) *Recycle & Recovery (R&R) Machine Voucher*	304	–
Pelarut / *Solvent*	1	4
Sektor Servis Penghawa Dingin *Refrigeration Service Sector*		
Busar / *Foam*	–	–
*Projek Kumpulan *Group Sub-Project*	1 (14 Group)	28
*Projek Individu / *Individual Sub-Project*	26	48
Aktiviti Kesedaran / *Awareness Activity*	Sila rujuk Jadual 4.2 *Please refer to Table 4.2*	-

Jadual 4.4 JAS: Mesyuarat-Mesyuarat Peringkat Serantau dan Antarabangsa
Table 4.4 DOE: Regional and International Meetings

Tarikh *Date*	**Aktiviti & Program** *Activities & Programme*	**Tempat** *Venue*
20-27 April 2005	2005 Meeting of Southeast Asia and Pacific Network of ODS Officers	Beijing, China
31 March-1 April 2005	9th Annual Meeting of Financial Agents at the World Bank	Washington D.C.
27-30 June 2005	Open-Ended Working Group Of Parties to The Montreal Protocol On Substances That Deplete The Ozone Layer, 25th Meeting.	Montreal, Canada
6-8 September 2005	Third Regional Workshop On Ozone Depleting Substances Programme	Pattaya, Thailand
27 September 2005	Chiller Conversion: Converting Obligations To Opportunities	Washington, D.C., U.S.A
10-14 October 2005	SEAP Networks Meeting of ODS Officers	Hua Hin, Thailand
12-16 December 2005	7th Conference of The Parties to The Vienna Convention and 17th Meeting of The Parties To The Montreal Protocol On Substances That Deplete The Ozone Layer	Dakar, Senegal

Program Pencegahan Pencemaran Dan Peningkatan Kualiti Air Sungai

River Pollution Prevention And River Water Quality Improvement Programme

Di bawah Rancangan Malaysia Kelapan, 26 lembangan sungai telah dipilih untuk Program Pencegahan Pencemaran dan Peningkatan Kualiti Air Sungai. Pemilihan sungai-sungai tersebut adalah berdasarkan kepada kegunaan berfaedah sumber airnya seperti bekalan air minuman, perikanan, rekreasi dan potensi untuk pelancongan dan juga sungai yang menghadapi pencemaran yang serius.

Pelan Tindakan

Kajian terperinci untuk membentuk Pelan Tindakan bagi lembangan sungai Batang / Rajang, (Sarawak) dan sungai -sungai di Cameron Highlands, (Pahang), telah disiapkan dalam tahun 2005.

Beban pencemaran dan kesannya ke atas kualiti air sungai telah dikenalpasti dan langkah-langkah untuk meningkatkan kualiti air sungai disediakan. Pelan-pelan tindakan tersebut turut mengenalpasti anggaran kos pelaksanaan bagi memudahcarakan permohonan peruntukan di bawah Rancangan Malaysia ke Sembilan oleh agensi-agensi pelaksana.

Penguatkuasaan

Pada tahun 2005, sebanyak 8023 premis di 26 lembangan sungai telah didapati tertakluk di bawah Akta Kualiti Alam Sekeliling 1974. Dari jumlah ini, 1456 premis telah diperiksa dan 188 premis telah diarahkan untuk memperbaiki dan mempertingkatkan keupayaan logi pengolahan effluen, 28 premis telah di bawa ke mahkamah dan satu premis dikenakan perintah larangan (Rajah 4.2).

Under the Eighth Malaysian Plan, 26 rivers had been selected for the Pollution Prevention and River Water Quality Improvement Programme. The selection criteria were based on their beneficial uses such as water supply, fisheries, recreational and tourism potential as well as those seriously affected by pollutions.

Formulation of Action Plan

The detailed studies to formulate action plans for the Batang / Rajang River Basin (Sarawak) and the river basins in Cameron Highlands (Pahang) were completed in 2005.

The pollution load and impacts on river quality were identified and measures to improve water quality were drawn up. Action plans with cost estimates were formulated to support submission by implementing agencies for budget allocation under the 9th Malaysian Plan.

Enforcement

In 2005, a total of 8023 premises within the 26 river basins were identified to be subjected to the Environmental Quality Act, 1974. Of these 8023 premises 1456 premises were inspected. 188 premises, were instructed to upgrade their treatment systems; and 28 premises were taken to court. One prohibition order was issued in 2005 (Figure. 4.2).

Program Kesedaran Awam

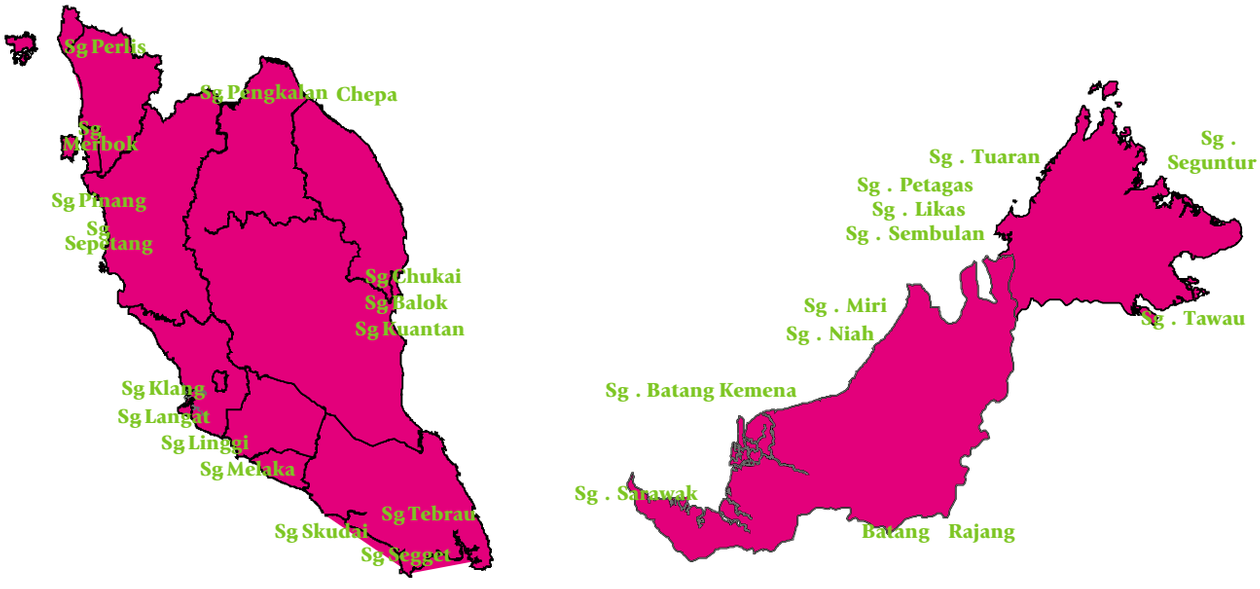
Program kesedaran awam juga telah pun dijalankan bagi kumpulan sasaran tertentu seperti industri, pelaksana-pelaksana projek pembangunan, murid sekolah dan penduduk setempat bertujuan untuk meningkatkan kesedaran dan seterusnya mendapat kerjasama mereka untuk bersama-sama mencegah pencemaran (Rajah 4.3). Aktiviti seperti dialog, ceramah, gotong-royong telah diadakan.

Public Awareness Program

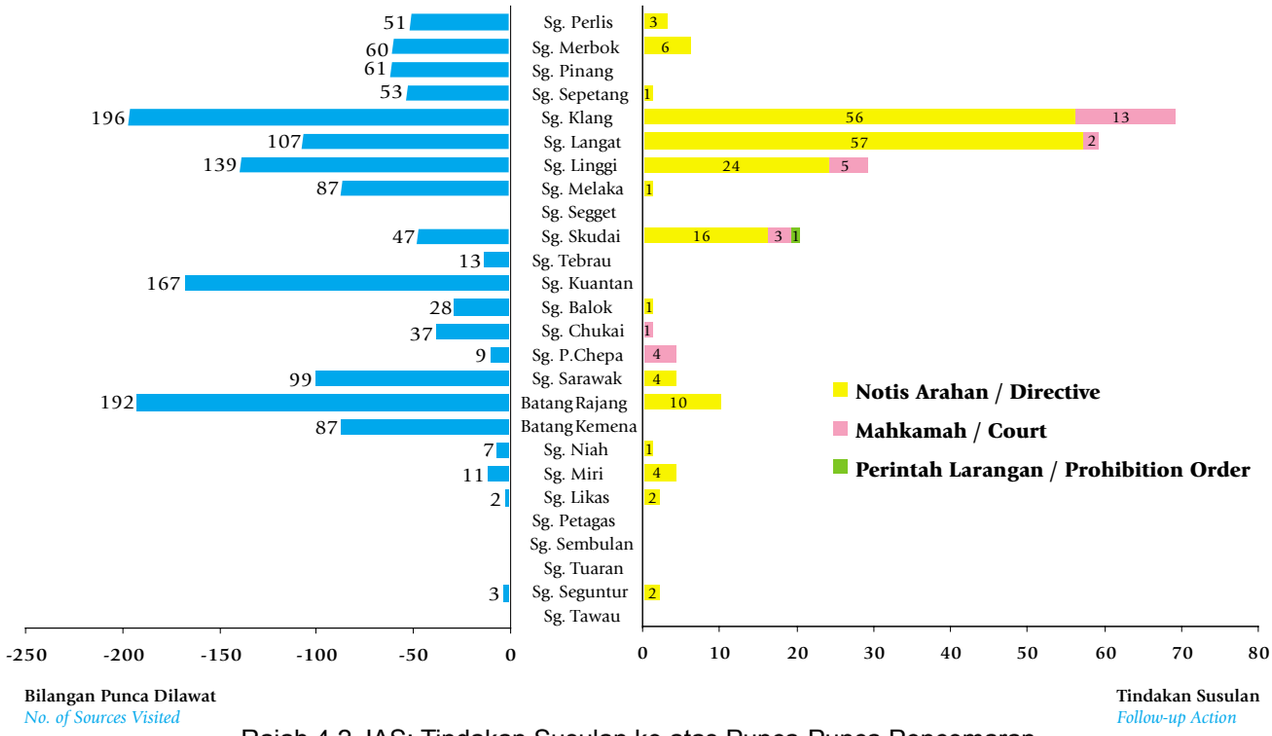
The promotion of environmental awareness was carried out among targeted groups such as industries, project proponents, local communities and school children to strengthen cooperation to help in pollution prevention (Figure 4.3). The activities included dialogues, talks and 'gotong-royong'.

Gambarfoto 4.4 JAS: Lawatan Penguatkuasaan ke atas premis industri
Photo 4.4 DOE: Enforcement visit to Industrial Premise

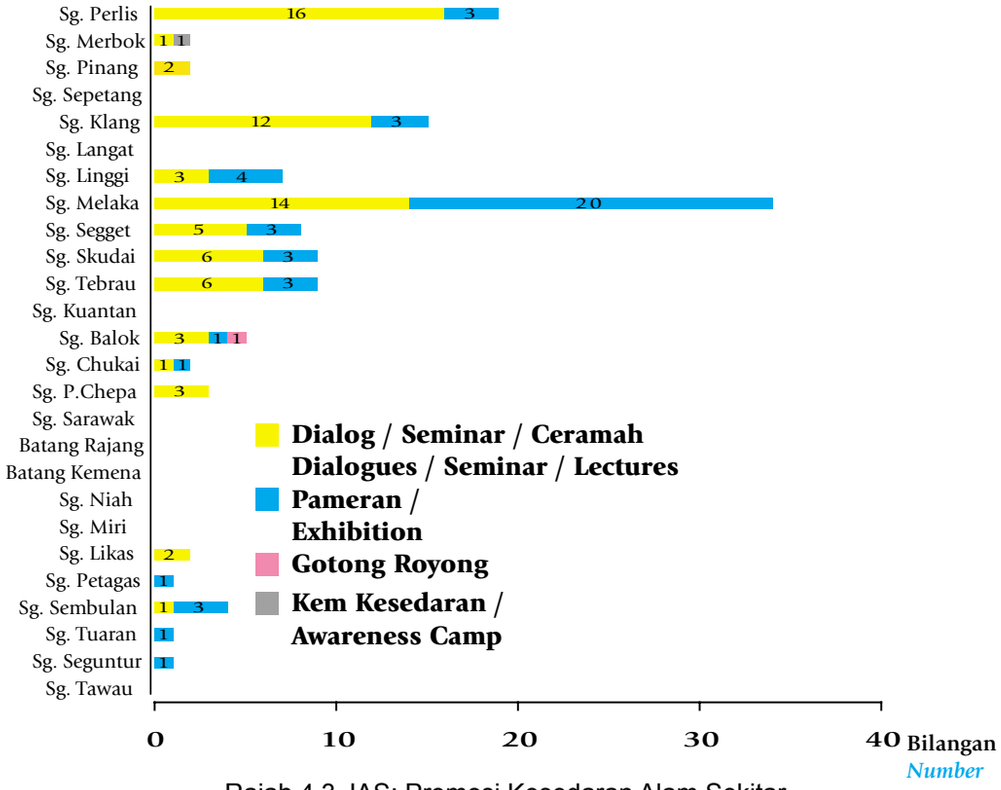
Gambarfoto 4.5 JAS: Pencemaran Sungai
Photo 4.5 DOE: River Pollution



Peta 4.3 JAS : Lembangan Sungai yang Terlibat di bawah Program Pencegahan Pencemaran Sungai dan Peningkatan Kualiti Air (Rancangan Malaysia ke Lapan)
Map 4.3 DOE: River Basins Selected under the River Pollution Prevention and Water Quality Improvement Program (Eighth Malaysian Plan)



Rajah 4.2 JAS: Tindakan Susulan ke atas Punca-Punca Pencemaran
Program Pencegahan Pencemaran dan Peningkatan Kualiti Air Sungai, 2005
Figure 4.2 DOE: Enforcement Visits / Follow-up Action on Pollution Sources
River Pollution Prevention and Water Quality Improvement Programme, 2005



Rajah 4.3 JAS: Promosi Kesedaran Alam Sekitar
Program Pencegahan Pencemaran dan Peningkatan Kualiti Air Sungai, 2005
Figure 4.3 DOE: Enviromental Awareness Promotion
River Pollution Prevention and Water Quality Improvement Programme, 2005

Kawalan Terhadap Premis Yang Ditetapkan
Control Of Prescribed Premises

Kilang Getah Asli Mentah dan Kilang Kelapa Sawit Mentah dikategorikan sebagai premis yang ditetapkan di bawah Perintah Kualiti Alam Sekeliling (Premis Yang Ditetapkan)(Getah Asli Mentah) 1978 dan Perintah Kualiti Alam Sekeliling (Premis Yang Ditetapkan)(Kelapa Sawit Mentah) 1977. Premis-premis yang ditetapkan ini perlu mempunyai lesen daripada Jabatan Alam Sekitar di bawah Seksyen 18, Akta Kualiti Alam Sekeliling, 1974.

Raw natural rubber factories and crude palm oil processing mills are classified as prescribed premises under the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Order, 1978 and the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order, 1977. These prescribed premises an operating license from the Department of Environment under section (18) of the Enviromental Quality Act, 1974.

Kilang Getah Asli Mentah

Pada tahun 2005, sejumlah 89 buah kilang getah asli mentah telah dilesenkan di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Getah Asli Mentah), 1978. Sebanyak 79 buah kilang telah dilesenkan untuk melepaskan effluen yang telah diolah ke alur air, sebuah kilang telah dilesenkan untuk melepaskan effluen ke atas tanah manakala baki sembilan (9) buah kilang dibenarkan untuk mengitar semula effluen. Rajah 4.4 menunjukkan bilangan kilang getah asli mentah mengikut negeri.

Raw Natural Rubber

In 2005, there were 89 raw natural rubber factories licensed under the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978. Out of these, 79 factories were licensed to discharge treated effluent into inland watercourses; one was permitted to do land disposal while the remaining nine (9) were allowed to recycle their effluent. Figure 4.4 shows the distribution for raw natural rubber factories throughout the country.

Sepanjang tahun 2005, pegawai-pegawai penguatkuasa Jabatan Alam Sekitar negeri telah menjalankan sebanyak 171 pemeriksaan ke atas 89 buah kilang getah asli mentah. Terutamanya yang mempunyai rekod pematuhan rendah (Rajah 4.4).

In 2005, DOE State Enforcement Officers conducted 171 inspections on 89 raw natural rubber factories especially those with low compliance record (Figure 4.4).

Keseluruhan pematuhan syarat-syarat lesen pada tahun 2005 adalah 77%.

Overall licensing compliance in 2005 was 77%.

Kilang Kelapa Sawit Mentah

Sebanyak 395 buah kilang kelapa sawit mentah telah dilesenkan pada tahun 2005 di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Premis Yang Ditetapkan) (Kelapa Sawit Mentah), 1977, Iaitu pertambahan sebanyak 12 buah kilang berbanding dengan tahun 2004. Dari 395 buah kilang yang dilesenkan ini, 241 buah kilang dilesenkan untuk

Crude Palm Oil

A total of 395 palm oil processing mills were licensed in 2005 under the Environmental Quality (Prescribed Premises) (Crude Palm Oil Mill) Regulations, 1977, an increase of 12 from 2004. Of these 395 licensed prescribed premises, 241 were granted permission to discharge treated effluent into inland watercourses, 120 to practise land disposal, and 31 to implement

melepaskan effluen terolah ke dalam alur air, 120 buah kilang untuk pelupusan effluen ke atas tanah, 31 buah kilang untuk pelupusan menggunakan kedua-dua kaedah dan tiga (3) buah kilang secara kitar semula (Rajah 4.5).

both methods of effluent disposal and three (3) effluent recycling (Figure 4.5).

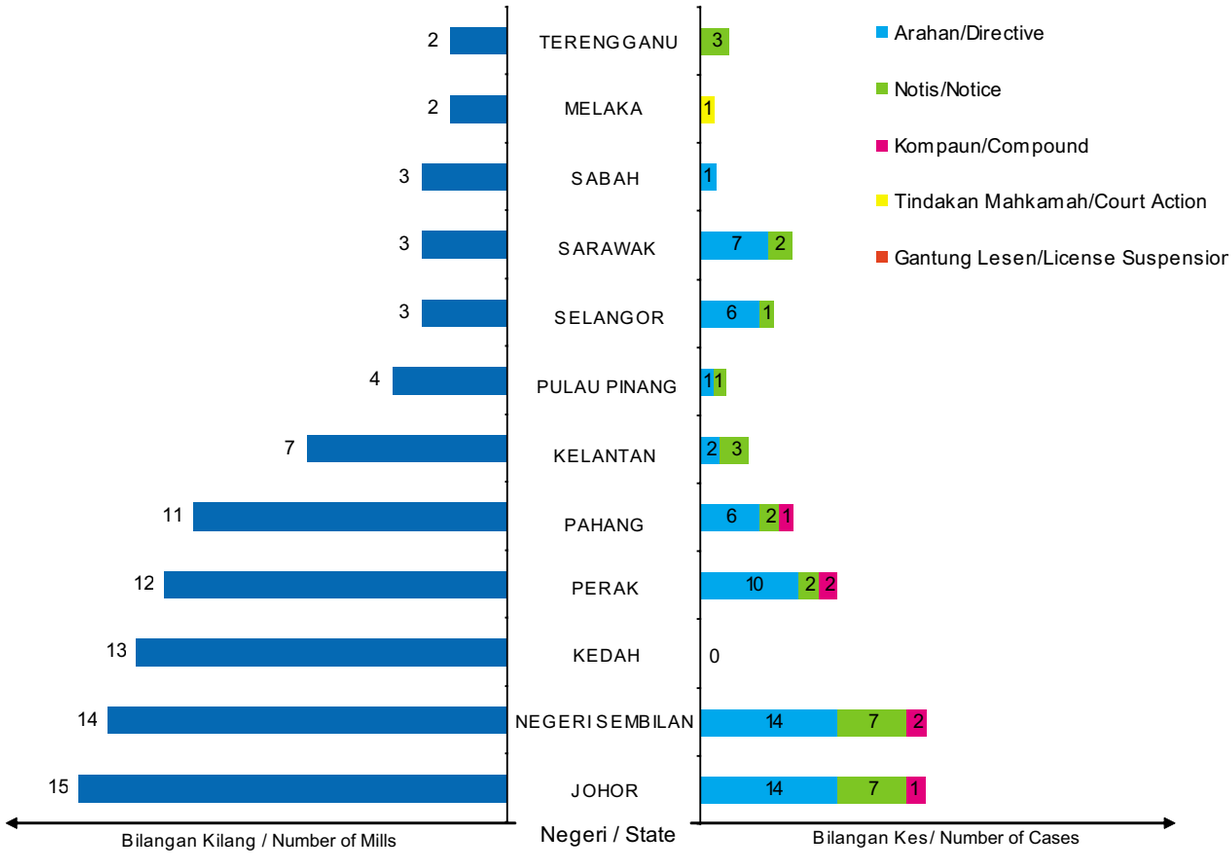
Sepanjang tahun 2005, 779 pemeriksaan ke atas kilang kelapa sawit di seluruh negara telah dilaksanakan oleh pegawai-pegawai penguatkuasa Jabatan Alam Sekitar Negeri (Rajah 4.5).

Throughout the year, 779 inspections on palm oil processing mills were conducted by DOE Officers at the State level (Figure 4.5).

Secara keseluruhannya, pematuhan syarat-syarat lesen pada tahun 2005 adalah 65%.

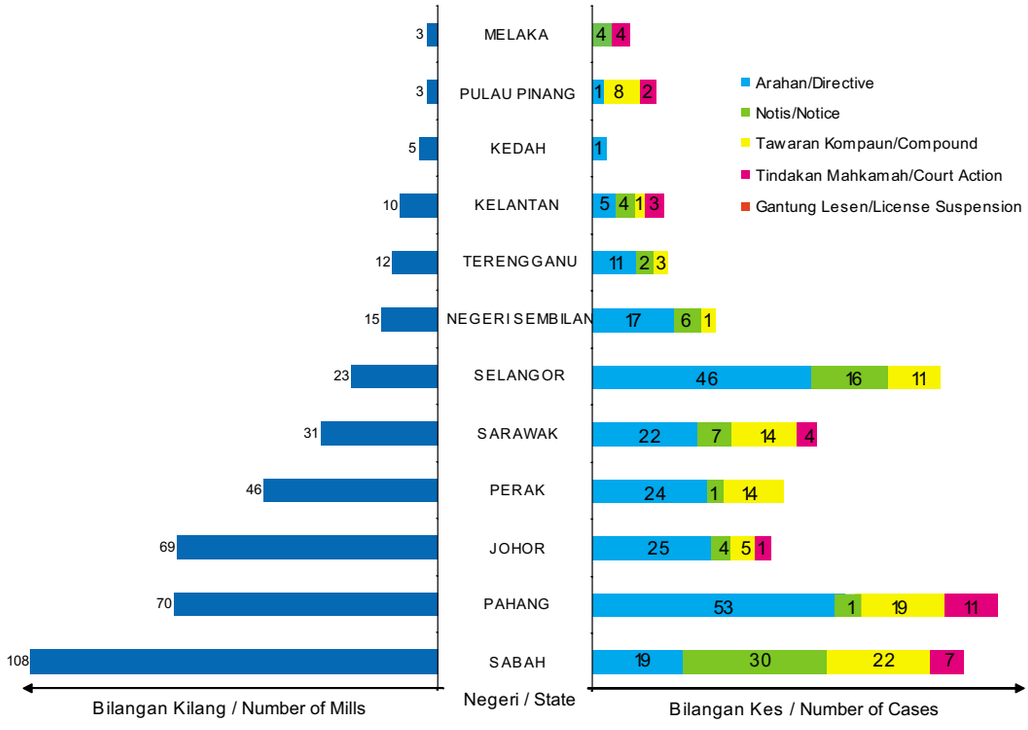
Overall licensing compliance in 2005 was 65%.

Gambarfoto 4.6 JAS: Pemandangan Udara Kilang Kelapa Sawit
Photo 4.6 DOE: Aerial View of Palm Oil Mill



Rajah 4.4 JAS: Tindakan Undang-Undang Terhadap Kilang Getah Asli Mentah, 2005

Figure 4.4 DOE: Legal Action Against Raw Natural Rubber Factories, 2005



Rajah 4.5 JAS: Tindakan Undang-Undang Terhadap Kilang Kelapa Sawit Mentah, 2005

Figure 4.5 DOE: Legal Action Against Crude Palm Oil Mills, 2005

Kawalan Terhadap Premis Yang Bukan Ditetapkan
Control Of Non-prescribed Premises

Pematuhan Terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Effluen Perindustrian) 1979

Premis-premis yang bukan ditetapkan dan melepaskan effluen adalah tertakluk kepada kawalan di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Effluen Perindustrian) 1979. Pada tahun 2005, Jabatan Alam Sekitar telah menjalankan 5,190 pemeriksaan terhadap 4,402 industri pembuatan dan premis-premis yang bukan ditetapkan lain yang tertakluk kepada Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Effluen Perindustrian) 1979. Pencapaian keseluruhan oleh premis yang bukan ditetapkan adalah 85%. Kegagalan pematuhan disebabkan melebihi standard pelepasan effluen (Peraturan 8) dan pembinaan loji pengolahan effluen serta pembesaran kilang tanpa mendapat Kelulusan Bertulis (Peraturan 4).

Dari 15% premis yang tidak mematuhi peraturan, 79 kes premis yang tertakluk kepada tindakan undang-undang dan telah dituduh di mahkamah dan didenda berjumlah RM1,948,200.00. Di samping itu Perintah Larangan beroperasi di bawah Seksyen 31A, Akta Kualiti Alam Sekeliling, 1974 telah dikeluarkan ke atas satu premis industri. Tindakan-tindakan lain yang diambil termasuk pengeluaran 734 surat arahan dan 220 notis arahan kepada industri untuk mengambil tindakan yang sepatutnya bagi mematuhi Akta Kualiti Alam Sekeliling, 1974 dan Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Effluen Perindustrian) 1979.

Industri jentera mencapai pematuhan 100%, sementara industri-industri berasaskan kayu, padi, kuari, simen, pengilangan logam, penapisan petroleum, ubatan, makanan ternakan, elektrik dan elektronik, hotel, plastik, kenderaan, loji pengolahan kumbahan mencapai 86% hingga 99% pematuhan. Walaupun demikian industri-industri kimia, tekstil,

Compliance With The Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979

Non-prescribed premises discharging effluents are subjected to the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979. In 2005, the Department of Environment conducted 5,190 inspections on 4,402 industrial premises and other non-prescribed premises that were subjected to the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979. The overall compliance by these non-prescribed premises was 85%. Non-compliance included exceeding effluent discharge standards (Regulation 8) and installation of effluent treatment plant and factory expansion without written approval (Regulation 4).

Of the 15% non-complying premises, 79 were subjected to legal action and were charged in court and fined a total of RM1,948,200.00. A Prohibition Order to cease operation under Section 31A of the Environmental Quality Act, 1974 was imposed on one industrial premise. Other action included issuance of 734 written directives and 220 written notices to industries to take appropriate action to comply with the Environmental Quality Act, 1974 and the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979.

The machinery industrial sector achieved 100% compliance, while wood-based, quarry, cement, metal, petroluem refinery, medical, animal feed, electric and electronic, hotel, plastics, transport, and sewerage treatment plants achieved 86% to 99% compliance. However, chemical-based, textile, metal fabrication, edible oil refinery, leather, food

fabrikasi logam, penapisan minyak (makanan), kulit, makanan dan minuman, kertas, percetakan, penyudahan logam dan sadur elektrik, loji rawatan air dan industri berasaskan getah mencatatkan peratus pematuhan 85% dan kurang (Rajah 4.6). Beberapa industri ini didapati beroperasi tanpa mempunyai loji pengolahan effluen ataupun loji pengolahan effluen yang ada tidak cekap. Faktor lain yang menyumbang kepada ketidakpatuhan ini adalah penyenggaraan loji pengolahan effluen yang lemah dan kurangnya pengetahuan/pengalaman dalam pengendalian loji pengolahan effluen.

and beverages, paper, printing, metal finishing and electroplating, water treatment plants and rubber-based industries had only less than 85% compliance (Figure 4.6). Some of these industries were found to be operating without effluent treatment plants or inefficient effluent treatment plants. Other factors that contributed to non-compliance were poor maintenance of effluent treatment plants as well as and lack of knowledge and experience to operate effluent treatment plants.

Parameter-parameter yang sukar dipatuhi ialah keperluan oksigen biokimia (BOD), keperluan oksigen kimia (COD), pepejal terampai (SS), minyak dan gris (O&G) dan logam-logam berat seperti tembaga, nikel dan kromium serta zink dan besi. Secara spesifiknya, industri elektrik dan elektronik gagal mematuhi standard bagi parameter COD, BOD, SS, nikel dan tembaga; industri pengilangan logam tidak mematuhi parameter COD; industri makanan dan minuman bagi parameter COD, BOD, SS dan O&G; industri kertas sukar mematuhi parameter COD, BOD, SS dan O&G; industri asas getah gagal mematuhi parameter COD dan SS; industri tekstil sukar mematuhi parameter COD dan SS; industri penyudahan logam dan sadur elektrik dengan parameter COD, BOD, SS, nikel, tembaga, zink, besi, kromium, arsenik dan sianid; dan loji pengolahan kumbahan persendirian pula sukar mematuhi parameter COD, BOD, SS dan O&G.

The problematic parameters were biochemical oxygen demand (BOD), chemical oxygen demand (COD), suspended solids (SS), oil and grease (O&G), heavy metals such as copper, nickel, chromium, zinc and iron. Specifically, the electric and electronic industries had difficulty with parameters such as COD, BOD, SS, nickel and copper; metal industries with COD; food and beverages industries COD, BOD, SS and O&G; paper industries COD, BOD, SS and O&G; rubber-based industries COD and SS; textile industries COD and SS; metal finishing and electroplating industries COD, BOD, SS, nickel, copper, zinc, iron, chromium, arsenic and cyanide; and private sewage treatment plants COD, BOD, SS and O&G.

Bagi meningkatkan pematuhan, JAS telah mengeluarkan arahan-arahan untuk memasang alat kawalan pencemaran yang sesuai dan effisien, meningkatkan keupayaan kemudahan kawalan pencemaran yang sedia ada dan juga pelaksanaan sistem pengurusan alam sekitar yang berksesan. Pelbagai aktiviti kesedaran dilaksanakan sepanjang tahun untuk kumpulan sasaran spesifik seperti dialog, seminar dan bengkel. Langkah-langkah lain termasuk penggunaan teknologi kawalan yang effisien, amalan pengeluaran bersih serta 'self-regulation'. Pihak industri juga dinasihatkan untuk mewujudkan sistem pengurusan alam sekitar yang baik dan mendapatkan pengiktirafkan ISO 14000.

To improve compliance, DOE had issued directives to install more appropriate and efficient control equipment, upgrade existing pollution control facilities and implement effective environmental management systems. In addition, various awareness activities were implemented throughout the year for specific target groups such as dialogues, seminars and workshops. Other measures included the promotion and adoption of more efficient control technologies, cleaner production practices as well as self-regulatory measures. The industries were also advised to set up good environmental management systems and be ISO 14000 certified.

Lesen Pelanggaran

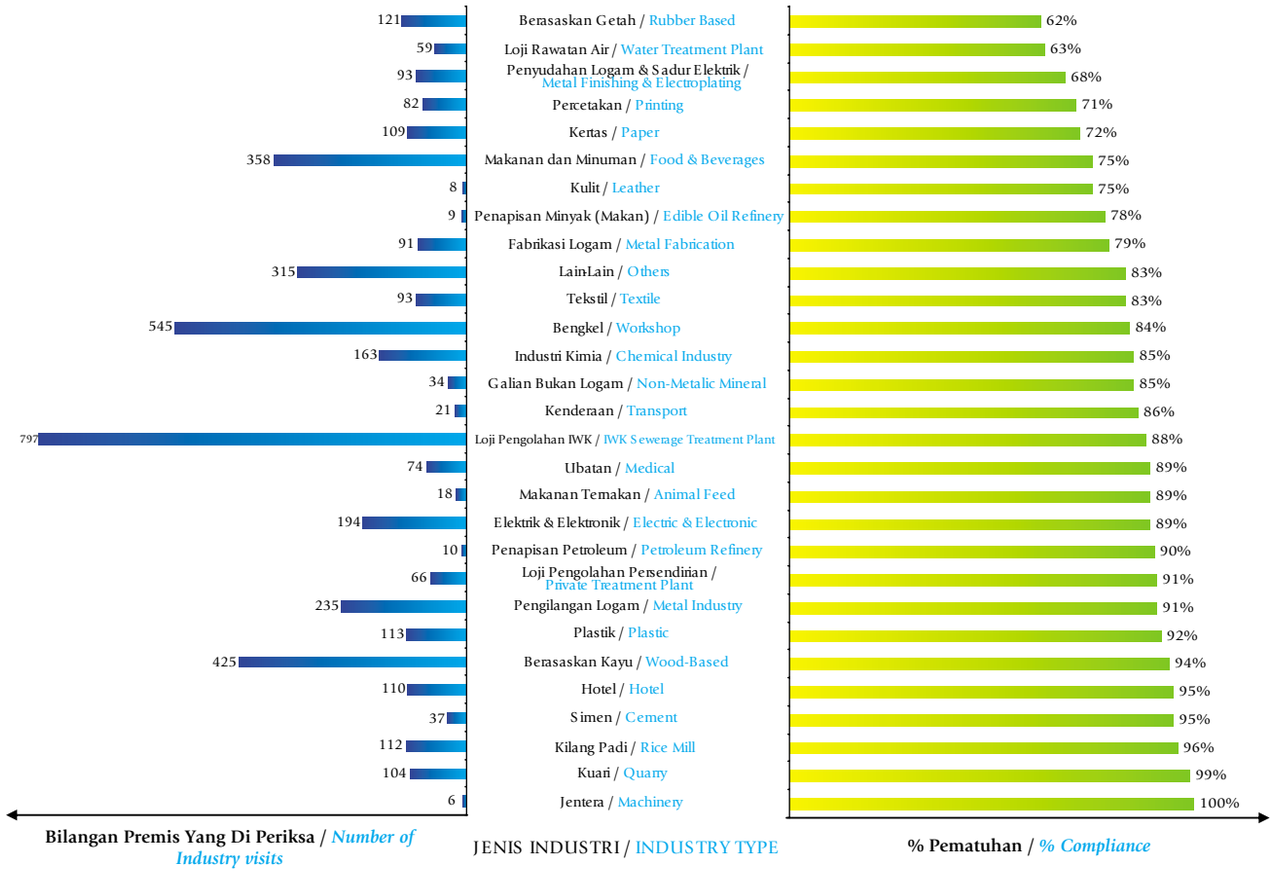
Di bawah Akta Kualiti Alam Sekeliling, 1974 Lesen Pelanggaran boleh dikeluarkan untuk tempoh masa yang spesifik bagi membenarkan industri yang menghadapi kesukaran untuk mematuhi standard pelepasan melanggar syarat-syarat yang dibenarkan untuk pelepasan effluen ke dalam pengairan daratan atau pelepasan bendasing udara ke atmosfera sebagaimana yang diperuntukkan di bawah Seksyen 25(1) dan Seksyen 22(1), Akta. Lesen pelanggaran memberikan masa untuk industri yang bermasalah memasang atau meningkatkan peralatan kawalan pencemaran. Justifikasi lesen pelanggaran adalah bergantung kepada penilaian mengenai situasi sosio-ekonomi, keadaan kualiti alam sekitar semasa dan juga komitmen dan keikhlasan pihak pengurusan untuk mematuhi keperluan undang-undang.

Pada tahun 2005, jumlah permohonan lesen pelanggaran di bawah Seksyen 25, Akta meningkat kepada 81 berbanding 59 dalam tahun 2004 (Rajah 4.7). Dari 81 permohonan, 63 telah diluluskan dan 18 ditolak. Dari 63 lesen pelanggaran yang diluluskan, 31 (49%) lesen adalah untuk industri makanan dan minuman, 5 (8%) untuk industri berasaskan getah dan kertas dan 3 (5%) untuk industri tekstil, kimia dan penyudahan logam dan sadur elektrik. Antara parameter di bawah lesen pelanggaran adalah keperluan oksigen biokimia, keperluan oksigen kimia, pepejal terampai, minyak dan gris, pH, arsenik, sianid, plumbum, kromium, tembaga, mangganam, nikel, besi, zink, boron dan fenol. Penguatkuasaan telah dijalankan terhadap premis-premis yang dilesenkan bagi menentukan paras pematuhan. Pematuhan keseluruhan terhadap syarat-syarat lesen pelanggaran pada tahun 2005 adalah 92%.

Contravention Licenses

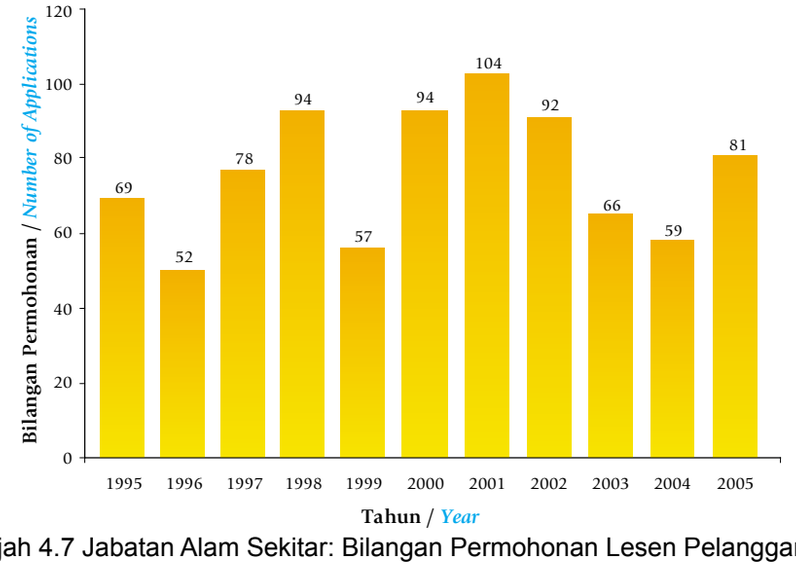
Under the Environmental Quality Act, 1974 contravention licenses may be granted for a specific time frame to allow industries with genuine difficulties complying with stipulated discharge or emission standards to contravene acceptable conditions of effluent discharges into watercourses or emissions into atmosphere as provided for under Section 25(1) and Section 22(1) of the Act. These contravention licenses would provide problematic industries with adequate time to install or upgrade their pollution control systems. Justification for such contravention licenses would depend on the assessment of the socio-economic situation, the existing environmental quality and management commitment and sincerity to comply with the requirement.

In 2005, the total number of applications for contravention licenses under Section 25 of the Act increased to 81 compared to 59 in 2004 (Figure 4.7). Of the 81 applications, 63 were approved and 18 were rejected. Of the 63 approved contravention licenses, 31 (49%) licenses were for food and beverages industries, 5 (8%) for rubber-based and paper industries, 3 (5%) for textile, chemical and metal finishing and electroplating industries respectively (Figure 4.8). Among parameters under contravention licenses were biochemical oxygen demand, chemical oxygen demand, suspended solids, oil and grease, pH, arsenic, cyanide, lead, chromium, copper, manganese, nickel, iron, zinc, boron and phenol. Enforcement visits to licensed premises were conducted to determine level of compliance. The overall compliance with the conditions of contravention licenses in 2005 was 92%.



Rajah 4.6 Jabatan Alam Sekitar: Peraturan-Peraturan Kualiti Alam Sekeliling (Kumbahan dan Effluen-Effluen Perindustrian) 1979 Status Pematuhan, 2005

Figure 4.6 Department of Environment: Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979, Compliance Status, 2005



Rajah 4.7 Jabatan Alam Sekitar: Bilangan Permohonan Lesen Pelanggaran Di Bawah Seksyen 25(1) AKAS 1974, (1995 - 2005)

Figure 4.7 Department of Environment: Number of Contravention Licenses Under Section 25(1) EQA 1974, (1995 - 2005)

Pengawasan Kualiti Air Marin Kebangsaan
Marine Water Quality Monitoring

Program Pengawasan Kualiti Air Marin Kebangsaan telah dimulakan pada tahun 1978 di Semenanjung Malaysia dan diperkembangkan ke Sabah dan Sarawak pada tahun 1985. Pengawasan kualiti air marin membantu menyediakan maklumat penting dalam pembentukan strategi pengurusan.

Terdapat 221 stesen pengawasan (Peta 4.1, 4.2) di seluruh Malaysia; Perlis (2 stesen); Kedah (3 stesen); Pulau Langkawi (7 stesen); Pulau Pinang (23 stesen); Perak (13 stesen); Selangor (14 stesen); Negeri Sembilan (13 stesen); Melaka (9 stesen); Johor (45 stesen); Pahang (11 stesen); Terengganu (19 stesen); Kelantan (10 stesen); Sabah (26 stesen); W.P Labuan (5 stesen) dan Sarawak (21 stesen) (Jadual 4.1). Satu stesen telah ditutup pada tahun 2005 (Jadual 4.2).

Di samping itu, Program Pengawasan Selat Johor di bawah 'Malaysia-Singapore Joint Commitee on the Environment' (MSJCE) yang melibatkan 14 stesen (Jadual 4.3) dan pengawasan dijalankan sebanyak dua (2) kali pada tahun 2005.

Marine water quality monitoring started in 1978 for Peninsular Malaysia and was extended in 1985 to cover Sabah and Sarawak. Monitoring of marine water quality provides essential information for the formulation of coastal zone management strategies.

A total of 221 monitoring stations (Maps 4, 4.2) were set up throughout Malaysia; Perlis (2 stations); Kedah (3 stations); Pulau Langkawi (7 stations); Pulau Pinang (23 stations); Perak (13 stations); Selangor (14 stations); Negeri Sembilan (13 stations); Melaka (9 stations); Johor (45 stations); Pahang (11 stations); Terengganu (19 stations); Kelantan (10 stations); Sabah (26 stations); W.P Labuan (5 stations) dan Sarawak (21 stations) (Table 4.1). One monitoring station was closed down in 2005 (Table 4.2).

In addition, the Straits of Johor Monitoring Programme under the Malaysia-Singapore Joint Commitee on the Environment (MSJCE) consisted of 14 stations (Table 4.3) and monitoring was carried out twice in 2005.

Gambarfoto 4.7 JAS: Pantai Rekreasi
Photo 4.7 DOE: Recreational Beach

Jadual 4.1 JAS: Stesen Pengawasan Kualiti Air Marin Kebangsaan, 2005

Table 4.1 DOE: Marine Water Quality Monitoring Stations, 2005

Bil. *No.*	Negeri *State*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
1	Perlis	Kuala/ Estuarine	Kuala Sg. Baru	6302903	N 06° 19' 54.5"	E 100° 09' 20.0"
2	Perlis	Kuala/ Estuarine	Kuala Sg. Perlis	6401901	N 06° 23' 59.0"	E 100° 07' 34.8"
1	P.Langkawi	Pantai/ Coastal	Langkawi Island Resort	6399914	N 06° 17' 51.1"	E 099° 51' 38.3"
2	P.Langkawi	Pantai/ Coastal	Pantai Kok	6397922	N 06° 21' 12.0"	E 099° 40' 43.7"
3	P.Langkawi	Pantai/ Coastal	Pantai Kuah	6398913	N 06° 17' 04.1"	E 099° 51' 04.5"
4	P.Langkawi	Pantai/ Coastal	Pantai Pasir Tengkorak	6497901	N 06° 25' 46.3"	E 099° 43' 37.2"
5	P.Langkawi	Pantai/ Coastal	Pantai Teluk Burau	6396923	N 06° 21' 52.4"	E 099° 40' 13.7"
6	P.Langkawi	Pantai/ Coastal	Pantai Teluk Nibung	6497915	N 06° 21' 38.9"	E 099° 42' 08.1"
7	P.Langkawi	Pantai/ Coastal	Pantai Tengah	6297903	N 06° 13' 52.4"	E 099° 43' 46.8"
1	Kedah	Kuala/ Estuarine	Kuala Sg. Kedah	6102908	N 06° 06' 13.0"	E 100° 16' 32.0"
2	Kedah	Kuala/ Estuarine	Kuala Jerlun	6302925	N 06° 12' 36.0"	E 100° 14' 20.9"
3	Kedah	Pantai/ Coastal	Pantai Merdeka	5603905	N 05° 40' 10.0"	E 100° 22' 40.0"
1	Pulau Pinang	Kuala/ Estuarine	Kuala Sg. Jawi	5204901	N 05° 16' 50.0"	E 100° 25' 00.0"
2	Pulau Pinang	Kuala/ Estuarine	Kuala Sg. Juru	5304904	N 05° 20' 20.0"	E 100° 24' 20.0"
3	Pulau Pinang	Kuala/ Estuarine	Kuala Sg. Kerian	5104901	N 05° 10' 00.0"	E 100° 25' 00.0"
4	Pulau Pinang	Kuala/ Estuarine	Kuala Sg. Pinang	5403934	N 05° 24' 00.0"	E 100° 25' 05.0"
5	Pulau Pinang	Kuala/ Estuarine	Kuala Sg. Perai	5303908	N 05° 23' 00.0"	E 100° 22' 00.0"
6	Pulau Pinang	Pantai/ Coastal	Batu Feringgi (Casuarina)	5402904	N 05° 28' 10.0"	E 100° 14' 30.0"
7	Pulau Pinang	Pantai/ Coastal	Batu Maung	5202901	N 05° 17' 10.0"	E 100° 17' 25.0"
8	Pulau Pinang	Pantai/ Coastal	Gertak Sanggul	5201919	N 05° 16' 50.0"	E 100° 12' 40.0"
9	Pulau Pinang	Pantai/ Coastal	Kaw. Per. Bayan Lepas I	5303932	N 05° 20' 00.0"	E 100° 18' 45.0"
10	Pulau Pinang	Pantai/ Coastal	Kaw. Per. Bayan Lepas II	5303933	N 05° 19' 00.0"	E 100° 18' 30.0"
11	Pulau Pinang	Pantai/ Coastal	Kaw. Per. Bayan Lepas III	5302939	N 05° 18' 20.0"	E 100° 17' 45.0"
12	Pulau Pinang	Pantai/ Coastal	Luar Pantai Teluk Bahang	5402930	N 05° 27' 45.0"	E 100° 12' 45.0
13	Pulau Pinang	Pantai/ Coastal	Pantai Bersih	5403906	N 05° 26' 30.0"	E 100° 22' 40.0"
14	Pulau Pinang	Pantai/ Coastal	Pantai Miami	5502901	N 05° 28' 30.0"	E 100° 16' 00.0"
15	Pulau Pinang	Pantai/ Coastal	Pantai Pasir Panjang	5201938	N 05° 17' 50.0"	E 100° 11' 00.0"
16	Pulau Pinang	Pantai/ Coastal	Persiaran Gurney	5403902	N 05° 25' 30.0"	E 100° 19' 30.0"
17	Pulau Pinang	Pantai/ Coastal	Pulau Aman	5203910	N 05° 15' 50.0"	E 100° 23' 35.0"
18	Pulau Pinang	Pantai/ Coastal	Rumah Pam Baru Perai	5304927	N 05° 21' 15.0"	E 100° 23' 15.0"
19	Pulau Pinang	Pantai/ Coastal	Rumah Pam Lama Perai	5303926	N 05° 20' 00.0"	E 100° 18' 45.0"
20	Pulau Pinang	Pantai/ Coastal	Selat PP Selatan (Jelutong)	5303911	N 05° 23' 30.0"	E 100° 19' 50.0"
21	Pulau Pinang	Pantai/ Coastal	Tanjung Bungah	5402937	N 05° 28' 00.0"	E 100° 16' 50.0"
22	Pulau Pinang	Pantai/ Coastal	Teluk Bahang (P. Mutiara)	5402912	N 05° 28' 46.0"	E 100° 15' 41.0"
23	Pulau Pinang	Pantai/ Coastal	Teluk Tempoyak	5202923	N 05° 28' 30.0"	E 100° 17' 30.0"
1	Perak	Kuala/ Estuarine	Kuala Sg. Manjung	4205930	N 04° 14' 09.0"	E 100° 39' 57.0"
2	Perak	Kuala/ Estuarine	Kuala Sg. Tg. Piandang	5003921	N 05° 04' 27.0"	E 100° 22' 34.0"
3	Perak	Kuala/ Estuarine	Kuala Sg. Gula	4906926	N 04° 55' 07.0"	E 100° 28' 57.0"
4	Perak	Kuala/ Estuarine	Kuala Sg. Kurau	4994919	N 04° 59' 13.0"	E 100° 25' 46.0"
5	Perak	Kuala/ Estuarine	Kuala Sg. Perak	4007901	N 03° 59' 03.0"	E 100° 48' 58.0"
6	Perak	Kuala/ Estuarine	Kuala Sg. Sepetang	4806925	N 04° 50' 07.0"	E 100° 37' 57.0"
7	Perak	Pantai/ Coastal	Pantai Pasir Bogak	4205908	N 04° 12' 58.0"	E 100° 37' 55.0"

Jadual 4.1 JAS: Stesen Pengawasan Kualiti Air Marin Kebangsaan, 2005
Table 4.1 DOE: Marine Water Quality Monitoring Stations, 2005

Bil. *No.*	Negeri *State*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
8	Perak	Pantai/ Coastal	Pantai Pasir Panjang	4205924	N 04° 25' 07.0"	E 100° 35' 35.0"
9	Perak	Pantai/ Coastal	Pantai Puteri Dewi	4205907	N 04° 15' 17.0"	E 100° 32' 47.0"
10	Perak	Pantai/ Coastal	Pantai Tanjung Batu	4406927	N 04° 25' 07.0"	E 100° 35' 35.0"
11	Perak	Pantai/ Coastal	Pantai Teluk Batik	4205923	N 04° 11' 14.0"	E 100° 36' 33.0"
12	Perak	Pantai/ Coastal	Pantai Teluk Dalam	4205928	N 04° 14' 53.0"	E 100° 33' 25.0"
13	Perak	Pantai/ Coastal	Pantai Teluk Gedung	4205929	N 04° 15' 39.0"	E 100° 34' 49.0"
1	Selangor	Pantai/ Coastal	Pantai Bagan Lalang	2616927	N 02° 36' 20.0"	E 101° 41'30.0"
2	Selangor	Pantai/ Coastal	Pantai Morib	2712902	N 02° 45' 00.0"	E 101° 26' 20.0"
3	Selangor	Pantai/ Coastal	Selat Pulau Babi	3012929	N 03° 01' 10.0"	E 101° 15' 55.0"
4	Selangor	Pantai/ Coastal	Selat Klang Utara	3013908	N 03° 04' 00.0"	E 101° 21' 00.0"
5	Selangor	Kuala/ Estuarine	Kuala Sg. Sepang	2517922	N 02° 35' 35.0"	E 101° 42' 56.0"
6	Selangor	Kuala/ Estuarine	Kuala Sg. Sepang (Kecil)	2612928	N 02° 36' 40.0"	E 101° 42' 15.0"
7	Selangor	Kuala/ Estuarine	Kuala Sg. Sepang (Kawalan)	2616926	N 03° 36' 20.0"	E 101° 41' 30.0"
8	Selangor	Kuala/ Estuarine	Kuala Sg. Klang	3013909	N 03° 00' 06.0"	E 101° 23' 24.0"
9	Selangor	Kuala/ Estuarine	Kuala Sg Langat (Jugra)	2814925	N 02° 48' 25.0"	E 101° 24' 15.0"
10	Selangor	Kuala/ Estuarine	Kuala Sg Langat (Lumut)	2913903	N 02° 55' 50.0"	E 101° 21' 15.0"
11	Selangor	Kuala/ Estuarine	Kuala Sg. Buloh	3212930	N 03° 15' 10.0"	E 101° 15' 50.0"
12	Selangor	Kuala/ Estuarine	Kuala Sg. Selangor	3312915	N 03° 20' 00.0"	E 101° 13' 30.0"
13	Selangor	Kuala/ Estuarine	Kuala Sg. Tengi	3311931	N 03° 23' 00.0"	E 101° 10' 20.0"
14	Selangor	Kuala/ Estuarine	Kuala Sg. Bernam	3808924	N 03° 51' 00.0"	E 100° 49' 00.0"
1	N. Sembilan	Kuala/ Estuarine	Kuala Sg. Linggi	2319901	N 02° 23' 20.0"	E 101° 58' 19.0"
2	N. Sembilan	Kuala/ Estuarine	Kuala Sg. Lukut	2517910	N 02° 34' 45.0"	E 101° 47' 16.0"
3	N. Sembilan	Pantai/ Coastal	Bagan Pinang	2418915	N 02° 30' 31.0"	E 101° 49' 44.0"
4	N. Sembilan	Pantai/ Coastal	Pantai Teluk Sinting	2419908	N 02° 24' 57.0"	E 101° 56' 31.0"
5	N. Sembilan	Pantai/ Coastal	P.D. Bandar	2517907	N 02° 31' 16.0"	E 101° 47' 51.0"
6	N. Sembilan	Pantai/ Coastal	P.D. Batu 10	2418914	N 02° 24' 58.0"	E 101° 51' 23.0"
7	N. Sembilan	Pantai/ Coastal	P.D. Batu 5	2418906	N 02° 29' 46.0"	E 101° 50' 15.0"
8	N. Sembilan	Pantai/ Coastal	P.D. Batu 6	2418916	N 02° 29' 05.0"	E 101° 50' 46.0"
9	N. Sembilan	Pantai/ Coastal	P.D. Batu 7	2418905	N 02° 27' 43.0"	E 101° 51' 04.0"
10	N. Sembilan	Pantai/ Coastal	P.D. Batu 8	2418912	N 02° 27' 16.0"	E 101° 51' 20.0"
11	N. Sembilan	Pantai/ Coastal	P.D. Batu 8 (Stesen Kawalan)	2418913	N 02° 27' 16.0"	E 101° 51' 10.0"
12	N. Sembilan	Pantai/ Coastal	P.D. Janakuasa TNB	2517909	N 02° 32' 08.0"	E 101° 47' 42.0"
13	N. Sembilan	Pantai/ Coastal	Telok Pelanduk	2419917	N 02° 25' 03.0"	E 101° 53' 34.0"
1	Melaka	Kuala/ Estuarine	Kuala Sg. Kesang	2186905	N 02° 05' 43.0"	E 102° 29' 12.0"
2	Melaka	Kuala/ Estuarine	Kuala Sg. Melaka	2122903	N 02° 11' 06.0"	E 102° 14' 52.0"
3	Melaka	Kuala/ Estuarine	Kuala Sg. Merlimau	2124912	N 02° 09' 25.0"	E 102° 25' 28.0"
4	Melaka	Kuala/ Estuarine	Kuala Sg. Sebatu	2186904	N 02° 06' 06.0"	E 102° 27' 35.0"
5	Melaka	Pantai/ Coastal	Pantai Kundor	2221908	N 02° 14' 37.0"	E 102° 08' 29.0"
6	Melaka	Pantai/ Coastal	Pantai Rombang	2221906	N 02° 13' 35.0"	E 102° 08' 57.0"
7	Melaka	Pantai/ Coastal	Pantai Tg. Bidara	2320909	N 02° 17' 30.0"	E 102° 05' 18.0"
8	Melaka	Pantai/ Coastal	Pulau Besar	2123911	N 02° 07' 57.0"	E 102° 20' 09.0"
9	Melaka	Pantai/ Coastal	Teluk Gong Pengkalan Balak	2320902	N 02° 20' 23.0"	E 102° 03' 30.0"

Jadual 4.1 JAS: Stesen Pengawasan Kualiti Air Marin Kebangsaan, 2005

Table 4.1 DOE: Marine Water Quality Monitoring Stations, 2005

Bil. *No.*	Negeri *State*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
1	Johor	Pantai/ Coastal	Kg.Tanjung Kopok	SJ1	N 01° 25' 31.0"	E 104° 00' 03.0"
2	Johor	Pantai/ Coastal	Kg. Pasir Putih	SJ2	N 01° 25' 48.0"	E 103° 55' 40.0"
3	Johor	Pantai/ Coastal	J/k Sultan Iskandar	SJ3	N 01° 26' 49.0"	E 103° 46' 09.0"
4	Johor	Pantai/ Coastal	Kg.Senibung	SJ4	N 01° 29' 01.0"	E 103° 48' 47.0"
5	Johor	Kuala/ Estuarine	Kuala Sg. Tebrau	SJ4A	N 01° 28' 56.0"	E 103° 47' 48.0"
6	Johor	Pantai/ Coastal	Tanjung Putri	SJ5	N 01° 27' 20.0"	E 103° 46' 09.0"
7	Johor	Pantai/ Coastal	Hadapan MPJB (W.F.CT)	SJ6	N 01° 27' 08.0"	E 103° 45' 43.0"
8	Johor	Pantai/ Coastal	Tanjung Danga	SJ7	N 01° 27' 24.0"	E 103° 42' 52.0"
9	Johor	Kuala/ Estuarine	Kuala Sg.Skudai	SJ7A	N 01° 27' 46.0"	E 103° 43' 22.0"
10	Johor	Pantai/ Coastal	Depan Pusat Islam	SJ7B	N 01° 27' 19.0"	E 103° 44' 51.0"
11	Johor	Pantai/Coastal	Tebing Runtuh	SJ8	N 01° 25' 10.0"	E 103° 40' 06.0"
12	Johor	Kuala/ Estuarine	Kuala Sg.Melayu	SJ8A	N 01° 26' 53.0"	E 103° 41' 53.0"
13	Johor	Pantai/Coastal	Tanjung Bunga	SJ9	N 01° 23' 07.0"	E 103° 39' 02.0"
14	Johor	Pantai/Coastal	Tanjung Kupang	SJ10	N 01° 23' 36.0"	E 103° 39' 11.0"
15	Johor	Kuala/ Estuarine	Kuala Sungai Batu Pahat	1729930	N 01° 47' 44.0"	E 102° 53' 22.0"
16	Johor	Kuala/ Estuarine	Kuala Sungai Johor	1440916	N 01° 29' 04.0"	E 104° 01' 22.0"
17	Johor	Kuala/ Estuarine	Kuala Sungai Melayu	1437946	N 01° 27' 15.0"	E 103° 41' 56.0"
18	Johor	Kuala/ Estuarine	Kuala Sungai Mersing	2438905	N 02° 26' 10.0"	E 103° 50' 35.0"
19	Johor	Kuala/ Estuarine	Kuala Sungai Muar	2024932	N 02° 02' 54.0"	E 102° 33' 11.0"
20	Johor	Kuala/ Estuarine	Kuala Sungai Segget	1437919	N 01° 27' 21.0"	E 103° 45' 58.0"
21	Johor	Kuala/ Estuarine	Kuala Sungai Skudai	1437922	N 01° 28' 28.0"	E 103° 43' 12.0"
22	Johor	Kuala/ Estuarine	Kuala Sungai Tebrau	1438943	N 01° 28' 56.0"	E 103° 47' 48.0"
23	Johor	Pantai/Coastal	Jeti Tanjong Belungkor	1440963	N 01° 27' 14.0"	E 104° 04' 03.0"
24	Johor	Pantai/Coastal	Jeti Teluk Jawa	1438918	N 01° 28' 17.0"	E 103° 50' 30.0"
25	Johor	Pantai/Coastal	Pantai Air Papan	2538959	N 02° 31' 05.0"	E 103° 50' 00.0"
26	Johor	Pantai/Coastal	Pantai Desaru	1542914	N 01° 32' 48.0"	E 104° 15' 41.0"
27	Johor	Pantai/Coastal	Pantai Kukup	1334925	N 01° 19' 30.0"	E 103° 26' 29.0"
28	Johor	Pantai/Coastal	Pantai Lido	1437921	N 01° 27' 56.0"	E 103° 43' 29.0"
29	Johor	Pantai/Coastal	Pantai Sri Pantai	2339960	N 02° 22' 45.0"	E 103° 53' 19.0"
30	Johor	Pantai/Coastal	Pantai Stulang Laut	1437951	N 01° 28' 02.0"	E 103° 46' 46.0"
31	Johor	Pantai/Coastal	Pantai Sungai Lurus	1730962	N 01° 43' 14.0"	E 103° 01' 43.0"
32	Johor	Pantai/Coastal	Pantai Tanjong Setapa	1341961	N 01° 20' 33.0"	E 104° 08' 09.0"
33	Johor	Pantai/Coastal	Pantai Teluk Gorek	2538958	N 01° 34' 57.0"	E 103° 48' 18.0"
34	Johor	Pantai/Coastal	Pantai Teluk Mahkota	1841911	N 01° 53' 52.0"	E 104° 06' 15.0"
35	Johor	Pantai/Coastal	Pantai Tg. Leman	2140694	N 02° 08' 43.0"	E 104° 00' 24.0"
36	Johor	Pantai/Coastal	Pasir Gogok	1441966	N 01° 25' 02.8"	E 104° 05' 59.7"
37	Johor	Pantai/Coastal	Pel. Pasir Gudang	1428939	N 01° 25' 44.0"	E 103° 54' 03.0"
38	Johor	Pantai/Coastal	Tanjung Buai	1340973	N 01° 29' 48.1"	E 104° 02' 43.4"
39	Johor	Pantai/Coastal	Tanjung Merak	1441968	N 01° 21' 45.9"	E 104° 06' 35.5'
40	Johor	Pantai/Coastal	Tanjung Pengelih	1441967	N 01° 22' 14.7"	E 104° 05' 19.5'
41	Johor	Pantai/Coastal	Tanjung Penyusup	1444920	N 01° 22' 12.9"	E 104° 16' 48.3"
42	Johor	Pantai/Coastal	Tanjung Sepang	1443969	N 01° 23' 01.2"	E 104° 06' 44.8"

Jadual 4.1 JAS: Stesen Pengawasan Kualiti Air Marin Kebangsaan, 2005
Table 4.1 DOE: Marine Water Quality Monitoring Stations, 2005

Bil. *No.*	Negeri *State*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
43.	Johor	Pantai/Coastal	Hadapan HSAJB	1437920	N 01° 27' 19.0"	E 103° 44' 44.1"
44.	Johor	Pantai/Coastal	Pantai Punggur	1531974	N 01° 41' 04.9"	E 103° 05' 54.0"
45.	Johor	Pantai/Coastal	Sungai Kim-Kim	1439965	N 01° 25' 24.0"	E 103° 58' 32.0"
1	Pahang	Pantai/Coastal	Pantai Sepat	3633940 (A)	N 03° 42' 02.0"	E 103° 20' 16.0"
				3633940 (B)	N 03° 41' 54.0"	E 103° 20' 19.0"
2	Pahang	Pantai/Coastal	Pantai Batu Hitam	3833915 (A)	N 03° 53' 06.0"	E 103° 21' 58.0"
				3833915 (B)	N 03° 53' 09.0"	E 103° 21' 59.0"
3	Pahang	Pantai/Coastal	Pantai Cherating (Club Med)	4133903 (A)	N 04° 08' 41.0"	E 103° 24' 31.0"
				4133903 (B)	N 04° 07' 51.0"	E 103° 24' 23.0"
4	Pahang	Pantai/Coastal	Pantai Cherating (Legend)	4133942 (A)	N 04° 06' 16.0"	E 103° 23' 06.0"
				4133942 (B)	N 04° 06' 12.0"	E 103° 23' 07.0"
5	Pahang	Pantai/ Coastal	Pantai Kuala Api-Api	3235917 (A)	N 03° 31' 20.0"	E 103° 23' 45.0"
6	Pahang	Pantai/ Coastal	Pantai Muhibbah Balok	3933901 (A)	N 03° 55' 28.0"	E 103° 22' 21.0"
				3933901 (B)	N 03° 55' 30.0"	E 103° 22' 23.0"
7	Pahang	Pantai/ Coastal	Pantai Beserah	3933941 (A)	N 03° 54' 41.0"	E 103° 22' 02.0"
				3933941 (B)	N 03° 54' 39.0"	E 103° 22' 01.0"
8	Pahang	Pantai/ Coastal	Pantai Tanjung Batu	3334915 (A)	N 03° 31' 10.0"	E 103° 23' 45.0"
9	Pahang	Pantai/Coastal	Pantai Teluk Cempedak	2833910 (A)	N 03° 48' 51.0"	E 103° 22' 19.0"
				3833910 (B)	N 03° 48' 49..0"	E 103° 22' 21.0"
10	Pahang	Pantai/Coastal	Pantai Teluk Gelora	3833909 (A)	N 03° 48' 16.0"	E 103° 20' 43.0"
				3833909 (B)	N 03° 48' 20.0"	E 103° 20' 53.0"
11	Pahang	Pantai/ Coastal	Pantai Legenda	3534943 (A)	N 03° 12' 16.7"	E 103° 26' 53.7"
				3534943 (B)	N 03° 12' 16.7"	E 103° 26' 53.7"
1	Terengganu	Kuala/ Estuarine	Kuala Sg. Besut	5825902	N 05° 50' 02.8"	E 102° 33' 28.8"
2	Terengganu	Kuala/ Estuarine	Kuala Sg. Dungun	4734918	N 04° 46' 48.9"	E 103° 25' 21.6"
3	Terengganu	Kuala/ Estuarine	Kuala Sg. Ibai	5231949	N 05° 17' 06.0"	E 103° 10' 06.5"
4	Terengganu	Kuala/ Estuarine	Kuala Sg. Kerteh	4534922	N 04° 30' 59.1"	E 102° 26' 52.6"
5	Terengganu	Kuala/ Estuarine	Kuala Sg. Kerteh Tioxide Utara	4234950	N 04° 17' 06.3"	E 103° 28' 20.9"
6	Terengganu	Kuala/ Estuarine	Kuala Sg. Kerteh Tioxide	4234951	N 04° 16' 22.8"	E 103° 28' 12.7"
7	Terengganu	Kuala/ Estuarine	Discharge Kuala Sg. Kerteh	4234952	N 04° 15' 04.1"	E 103° 27' 59.2"
8	Terengganu	Kuala/ Estuarine	Tioxide Selatan Kuala Sg. Marang	5232911	N 05° 12' 24.7"	E 103° 12' 28.9"
9	Terengganu	Kuala/ Estuarine	Kuala Sg. Paka	4634920	N 04° 39' 29.7"	E 103° 25' 57.7"
10	Terengganu	Kuala/ Estuarine	Kuala Sg. Setiu	5627953	N 05° 40' 50.9"	E 102° 42' 26.9"
11	Terengganu	Kuala/ Estuarine	Kuala Sg. Terengganu	5331907	N 05° 21' 22.1"	E 103° 08' 12.6"
12	Terengganu	Kuala/ Estuarine	Kuala Sg. Kemaman	4234929	N 04° 14' 25.2"	E 102° 26' 48.8"
13	Terengganu	Pantai/Coastal	Pantai Batu Buruk	5331935	N 05° 19' 29.1"	E 103° 09' 01.4"
14	Terengganu	Pantai/Coastal	Pantai Bukit Keluang	5825903	N 05° 45' 10.0"	E 102° 34' 30.0"
15	Terengganu	Pantai/Coastal	Pantai Chendering	5231934	N 05° 16' 11.8"	E 103° 10' 51.9"
16	Terengganu	Pantai/Coastal	Pantai Rantau Abang	4833917	N 04° 52' 11.4"	E 103° 23' 17.4"
17	Terengganu	Pantai/Coastal	KIPC Utara	4634954	N 04° 36' 37.9"	E 103° 26' 39.2"
18	Terengganu	Pantai/Coastal	KIPC Tengah	4534955	N 04° 34' 54.9"	E 103° 27' 19.5"
19	Terengganu	Pantai/Coastal	KIPC Selatan	4534956	N 04° 33' 09.5"	E 103° 27' 55.6"

Jadual 4.1 JAS: Stesen Pengawasan Kualiti Air Marin Kebangsaan, 2005

Table 4.1 DOE: Marine Water Quality Monitoring Stations, 2005

Bil. *No.*	Negeri *State*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
1	Kelantan	Kuala/ Estuarine	Kuala Sg. Kemasin	5824914	N 05° 53' 50.0"	E 102° 29' 05.0"
2	Kelantan	Kuala/ Estuarine	Kuala Sg. Golok	6220911	N 06° 14' 05.0"	E 102° 05' 35.0"
3	Kelantan	Kuala/ Estuarine	Kuala Sg. Kelantan	6222901	N 06° 13' 12.0"	E 102° 13' 50.0"
4	Kelantan	Kuala/ Estuarine	Kuala Sg. Peng. Datu	6123913	N 06° 10' 20.0"	E 102° 20' 40.0"
5	Kelantan	Kuala/ Estuarine	Kuala Sg. Peng. Chepa	6223912	N 06° 12 20.0"	E 102° 18' 10.0"
6	Kelantan	Pantai/Coastal	Pantai Bisikan Bayu	5825905	N 05° 52' 00.0"	E 102° 31' 00.0"
7	Kelantan	Pantai/Coastal	Pantai Cahaya Bulan	6122903	N 06° 10' 45.0"	E 102° 16' 50.0"
8	Kelantan	Pantai/Coastal	Pantai Irama Bachok	6024908	N 06° 03' 00.0"	E 102° 25' 15.0"
9	Kelantan	Pantai/Coastal	Pantai Sabak	6123909	N 06° 10' 25.0"	E 102° 02' 10.0"
10	Kelantan	Pantai/Coastal	Pantai Seri Tujuh	6221910	N 06° 13' 00.0"	E 102° 08' 00.0"
1	W.P. Labuan	Pantai/Coastal	Layang-layangan	5251902	N 05° 20' 01.0"	E 115° 11' 37.0"
2	W.P. Labuan	Pantai/Coastal	Tanjung Aru	5251903	N 05° 21' 02.0"	E 115° 14' 39.0"
3	W.P. Labuan	Pantai/Coastal	Pulau Papan	5151905	N 05° 15' 22.0"	E 115° 16' 03.0"
4	W.P. Labuan	Pantai/Coastal	Klamsam	5151906	N 05° 15' 22.0"	E 115° 10' 28.0"
5	W.P. Labuan	Pantai/Coastal	Sungai Pagar	5151907	N 05° 16' 20.0"	E 115° 10' 19.0"
1	Sabah	Kuala/ Estuarine	Kuala Sg. Menggatal/Inanam	5050905	N 05° 01' 05.0"	E 115° 07' 07.0"
2	Sabah	Kuala/ Estuarine	Kuala Sg. Penyu	5453901	N 05° 34' 13.0"	E 115° 35' 55.0"
3	Sabah	Pantai/Coastal	Borneo Golf Seawater	5355901	N 05° 33' 00.0"	E 115° 47' 01.0"
4	Sabah	Pantai/Coastal	Pantai Bak-Bak	6665901	N 06° 56' 44.0"	E 116° 50' 23.0"
5	Sabah	Pantai/ Coastal	Pantai Ulu Tungku	5085901	N 05° 01' 09.0"	E 118° 53' 22.0"
6	Sabah	Pantai/ Coastal	Pantai Batu Sapi	5580903	N 05° 47' 42.0"	E 118° 02' 22.0"
7	Sabah	Pantai/ Coastal	Pantai Dalit	6161901	N 06° 11' 25.0"	E 116° 09' 45.0"
8	Sabah	Pantai/ Coastal	Pantai Lok Kawi	5560904	N 05° 55' 00.0"	E 116° 02' 00.0"
9	Sabah	Pantai/ Coastal	Pantai Mangrove Paradise	6161902	N 06° 15' 02.0"	E 116° 13' 50.0"
10	Sabah	Pantai/ Coastal	Pantai Manis	5555901	N 05° 45' 15.0"	E 115° 52' 04.0"
11	Sabah	Pantai/ Coastal	Pantai Melinsung	5565902	N 05° 50' 18.0"	E 115° 50' 45.0"
12	Sabah	Pantai/ Coastal	Pantai Pasir Putih Sandakan	5580901	N 05° 49' 26.0"	E 118° 04' 58.0"
13	Sabah	Pantai/ Coastal	Pantai Sabandar	6161903	N 06° 15' 02.0"	E 116° 13' 50.0"
14	Sabah	Pantai/ Coastal	Pantai Sarina Kunak	4481901	N 04° 39' 41.0"	E 118° 17' 01.0"
15	Sabah	Pantai/ Coastal	Pantai Silam Lahad Datu	4681902	N 04° 58' 08.0"	E 118° 14' 46.0"
16	Sabah	Pantai/ Coastal	Pantai Teluk Brunei 1	5053901	N 05° 09' 55.0"	E 115° 32' 53.0"
17	Sabah	Pantai/ Coastal	Pantai Teluk Brunei 2	5053902	N 05° 09' 55.0"	E 115° 32' 53.0"
18	Sabah	Pantai/ Coastal	Pantai Teluk Brunei 3	5053903	N 05° 09' 55.0"	E 115° 32' 53.0"
19	Sabah	Pantai/ Coastal	Pantai Teluk Brunei 4	5053904	N 05° 09' 55.0"	E 115° 32' 53.0"
20	Sabah	Pantai/ Coastal	Pantai Teluk Brunei 5	5053905	N 05° 09' 55.0"	E 115° 32' 53.0"
21	Sabah	Pantai/ Coastal	Pantai Teluk Brunei 6	5053906	N 05° 09' 55.0"	E 115° 32' 53.0"
22	Sabah	Pantai/ Coastal	Pantai Tg. Aru (Rest Lido)	5656901	N 05° 55' 01.0"	E 115° 59' 03.0"
23	Sabah	Pantai/ Coastal	Pantai Tg. Aru (Rest Skating)	5656902	N 05° 55' 01.0"	E 115° 59' 03.0"
24	Sabah	Pantai/ Coastal	Pantai Tg. Aru (No. 3)	5656903	N 05° 55' 01.0"	E 115° 59' 03.0"
25	Sabah	Pantai/ Coastal	Pantai Tinagat Tawau	4473901	N 04° 13' 22.0"	E 118° 59' 04.0"
26	Sabah	Pantai/ Coastal	Pantai TLDM	5580902	N 05° 50' 00.0"	E 118° 08' 01.0"
1	Sarawak	Kuala/ Estuarine	Kuala Bako	1704905	N 01° 40' 00.0"	E 110° 52' 08.0"

Jadual 4.1 JAS: Stesen Pengawasan Kualiti Air Marin Kebangsaan, 2005
Table 4.1 DOE: Marine Water Quality Monitoring Stations, 2005

Bil. *No.*	Negeri *State*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
2	Sarawak	Kuala/ Estuarine	Kuala Batang Kemena	3130911	N 03° 10' 53.0"	E 113° 01' 40.0"
3	Sarawak	Kuala/ Estuarine	Kuala Batang Rajang	2111909	N 02° 07' 22.0"	E 111° 11' 21.0"
4	Sarawak	Kuala/ Estuarine	Kuala Sg. Miri	4349915	N 04° 23' 59.0"	E 113° 58' 25.0"
5	Sarawak	Kuala/ Estuarine	Kuala Sg. Santubong	1702903	N 01° 46' 38.0"	E 110° 16' 46.0"
6	Sarawak	Kuala/ Estuarine	Kuala Sg. Semantan	1898901	N 01° 48' 49.0"	E 109° 46' 29.0"
7	Sarawak	Kuala/ Estuarine	Kuala Sg. Sarawak	1604907	N 01° 36' 44.0"	E 110° 29' 44.0"
8	Sarawak	Kuala/ Estuarine	Kuala Batang Mukah	2920920	N 01° 54' 41.0"	E 112° 05' 25.0"
9	Sarawak	Kuala/ Estuarine	Kuala Kabong	1710922	N 01° 47' 20.0"	E 111° 05' 58.0"
10	Sarawak	Pantai/ Coastal	Pantai Bako	1704906	N 01° 42' 49.0"	E 110° 25' 40.0"
11	Sarawak	Pantai/ Coastal	Pantai Belawai	2212913	N 02° 14' 27.0"	E 111° 12' 51.0"
12	Sarawak	Pantai/ Coastal	Pantai Brighton	4449917	N 04° 22' 25.0"	E 113° 57' 51.0"
13	Sarawak	Pantai/ Coastal	Pantai Damai	1702904	N 01o 47' 55.0"	E 110° 17' 58.0"
14	Sarawak	Pantai/ Coastal	Pantai Likau	3230915	N 03° 20' 49.0"	E 113° 08' 57.0"
15	Sarawak	Pantai/ Coastal	Pantai Pandan	1824918	N 01° 50' 16.0"	E 109° 40' 11.0"
16	Sarawak	Pantai/ Coastal	Pantai Pasir Putih	1604910	N 01° 30' 14.0"	E 110° 30' 00.0"
17	Sarawak	Pantai/ Coastal	Pantai Piasau	4539918	N 04° 27' 27.0"	E 113° 59' 38.0"
18	Sarawak	Pantai/ Coastal	Pantai Semantan	1898902	N 01° 49' 38.0"	E 109° 46' 29.0"
19	Sarawak	Pantai/ Coastal	Pantai Tanjung Batu	3132602	N 03° 12' 38.3"	E 113° 02' 26.9"
20	Sarawak	Pantai / Coastal	Pantai Harmoni	2920921	N 02° 54' 20.0"	E 112° 03' 22.0"
21	Sarawak	Pantai/ Coastal	Pantai Tanjung Kembang	1810923	N 01° 49' 28.0"	E 111° 05' 44.0"

Jumlah / Total	Kuala / Estuarine	70
	Pantai/ Coastal	151
	Jumlah/Total	221

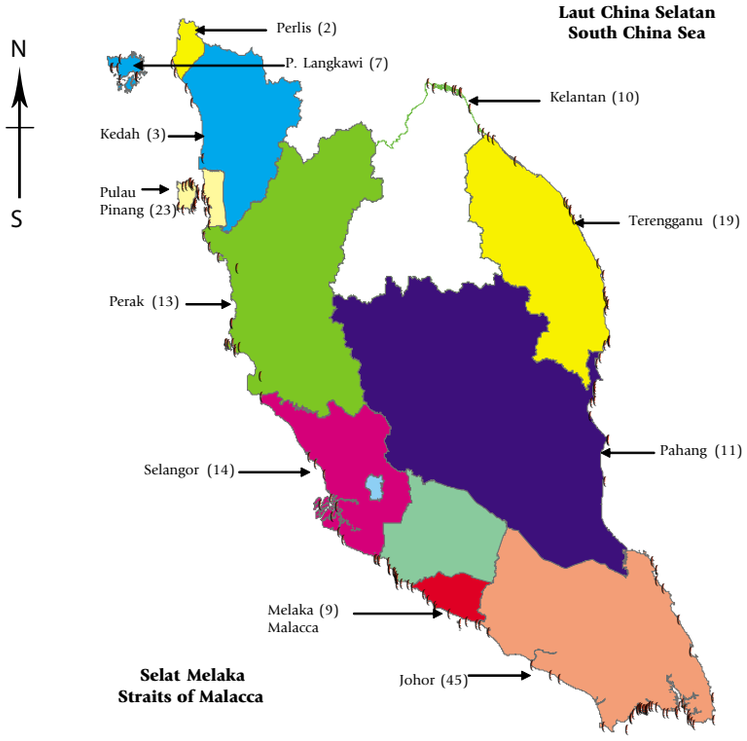
Jadual 4.2 JAS: Stesen Pengawasan Marin yang Ditutup, 2005
Table 4.2 DOE: Marine Monitoring Station Closure, 2005

Negeri *State*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
Johor	Pulau Merambong	1336972	N 01° 18' 25.9"	E 103° 36' 42.2"

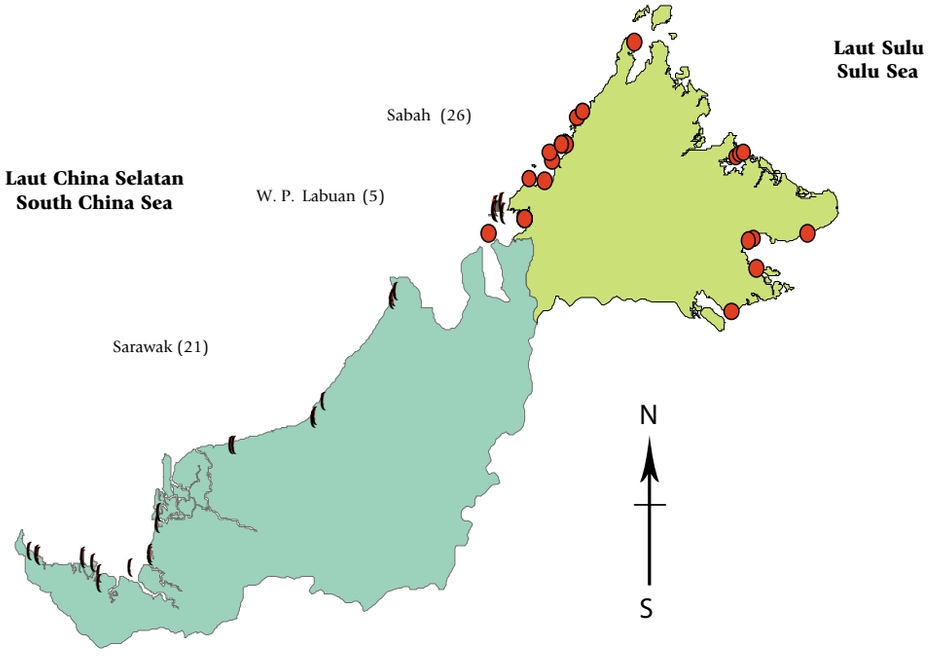
Jadual 4.3 JAS: Stesen Pengawasan Selat Johor, 2005
Table 4.3 DOE: Monitoring Stations for Straits of Johor, 2005

Bil. *No.*	Kawasan *Area*	Nama Stesen *Station*	No. Stesen *Station No.*	Latitud *Latitude*	Longitud *Longitude*
1	Pantai/Coastal	Kg. Tanjung Kopok	SJ1	N 01° 25' 31"	E 104° 00' 03"
2	Pantai/Coastal	Kg. Pasir Putih	SJ2	N 01° 25' 48"	E 103° 55' 40"
3	Pantai/Coastal	J/k Sultan Iskandar	SJ3	N 01° 26' 49"	E 103° 46' 09"
4	Pantai/Coastal	Kg. Senibung	SJ4	N 01° 29' 01"	E 103° 48' 47"
5	Kuala/Estuarine	Kuala Sg. Tebrau	SJ4A	N 01° 28' 56"	E 103° 47' 48"
6	Pantai/Coastal	Tanjung Putri	SJ5	N 01° 27' 20"	E 103° 46' 09"
7	Pantai/Coastal	Hadapan MPJB (W.F.CT)	SJ6	N 01° 27' 08"	E 103° 45' 43"
8	Pantai/Coastal	Tanjung Danga	SJ7	N 01° 27' 24"	E 103° 42' 52"
9	Kuala/Estuarine	Kuala Sg. Skudai	SJ7A	N 01° 27' 46"	E 103° 43' 22"
10	Pantai/Coastal	Depan Pusat Islam	SJ7B	N 01° 27' 19"	E 103° 44' 51"
11	Pantai/Coastal	Tebing Runtuh	SJ8	N 01° 25' 10"	E 103° 40' 06"
12	Kuala/Estuarine	Kuala Sg. Melayu	SJ8A	N 01° 26' 53"	E 103° 41' 53"
13	Pantai/Coastal	Tanjung Bunga	SJ9	N 01° 23' 07"	E 103° 39' 02"
14	Pantai/Coastal	Tanjung Kupang	SJ10	N 01° 23' 36"	E 103° 39' 11"

Gambarfoto 4.8 JAS: Persampelan Kualiti Air Marin
Photo 4.8 DOE: Marine Water Quality Sampling



Peta 4.1 Semenanjung: Lokasi Stesen-stesen Pemantauan Air Marin, 2005
Map 4.1 Peninsular: Location of Marine Monitoring Stations, 2005



Peta 4.2 Sabah dan Sarawak: Lokasi Stesen-stesen Pemantauan Air Marin, 2005
Map 4.2 Sabah and Sarawak: Location of Marine Monitoring Stations, 2005

Pengawasan Kualiti Air Marin Pulau-Pulau
Island Marine Water Quality Monitoring

Malaysia dikurniakan dengan banyak pulau yang kaya dengan sumber akuatik marin. Kualiti air marin memainkan peranan yang penting dalam pemuliharaan sumber semulajadi ini. Sehubungan itu, Program Pengawasan Kualiti Air Marin Pulau-pulau telah dimulakan pada Julai 1998. Program ini melibatkan 60 buah stesen pengawasan di sekitar 40 buah pulau terpilih (Peta 4.3, & 4.4). Pulau-pulau ini dikelaskan mengikut empat kategori iaitu pulau-pulau pembangunan (3); pulau-pulau peranginan (17); pulau-pulau Taman Laut (17); dan pulau-pulau yang dilindungi (3) (Jadual 4.4).

Program ini melibatkan kerja-kerja percontohan air laut untuk analisis makmal dan pengukuran in-situ. Sistem Maklumat Geografi (GIS) digunakan untuk menyediakan maklumat mengenai sumber marin, aktiviti dan sumber pencemaran. Percontohan bebola tar di pantai juga dilaksanakan.

Malaysia is endowed with many islands with rich marine aquatic resources. The quality of marine water plays an important role in the conservation of these resources. The Island Marine Water Quality Monitoring Programme started in July 1998 involving 60 stations around 40 islands (Maps 4.3, & 4.4). These islands have been classified into four categories : development islands (3); resort islands (17); Marine Park islands (17; and protected islands (3) (Table 4.4).

The programme involved taking water samples for laboratory analysis and in-situ measurements. The Geographical Information System (GIS) was used to provide information on marine resources, activities and pollution sources. Tar ball sampling on beaches was also conducted.

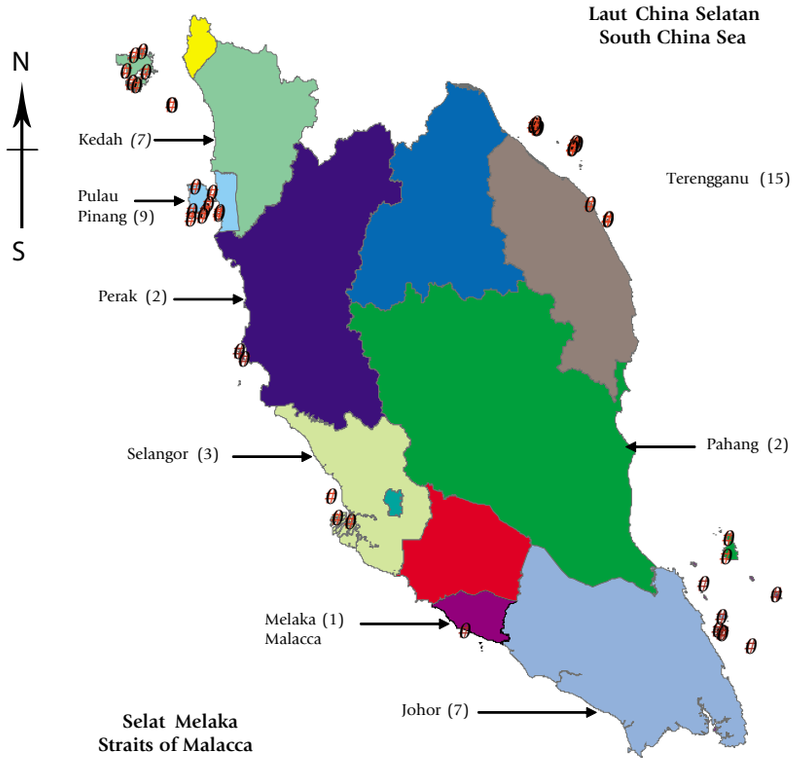
Jadual 4.4 JAS: Pengawasan Kualiti Air Marin Pulau-Pulau, 2005
Table 4.4 DOE: Island Marine Water Quality Monitoring, 2005

Bil. *No.*	**Negeri** *State*	**Pulau** *Island*	**Kategori** *Category*	*Bil. Stesen No. of stations*
1	Kedah	Payar	M	1
2	Langkawi	Langkawi	D	4
		Singa Besar	R	1
		Dayang Bunting	R	1
3	Perak	Pangkor	R	2
4	Terengganu	Redang	M	5
		Pinang	M	1
		Duyong	R	1
		Gumia	R	1
		Kapas	M	1
		P.Besar	M	2
		P.Kecil	M	4
5	Pahang	Tioman	M	2
6	Selangor	Ketam	R	1
		Angsa	R	1
		Lumut	R	1

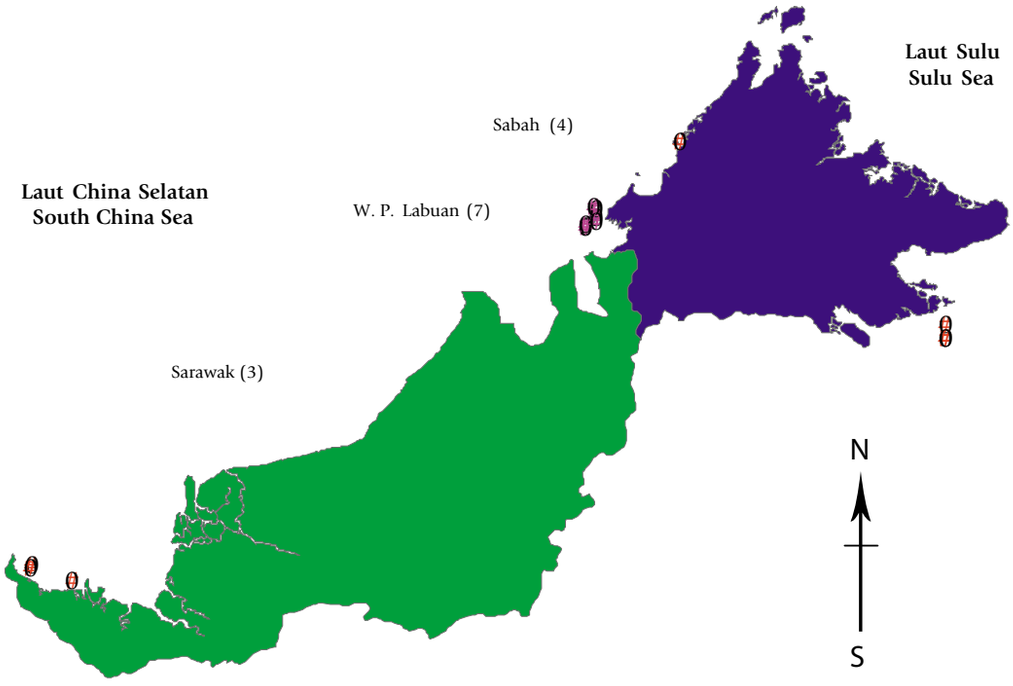
Jadual 4.4 JAS: Pengawasan Kualiti Air Marin Pulau-Pulau, 2005
Table 4.4 DOE: Island Marine Water Quality Monitoring, 2005

Bil. *No.*	**Negeri** *State*	**Pulau** *Island*	**Kategori** *Category*	**Bil. Stesen** *No. of stations*
7	Pulau Pinang	P.Pinang	D	4
		Aman	R	1
		Jerejak	R	1
		Gedong	R	1
		Kendi	R	1
		Rimau	R	1
8	Melaka	Upeh	R	1
9	Johor	Aur	M	1
		Pemanggil	M	1
		Gual	M	1
		Sibu Tengah	M	1
		Sibu Besar	M	1
		Sibu Hujung	M	1
		Tinggi	M	1
10	Sabah	Gaya	R	1
		Mabul	R	1
		Sipadan	R	2
		Labuan	D	4
11	Labuan	Kuraman	M	1
		Rusukan Kecil	M	1
		Rusukan Besar	M	1
12	Sarawak	Satang Besar	P	1
		Talang Besar	P	1
		Talang Kecil	P	1

	Kategori *Category*	Jumlah Pulau *No. of Islands*	Jumlah Stesen *No. of Stations*
i.	Pulau Peranginan/ Resort Island (R)	17	19
ii.	Pulau Taman Laut / Marine Park Island (M)	17	26
iii.	Pulau Di Lindungi / Protected Island (P)	3	3
iv.	Pulau Pembangunan / Development Island (D)	3	12
	Jumlah / Total	**40**	**60**



Peta 4.3 Semenanjung: Lokasi Stesen-stesen Pemantauan Air Marin Pulau , 2005
Map 4.3 Peninsular: Location of Island Marine Monitoring Stations, 2005



Peta 4.4 Sabah dan Sarawak: Lokasi Stesen-stesen Pemantauan Air Marin Pulau, 2005
Map 4.4 Sabah and Sarawak: Location of Island Marine Monitoring Stations, 2005

Pencemaran Marin
Marine Pollution

Pada tahun 2005, terdapat tujuh belas (17) kes pencemaran marin berpunca daripada tumpahan minyak dilaporkan; tujuh (7) kes dikesan di Laut China Selatan, enam (6) kes di Selat Melaka, dua (2) kes setiapnya di Selat Johor dan Laut Sulu (Jadual 5.16).

In 2005, seventeen (17) cases of marine pollution from oil spills were reported; seven (7) cases in the South China Sea, six (6) cases in the Straits of Malacca, two (2) cases each in the Johor Straits and the Sulu Sea (Table 5.16).

Sebahagian besar dari kejadian-kejadian tumpahan minyak adalah disebabkan oleh pelepasan haram ke dalam perairan negara. Tindakan rondaan yang berterusan oleh Agensi Penguatkuasaan Maritim Malaysia (APMM) telah mengurangkan aktiviti-aktiviti yang tidak bertanggungjawab ini.

The oil spill incidents were mainly due to illegal discharge of oil into Malaysian waters. Regular surveillance by the Malaysian Maritime Enforcement Agency (MMEA) had brought about a reduction of such irresponsible activities.

Jadual 4.5 JAS: Kejadian Pencemaran Minyak, 2005
Table 4.5 DOE: Oil Pollution Incidents, 2005

Lokasi Perairan *Location*	Kawasan *Area*		Bilangan kes *Number of Cases*
Laut China Selatan / *South China Sea*	Perairan Malaysia *Malaysian Territory*	Semenanjung / *Peninsular*	1
		Malaysia Timur / *East Malaysia*	5
	Zon Ekonomi Eksklusif (EEZ) / *Exclusive Economic Zone (EEZ)*		1
Laut Sulu / *Sulu Sea*	Perairan Malaysia	Sabah	2
Selat Melaka / *Straits of Malacca*	Perairan Malaysia / *Malaysian Territory*		6
	Zon Ekonomi Eksklusif (EEZ) / *Exclusive Economic Zone (EEZ)*		-
Selat Johor / *Johor Straits*	Perairan Malaysia / *Malaysian Territory*	Bahagian Barat / *West Coast*	-
		Bahagian Timur / *East Coast*	2
JUMLAH/ TOTAL			17

Rancangan Kontingensi Kebangsaan Kawalan Tumpahan Minyak (RKKKTM)

RKKKTM ditadbir oleh Jawatankuasa Kebangsaan Kawalan Tumpahan Minyak (JKKTM) yang dianggotai oleh enam belas (16) Jabatan dan agensi, dipengerusikan oleh Jabatan Alam Sekitar Malaysia (JAS) dan dibantu Jabatan Laut Semenanjung Malaysia (JLSM). Disamping penubuhan rangkaian *stokpile* peralatan kawalan tumpahan minyak (KTM) di lokasi-lokasi strategik sepanjang Pantai Timur dan Pantai Barat Malaysia, penekanan terhadap latihan-latihan berstruktur OSR secara berkala bagi semua kakitangan yang terlibat dalam tindakbalas KTM turut

National Oil Spill Contingency Plan (NOSCP)

The NOSCP is administered by the National Oil Spill Control Committee consisting of sixteen (16) member Departments and Agencies, chaired by the Department of Environment Malaysia (DOE) and assisted by the Marine Department of Malaysia (MARDEP). Apart from the establishment of adequate Oil Spill Response (orp) Equipment Stockpile Bases that are strategically positioned throughout the east and west coast of the country, scheduled and periodical training activities for personnel involved in OSR had been conducted. Such training was to ensure that all DOE officers

Jadual 4.6 JAS: Latihan & Kursus KTM yang diselaraskan, 2005
Table 4.6 DOE: OSR Exercises and Courses, 2005

Bil. *No.*	**Tarikh** *Date*	**Lokasi Latihan** *Exercise Location*	**Peserta** *Participants*
1.	16 - 18 Julai 2005 *16 - 18 July 2005*	Latihan Melawan Tumpahan Minyak & Pengenalan Peralatan di; *OSR & Equipment Familiarization Course at;* MARDEP: Kota Kinabalu, Sabah	DOE & MARDEP
2.	26 - 28 Ogos 2005 *26 - 28 August 2005*	Latihan Melawan Tumpahan Minyak & Pengenalan Peralatan di; *OSR & Equipment Familiarization Course at;* MARDEP: Bintulu, Sarawak	DOE & MARDEP
3.	27 - 29 Julai 2005 *27 - 29 July 2005*	Latihan Melawan Tumpahan Minyak Malaysia-RFC di Selat Melaka di; *Malaysia-RFC Malacca Strait Oil Combat at;* Kukup, Johor	Malaysia, Singapore & Indonesia
4.	13 - 15 Disember 2005 *13 - 15 December 2005*	Latihan Melawan Tumpahan Minyak & Pengenalan Peralatan di; *OSR & Equipment Familiarization Course at;* MARDEP, Tanjung Lembong, Langkawi.	DOE & MARDEP
5.	30 Jun 2005 *30 June 2005*	Latihan Menguji Pelan Tindakan Pembersihan Pantai Negeri Kedah di; *Beach Clean-Up Exercise to test the Kedah State Beach Clean-Up Action Plan at;* Langkawi	DOE, MARDEP, Kerajaan Negeri & Pihak berkuasa Tempatan (State & Local Authorities)

diberikan. Latihan-latihan berkenaan adalah bagi memastikan semua kakitangan JAS yang terlibat dalam KTM dibekalkan dengan pengetahuan dan kemahiran yang mencukupi dalam pengendalian peralatan dan pengurusan krisis, Resolusi 7 konvensyen antarabangsa OPRC 1990 (International Convention on Oil Spill Preparedness and Response), Keperluan latihan ini telah diterapkan ke dalam RKKKTM dan mekanisma tindakbalas kita.

Sepanjang tahun 2005, pelbagai peringkat latihan dan drill KTM telah dilaksanakan secara berasingan atau bersama oleh organisasi kerajaan dan swasta seperti JAS, JLSM, Syarikat-syarikat Minyak serta kemudahan-kemudahan dibawahnya dan 'Petroleum Industry Malaysia Mutual Aid Group' (PIMMAG) (Jadual 4.6).

involved in Oil Spill Response (OSR) were well equipped with the necessary knowledge and skills in equipment handling and crisis management, in line with Resolution 7 of the International Convention on Oil Spill Preparedness and Response (OPRC) 1990. This preparedness and training requirement had been incorporated into the NOSCP response system.

In 2005, many levels of OSR training and drills were conducted either within DOE or through the combined efforts of various governmental and non-governmental organizations such as MARDEP, Oil Companies and Facilities, and the Petroleum Industry Malaysia Mutual Aid Group (PIMMAG) (Table 4.6).

Gambarfoto 4.9 JAS: Kursus OSR & Pengenalan Peralatan di MARDEP Tanjung Lembong, Langkawi, Disember 2005

Photo 4.9 DOE: OSR & Equipment Familiarization Course at MARDEP Tanjung Lembong, Langkawi, December 2005

Gambarfoto 4.10 JAS: Kursus OSR & Pengenalan Peralatan di MARDEP Kota Kinabalu, Sabah, Julai 2005

Photo 4.10 DOE: OSR & Equipment Familiarization Course at MARDEP Kota Kinabalu, Sabah, July 2005

Latihan Melawan Tumpahan Minyak Malaysia - RFC 2005

Latihan Melawan Tumpahan Minyak Malaysia-RFC 2005, merupakan usahasama diantara kerajaan Malaysia (diwakili JAS) dan Jawatankuasa Tabung Pusingan Selat Melaka dan Singapura (RFC) susulan kepada ketetapan mesyuarat pengurusan RFC ke dua puluh enam (ke-26) pada 9 Jun 2005 di Kuala Lumpur.

Latihan ini telah berlangsung dari 27 – 29 Julai 2005 dan bertujuan untuk menguji 'Standard Operating Procedure' (SOP) kawalan tumpahan minyak Selat Melaka dan Singapura yang sedia ada dan pelan tindakbalas negara-negara ahli. Semasa latihan juga, keberkesanan kerjasama dan kecekapan sistem komunikasi di antara Pusat Koordinasi Kebangsaan negara-negara ahli telah diuji.

Empat (4) orang peserta dan seorang (1) pemerhati masing-masing dari Singapura dan Indonesia serta 479 peserta tempatan mewakili pelbagai agensi penguatkuasaan maritim, pihak berkuasa tempatan, pihak berkuasa pelabuhan dan NGO telah menghadiri latihan ini.

Malaysia - RFC Joint Oil Spill Combat 2005

The Malaysia-RFC Joint Oil Spill Exercise was a joint effort between the Malaysian Government (represented by DOE) and the Revolving Fund Committee for the Straits of Malacca and Singapore (RFC) pursuant to the decision of the 26th RFC Management Meeting on 9 June 2005 in Kuala Lumpur.

The exercise on 27 – 29 July 2005 was aimed to test existing Standard Operating Procedure (SOP) for Combating Oil Spills in the Straits of Malacca and Singapore as well as the NOSCP of Member States. The effectiveness of cooperation and efficiency of communication between the respective National Coordination Centres were also put to test.

Singapore and Indonesia each sent four participants and one observer to participate in the exercise. There were 479 local participants from various maritime enforcement agencies, local authorities, port authorities and NGOs.

Gambarfoto 4.11 JAS: Pengumpulan Minyak dengan Menggunakan Boom
Photo 4.11 DOE: Oil Containment using Air Inflated Booms

Gambarfoto 4.12 JAS: Pusat Kawalan Tumpahan Minyak Kebangsaan
Photo 4.12 DOE: National Oil Spill Control Centre

Gambarfoto 4.13 JAS: Sidang Akhbar Menteri NRE di atas Kapal Utama

Photo 4.13 DOE: NRE Minister at Press Conference on board Command Vessel

Gambarfoto 4.14 JAS: Pusat Koordinasi Kawalan Tumpahan Minyak Negeri

Photo 4.14 DOE: State Oil Spill Coordination Centre

Sempena latihan ini juga, JAS telah menganjurkan kursus sehari untuk semua Agensi Penguatkuasaan Maritim dan Pihak Berkuasa Tempatan yang berkaitan bagi membincangkan topik-topik berikut:

- Penguatkuasaan pencemaran Marin – Peruntukan Perundangan;
- Prosedur persampelan tumpahan minyak;
- SOP menahan, menggeledah dan menyiasat kesalahan;
- Konvensyen Antarabangsa (IMO) berkaitan pencemaran marin yang telah diratifikasi oleh Malaysia ;
- Kaedah melawan tumpahan minyak di laut; dan
- Prosedur tuntutan tumpahan minyak.

In conjunction with the exercise, DOE organized a one day course for all the Maritime Enforcement Agencies and relevant Local Authorities covering the following

- Marine Pollution Enforcement – Regulatory provisions;
- Oil spill sampling procedures ;
- Standard operating procedure to stop, search and investigate the offences;
- International (IMO) Conventions relating to Marine Pollution ratified by Malaysia;
- Method to combat oil spill at sea; and
- Post spill claim procedure.

Jawatankuasa Tabung Pusingan bagi Selat Melaka dan Selat Singapura (RFC)

Pada 11 Februari 1981, satu Memorandum Persefahaman (MoU) telah ditandatangani diantara kerajaan Malaysia, Indonesia, Singapura dan Malacca Straits Council bagi Jepun untuk mewujudkan Tabung Pusingan Selat Melaka dan Selat Singapura sebagai salah satu usaha untuk mengawal kejadian tumpahan minyak yang berpunca daripada kapal-kapal yang melalui perairan Selat Melaka dan Selat Singapura.

Malaysia telah dipertanggungjawabkan untuk

Straits of Malacca and Singapore Revolving Fund Committee (RFC)

On 11 February 1981, a Memorandum of Understanding (MoU) was signed between the Governments of Malaysia, Indonesia, Singapore and the Japanese Malacca Straits Council, for the establishment of a Revolving Fund to combat oil spills from vessels plying the Straits of Malacca and Singapore.

mengurus Tabung Pusingan berkenaan untuk tempoh lima (5) tahun mulai 1 April 2001 hingga 31 Mac 2006. Berkuatkuasa 1 April 2006, pengurusan Tabung Pusingan akan diserahkan kepada Singapura.

Diantara aktiviti-aktiviti yang telah dilaksanakan oleh RFC pada tahun 2005 ialah:

- Mesyuarat Jawatankuasa Tabung Pusingan ke-26, Kuala Lumpur, Malaysia, 9 - 10 Jun 2005;
- Latihan Melawan Tumpahan Minyak Malaysia-RFC 2005, Johor Bahru, Malaysia, 27-29 Julai 2005; dan
- Penajaan peserta dari Malaysia dan Indonesia ke International Chemical and Oil Pollution Conference and Exhibition, Shangri-la, Singapura, 28 - 30 September 2005.

Malaysia has been entrusted with the management of the Revolving Fund for a duration of five years from 1 April 2001 to 31 March 2006.

Among the activities carried out by the RFC in 2005 were :

- The 26th Revolving Fund Committee Meeting, Kuala Lumpur, Malaysia, 9 - 10 June 2005;
- Malaysia-RFC Malacca Straits Joint Oil Combat Exercise 2005, Johor Bahru, Malaysia, 27-29 of July 2005; and
- Sponsored participants from Malaysia and Indonesia to the International Chemical and Oil Pollution Conference and Exhibition, Singapore, 28 – 30 September 2005.

Gambarfoto 4.15 JAS: Mesyuarat RFC ke-26 di Hotel Nikko, Kuala Lumpur, Malaysia
Photo 4.15 DOE: 26th RFC Meeting at Nikko Hotel, Kuala Lumpur, Malaysia

Pemantauan Kualiti Air Tanah
Groundwater Monitoring

Pada tahun 2005, sebanyak 250 sampel daripada 122 buah telaga pemantauan kualiti air tanah di seluruh Malaysia telah dianalisis. Telaga dibina di kawasan-kawasan mengikut kategori guna tanah : pertanian, perindustrian, padang golf, tapak pelupusan sampah, tapak penstoran radioaktif, pelupusan tapak J.E, kawasan bekalan air, bekas tapak perlombongan, perbandaran dan luar bandar di seluruh Malaysia (Jadual 4.7).

In 2005, 250 groundwater samples were drawn on a quarterly basis from 122 monitoring wells in Malaysia for analysis. The wells had been constructed in areas categorized according to landuse: agriculture, industrial, golf course, solid waste landfill, radioactive storage, animal burial, municipal water supply, ex-mining (gold mine) and urban/suburban areas (Table 4.7).

Sampel bagi pengukuran parameter fizikal kualiti air tanah in-situ dan untuk analisa makmal diambil dari setiap stesen. Parameter in-situ yang diukur adalah suhu, pH, konduktiviti, turbiditi, saliniti (kemasinan) dan oksigen terlarut. Parameter yang dianalisis di makmal pula ialah bahan kimia organik meruap (VOC), hidrokarbon, racun perosak, logam berat, anion, bakteria, sebatian berfenol, radioaktif, jumlah keliatan dan jumlah pepejal terlarut.

Samples for in-situ measurement and samples for laboratory analysis were collected at each station. In-situ parameters were temperature, pH, conductivity, salinity, dissolved oxygen and turbidity. For laboratory analysis, the parameters were total volatile organic compounds (VOC), pesticides, heavy metals, anions, bacteria, phenolic compounds, radioactivity, total hardness and total dissolved solids.

Jadual 4.7 JAS: Taburan Telaga-telaga Pemantauan Air Bawah Tanah, 2005
Table 4.7 DOE: Distribution of Groundwater Monitoring Wells, 2005

Kategori *Category*	**Bilangan Telaga** *Number of Wells*
Kawasan Pertanian / *Agricultural Areas*	12
Bandar / *Urban Suburban Areas*	12
Tapak Perindustrian / *Industrial Sites*	18
Tapak Pelupusan Sampah / *Landfills*	27
Padang Golf / *Golf Courses*	7
Tapak Radioaktif / *Radioactive Sites*	1
Kawasan Luarbandar / *Rural Areas*	5
Kawasan Bekas Lombong / *Ex-Mining Areas*	3
Bekalan Air Tempatan / *Municipal Water Supply*	11
Tapak Pelupusan Bangkai Haiwan / *Animal Burial Sites*	16
Kolam Akuakultur / *Aquaculture Ponds*	6
Peranginan / *Resorts*	1
Kolam Air Masin / *Saltwater Ponds*	3
Jumlah / Total	**122**

Gambarfoto 4.16 JAS: Stesen Pemantauan Kualiti Air Tanah
Photo 4.16 DOE: Groundwater Quality Monitoring Station

Gambarfoto 4.17 JAS: Kerja-kerja Pensampelan Kualiti Air Tanah
Photo 4.17 DOE: Groundwater Quality Sampling

Pengurusan Buangan Terjadual
Scheduled Wastes Management

Import Dan Eksport Buangan Terjadual

Pada tahun 2005, sebanyak empat (4) permohonan telah diberi Kebenaran Bertulis untuk mengimport 306,646 tan metrik buangan untuk tujuan penggunaan sebagai bahan mentah industri (Jadual 4.8) dan sejumlah 5,224 tan metrik buangan terjadual telah dieksport untuk tujuan pemerolehan kembali (Jadual 4.9). Buangan yang dieksport kebanyakannya terdiri daripada sanga zink, enapcemar hidroksida logam berat dan mangkin terpakai daripada 25 pengeluar buangan untuk pemerolehan kembali logam di luar negara (Jadual 4.10).

Import And Export of Scheduled Wastes

In 2005, four (4) Written Approvals were issued for the import of 306,646 tonnes of wastes for use as raw materials in industrial processes (Table 4.8) and 5,224 tonnes of scheduled wastes were exported for recovery operations (Table 4.9). The exported wastes were derived from 25 waste generators and comprised mainly of zinc dross, metal hydroxide sludges and spent catalyst destined for metal recovery in foreign countries (Table 4.10).

Jadual 4.8 JAS: Kuantiti, Jenis dan Sumber Buangan Terjadual yang Diimport (tan), 2001 – 2005
Table 4.8 DOE: Quantity, Types and Sources of Scheduled Wastes Imported (tonnes), 2001 – 2005

Jenis Buangan *Type of Waste*	**Negara** *Country* / **Tahun** *Year*	**2001**	**2002**	**2003**	**2004**	**2005**
Sangga Kuprum *Copper Slag*	Singapura / *Singapore*	36,611	33,945	52,283	58,723	58,774
Sangga Peleburan *Granulated Blast Furnace Slag*	Singapura / *Singapore*	90	170	-	70	-
	Jepun / *Japan*	16,054	15,000	234,644	293,614	241,872
	China / *China*	15,622	14,770	17,363	-	-
Mangkin Terpakai *Spent Catalyst*	Singapura / *Singapore*	1,565	6,878	1,108	1,108	6,000
Buangan Plastik *Plastic Waste*	Holland / *Holland*	-	-	-	875	-
Jumlah (Tan) / *Total (Tonnes)*		**69,942**	**70,763**	**305,398**	**354,390**	**306,646**

Jadual 4.9 JAS: Kuantiti dan Jenis Buangan Terjadual Yang Dieksport (tan), 2001 – 2005
Table 4.9 DOE: Quantity and Types of Scheduled Wastes Exported (tonnes), 2001 – 2005

Tahun / *Year* / **Jenis Buangan** / *Type of Waste*	**2001**	**2002**	**2003**	**2004**	**2005**
Enapcemar Hidroksida Logam / *Metal Hydroxide Sludge*	1,795	1,537	212	2,494	2,288
Mangkin Terpakai / *Spent Catalyst*	816	1,365	693	722	215
Kuprum Oksida / *Copper Oxide*	-	142	1,209	-	-
Bahan Blasting / *Used Blasting Material*	19	-	-	25	-
Kadmium dan Nikel Oksida / *Cadmium Nickel Oxide*	-	67	30	-	-
Sanga zink / *Zinc Dross*	-	-	-	-	2,347
Buangan Nikel-Kadmium Bateri / *Waste of Nickel-Cadmium Battery*	-	-	217	103	272
Kutlet Kaca / *Glass Cutlet*	45	-	-	-	-
Peralatan Xerox Terpakai / *Used Xerox Office Equipment*	-	-	-	-	90
Bekas-bekas terpakai mengandungi bahan kimia / *Used chemical drums*	-	-	-	10	12
Jumlah (Tan) / *Total (Tonnes)*	**2,675**	**3,110**	**2,361**	**3,354**	**5,224**

Jadual 4.10 JAS: Kuantiti dan Destinasi Buangan Terjadual Yang Dieksport (tan) Mengikut Destinasi, 2001 - 2005

Table 4.10 DOE: Quantity of Scheduled Wastes Exported (tonnes) by Destinations 2001 - 2005

Negara Pengimport / *Importing Country*	**2001**	**2002**	**2003**	**2004**	**2005**
Amerika / *America*	1,295	533	60	25	-
Australia / *Australia*	-	315	209	-	-
Filipina / *Philippines*	532	-	-	1,000	1,000
Finland / *Finland*	-	100	23	190	-
Belgium / *Belgium*	-	-	140	51	-
Kanada/ *Canada*	-	-	-	80	-
Holland / *Holland*	487	570	323	295	-
Itali / *Italy*	107	44	28	-	-
Jepun / *Japan*	68	1,035	1,006	1,019	1,793
Jerman / *Germany*	159	128	349	476	492
Korea Selatan / *South Korea*	-	-	118	-	-
Perancis / *France*	-	67	98	189	272
Singapura / *Singapore*	-	169	-	23	14
Sweden / *Sweden*	27	149	7	6	8
South Africa / *Afrika Selatan*	-	-	-	-	1,555
Thailand / *Thailand*	-	-	-	-	90
Jumlah (tan) / Total (tonnes)	**2,675**	**3,110**	**2,361**	**3,354**	**5,224**

Gambarfoto 4.18 JAS: Penstoran Bahan-Bahan Buangan Terjadual Tidak Sempurna

Photo 4.16 DOE: Improper Storage of Scheduled Wastes

Penguatkuasaan Terhadap Aktiviti Pembakaran Terbuka
Enforcement against Open Burning Activities

Pada tahun 2005, semua pejabat JAS Negeri telah meneruskan operasi rondaan mencegah pembakaran terbuka di kawasan-kawasan yang dikenalpasti sebagai kawasan yang cenderung berlaku kebakaran. Sejumlah 5037 kes pembakaran terbuka yang dikesan dan disiasat termasuk hotspot yang dikesan melalui satelit (Rajah 4.9 dan Rajah 4.10).

Throughout 2005, DOE State Offices continued to conduct ground surveillance of fire prone areas. Throughout the year, a total of 5037 open burning cases were detected and investigated, including hotspots detected via satellites (Figure 4.9 and Figure 4.10).

Kejadian pembakaran terbuka yang sering berlaku adalah di kawasan ladang (671), tapak pembinaan (574) dan belukar (476) terutamanya semasa cuaca panas dan kering iaitu pada bulan-bulan Februari (674), Mac (834), April (548), Ogos (873) dan September (573). Daripada 5037 kes pembakaran terbuka tersebut 419 kes telah dikompaun sebanyak RM 571,075.00 dan 39 kes telah dikenakan tindakan mahkamah di mana, 15 kes telah dijatuhkan hukuman dan didenda sebanyak RM 275,300.00.

Frequent open burning occurred in plantations (671), constructions areas (574) and bushes (476) especially during the dry period in February (674), March (834), April (548), August (873) and September (573). Out of 5037 open burning cases detected, 419 cases were given compounds amounting to RM 571,075 and 39 were prosecuted in court of which 15 were penalized and fined a total of RM 275,300.00.

Pengawasan Melalui Udara

Program Pengawasan Udara diteruskan pelaksanaannya pada tahun 2005 untuk mengawasi dan mengesan dari udara kejadian pencemaran alam sekitar seperti aktiviti pembakaran terbuka, pelepasan dari industri, pencemaran pantai dan laut dan aktiviti pembukaan tanah dan pembangunan kawasan tanah tinggi dan pulau-pulau. Maklumat mengenai kejadian pencemaran alam sekitar yang dikesan melalui pengawasan dari udara ini disalurkan ke Bilik Operasi JAS untuk diambil tindakan penguatkuasaan susulan di lapangan.

Airborne Surveillance

The National Airborne Surveillance Programme continued in 2005 to monitor and detect environmental pollution due to open burning activities, emission from industries, coastal and marine pollution, land clearing activities on highland and island development. Information on environmental pollution activities detected from the air would be transmitted to the DOE Operation Room for enforcement action by ground staff.

Pada tahun 2005, sejumlah RM 3,625,000.00 diperuntukkan di bawah Projek Pembangunan untuk pelaksanaan program ini. Sebanyak 421 bilangan penerbangan yang melibatkan 1236 jumlah jam penerbangan telah dilaksanakan sepanjang tahun 2005. RM 2,162,127.94 telah digunakan untuk tujuan penerbangan manakala baki berjumlah

A development budget allocation of RM 3 million was provided in 2005 for aerial surveillance. In 2005, 421 flights with a total of 1236 flight hours were undertaken under this programme. RM 2,162,127.94 was spent for surveillance activities while the remaining RM 1,462,872.06 was used for maintenance works and purchase of monitoring and enforcement

RM 1,462,872.06 telah digunakan untuk kerja-kerja penyenggaraan dan perolehan pelbagai peralatan pemantauan dan penguatkuasaan serta alat Global Positioning Systems (GPS).

Status Pematuhan Terhadap Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 1978

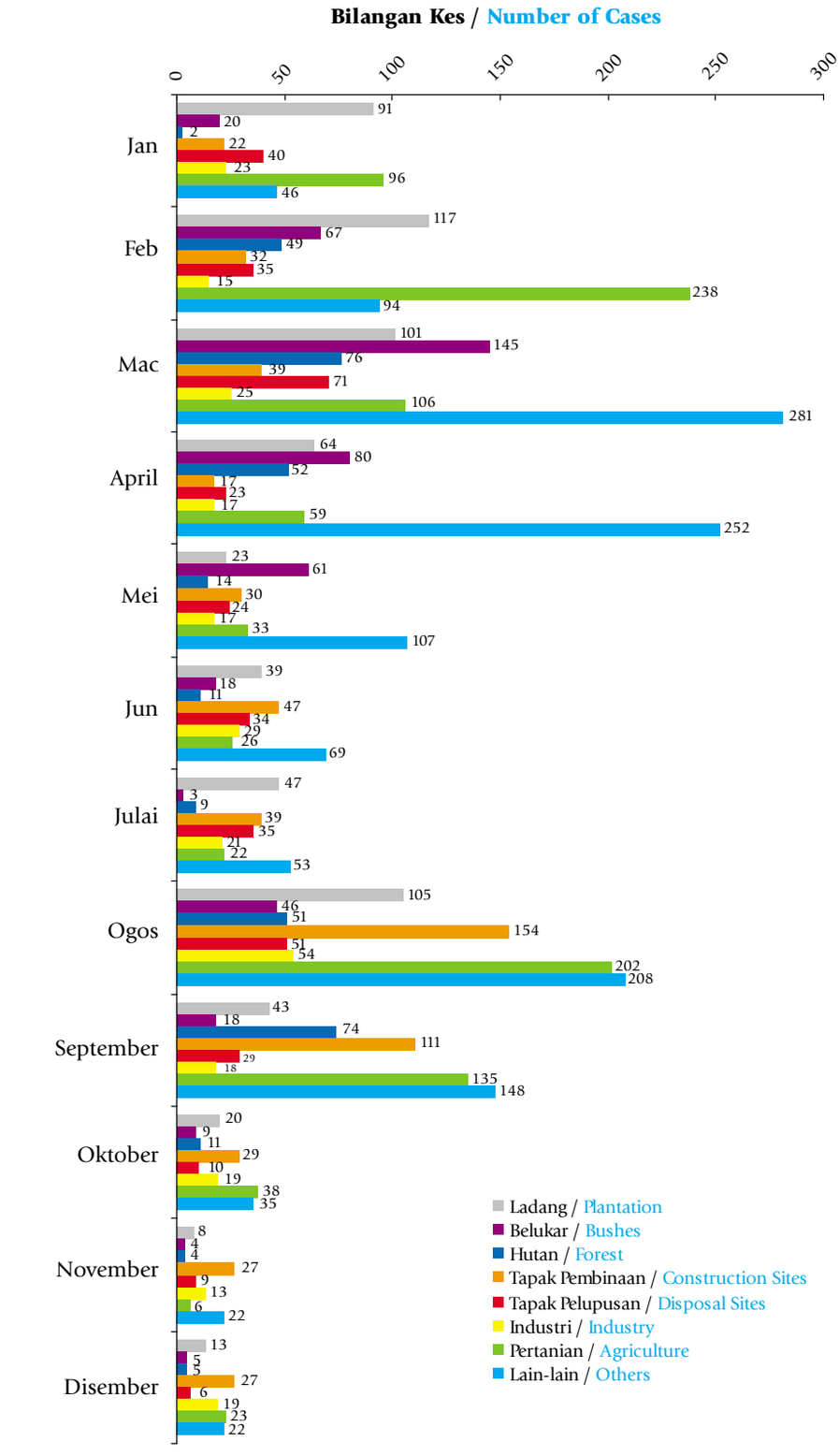
Sepanjang tahun 2005, sebanyak 4,060 lawatan penguatkuasaan telah dijalankan ke atas 4,645 premis-premis perindustrian (industri pembuatan dan premis yang ditetapkan) yang tertakluk di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Udara Bersih) 1978, dengan jumlah keseluruhan tahap pematuhan sebanyak 74%. Daripada jumlah ini, industri penapisan petroleum mencapai pematuhan sebanyak 100%, diikuti dengan kilang getah asli (97%) dan industri kuari (91%). Industri galian bukan logam, makanan ternakan dan simen merekodkan tahap pematuhan yang rendah (57%; 58%; 58%) (Rajah 4.11). Kebanyakan industri gagal mematuhi had pelepasan asap hitam dan pelepasan habuk yang ditetapkan disebabkan penggunaan dan penyelenggaraan alat kawalan pencemaran yang tidak cekap dan tidak sempurna.

equipment and accessories and Global Positioning System instruments (GPS).

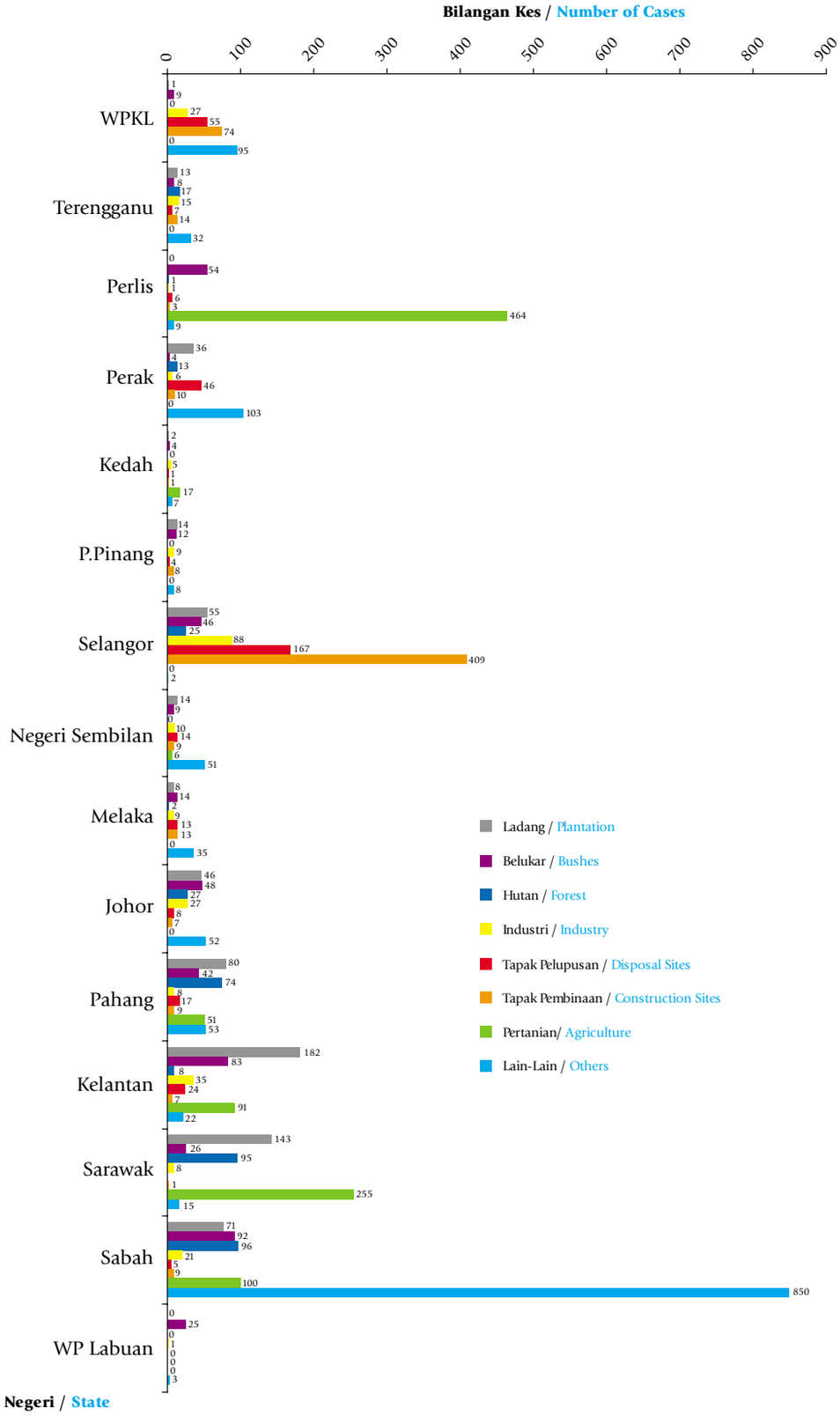
Status of Compliance with the Environmental Quality (Clean Air) Regulations 1978

Throughout 2005, a total of 4,060 enforcement visits were conducted on 4,645 manufacturing industries and prescribed premises that were subjected to the Environmental Quality (Clean Air) Regulations 1978. Overall compliance was 74%. Analysis of compliance showed that petroleum refinery industry achieved 100% compliance, followed by raw rubber mill (97%) and quarries (91%). Non-metallic mineral, animal feed and cement industries recorded low compliance levels (57%; 58%; 58%) respectively (Figure 4.11). Most industries failed to comply with the dark smoke and dust permissible limits due to inefficient pollution control equipment.

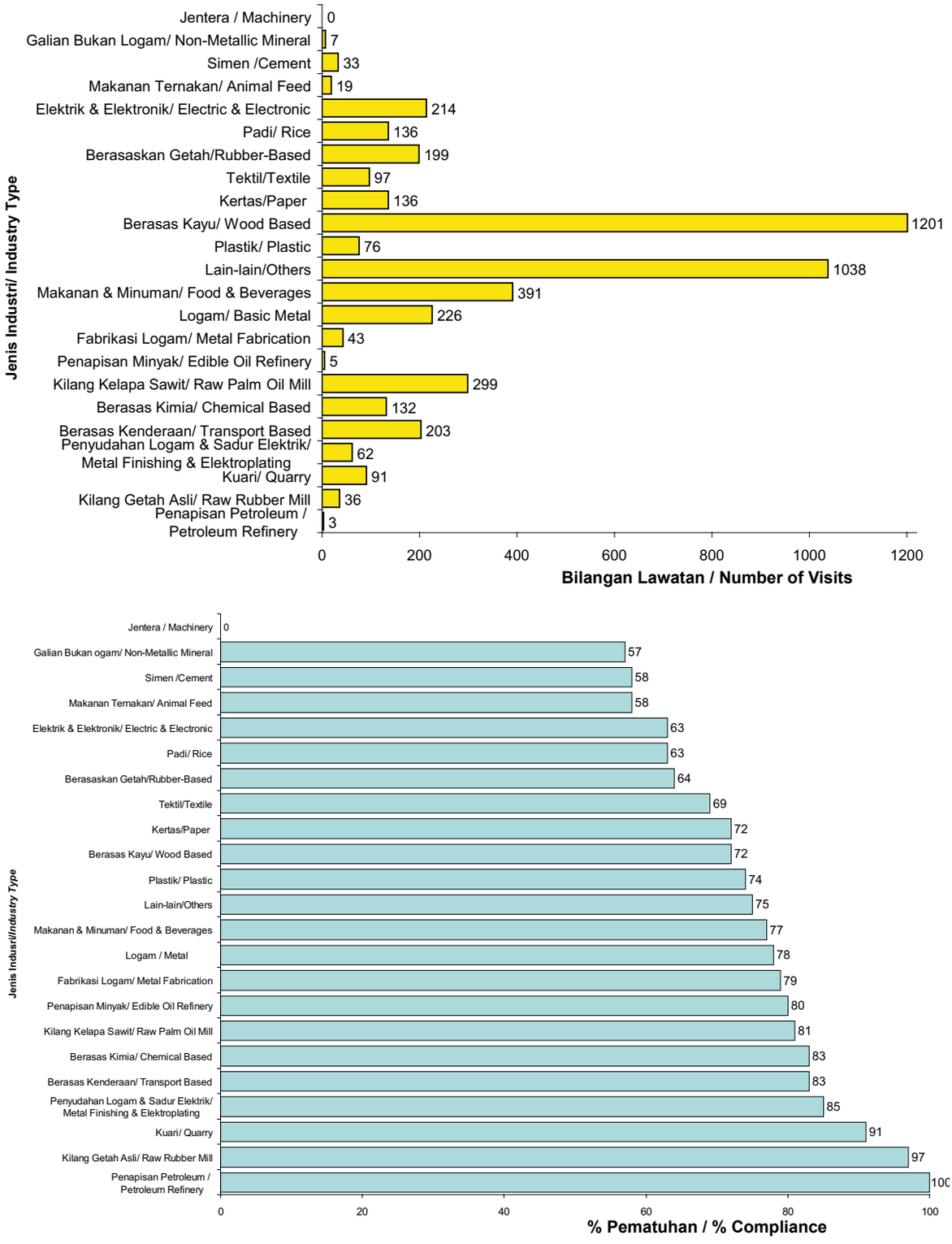
Gambarfoto 4.19 JAS: Aktiviti Pembakaran Terbuka di Tapak Pelupusan Sampah Haram
Photo 4.19 DOE: Open Burning Activities at Illegal Dumping Site



Rajah 4.9 JAS: Bilangan Kes Pembakaran Terbuka Bulanan, 2005
Figure 4.9 DOE: Number of Open Burning Cases by Month, 2005



Rajah 4.10 JAS: Bilangan Kes Pembakaran Terbuka Mengikut Negeri, 2005
Figure 4.10 DOE: Number of Open Burning Cases by State, 2005



Rajah 4.11 JAS: Bilangan Lawatan & Status Pematuhan* Peraturan Udara Bersih, 1978; 2005

Figure 4.11 DOE: No of Visits & Compliance* to Clean Air Regulations, 1978; 2005

** Berdasarkan bilangan lawatan penguatkuasaan / based on total number of enforcement visits*

Punca-Punca Bergerak (Kenderaan Bermotor)
Mobile Sources (Motor Vehicles)

Bilangan kenderaan bermotor yang berdaftar di Malaysia sehingga akhir tahun 2005 adalah sebanyak 14,816,407, iaitu penambahan sebanyak 1,051,570 buah kenderaan (7.6 %) berbanding tahun 2004. Pecahan keseluruhan kenderaan bermotor yang berdaftar mengikut jenis adalah seperti di Rajah 4.12.

By the end of 2005, there were 14,816,407 registered motor vehicles in Malaysia, an increase of 1,051,570 (7.6 %) compared to 2004. The breakdown of the total registered vehicles according to vehicle types is given in Figure 4.12.

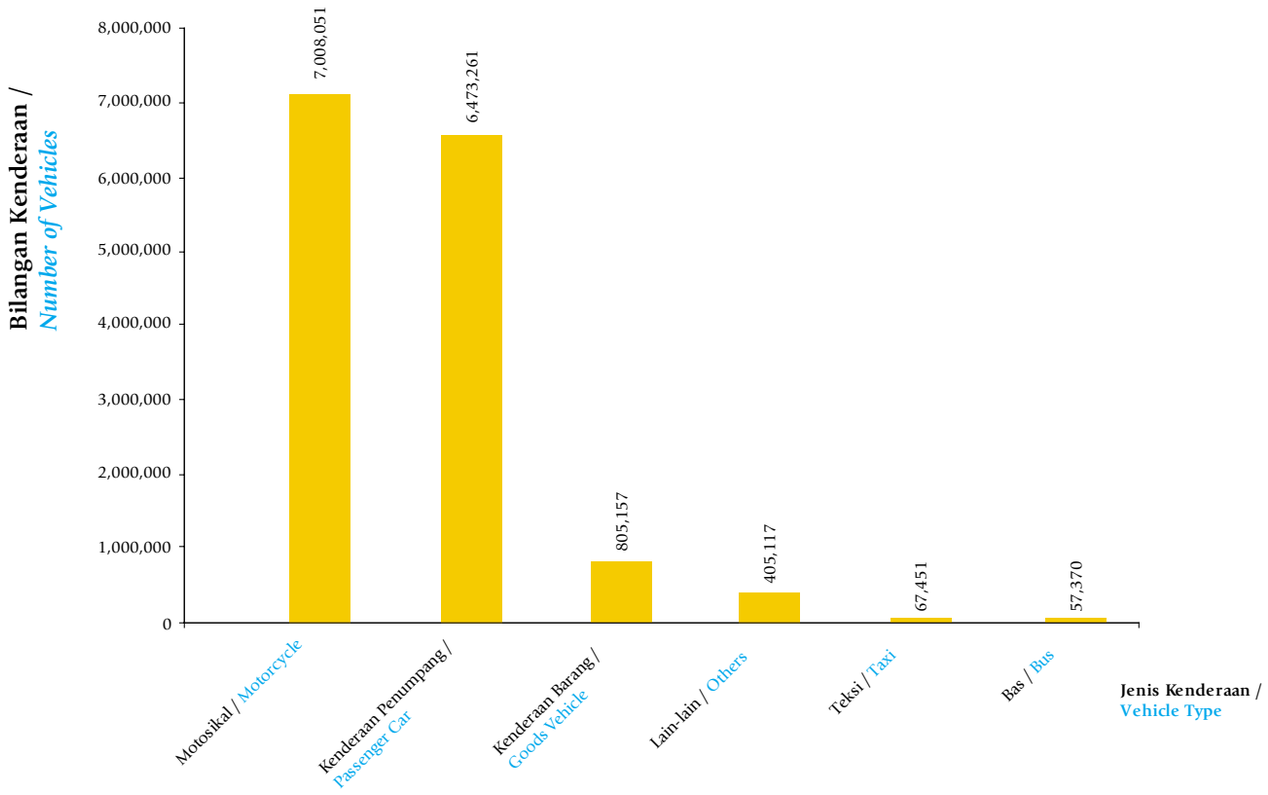
Dari sejumlah 1,051,570 buah kenderaan baru yang didaftarkan dalam tahun 2005, kategori motosikal dan motokar adalah yang paling tinggi bilangannya dengan masing-masing sebanyak 422,255 unit (40.15%) dan 537,900 unit (51.15%), manakala baki selebihnya sebanyak 91,415 unit (8.69%) adalah dari lain-lain jenis kenderaan termasuk lori, bas, van dan sebagainya.

Out of 1,051,570 new vehicles registered in 2005, motorcycles and motorcars made up the highest number with 422,255 (40.15 %) and 537,900 (51.15 %) respectively, while the remaining 91,415 (8.69 %) were other vehicle types such as lorries, busses and vans.

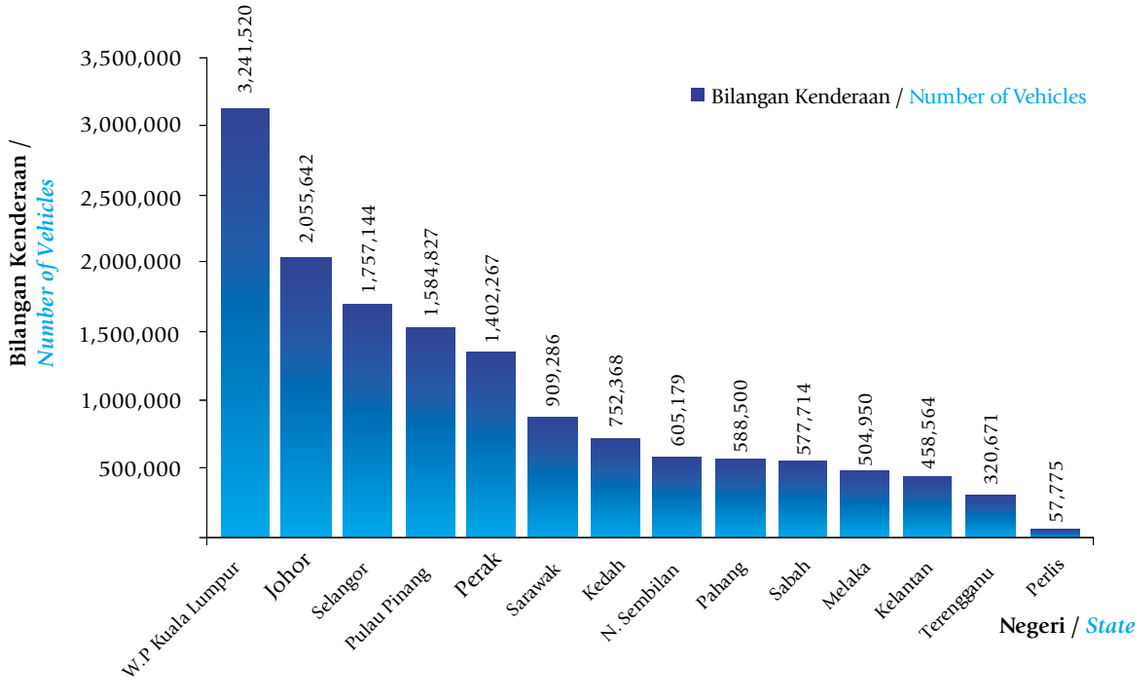
Taburan bilangan kenderaan bermotor di Malaysia mengikut negeri adalah seperti di Rajah 4.13. Wilayah Persekutuan Kuala Lumpur masih mendahului negeri-negeri lain dengan mempunyai bilangan kenderaan yang tertinggi iaitu sebanyak 3.2 juta (21.9 %) , diikuti oleh negeri Johor, Selangor, Pulau Pinang dan Perak.

The distribution of registered vehicles throughout the States is given in Figure 4.13. The Federal Territory of Kuala Lumpur recorded the highest number of vehicles registered i.e 3.2 million (21.9 %) followed by Johor, Selangor, Pulau Pinang and Perak.

Gambarfoto 4.20 JAS: Pelepasan Asap Ekzos Motosikal
Photo 4.20 DOE: Motorcycle Exhaust Smoke Emission



Rajah 4.12 JAS: Bilangan Kenderaan Bermotor Mengikut Jenis, 2005
Figure 4.12 DOE : Number of Motor Vehicles by Type, 2005



Rajah 4.13 JAS: Bilangan Kenderaan Bermotor Mengikut Negeri, 2005
Figure 4.13 DOE: Number of Motor Vehicles by State, 2005

Kawalan Pelepasan Asap dan Gas dari Kenderaan Bermotor

Pelepasan asap serta gas-gas pencemar seperti karbon monoksida, hidrokarbon, oksida-oksida nitrogen serta partikulat yang dilepaskan melalui ekzos kenderaan bermotor adalah dikawal di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Pelepasan Daripada Enjin Diesel) 1996 dan Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Pelepasan Daripada Enjin Petrol) 1996.

Control of Smoke and Gaseous Emissions From Motor Vehicles

Emission of smoke and gaseous pollutants such as carbon monoxide, hydrocarbons, oxides of nitrogen and particulate matters emitted from motor vehicle exhausts are controlled under the Environmental Quality (Control of Emission from Diesel Engines) Regulations 1996 and the Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996.

Kawalan Pelepasan Asap Hitam Dari Kenderaan Diesel

Kawalan pelepasan asap hitam berlebihan dari ekzos kenderaan diesel dilaksanakan melalui Program AWASI (Area Watch And Sanction Inspection). Melalui Program ini, skuad peronda JAS akan menjalankan rondaan, pemerhatian, dan memberhentikan kenderaan untuk menjalankan ujian asap ke atas kenderaan-kenderaan diesel yang diperhatikan mengeluarkan asap hitam berlebihan. Tindakan Kompaun akan dikeluarkan serta merta kepada pemandu dan tuanpunya kenderaan yang gagal mematuhi had pelepasan asap 50 Unit Asap Hartridge (HSU). Kompaun serta perintah larangan menggunakan kenderaan dijalanraya akan dikeluarkan sekiranya paras asap hitam yang dilepaskan melebihi 70 HSU.

Control of Black Smoke Emission From Diesel Vehicles

The control of excessive black smoke emission from diesel vehicle exhausts is implemented through the AWASI (Area Watch And Sanction Inspection) Programme. Under this programme DOE mobile squads would go on patrol, observing and testing diesel vehicles emitting excessive smoke. Compounds would be issued on-the-spot to drivers and owners if their vehicles fail to comply with the stipulated smoke limit of 50 HSU, and a prohibition order issued(prohibiting vehicle usage) if the smoke limit exceeds 70 HSU.

Pada tahun 2005, sebanyak 1,468 operasi penguatkuasaan AWASI telah dilaksanakan di bandar-bandar diseluruh negara di mana, sebanyak 95,655 buah kenderaan diesel telah diperiksa. Dari jumlah tersebut, sebanyak 4,878 buah kenderaan telah dikompaun kerana gagal mematuhi had pelepasan asap 50 HSU, manakala 757 daripadanya telah dikenakan perintah larangan beroperasi sehingga dibaikpulih dan lulus ujian asap semula oleh JAS (Jadual 4.14).

In 2005, a total of 1,468 AWASI enforcement operations were conducted in cities throughout the country and 95,655 diesel vehicles were visually inspected, out of which 4,878 vehicles (5.1%) were compounded for failing to comply with the 50 HSU smoke limit. Of this total, 757 vehicles (15.5%) were issued the prohibition order (PO). Vehicles issued with prohibition order had to be retested before PO was lifted (Table 4.14).

Bilangan kenderaan diesel yang dikompaun dan peratus pematuhan mengikut jenis kenderaan adalah seperti di Rajah 4.14. Rajah 4.16 pula menunjukkan bilangan kenderaan dikompaun, pengeluaran

The number of vehicles summoned and their percentage of compliance according to vehicle types are shown in Figure 4.14. Figure 4.16 shows the number of vehicles compounded, number of

perintah larangan serta peratus pematuhan mengikut negeri. Tindakan mahkamah telah juga diambil ke atas 205 pemandu dan pemilik kenderaan yang gagal menjelaskan kompaun.

prohibition orders issued and the percentage of compliance according to States. Court action was also taken against 205 drivers and vehicle owners for non-payment of compounds.

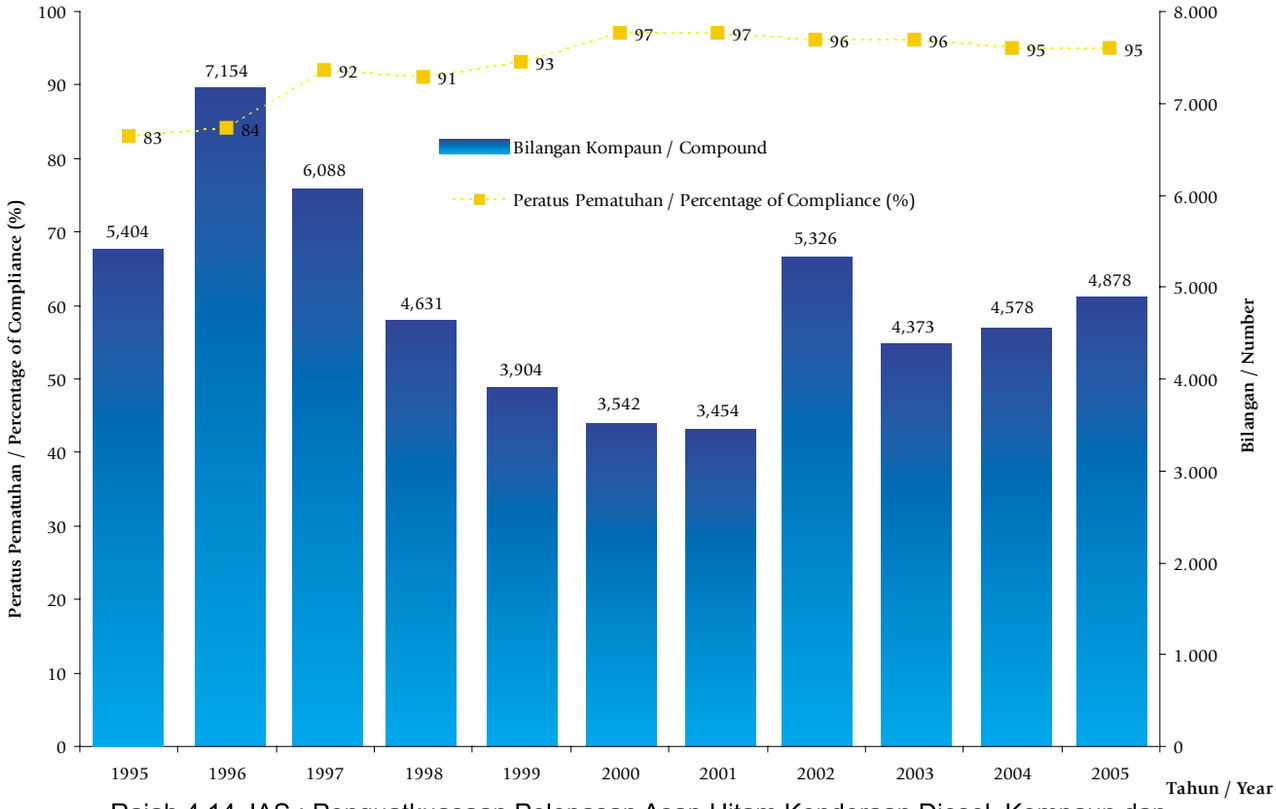
Selain daripada pelaksanaan program AWASI di kawasan bandar, program penguatkuasaan AWASI di sepanjang lebuhraya dan jalan utama di seluruh negara juga telah dilaksanakan oleh JAS. Satu Kempen Kawalan kebangsaan Pelepasan Kenderaan Berenjin Diesel dan Petrol di Seluruh Negara peringkat kebangsaan telah dilancarkan pada 25 April 2005 di Plaza Tol Sungai Besi, Kuala Lumpur.

Apart from conducting the AWASI Programme within urban areas, enforcement operation were also conducted along highways and main roads. A nation-wide Vehiclular Emission Control Campaign was launched at the Plaza Tol Sungai Besi, Kuala Lumpur on 25 April 2005.

Kempen yang sama telah dilaksanakan secara serentak oleh semua pejabat JAS Negeri. Sebanyak 11,851 kenderaan diesel telah diperiksa, di mana 908 (8.1%) telah dikompaun dan 130 (1.1%) pula telah dikenakan perintah larangan menggunakan kenderaan (Jadual 4.11 dan 4.12) (Rajah 4.16).

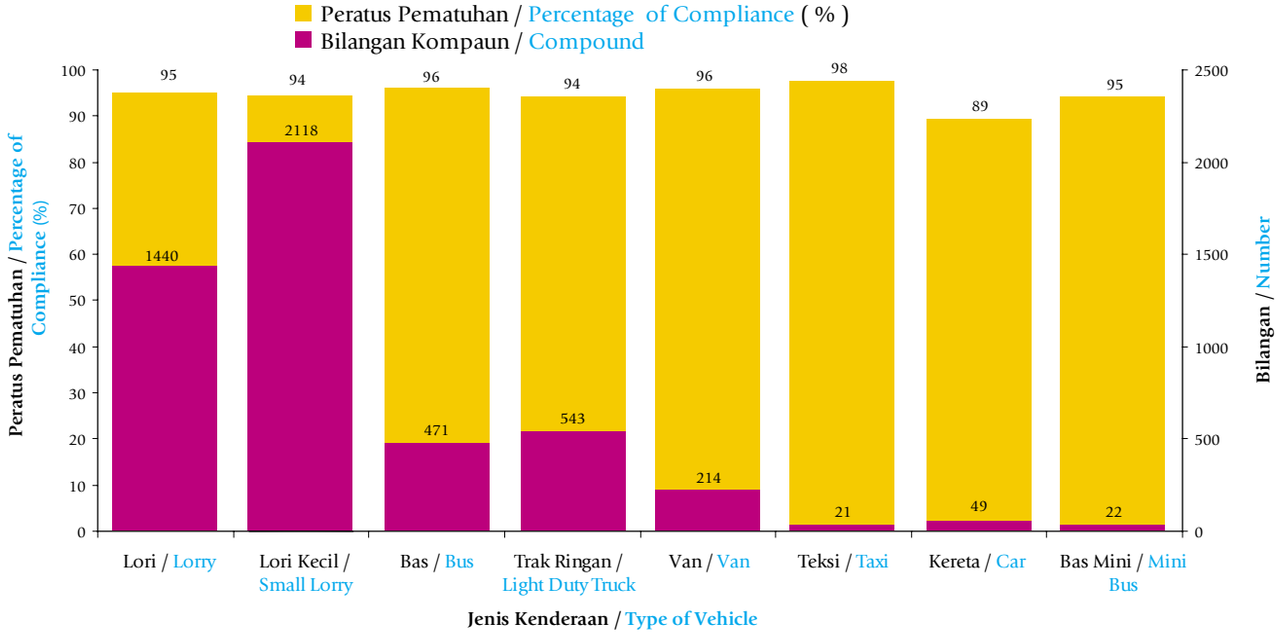
Similar campaigns were also conducted by all DOE State Offices in 2005. During this campaign, a total of 11,851 diesel vehicles were inspected, 908 vehicles (8.1 %) were compounded and 130 vehicles (1.1%) were issued with prohibition order (Table 4.11 and 4.12) (Figure 4.16).

Gambarfoto 4.21 JAS: Penguatkuasaan Asap Hitam Kenderaan
Photo 4.21 DOE: Enforcement of Smoky Vehicle



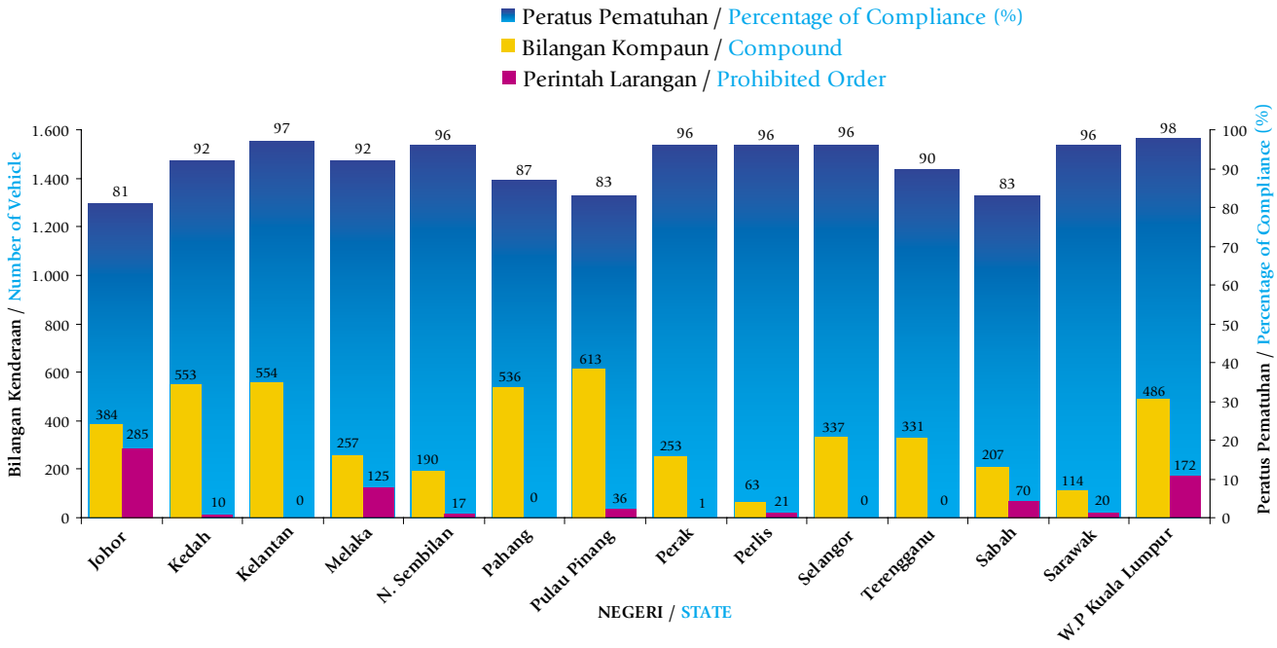
Rajah 4.14 JAS : Penguatkuasaan Pelepasan Asap Hitam Kenderaan Diesel, Kompaun dan Peratus Pematuhan, 1995-2005

Figure 4.14 DOE : Enforcement of Diesel Vehicle Black Smoke Emission, Compound and Percentage of Compliance, 1995-2005



Rajah 4.15 JAS: Penguatkuasaan Pelepasan Asap Hitam Kenderaan Diesel, Bilangan Saman dan Peratus Pematuhan, 2005

Figure 4.15 DOE: Enforcement of Diesel Vehicular Black Smoke Emission, Compound and Percentage of Compliance 2005



Rajah 4.16 JAS: Penguatkuasaan Pelepasan Asap Hitam Kenderaan Diesel; Bilangan Kenderaan Dikompaun, Perintah Larangan dan Peratus Pematuhan Mengikut Negeri, 2005

Figure 4.16 DOE: Enforcement of Diesel Vehicular Black Smoke Emission; Compounds, Prohibited Orders and Percentage of Compliance by State, 2005

Gambarfoto 4.22 JAS: Pelancaran Kempen Kawalan Pelepasan Asap Hitam

Photo 4.22 DOE: Launching of Black Smoke Control Campaign

Kawalan Pelepasan Gas CO dan HC Dari Kenderaan Petrol

Pada tahun 2005, sejumlah 1,534 buah kenderaan petrol telah diuji pelepasan CO dan HC dengan menggunakan meter gas CO-HC Analyzer melalui kaedah 'ujian idling' di jalan raya. Dari jumlah 1,298 (84.6%) ini didapati mematuhi had pelepasan CO dan HC manakala selebihnya gagal mematuhi dan dikenakan kompaun. Surat amaran juga telah dikeluarkan kepada pemandu-pemandu kenderaan yang gagal mematuhi had-had pelepasan CO dan HC supaya membaiki kenderaan masing-masing untuk memastikan kenderaan mereka sentiasa mematuhi had pelepasan yang ditetapkan.

Control of CO and HC Gas Emissions from Petrol Vehicles

Throughout 2005, a total of 1,534 petrol vehicles were inspected using the CO-HC gas analyzer by the idling test method conducted at road kerbs. Out of the 1,534 inspected, 1,298 vehicles (84.6 %) complied with the stipulated CO and HC limits, while the remaining 236 (15.4%) vehicles failed the test. Directives were issued to drivers to take remedial action to ensure compliance.

Ujian Kelulusan Jenis (Kenderaan Petrol)

Mulai 1 Januari 2000, mana-mana model baru kenderaan motor dikehendaki mematuhi standard pelepasan pencemar yang ditetapkan dalam Jadual Ketiga, Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Pelepasan Daripada Enjin Petrol),1996 (jisim Karbon Monoksida yang dibenarkan hendaklah tidak melebihi 2.2 g/km, dan kombinasi Hidrokarbon dan Nitrogen Oksida tidak melebihi 0.5 g/km). Sepanjang tahun 2005, Jabatan Alam Sekitar telah mengeluarkan sebanyak 58 Sijil Ujian Kelulusan Jenis bagi model baru kenderaan yang akan dipasarkan di Malaysia.

Type Approval Test (Petrol Vehicles)

New models of motor vehicle on and after 1 January, 2000 were required to comply with emission standards prescribed in the Third Schedule of Environment Quality (Control of Emission from Petrol Engines) Regulations, 1996. Carbon Monoxide mass shall not exceed 2.2 g/km, while Hydrocarbon and Nitrogen Oxides combined shall not exceed 0.5 g/km. In 2005, the Department Of Environment issued 58 Type Approval Test Certificates for new models introduced into Malaysia.

Pengwujudan Kemudahan Yang Diluluskan

Bagi membolehkan orang ramai menghantar kenderaan mereka untuk menjalani ujian pelepasan asap dan gas, Jabatan Alam Sekitar telah mengiktiraf beberapa bengkel-bengkel kenderaan yang memenuhi kriteria-kriteria ditetapkan sebagai "Kemudahan Yang DiLuluskan(KYDL)". Pusat KYDL ini juga berfungsi sebagai pusat membaiki kenderaan untuk kenderaan-kenderaan yang tidak mematuhi peraturan.

Establishment of Approved Testing Facilities

To facilitate public access to workshops for smoke and gaseous emission testing, DOE accredited a number of workshops that had fulfilled the prescribed criteria as "Approved Testing Facilities". Such centres could also serve as immediate repair centres for non-complying vehicles.

Sehingga akhir tahun 2005, sebanyak 41 bengkel serta pusat-pusat pemeriksaan kenderaan di seluruh negara telah diberikan sijil pengiktirafan sebagai "Kemudahan Yang Diluluskan" oleh JAS. Kesemua pusat atau bengkel tersebut adalah untuk menguji pelepasan asap hitam kenderaan diesel. termasuk 13 pusat atau bengkel bagi tujuan menguji pelepasan asap dan gas dari kenderaan diesel dan petrol.

By end of 2005, a total of 41 workshops and vehicle testing centers throughout the country were registered as "Approved Testing Facilities" by DOE. All these approved facilities would be able to test diesel vehicular emission, while 13 of these test centres were approved for petrol and diesel vehicles.

Kawalan Pelepasan Asap Daripada Motosikal

Peraturan-Peraturan Kualiti Alam Sekeliling (Kawalan Pelepasan Daripada Motosikal), 2003 dikuatkuasakan mulai 1 Januari 2004. Peraturan ini telah menggariskan piawai pelepasan seperti berikut :-

- Standard Kelulusan Jenis bagi motosikal baru : 97/24/EC
- Standard pelepasan(idling) bagi motosikal terpakai : 4.5 % CO(Karbon Monoksida)

Pengimport motosikal dikehendaki mematuhi standard baru pelepasan berkuatkuasa 1 Januari 2005 bagi model baru dan 1 Julai 2005 bagi model sedia ada, manakala pembuat tempatan hendaklah mematuhi standard pelapasan baru berkuatkuasa 1 Julai 2005 bagi model baru dan 1 Julai 2006 bagi model sedia ada. Sepanjang tahun 2005 sebanyak 21 Sijil Kelulusan Jenis telah dikeluarkan kepada pembuat, pemasang dan pengimport motosikal untuk pasaran dalam negara.

Control of Emission from Motorcycles

Regulations to control air pollution from motorcycle exhausts namely the Environmental Quality (Control of Emission from Motorcycles) 2003, came into force on 1 January 2004. The emissions standards adopted are :-

- Type Approval Emission Standard for new motorcycles : 97/24/EC
- Idling Emission Standard for in-use motorcycles : 4.5 % CO(Carbon Monoxide)

Motorcycle importers were required to comply with new emission standards effective from 1 January 2005 for new model and 1 July 2005 for current model, while local manufactures would have to comply with the new emission standards effective from 1 July 2005 for new model and 1 July 2006 for current model. Throughout 2005, a total of 21 Type Approval Test Certificates were issued to manufacturers, assemblers and importers of motorcycles for the domestic market.

Bunyi Bising Kenderaan Bermotor

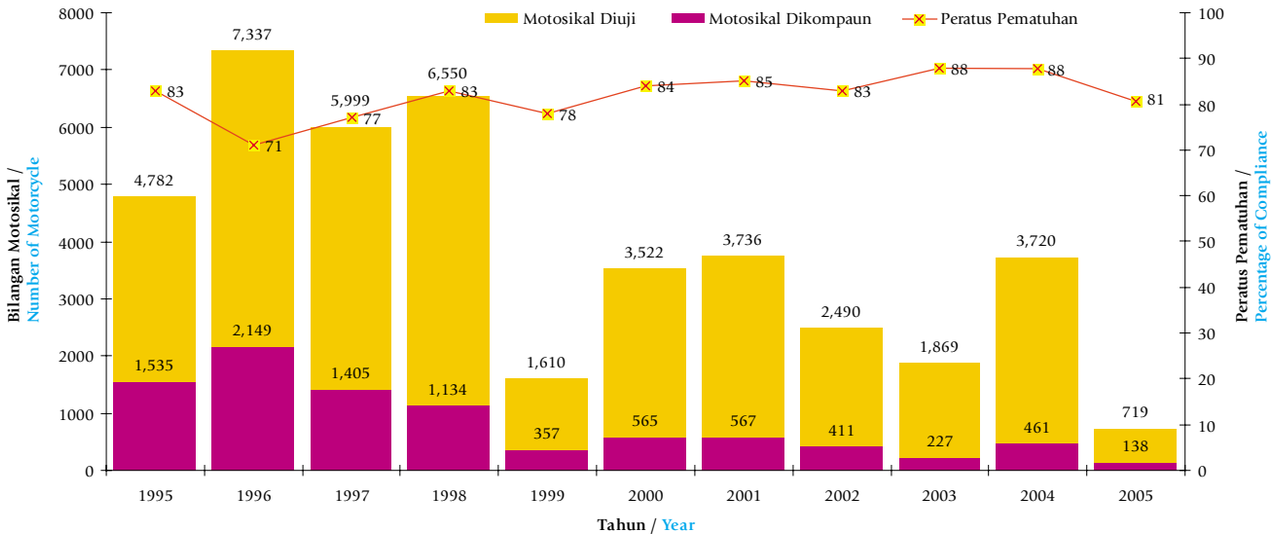
Pelepasan bunyi bising daripada kenderaan bermotor dikawal di bawah Peraturan-Peraturan Kualiti Alam Sekeliling (Bunyi Bising Kenderaan Bermotor) 1987.

Operasi penguatkuasaan bagi mengawal pelepasan bunyi bising dari motosikal telah dilaksanakan secara bersama oleh pejabat-pejabat JAS negeri dan Polis DiRaja Malaysia (Cawangan Trafik). Sepanjang tahun 2005, sejumlah 2,196 buah motosikal telah ditahan untuk menjalani ujian pelepasan bunyi bising. Dari jumlah ini, 138 penunggang telah dikompaun kerana melanggar had bunyi bising yang dibenarkan. Peratus pematuhan secara keseluruhannya ialah 80.81 % (Rajah 4.17).

Noise from Motor Vehicles

The control of noise from motor vehicles is enforced under the Environmental Quality (Motor Vehicle Noise) Regulations 1987.

Enforcement campaigns to control excessive noise from motorcycle were jointly conducted by the DOE and the Traffic Police. In 2005, a total of 2,196 motorcycles were stopped for noise enforcement, of which 138 motorcyclists were summoned for violating the stipulated noise limits. The overall percentage of compliance is 80.81 % (Figure 4.17).



Rajah 4.17 JAS: Penguatkuasaan Pelepasan Bunyi Bising Motosikal, 1995-2005
Figure 4.17 DOE: Enforcement of Motorcycle Noise Emission, 1995-2005

Jadual 4.11 JAS: Kempen-Kempen Asap Hitam
Table 4.11 DOE: Black Smoke Campaign

Negeri *State*	**Bilangan Operasi** *Number Of Operations*	**Visual** *Visual*	**Saman** *Summon*	**Perintah Larangan** *Prohibition Order*	**Pematuhan** *Compliance (%)*
Pahang	9	1025	78	0	92.39
Terengganu	8	886	88	0	90.07
Sarawak	8	863	52	10	93.97
Kedah	9	772	102	0	86.79
Kuala Lumpur	10	980	61	18	93.78
Selangor	7	1240	52	0	95.81
Johor	8	761	45	31	94.09
Kelantan	7	802	84	0	89.53
Melaka	9	886	42	22	95.26
N.Sembilan	13	1868	94	9	94.97
P.Pinang	10	672	100	19	85.12
Perak	6	621	54	0	91.30
Perlis	7	397	25	7	93.70
Sabah	5	78	31	14	60.26
JUMLAH KESELURUHAN	**116**	**11,851**	**908**	**130**	**92.35**

Tindakan Undang-Undang
Legal Action

Pendakwaan

Pada tahun 2005, sejumlah 290 kesalahan telah disabitkan oleh mahkamah yang melibatkan denda berjumlah RM 3,102,900.00 (Rajah 4.18 dan Rajah 4.19). Daripada jumlah keseluruhan tersebut, sebanyak 79 (27%) kes mahkamah adalah melibatkan kesalahan mencemar perairan daratan melalui pelepasan effluen melebihi had yang ditetapkan dibawah Seksyen 25(1) AKAS 1974 dengan jumlah denda sebanyak RM 1,948,200.00. Terdapat 24 (8%) kes mahkamah adalah melibatkan kesalahan pembakaran terbuka dengan jumlah denda sebanyak RM 285,300.00.

Prosecution

In 2005, a total of 290 environmental offences were prosecuted and fined a total of RM 3,102,900.00. (Figure 4.18 and Figure 4.19). Of these cases, 79 (27%) involved offences for polluting of inland waters by discharges of effluent above the stipulated standards under Section 25(1) of EQA 1974 and fined a total of RM 1,948,200.00. For open burning cases, 24 (8%) cases were prosecuted and fined a total of RM 285, 300.00.

Kompaun

Sejumlah 6,426 kompaun telah dikeluarkan sepanjang tahun 2005 kepada premis dan syarikat untuk pelbagai kesalahan di bawah AKAS 1974. Daripada jumlah keseluruhan tersebut, sebanyak 4,878 (76%) kompaun adalah kesalahan di bawah Peraturan Kualiti Alam sekeliling (Kawalan Pelepasan Dari Enjin Diesel) 1996, sebanyak 415 (7%) kompaun adalah kesalahan di bawah Seksyen 29A, AKAS 1974, sebanyak 524 (8%) kompaun adalah kesalahan di bawah Peraturan Kualiti Alam Sekeliling (Udara Bersih) 1978, sebanyak 389 (6%) kompaun adalah kesalahan di bawah Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 1989 dan sebanyak 220 (3%) kompaun adalah kesalahan di bawah Peraturan Kualiti Alam Sekeliling (Kawalan Pelepasan dari Enjin Petrol) 1996 (Rajah 4.20, Rajah 4.21 dan Rajah 4.22).

Compounds

A total of 6,426 compounds were issued in 2005 against premises and companies for various offences under EQA 1974. Out of this total, 4,878 (76%) were offences under the Environmental Quality (Control of Emission from Diesel Engine) Regulations 1996, 415 (7%) were offences under Section 29A of EQA 1974, 524 (8%) were offences under the Environmental Quality (Clean Air) Regulations 1978, 389 (6%) were offences under the Environmental Quality (Schedules Wastes) Regulations 1989 and 220 (3%) were offences under Environmental Quality (Control of Emission from Petrol Engine) Regulations 1996 (Figure 4.20, Figure 4.21 and Figure 4.22).

Maklumbalas Terhadap Pengaduan Awam

Pada tahun 2005, sejumlah 4,628 aduan pencemaran alam sekitar telah diterima oleh Jabatan Alam Sekitar (Rajah 4.23). Daripada jumlah keseluruhan aduan, sebanyak 3,469 kes aduan (75%) telah disiasat dan

Response To Public Complaints

The Department of Environment received 4,628 environmental complaints in 2005 (Figure 4.23). Out of this total number, 3,469 cases (75%) were dealt with by the State DOE Offices and the other

tindakan telah diambil di bawah peruntukan AKAS 1974 dan peraturan-peraturan yang berkaitan telah diambil oleh pejabat JAS Negeri. Sementara 1,159 kes aduan (25%) adalah di luar bidang kuasa JAS dan telah dirujuk kepada agensi lain yang berkaitan untuk diambil tindakan.

1,159 cases (25%) which were outside the jurisdiction of DOE, were referred to other relevant agencies.

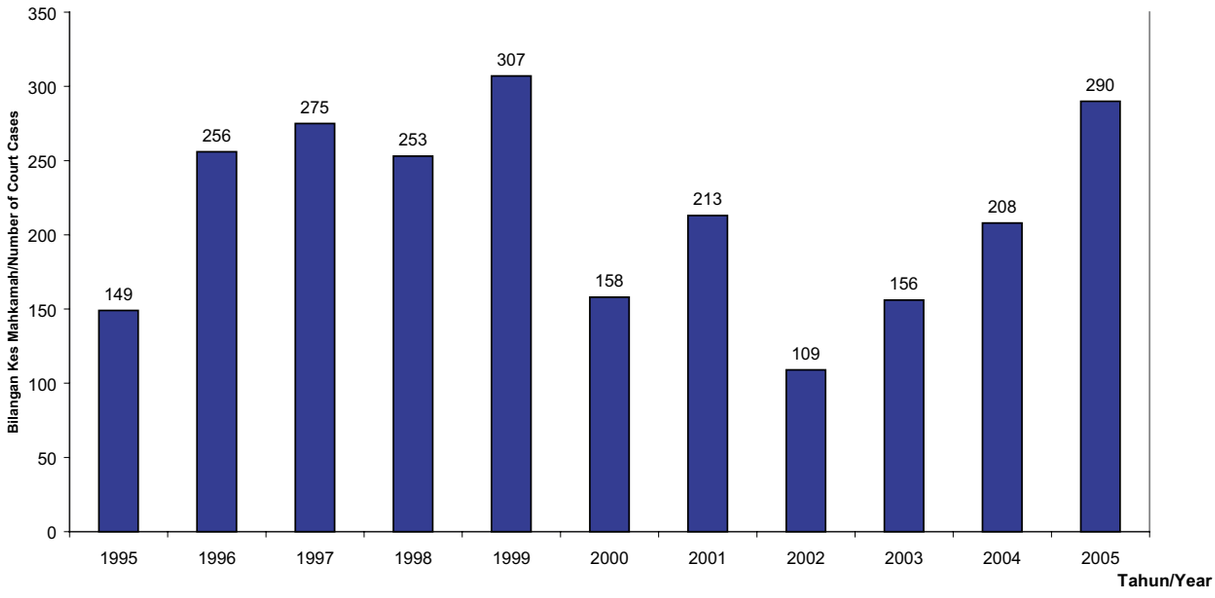
Selangor menerima aduan yang tertinggi iaitu sebanyak 1241 (27%) kes, diikuti oleh Wilayah Persekutuan Kuala Lumpur sebanyak 507 (8%) kes dan Perak sebanyak 325 (5%) kes. Wilayah Persekutuan Labuan menerima aduan yang paling sedikit iaitu sebanyak 28 (0.4%) kes dan diikuti dengan Perlis iaitu sebanyak 42 (0.7%) kes (Rajah 4.24).

Selangor recorded the highest number of complaints 1,241 (27%), followed by the Federal Territory of Kuala Lumpur 507 (8%) and Perak recorded 325 (5%). The Federal Territory of Labuan recorded the least number of complaints 28 (0.4%) and Perlis 42 (0.7%) (Figure 4.24).

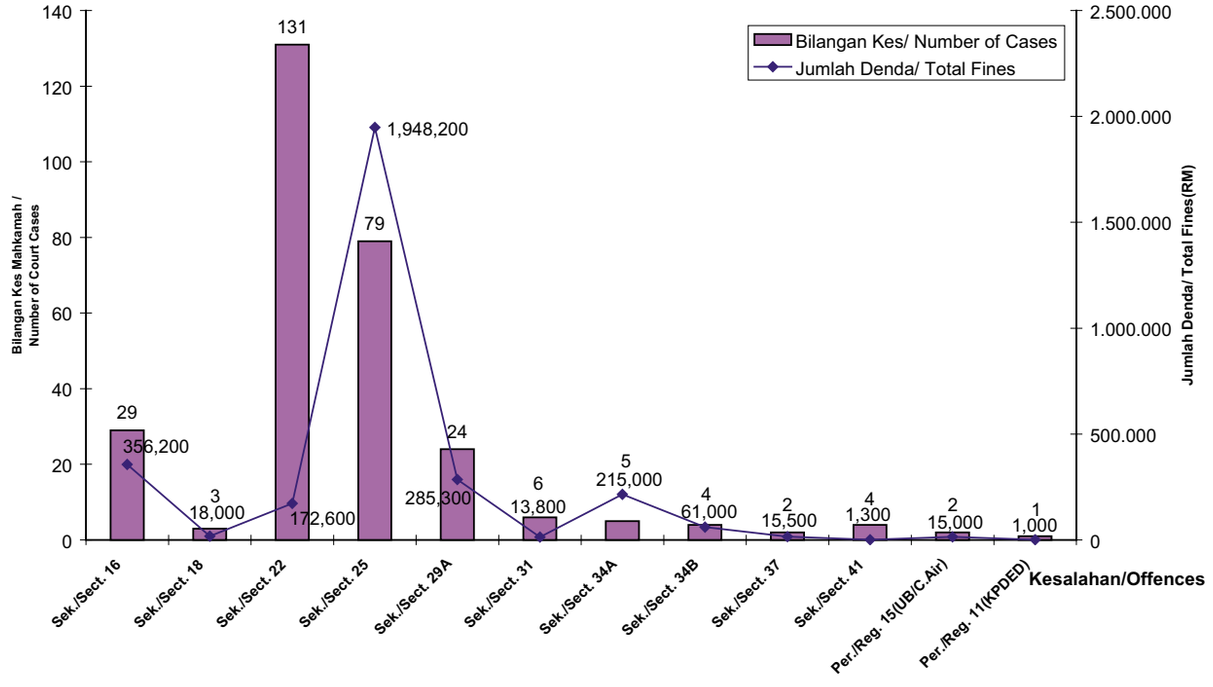
Seperti tahun-tahun sebelumnya, bilangan aduan pencemaran yang tertinggi adalah berkaitan pencemaran udara sebanyak 3,513 (76%) kes, sebanyak 452 (10%) kes berkaitan pencemaran air, sebanyak 128 (3%) kes berkaitan pencemaran bunyi, sebanyak 90 (2%) kes berkaitan pelupusan haram buangan terjadual dan sebanyak 445 (10%) kes lain-lain aduan (Rajah 4.25).

As in previous years, most of the complaints pertained to air pollution totalling 3,513 (76%), followed by water pollution, 452 (10%), noise pollution, 128 (3%), illegal dumping of scheduled or toxic wastes, 90 (2%) and others 445 (10%) (Figure 4.25).

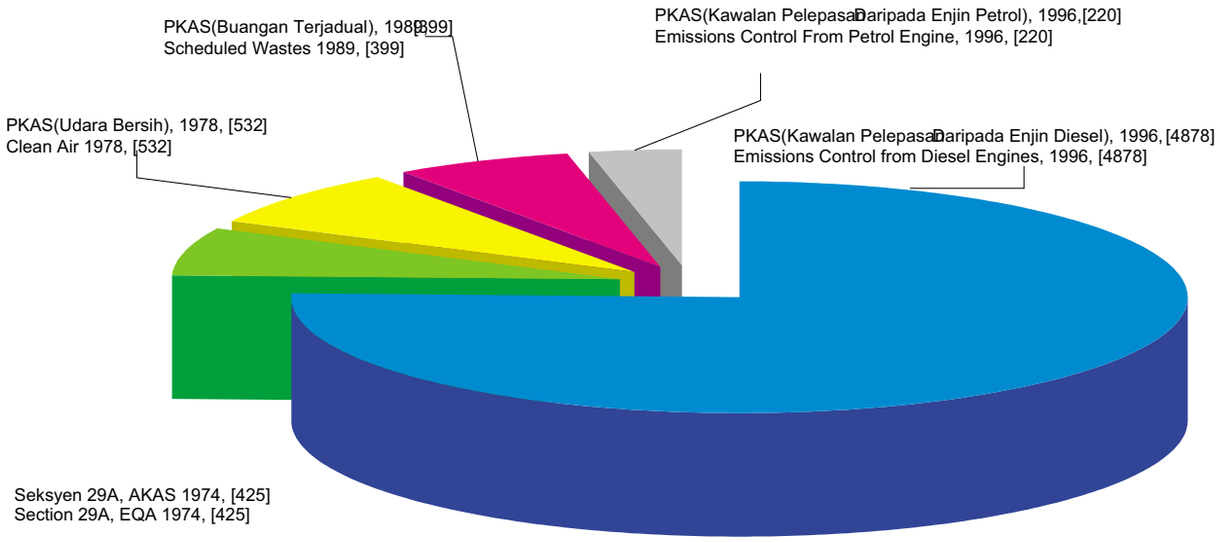
Gambarfoto 4.23 JAS: Maklum balas Terhadap Aduan Awam
Photo 4.23 DOE: Response to Public Complaints



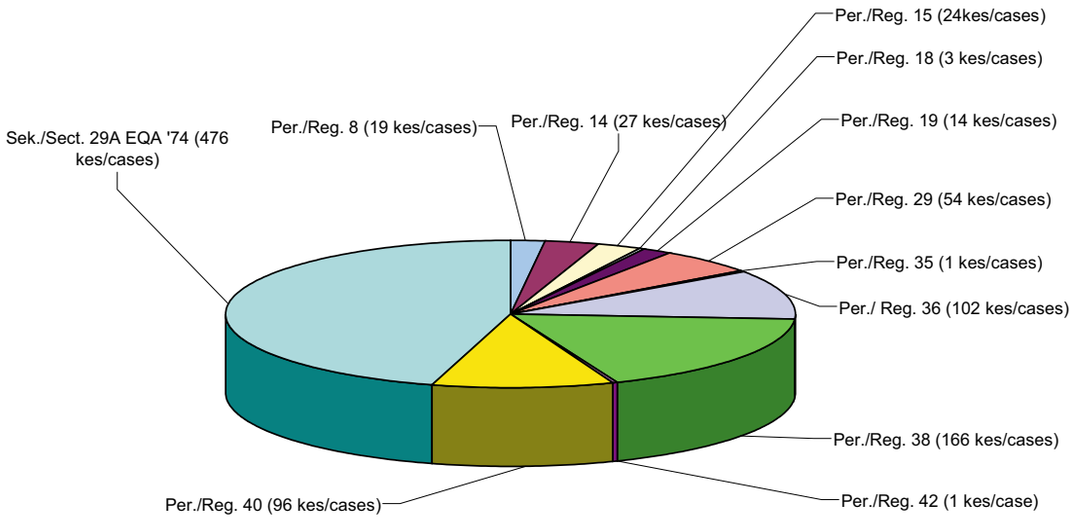
Rajah 4.18 JAS: Bilangan Kes Mahkamah, 1995-2005
Figure 4.18 DOE: Number of Court Cases, 1995-2005



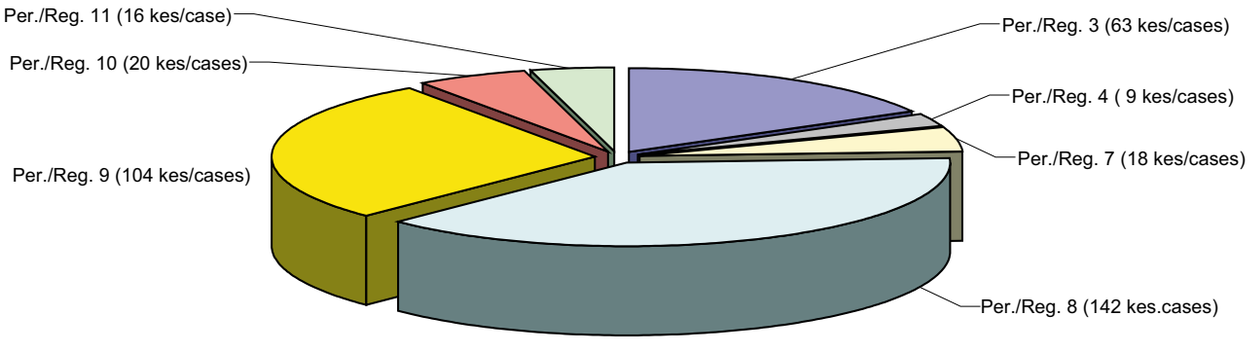
Rajah 4.19 JAS: Bilangan Kes Mahkamah dan Jumlah Denda,2005
Figure 4.19 DOE: Number of Court Cases and Total Fines, 2005



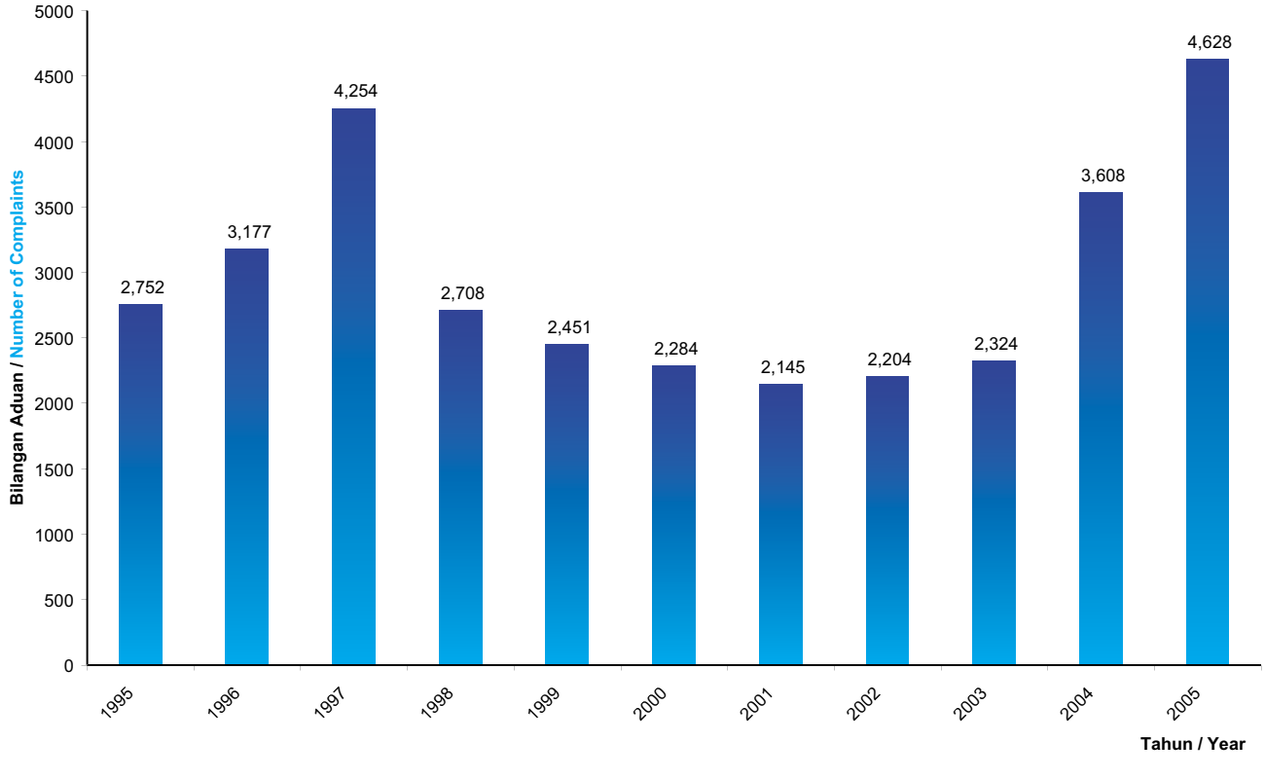
Rajah 4.20 JAS: Bilangan Kompaun Yang Dikeluarkan oleh JAS, 2005
Figure 4.20 DOE: Number of Compounds Issued by DOE, 2005



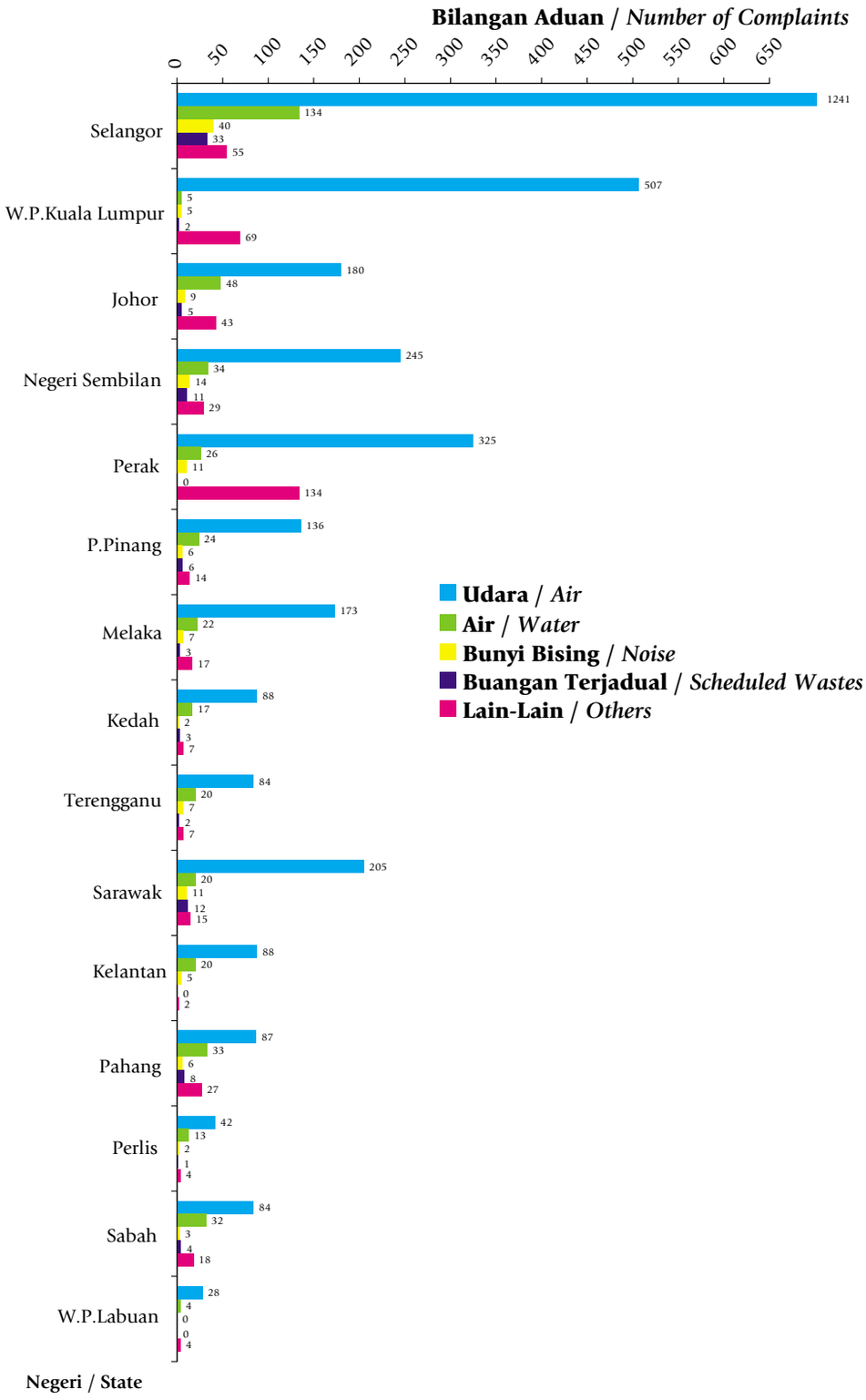
Rajah 4.21 JAS: Kompaun di bawah Peraturan Kualiti Alam Sekeliling (Udara Bersih) 1978 dan Seksyen AKAS 1974, 2005
Figure 4.21 DOE: Compounds under Environmental Quality (Clean Air) Regulations 1978 and Section 29A EQA 1974, 2005



Rajah 4.22 JAS: Kompaun di bawah Peraturan Kualiti Alam Sekeliling (Buangan Terjadual) 1978, 2005
Figure 4.22 DOE: Compounds under Environmental Quality (Scheduled Wastes) Regulations 1978, 2005

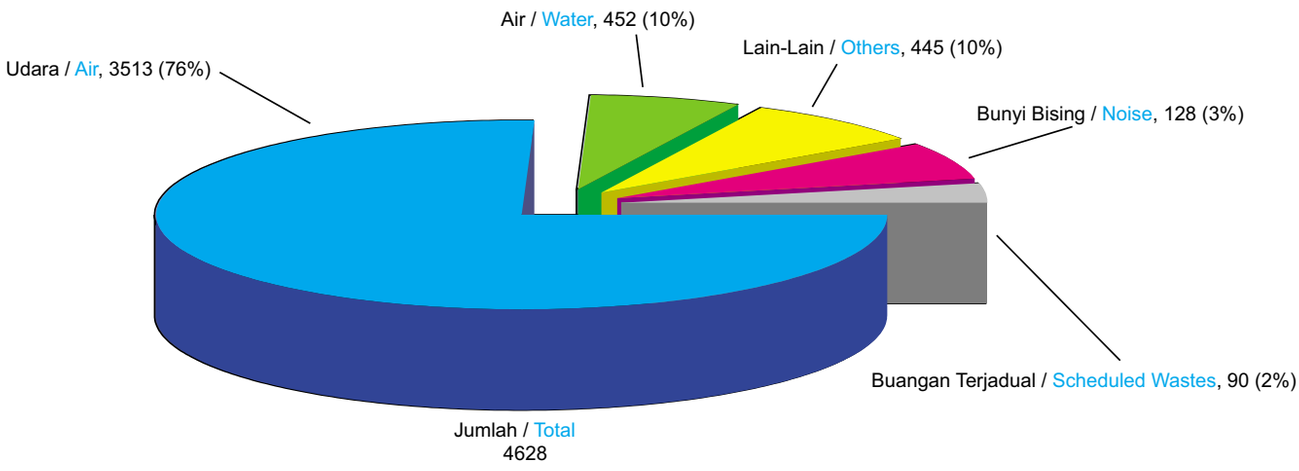


Rajah 4.23 JAS: Kes Aduan Pencemaran yang Diterima, 1995 - 2005
Figure 4.23 DOE: Environmental Complaints Received, 1995 - 2005



Rajah 4.24 JAS: Bilangan dan Jenis Aduan Pencemaran Mengikut Negeri, 2005

Figure 4.24 DOE: Number and Type of Environmental Complaints by State, 2005



Rajah 4.25 JAS: Jenis Aduan Pencemaran, 2005
Figure 4.25 DOE: Type of Complaints, 2005

Gambarfoto 4.24 JAS: Pengawasan Pencemaran dari Udara bersama Unit Udara Polis
Photo 4.24 DOE: Aerial Pollution Monitoring with Police Air Unit

Bab 5

Jabatan Alam Sekitar Department of Environment

Laporan Tahunan 2005 Annual Report

Chapter 5

Promosi Kesedaran Dan Pendidikan Alam Sekitar
Promotion Of Enviromental Education And Awareness

Sekolah Lestari-Anugerah Alam Sekitar

Program ini merupakan program usahasama di antara Jabatan Alam Sekitar dengan Kementerian Pelajaran Malaysia dengan kerjasama teknikal dari Institut Alam Sekitar dan Pembangunan (LESTARI), UKM. Program ini bertujuan untuk membantu sekolah memperkukuhkan program-program pendidikan alam sekitar yang sedia ada. Melalui program ini, elemen pendidikan alam sekitar dapat diterapkan pada kalangan guru dan pelajar secara langsung dan komuniti setempat secara tidak langsung dengan mengintegrasikan pengetahuan, kemahiran dan nilai murni alam sekitar dalam empat komponen iaitu *Pengurusan, Kurikulum, Kokurikulum dan Penghijauan*.

Program ini telah dilancarkan dengan rasminya pada 27 Januari 2005 bertempat di Sekolah Menengah Jalan Tiga, Bandar Baru Bangi, Selangor oleh Menteri Sumber Asli dan Alam Sekitar, Y.B. Dato Sri Adenan Hj. Satem dan Menteri Pelajaran Y.B. Dato' Sri Hishammuddin Tun Hussein.

Bagi tujuan mempromosikan program ini, dua dokumen utama iaitu buku Asas Pembentukan Sekolah Lestari-Anugerah Alam Sekitar dan Garispanduan Pelaksanaan dan Penilaian Sekolah Lestari-Anugerah Alam Sekitar serta risalah ringkas dan poster telah diterbitkan dan diedarkan ke semua Jabatan Alam Sekitar Negeri dan Jabatan Pelajaran Negeri. Maklumat mengenai program ini juga boleh diakses melalui laman web Jabatan iaitu www.doe.gov.my.

Sustainable School-Environment Award

The Sekolah Lestari Programme, a collaborative enviromental awarenes programme between the Department of Environment and the Ministry of Education Malaysia with technical support from the Institute of Environment and Development (LESTARI) of Universiti Kebangsaan Malaysia is designed to facilitate and strengthen existing environmental education programmes in schools. Through this initiative the fundamental elements of environmental education can be incorporated directly by teachers and students, and indirectly by local communities through the integration of knowledge, skills and environmental values under the four key components of *Management, Curriculum, Co-Curriculum, and Greening*.

This programme was launched by the Honourable Minister of Natural Resources and Environment, Y.B. Dato Sri Adenan Hj. Satem and the Honourable Minister of Education, Y.B. Dato' Sri Hishammuddin Tun Hussein at Sekolah Menengah Jalan Tiga, Bandar Baru Bangi, Selangor on 27 January 2005.

For the promotion and facilitation of participation, two guiding documents had been published : *'Basis for Sekolah Lestari–An Environment Award'* and *'Implementation and Evaluation Guidelines for Sekolah Lestari-An Environmental Award'*. Brochures and posters were also produced and distributed to all State Departments of Environment and State Education Departments. Information can also be access through the DOE website : www.doe.gov.my.

Kursus Penilaian Pensijilan Sekolah Lestari-Anugerah Alam Sekitar telah diadakan pada 18-20 April 2005 di Seremban, Negeri Sembilan. Kursus tersebut telah dirasmikan oleh En. Salleh Mohd Hussin, Pengarah Bahagian Sekolah, Kementerian Pelajaran Malaysia merangkap Pengerusi Bersama Jawatankuasa Penyelaras Program Sekolah Lestari-Anugerah Alam Sekitar. Seramai 70 peserta terdiri daripada Jabatan Alam Sekitar, Jabatan Pelajaran Negeri, Kementerian Pelajaran Malaysia, sektor swasta dan pertubuhan bukan kerajaan (NGO) telah menyertainya. Kursus ini diadakan untuk meningkatkan pengetahuan dan pemahaman mengenai pelaksanaan program ini dan prosedur penilaian. Kumpulan perintis ini akan bertindak sebagai resource person atau fasilitator bagi program ini di sekolah dan organisasi masing-masing.

A Sekolah Lestari Certification & Evaluation Course was conducted on 18-20 April 2005 in Seremban, Negeri Sembilan which was officiated by Mr. Salleh Mohd Hussin, Director of Schools Division of the Ministry of Education as Co-Chairman of the Coordinating Committee for the Sekolah Lestari Programme. Seventy representatives from the Department of Environment, State Education Department, the Ministry of Education, the private sector and non-governmental organisations (NGO) participated in the course. The course was specifically designed to enhance understanding of the implementation and procedures of evaluation. This pioneer group would then serve as resource persons and facilitators at their respective schools and organizations.

Projek Wira Alam

Projek Wira Alam yang telah dilancarkan pada 5 Jun 1998 adalah program JAS dengan kerjasama Persatuan Pencinta Alam Malaysia (MNS) dan Kementerian Pendidikan Malaysia. Projek ini di dibahagikan kepada tiga tahap iaitu Tahap 1 Wira Diri, Tahap 2 Wira Komuniti dan Tahap 3 Wira Alam. Setiap pelajar perlu menyelesaikan tugasan yang ditetapkan di dalam buku aktiviti Projek Wira Alam setiap tahap sebelum ke peringkat seterusnya.

Sejak dilancarkan sehingga tahun 2005, seramai 10,440 pelajar telah menyertai tahap 1 Wira Diri; sejumlah 1,195 pelajar menyertai tahap 2 Wira Komuniti; dan 280 pelajar di tahap 3 Wira Alam.

JAS juga telah mengadakan bengkel, ceramah dan pameran Projek Wira Alam ke Maktab Perguruan dan sekolah sekitar Lembah Klang bertujuan untuk para guru memahami serta menambah pengetahuan dan kapasiti tentang aktiviti alam sekitar terutamanya berkaitan tugasan dalam Projek Wira Alam di sekolah :

Wira Alam Project

The Wira Alam Project which started on 5 June 1998 is a collaborative project between DOE, the Malaysian Nature Society (MNS) and the Ministry of Education. The project is divided into three stages; Level 1 (Wira Diri), Level 2 (Wira Komuniti) and Level 3 (Wira Alam). Each participating student has to complete the tasks provided in the Activity Book at each level before advancing to the next level.

Up till the end of 2005, a total of 10,440 students had participated at Level 1 (Wira Diri); 1,195 students at Level 2 (Wira Komuniti); and 280 students had reached Level 3 (Wira Alam).

In 2005, DOE conducted workshops, talks and exhibitions on the Wira Alam Project at Teachers' Training Colleges and schools in the Klang Valley to provide information to trainee teachers and increase their knowledge and capacity to conduct environmental activities in schools as provided for under the Wira Alam Project :

Nama Maktab *Name of College*	Tarikh *Date*	Bil. Pelatih *Number of Participants*
Maktab Perguruan Islam, Bangi *Bangi Islamic Teachers' College*	17 Mei 2005 *17 May 2005*	100
Sekolah Menengah Jalan Bukit, Kajang *Jalan Bukit Secondary School, Kajang*	26 & 27 April 2005 *26 & 27 April 2005*	500

Kem Kesedaran Alam Sekitar (KeKAS)

Pada tahun 2005, sejumlah 47 KeKAS yang telah dilaksanakan oleh JAS Negeri di seluruh Malaysia dengan kerjasama pelbagai agensi seperti Jabatan Pelajaran Negeri. Daripada 47 KeKAS yang dijalankan, tiga kem telah dianjurkan khusus kepada guru-guru yang terlibat dengan KeKAS iaitu seramai 145 orang. Manakala 44 kem lagi diadakan untuk 2591 pelajar dari sekolah-sekolah seluruh negara. Modul yang digunapakai terdiri dari modul Ekosistem Marin, Hutan, Tanah Tinggi, Pertanian Organik, Urbanisasi dan Perladangan Kelapa Sawit.

Environmental Awareness Camp (KeKAS)

In 2005, a total of 47 KeKAS were conducted throughout Malaysia by the State DOE with the cooperation of the State Education Departments. Of the 47 camps conducted, three camps were organised specially for 145 teachers to qualify them as facilitators in their respective schools. The other 44 camps were attended by 2591 students from schools throughout the country. The modules implemented were based on the Marine, Forest, Highland, Organic Farming, Urbanisation and Oil Palm Plantation Ecosystems.

Pertandingan Debat Alam Sekitar Antara Institusi Pengajian Tinggi (IPT)

Pertandingan ini adalah anjuran Jabatan Alam Sekitar bersama dengan Majlis Debat Universiti-Universiti Malaysia (MADUM), Dewan Bahasa dan Pustaka, dan Kementerian Pelajaran Malaysia/ Kementerian Pengajian Tinggi Malaysia yang diperkenalkan sejak tahun 1991. Debat Alam Sekitar Antara IPT yang kelima belas ini disertai oleh 18 pasukan debat dari 17 Institusi Pengajian Tinggi Malaysia diadakan pada 23 – 27 Julai 2005. Tuan rumah pada kali ini ialah Universiti Teknologi Malaysia, Skudai, Johor.

Inter-Varsity Environmental Debate

Since 1991, the Inter-Varsity Environmental Debate had been organised annually by DOE in collaboration with the Malaysian Universities Debate Council (MADUM), Dewan Bahasa dan Pustaka, and the Ministry of Education/ Ministry of Higher Education. The 15th Inter-Varsity Environmental Debate from 23 - 27 July 2005 saw participation from 18 teams from 17 Institutions of Higher Learning in Malaysia. The host institution was Universiti Teknologi Malaysia at Skudai, Johor.

Institusi Pengajian Tinggi yang Mengambil Bahagian
Participating Institutions of Higher Learning :-

- Universiti Islam Antarabangsa Malaysia (UIAM)
- Universiti Putra Malaysia (UPM)
- Universiti Kebangsaan Malaysia (UKM)
- Universiti Malaya (UM)
- Universiti Teknologi Malaysia (UTM)
- Universiti Sains Malaysia (USM)
- Universiti Utara Malaysia (UUM)
- Universiti Teknologi Mara (UiTM)
- Universiti Malaysia Sabah (UMS)
- Universiti Pendidikan Sultan Idris (UPSI)
- Kolej Universiti Islam Malaysia (KUIM)
- Kolej Universiti Teknologi Tun Hussien Onn (KUiTTHO)
- Kolej Universiti Sains dan Teknologi Malaysia (KUSTEM)
- Kolej Universiti Teknikal Kebangsaan Malaysia (KUTKM)
- Kolej Universiti Kejuruteraan Utara Malaysia (KUKUM)
- Kolej Universiti Kejuruteraan dan Teknologi Malaysia (KUKTEM)
- Universiti Multimedia (MMU)

Pertandingan menggunakan kaedah sistem 'power match berkumpulan' (bracket power match) untuk pusingan awal bagi menentukan pasukan yang akan berlawan dan juga peranan mereka (kerajaan/ pembangkang). Setiap pasukan akan ditentukan kedudukan (ranking) mereka berdasarkan menang/ kalah, juri, margin (julat kemenangan) dan markah.

The bracket power match system was adopted in the preliminary rounds to determine whether a team is in the preposition or opposition side. The ranking of each team was based on several criteria such as "winner / loser", jury, margin and overall score.

Pertandingan Peringkat Awal melibatkan enam (6) pusingan. Lapan (8) pasukan terbaik berdasarkan kedudukan akan dipilih untuk ke peringkat suku akhir dan pasukan yang menang akan ke separuh akhir secara kalah mati. Dua (2) pasukan akan ke peringkat akhir.

All teams took part in the preliminary six (6) rounds. The eight (8) highest ranking teams were then selected to compete in the Quarter-Finals, out of which four (4) qualified for the Semi-finals and eventually two (2) teams entered the Finals.

Gambarfoto 5.1 JAS: Pertandingan Debat Alam Sekitar Kali ke-15 di UTM, Skudai, Johor
Photo 5.1 DOE: The 15th Inter-Varsity Environmental Debate at UTM, Skudai, Johor

PERINGKAT AWAL / *PRELIMINARY ROUNDS*
Pusingan Pertama / *First Round :*
Alam Sekitar Nombor Satu, Pembangunan Nombor Dua

Pusingan Kedua / *Second Round* **:**
Penggunaan Basikal Lebih Baik Daripada Motosikal

Pusingan Ketiga / *Third Round* **:**
Isu Alam Sekitar : Laporan Media Yang Tidak Seimbang

Pusingan Keempat / *Fourth Round* **:**
Demi Kelangsungan Hidup, Alam Sekitar Dipinggirkan

Pusingan Kelima / *Fifth Round* :
Protokol Kyoto : Mimpi Pada Siang Hari

Pusingan Keenam / *Sixth Round* :
Merah Sukar Menjadi Hijau, Tetapi Hijau Mudah Menjadi Merah

↓

PERINGKAT SUKU AKHIR / *QUATER-FINALS*
Kemusnahan Alam Sekitar : Suatu Darurat

UTM lwn/vs UM	UIAM lwn/vs UKM	USM lwn/vs UPSI	UiTM lwn/vs KUSTEM

PERINGKAT SEPARUH AKHIR / *SEMI FINALS*
Media Massa Pencetus Kesedaran Alam Sekitar

UPSI lwn/vs UiTM	UTM lwn/vs UIAM

PERINGKAT AKHIR / *FINALS*
Kemusnahan Alam Sekitar : Esok Masih Ada?

UPSI lwn/vs UIAM

Pertandingan Akhir Debat Alam Sekitar Antara Institusi Pengajian Tinggi 2005 diadakan di Dewan Sultan Iskandar, Universiti Teknologi Malaysia di antara Universiti Pendidikan Sultan Idris (UPSI) dan Universiti Islam Antarabangsa Malaysia (UIAM). UPSI diwakili oleh Mohd Fairuz Mohd Alin, Mohd Hafiz Hamdan, Faizatul Azlinda Ahmad Fuad dan pendebat simpanan, Mohamad Mat Derus. UIAM pula diwakili Mohd Khairulnizam Bakeri, Mohd Daud Mat Din, Shamsul Qamar Abd. Rani dan pendebat simpanan, Adira Adnan.

The finals of the 2005 Inter-Varsity Environmental Debate held at the Sultan Iskandar Hall of Universiti Teknologi Malaysia was between Universiti Pendidikan Sultan Idris (UPSI) and Universiti Islam Antarabangsa (UIAM). UPSI was represented by Mohd Fairuz Mohd Alin, Mohd Hafiz Hamdan, Faizatul Azlinda Ahmad Fuad and Mohamad Mat Derus as reserve. UIAM was represented by Mohd Khairulnizam Bakeri, Mohd Daud Mat Din, Shamsul Qamar Abd. Rani and Adira Adnan as reserve.

UIAM muncul sebagai johan pertandingan Debat Alam Sekitar 2005, menerima Piala Pusingan Menteri Sumber Asli dan Alam Sekitar serta wang tunai RM 8,000.00 dan sijil penyertaan. Manakala UPSI, sebagai naib johan menerima wang tunai RM 5,000.00 dan sijil penyertaan. Dua pasukan yang layak ke separuh akhir iaitu Universiti Teknologi Mara (UiTM) dan Universiti Teknologi Malaysia (UTM), masing-masing menerima wang tunai RM 1,000.00 dan juga sijil penyertaan. Pendebat UIAM, Mohamad Khairulnizam Bakeri muncul Pendebat Terbaik dan menerima Piala Ketua Pengarah Alam Sekitar, beserta wang tunai RM 1,500.00. Hadiah telah disampaikan oleh Y.B. Dato' Sri Haji Adenan Bin Haji Satem, Menteri Sumber Asli dan Alam Sekitar.

The UIAM team emerged the overall winner of the 2005 Inter-Varsity Environmental Debate, receiving the Minister of Natural Resources and Environment Challenge Trophy, a cash prize of RM 8000.00, and certificates of participation. UPSI, as runners-up received a cash prize of RM 5000.00, and certificates of participation. The two teams which qualified for the semi-finals, namely UiTM and UTM each received a cash prize of RM 1000.00, and certificates of participation. Mohamad Khairulnizam Bakeri from UIAM was judged the Best Debater and received the Director-General of Environment Trophy, together with a cash prize of RM 1,500.00. The prizes were given out by Y.B. Dato' Sri Haji Adenan Bin Haji Satem, the Minister of Natural Resources and Environment.

Minggu Alam Sekitar Malaysia

Minggu Alam Sekitar Malaysia merupakan acara tahunan Jabatan Alam Sekitar yang disambut dengan objektif utama untuk menyemai dan meningkatkan kesedaran masyarakat Malaysia mengenai pemuliharaan alam sekitar di negara ini. Sambutan Minggu Alam Sekitar Malaysia Peringkat Kebangsaan telah diadakan pada 25-29 November 2005 bertempat di Bandar Kuantan, Pahang dan dilancarkan oleh Y.A.B Dato' Sri Adnan Bin Haji Yaakob, Menteri Besar Pahang DarulMakmur. Y.B. Dato' S. Sothinathan, Timbalan Menteri Kementerian Sumber Asli dan AlamSekitar menyampaikan kata-kata aluan sebagai mewakili Y.B. Menteri Sumber Asli dan Alam Sekitar. Tema Minggu Alam Sekitar Malaysia 2005 ialah "Memperkasa Bandar Lestari".

Malaysia Environment Week

The annual Malaysia Environment Week is a premier event organized by the Department of Environment, primarily to inculcate and enhance environmental awareness among Malaysians. The 2005 Malaysia Environment Week celebration was held on 25-29 November 2005 at Kuantan, Pahang, Darul Makmur. The launching ceremony was officiated by the Chief Minister of the State of Pahang, Rt. Honourable Dato' Seri Haji Adnan Bin Haji Yaakob. The Honourable Dato' S. Sothinathan, the Deputy Minister of Natural Resources and Environment delivered the welcome address on behalf of the Honourable Minister of Natural Resources and Environment (NRE). "Promoting Sustainable Cities" was the theme chosen for the 2005 Malaysia Environment Week.

Antara tetamu kehormat yang hadir ialah Ketua Setiausaha Kementerian Sumber Asli dan Alam Sekitar, Setiausaha Kerajaan Negeri Pahang dan Ahli Exco Negeri yang terlibat dengan alam sekitar. Seramai 3,000 orang tetamu telah hadir di majlis pelancaran tersebut yang diadakan di Dewan Wawasan, yang terdiri daripada agensi kerajaan, pihak industri, pelajar–pelajar sekolah dan institut pengajian tinggi dan orang awam.

Among other dignitaries present were the Secretary-General of NRE, the Pahang State Secretary and State Exco Members responsible for environment matters. A crowd of about 3000 people were present at the launching ceremony at the Dewan Wawasan, Kuantan, comprising representatives of government agencies, the industrial sector, schools and the public.

Antara aktiviti-aktiviti utama yang dijalankan sepanjang minggu tersebut adalah seperti Pameran Alam Sekitar, Pertandingan Mewarna Alam Sekitar, Seminar dan Forum Alam Sekitar, Pertandingan Enviro-Hunt, Ujian Pelepasan Gas Enjin Petrol dan Lawatan di Sekitar Bandar Kuantan.

Among the highlights for the Week were Environmental Exhibitions, Environmental Painting Competitions, Environmental Forum and Seminars, Enviro-Hunt, Vehicular Emission Inspections and a conducted tour around Kuantan.

Anugerah Bandar Lestari - Anugerah Alam Sekitar

Dengan sokongan dan kerjasama Jabatan Kerajaan Tempatan di bawah Kementerian Perumahan dan Kerajaan Tempatan serta Institut Alam Sekitar dan Pembangunan (LESTARI), Universiti Kebangsaan Malaysia, telah mengambil inisiatif untuk memperkenalkan Anugerah Bandar Lestari. Anugerah yang diperkenalkan ini adalah bertujuan untuk mengiktiraf usaha dan sumbangan pihak Kerajaan Tempatan yang mengintegrasikan elemen kelestarian alam sekitar dalam perancangan, pentadbiran dan pelaksanaan program, projek dan aktiviti mereka. Komponen penilaian bagi anugerah ini adalah berdasarkan aspek yang berkaitan dengan persekitaran fizikal, inisiatif ekologi, perkhidmatan perbandaran, pentadbiran alam sekitar, pendidikan dan kesedaran alam sekitar.

Sustainable City - Environment Award

With the support and cooperation of the Department of Local Government, under the Ministry of Housing and Local Development and the Institute for Environment and Development (LESTARI), the DOE embarked on an initiative to give recognition to local authorities for incorporating the environmental dimension in planning, administration and implementation of programmes, projects and activities. Candidates for the Award will be assessed on their achievements in five components : physical environment, ecological initiatives, urban services, environmental governance as well as education and awareness. The award also takes into consideration overall commitment and efforts towards achieving environmental sustainability in development.

Anugerah ini dicipta bagi menggalakkan penyertaan secara sukarela. Pada tahun 2005, enam Pihak Berkuasa Tempatan telah menyertai Program ini iaitu :

- Majlis Bandaraya Johor Bahru,
- Majlis Bandaraya Kuching Selatan,
- Majlis Bandaraya Melaka Bersejarah,
- Majlis Bandaraya Shah Alam,
- Majlis Perbandaran Pulau Pinang dan
- Majlis Perbandaran Kuantan.

The award is designed to encourage participation on a voluntary basis. In 2005, six local authorities came forward to participate in the programme. They were :

- Johore Bahru City Council,
- South Kuching City Council,
- Malacca Historical City Council,
- Shah Alam City Council,
- Penang Municipal Council and
- Kuantan Municipal Council.

Prosedur Penilaian juga melibatkan Penilaian ke atas Borang Perolehan Maklumat, Penilaian Di Lapangan, Penilaian Fizikal Alam Sekitar dan Tinjauan Pendapat Awam. Kesemua penilaian tersebut telah dilaksanakan sepenuhnya ke atas bandar yang telah mengambil bahagian pada tahun 2003/2004. Markah yang diperolehi akan dibentangkan ke Jawatankuasa Pemandu dan Jawatankuasa Pemilihan Peringkat Menteri.

The evaluation process included a City Brief Assessment, a Field Assessment, Physical Parameters Assessment and a Public Opinion Survey. The scores were presented for the endorsement of the Steering Committee and the final decision was made by the Ministerial Select Committee.

Penganugerahan Bandar Lestari-Anugerah Alam Sekitar yang pertama kepada Majlis Perbandaran Kuantan telah disempurnakan oleh Y.A B Datuk Seri Najib Tun Abdul Razak, Timbalan Perdana Menteri Malaysia pada 7 Julai 2005.

The first such Sustainable City Award in Malaysia was presented to the Kuantan Municipal Council on 7 July 2005 by the Rt. Hon. Datuk Seri Mohd Najib Tun Abdul Razak, the Deputy Prime Minister of Malaysia.

Jemputan dari seluruh Malaysia telah menghadiri majlis penganugerahan ini yang terdiri daripada wakil agensi kerajaan, pihak berkuasa tempatan, badan bukan kerajaan, organisasi berteraskan komuniti dan juga sektor swasta. Penerima Anugerah Bandar Lestari-Anugerah Alam Sekitar ini telah membawa pulang sebuah Sijil Pengiktirafan yang ditandatangani oleh Y.A.B Timbalan Perdana Menteri Malaysia dan sebuah trofi khas Anugerah Bandar Lestari. Lima Pihak Berkuasa Tempatan lain yang mengambil bahagian dalam program ini juga telah menerima Anugerah Khas :

The Award Presentation Ceremony was attended by invited guests, representing government agencies, local authorities, non-governmental organisations, community-based organisations and the private sector. The winner received a Prestigious Certificate signed by the Rt. Hon. Deputy Prime Minister of Malaysia and a specially designed Trophy. Five other participating cities also received Special Mention Awards for specific environmental sustainable initiatives :

Gambarfoto 5.2 JAS: Bandar Lestari - Anugerah Alam Sekitar
Photo 5.2 DOE: Bandar Lestari - Environment Award

Majlis Bandaraya Johor Bahru - Inisiatif Ekologi (Hutan Bandar)
Johore Bahru City Council - Ecological Initiative (Urban Forest)

Majlis Bandaraya Kuching Selatan - Inisiatif Persekitaran Fizikal (Landskap)
South Kuching City Council - Physical Environment Initiative (Landscape)

Majlis Bandaraya Melaka Bersejarah – Inisiatif Perkhidmatan Perbandaran (Perkhidmatan Pengangkutan Berpusat)
Malacca Historical City Council - Urban Services Initiative (Centralised Transportation Service)

Majlis Perbandaran Pulau Pinang - Inisiatif Pendidikan dan Kesedaran Alam Sekitar
Penang Municipal Council - Environmental Education and Awareness Initiative

Majlis Bandaraya Shah Alam - Inisiatif Persekitaran Fizikal (Perancangan Inovatif - Kualiti Kehidupan Seimbang)
Shah Alam City Council - Physical Environment Initiative (Innovative Planning-Balanced Quality Living)

Satu seminar telah diadakan pada 8 Julai 2005 untuk 148 wakil dari pihak berkuasa tempatan dan agensi kerajaan, untuk enam penerima anugerah memberi pandangan dan berkongsi pengalaman dengan pihak-pihak berkuasa tempatan yang lain.

A follow-up seminar was held on 8 July 2005 for 148 participants from local authorities, and government agencies, to allow the six award recipients to share their views and experiences with other aspiring local authorities.

Gambarfoto 5.3 JAS: Majlis Pelancaran Minggu Alam Sekitar 2005 oleh Y.A.B Dato' Sri Adnan Bin Haji Yaakob

Photo 5.3 DOE: Launching of Malaysia Environment Week by Y.A.B Dato' Sri Adnan Bin Haji Yaakob

Gambarfoto 5.4 JAS: Penerima Anugerah Langkawi Tahun 2005; Y.Bhg. Dato' Dr. Hashim bin Abdul Wahab
Photo 5.4 DOE: Anugerah Langkawi Recipient for 2005; Y.Bhg. Dato' Dr. Hashim bin Abdul Wahab

Anugerah Langkawi 2005

Bagi tahun 2005, Anugerah Langkawi tahun 2005 telah diberikan kepada Y. Bhg. Dato' Dr. Hashim bin Abdul Wahab. Seorang ahli aktif Persatuan Pencinta Alam (MNS) sejak tahun 1984 dan kini dilantik sebagai Naib Presiden. Pemilihan beliau adalah berdasarkan usaha dan penglibatannya yang aktif dalam pendidikan dan kesedaran alam sekitar dan aktiviti-aktiviti pemuliharaan alam sekitar.

Y. Bhg. Dato' Dr. Hashim merupakan penerima Anugerah ini yang ke 14 telah menerima sejumlah wang RM10, 000.00, sebuah plak penghargaan dan sijil pengiktirafan yang ditandatangani oleh D.Y.M.M. Seri Paduka Baginda Yang di-Pertuan Agong XII Tuanku Syed Sirajuddin Ibni Al-Marhum Tuanku Syed Putra Jamalullail.

Langkawi Award 2005

The 2005 Langkawi Award was presented to Y. Bhg. Dato' Dr. Hashim bin Abdul Wahab, an active member of the Malaysian Nature Society (MNS) since 1984 and currently the Vice President of MNS. His selection was based on his tireless efforts in promoting environmental education and awareness, scientific and environmental conservation activities and expeditions.

Y. Bhg. Dato' Dr. Hashim is the 14th Malaysian to receive the prestigious Langkawi Award which included a cash award of RM 10, 000.00, a plaque and a prestigious Certificate signed by D.Y.M.M. Seri Paduka Baginda Yang Di-Pertuan Agong XII Tuanku Syed Sirajuddin Ibni Al-Marhum Tuanku Syed Putra Jamalullail.

Pemenang-Pemenang Anugerah Langkawi
Langkawi Award Recipients

1991
Y.Bhg. Dato' Dr. Salleh Mohd Nor
Presiden, Persatuan Pencinta Alam Malaysia (MNS)
President of Malaysian Nature Society (MNS)

1992
Y.Bhg. Tan Sri Razali Ismail
Bekas Wakil Negara ke Pertubuhan Bangsa-Bangsa Bersatu (PBB)
Former Malaysia's Representative to the United Nations

1993
Ir. Gurmit Singh K.S
Pengarah Eksekutif, Pusat Alam Sekitar, Teknologi dan Pembangunan, Malaysia (CETDEM)
Chief Executive Officer, Center for Environment, Technology and Development Malaysia (CETDEM)

1994
Y.Bhg. Prof. Dato' Dr. Sham Sani
Bekas Naib Canselor, Universiti Kebangsaan Malaysia (UKM)
Former Vice Chancellor, Universiti Kebangsaan Malaysia (UKM)

1995
Y.Bhg. Tan Sri Khir Johari
Presiden, World Wide Fund for Nature, Malaysia (WWF, Malaysia)
President, World Wide Fund for Nature, Malaysia (WWF, Malaysia)

1996
Tiada pemenang
No recipient

1997
Ir. K. Kumarasivam (Mendiang)
Bekas Timbalan Pengerusi, KTA Tenaga Sdn. Bhd.
Former Deputy Chairman, KTA Tenaga Sdn. Bhd.

1998
Y.Bhg.Prof.Dato' Dr Zakri A. Hamid
Bekas Timbalan Naib Canselor, Universiti Kebangsaan Malaysia (UKM)
Former Deputy Vice Chancellor, Universiti Kebangsaan Malaysia (UKM)

1999
Y.M. Tengku Datuk Dr. Zainal Adlin B. Tengku Mahamud
Pemegang Amanah, WWF Malaysia.
Trustee, WWF Malaysia.

2000
Y.Bhg. Prof. Dr. Muhammad Awang
Bekas Timbalan Naib Canselor (Akademik), Universiti Pertanian Malaysia (UPM)
Former Deputy Vice Chancellor (Academic), Universiti Pertanian Malaysia (UPM)

2001
Y.Bhg. Datuk Amar James Wong Kim Min
Bekas Menteri Alam Sekitar dan Kesihatan Awam Sarawak
Former Minister of Environment and Public Health Sarawak.

2002
Y.Bhg. Tan Sri Dato' Lee Lam Thye
Ahli Lembaga Penasihat, Dewan Bandaraya Kuala Lumpur (DBKL)
Advisor Board Member, Dewan Bandaraya Kuala Lumpur (DBKL)

2003
Y.Bhg. Puan Khatijah Abdul Rahman
Pengarah Eksekutif, Yayasan Anak Warisan Alam (YAWA)
Chief Executive Officer, Yayasan Anak Warisan Alam (YAWA)

2004
Y.Bhg. Prof. Dato' Dr. Abdul Latiff Mohamad
Profesor, Pusat Pengajian Sains Sekitaran dan Sumber Alam, Universiti Kebangsaan Malaysia (UKM)
Professor, School Of Enviromental and National Resource Science, Universiti Kebangsaan Malaysia (UKM)

2005
Y.Bhg. Dato' Dr. Hashim B. Abdul Wahab
Naib Presiden, Persatuan Pencinta Alam Malaysia (MNS)
Vice President, Malaysian Nature Society (MNS)

Persidangan Wanita & Alam Sekitar

Program Persidangan Wanita dan Alam Sekitar yang bertemakan "Wanita Pemangkin Kecemerlangan Alam Sekitar" telah diadakan pada 23 Ogos 2005, di Bangunan Puspanitapuri, Putrajaya dan dirasmikan oleh Y. Bhg. Dato Hajjah Jamilah Haji Anu, isteri kepada Menteri Sumber Asli dan Alam Sekitar. Persidangan ini dihadiri oleh 500 orang peserta wanita yang terdiri dari suri rumah, sektor kerajaan, organisasi wanita bukan kerajaan, persatuan wanita dan sektor swasta. Persidangan ini diadakan lanjutan dari Program Persidangan Wanita & Alam Sekitar pada 2003 berikutan dari sambutan dan permintaan yang menggalakkan untuk penganjuran serupa ini.

Antara objektif persidangan ini adalah :

- Meningkatkan peranan dan penglibatan wanita ke arah kecemerlangan alam sekitar.
- Menerapkan nilai-nilai murni alam sekitar dalam institusi kekeluargaan dalam komuniti.
- Mengukuhkan peranan wanita dalam membuat keputusan, pengurusan dan pembangunan alam sekitar.

Empat penceramah terkemuka telah dijemput untuk sessi pembentangan bagi persidangan kali ini iaitu :

- Y. Bhg. Ir. Gurmit Singh, Pengarah Eksekutif Center for Environment, Technology and Development Malaysia, bertajuk "Sustainable Lifestyle – Will Malaysian Women Lead?".
- Y. Bhg. Datin Paduka Sharifah Mazlina Syed Abdul Kadir Pensyarah Fakulti Sains Sukan dan Rekreasi, Universiti Teknologi Mara, Shah Alam, bertajuk." Pengalaman menjejak kaki ke Benua Antartika".
- Y. Bhg. Datin Zam Zainal Abidin, Pakar cosmetologi dan perunding kecantikan dan kesihatan. bertajuk "Pencemaran Mendatangkan Penyakit dan Mempercepatkan Penuaan".
- Encik Kamal Affandi Hashim, Penganalisa Jenayah, Yayasan Pencegahan Jenayah Malaysia, bertajuk "Cabaran Fizikal dan Mental Alam Sekitar".

Women & Environment Conference

The "Women - Catalyst for Environmental Excellence" Conference was held on 23 August 2005 at Puspanitapuri, Putrajaya. It was officiated by Y. Bhg. Dato Hajjah Jamilah Haji Anu, the wife of the Minister of Natural Resources and Environment (NRE). About 500 women participants attended this conference comprising of housewives/homemakers, government officials, representatives of Non-Governmental Women Organisations and the private sector. This second conference was organized as a follow-up to the first Conference in 2003 in response to the overwhelming support and request for another such gathering.

The conference objectives were :

- To enhance the role and involvement of women towards environmental excellence.
- To inculcate environmental values in the family institution.
- To enhance the role of women in decision making, management and development of environment.

Four distinguished speakers presented papers at the conference :

- Y. Bhg. Ir. Gurmit Singh, Executive Director, Center for Environment, Technology and Development Malaysia, on "Sustainable Lifestyle – Will Malaysian Women Lead?".
- Y. Bhg. Datin Paduka Sharifah Mazlina Syed Abdul Kadir, Lecturer, Sports Science and Recreation Faculty, Universiti Teknologi Mara, Shah Alam, on " Experiences at the Antartica Continent".
- Y. Bhg. Datin Zam Zainal Abidin, Cosmetology, Beauty and Health on " Pollution Can Cause Disease and Expedite Ageing".
- Encik Kamal Affandi Hashim, Crime Analyst, Crime Preventation Foundation on "Mental and Physical Environmental Challenges".

Sebaran Maklumat Alam Sekitar
Environmental Information Dissemination

Sebaran Maklumat / Perhubungan Awam

Beberapa program/aktiviti untuk mempromosi dan meningkatkan kesedaran alam sekitar kepada semua golongan telah giat dijalankan. Program-program sepanjang tahun 2005 termasuk Pameran Awam, Lawatan Pelawat ke Jabatan Alam Sekitar (JAS), Program Bersama RTM dan Kuiz Alam Sekitar di Radio.

Information Dissemination / Public Relations

Various environmental awareness activities for the public were organised in 2005. Among them were environment exhibitions, radio and television documentaries, radio environmental quizzes, seminars, forums and organising public visits to DOE offices.

Pameran Awam

Pada tahun 2005, JAS telah menyertai sebanyak 15 pameran bertemakan alam sekitar yang melibatkan pelbagai kumpulan pengunjung termasuk pelajar sekolah, ahli akademik, sektor perindustrian, kakitangan kerajaan dan orang awam.

Exhibition

In 2005, DOE took part in 15 exhibitions for various target groups such as schools, Institutions of Higher Learning, the industrial sector, government agencies and general public.

- Pameran Sempena Hari Bertemu Pelanggan Kementerian Sumber Asli & Alam Sekitar 1/2005, 26 Februari 2005.
- Exhibition during 'Client Day' of Ministry of Natural Resource and Environment, 26 February 2005.
- Pameran Sempena Sambutan Hari Air Sedunia di Kota Bharu, Kelantan, 17 - 19 Mac 2005.
- Exhibition on 'World Water Day' in Kelantan, 17 - 19 March 2005.
- Pameran Sempena Hari Bersama Pelanggan Kementerian Sumber Asli & Alam Sekitar 2/2005, 9 Mac 2005.
- Exhibition during 'Client Day' of Ministry of Natural Resource and Environment, 9 March 2005.
- Pameran Sempena Minggu Bahasa & Alam Sekitar di Sek. Men. Keb. Bukit Kajang, Kajang, 26 – 27 April 2005.
- Exhibition in conjunction with 'Language and Environment Week Exhibition at Sek. Men Bukit Kajang, Kajang, 26 - 27 April 2005.
- Pameran Sempena Sambutan Hari Alam Sekitar Sedunia di Petrosains KLCC, Kuala Lumpur, 26 Mei 2005.
- World Environment Day Exhibition at Petrosains KLCC, Kuala Lumpur, 25 May 2005.
- Pameran Taman Sains SMK Victoria Kuala Lumpur, 14 Jun 2005.
- SMK Victoria Kuala Lumpur Science Garden Exhibition, 14 June 2005.
- Pameran Hari Anugerah Khidmat Cemerlang & Pelancaran Logo Kementerian Sumber Asli & Alam Sekitar di Hotel Nikko, Kuala Lumpur, 13 – 14 Julai 2005.
- Excellence Award Presentation and Launching of Ministry of Natural Resource and Environment Logo at Hotel Nikko, Kuala Lumpur, 13 - 14 July 2005.
- Pameran sempena Hari Keselamatan Syarikat 2005 di Sigma Sdn. Bhd, 30 Ogos 2005.
- Company Safety Day 2005 at Sigma Sdn. Bhd, 30 August 2005.

- Pameran Sempena Kempen Kesedaran Perlindungan Ozon & Kawalan Pencemaran Kenderaan Bermotor di Karnival TV3 Sure Heboh - Bukit Jalil, Kuala Lumpur, 2 – 4 September 2005.
- Pameran Sempena Minggu Geografi & Alam Sekitar di Universiti Pendidikan Sultan Idris (UPSI), 21 - 24 September 2005.
- Pameran Sempena Minggu Alam Sekitar di Syarikat Perodua Rawang, Selangor, 11 - 12 Oktober 2005.
- Pameran Sempena Program Persidangan Wanita & Alam Sekitar di Puspanitapuri, Putrajaya, 23 Oktober 2005.
- Pameran Sempena Sambutan Hari Bersama Pelanggan Kementerian Perdagangan Dalam Negeri Peringkat Negeri Selangor - Kuala Kubu Bahru, 18 – 21 Oktober 2005.
- Pameran Sempena Sambutan Minggu Alam Sekitar Malaysia (MASM) Peringkat Kebangsaan 2005 di Kuantan, Pahang, 27 – 28 November 2005.
- Pameran Sempena Kempen Keselamatan, Kesihatan & Alam Sekitar NEC. Semiconductors, Telok Panglima Garang Kuala Langat, Selangor, 15 - 30 Disember 2005.

Lawatan Pelawat Ke Ibupejabat, Jabatan Alam Sekitar Malaysia, Putrajaya

Sepanjang tahun 2005, Ibupejabat JAS Putrajaya telah menerima sebanyak 433 orang pelawat daripada pelbagai kumpulan termasuk pelajar & pensyarah institusi pengajian tinggi, jabatan-jabatan kerajaan, guru & pelajar sekolah, ahli politik & sektor swasta. Pelbagai program telah diaturkan sepanjang lawatan tersebut bagi meningkatkan sebaran maklumat alam sekitar & promosi kesedaran alam sekitar kepada pelawat-pelawat. Para pelawat adalah terdiri daripada :

- Lawatan 41 orang pelajar tahun akhir Kursus (Perundangan Lanskap) Bacelor Senibina Landskap, Universiti Putra Malaysia (UPM), 5 Januari 2005.

- Ozone and Vehicle Pollution Control Exhibition at Karnival SureHeboh, Bukit Jalil, Kuala Lumpur, 2 - 4 September 2005.
- Geography and Environment Week at Universiti Pendidikan Sultan Idris (UPSI), 21 - 24 September 2005.
- Environment Week Exhibition at Perodua, Rawang, Selangor on 11 - 12 October 2005.
- Women and Environment Conference at Puspanitapuri, Putrajaya, 23 October 2005.
- Ministry of Domestic Trade Client Day, Selangor State, Kuala Kubu Baru, 18 - 21 October 2005.
- Malaysia Environment Week, 2005 at Kuantan, Pahang, 27 - 28 November 2005.
- Safety, Health and Environment Day at NEC Semiconductor, Teluk Panglima Garang, Kuala Langat, Selangor, 15 - 30 September 2005.

Visits to DOE Head Office

The Department of Environment Head Office received a total of 433 official visitors throughout 2005. Briefings and presentations were conducted to inform visitors of DOE's role in environmental management as well as to inculcate greater public support and cooperation in environmental management. The visitors comprised of :

- 41 students from Faculty of Landscape and Architecture, Universiti Putra Malaysia (UPM), 5 January 2005.

- Lawatan 11 orang Danish Enviromental Journalists, 24 Januari 2005.
- Lawatan 36 orang pelajar Diploma Kimia Perindustrian, Universiti Teknologi Mara (UiTM) Kampus Arau, Perlis, 14 Januari 2005.
- Lawatan 27 orang pelajar Kursus Sains Bioperubatan, Universiti Islam Antarabangsa Malaysia, (UIA) 25 Januari 2005.
- Lawatan 40 orang pelajar Fakulti Bioteknologi dan Sains Hayat, Universiti Selangor,(UNISEL) 12 Februari 2005.
- Lawatan Rasmi Y.B Dr. Abang Abdul Rauf Bin Haji Zen, Menteri Muda Alam Sekitar Sarawak dan delegasi, 4 Mac 2005.
- Lawatan kerjasama tiga orang pegawai Unit Kesihatan Alam Sekitar, Bahagian Kawalan Penyakit, Kementerian Kesihatan Malaysia, 21 Mac 2005.
- Lawatan 14 orang pelajar Fakulti Perubatan, Universiti Kebangsaan Malaysia (UKM), 9 Mac 2005.
- Lawatan 24 orang pelajar Jabatan Geografi, Universiti Malaya (UM), 22 Mac 2005.
- Lawatan 28 orang peserta kursus Pegawai Pemerintah Muda, Kolej Tentera Laut Diraja Malaysia (KPMM), Lumut, 14 April 2005.
- Lawatan 54 orang pelajar Bacelor Sains Kesihatan Persekitaran dan Pekerjaan, Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia, 21 April 2005.
- Lawatan 30 orang pelajar Program Persediaan Ijazah Sarjana Muda Pendidikan, Maktab Perguruan Islam (MPI), Bangi, 19 Mei 2005.
- Lawatan 30 orang ahli dari Bioinformatics Club ISB, Universiti Malaya (UM), 2 September 2005.
- Lawatan 28 orang pelajar Tahap 2 Rancangan Pengajian Alam Sekitar, Fakulti Sastera dan Sains Sosial Universiti Malaya (UM), 16 September 2005.

- 11 Environmental Journalists from Denmark, 24 January 2005.
- 36 students from Universiti Teknologi MARA (UiTM), Arau Campus, Perlis, 14 January 2005.
- 27 students from Universiti Islam Antarabangsa (UIA), 25 January 2005.
- 40 students from Universiti Selangor (UNISEL), 12 February 2005.
- Y.B. Dr. Abang Abdul Rauf b. Haji Zen, Menteri Muda Sarawak and delegation.
- 3 officials from the Environment Health Unit, Department of Disease Control, Ministry of Health, 21 March 2005.
- 14 students from the Faculty of Medicine, Universiti Kebangsaan Malaysia (UKM), 9 March 2005.
- 24 students from the Geography Department, Universiti Malaya (UM), 22 March 2005.
- 28 Officers from the Royal Naval College (KPMM), Lumut, 14 April 2005.
- 54 students from Faculty of Medicine and Health Science, Universiti Putra Malaysia (UPM), 21 April 2005.
- 30 students of Maktab Perguruan Islam (MPI), Bangi, 19 May 2005.
- 30 members from Biometric Club ISB, Universiti Malaya (UM), 2 September 2005.
- 28 students of Faculty of Social Science and Literature, Universiti Malaya (UM), 16 September 2005.

- Lawatan 15 orang dari Asian Institute of Technology (Bangkok), 12 September 2005.
- Lawatan 14 orang Pelajar Maktab Perguruan Tengku Ampuan Afzan, Kuala Lipis, Pahang, 4 Oktober 2005.
- Lawatan 34 orang pelajar Bacelor Sains Kesihatan Persekitaran dan Pekerjaan, Fakulti Perubatan dan Sains Kesihatan, Universiti Putra Malaysia (UPM), 14 Oktober 2005.

Program Bersama Radio dan Televisyen Malaysia (RTM)

Melalui Program Bersama RTM, JAS telah diberi beberapa slot penggambaran untuk dimuatkan di dalam rancangan-rancangan seperti Dokumentari, Warta Perdana, Selamat Pagi Malaysia (SPM), dan Rancangan Panorama.

Sebanyak tiga penggambaran telah dijalankan bersama pihak RTM untuk disiarkan di dalam Rancangan Panorama pada jam 10.00 malam setiap Jumaat melalui saluran TV1, RTM. Pada tahun 2005, JAS telah mengambil bahagian untuk sesi temubual dalam Rancangan Selamat Pagi Malaysia.

- Dokumentari “Latihan Oil Combat Malacca Straits”.
- Dokumentari “Pengawasan Kualiti Udara”.
- Dokumentari “Pengawasan Kualiti Sungai di Johor Bahru”.

- 15 students from Asian Institute of Technology (Bangkok), 12 September 2005.
- 14 students from Tengku Ampuan Afzan Teachers College Kuala Lipis, Pahang, 4 October 2005.
- 34 students from the Faculty of Medicine and Health Science, Universiti Putra Malaysia (UPM), 14 October 2005.

Collaborative Program With Radio And Television Malaysia (RTM)

In collaboration with RTM, environmental programmes were aired on TV programme such as Dokumentari, Warta Perdana, Selamat Pagi Malaysia (SPM) and Panorama.

Three documentary series were filmed for telecast on TV1 Panorama at 10.00 pm every Friday. In 2005, DOE also participated in the Selamat Pagi Malaysia Programme.

- Documentary “Oil Combat Training Malacca Straits”.
- Documentary “Air Quality Monitoring”.
- Documentary “Water Quality Monotoring in Johor Bahru”.

Gambarfoto 5.5 JAS: Taklimat kepada Mahasiswa yang melawat JAS
Photo 5.5 DOE: Briefing to Undergraduates visiting DOE

Kuiz Kesedaran Alam Sekitar Di Radio

JAS dengan beberapa kerjasama Radio Muzik telah menganjurkan Kuiz Kesedaran Alam Sekitar. serta bersempena dengan Majlis Perlancaran Sambutan Minggu Alam Sekitar Malaysia (MASM).

Maklumat Alam Sekitar

Pada tahun 2005, JAS telah menerbitkan sejumlah 594,000 naskah bahan-bahan bacaan alam sekitar yang terdiri daripada Laporan Kualiti Alam Sekeliling 2004, Laporan Tahunan Jabatan Alam Sekitar 2004, majalah IMPAK , risalah-risalah, buku-buku dan kalendar-kalendar meja bermesejkan alam sekitar.

Bahan-bahan bercetak tersebut diedarkan kepada pelbagai agensi kerajaan, perpustakaan-perpustakaan, pusat rujukan, institusi pendidikan, persatuan bukan kerajaan dan orang individu (Rajah 5.1).

Sempena dengan pameran Alam Sekitar dari Perspektif kartunis pada 1 Jun – 31 Julai 2004, satu kompilasi yang terdiri dari 40 lukisan kartun yang terpilih telah diterbitkan. Sejumlah 10,000 naskhah telah dicetak dan diedarkan kepada sekolah-sekolah di Malaysia.

Pada tahun 2005, Jabatan Alam Sekitar telah mewujudkan koleksi gambarfotonya sendiri melalui penubuhan bank imej. Sehingga hujung tahun 2005, sebanyak 2015 gambar telah diambil dan disimpan dalam bank imej ini mengikut pelbagai kategori dan tema yang telah dikenalpasti.

Perkhidmatan Perpustakaan-Enviro

Perpustakaan-Enviro yang terletak di Ibu Pejabat Jabatan Alam Sekitar berfungsi sebagai pusat rujukan bukan sahaja kepada kakitangan jabatan tetapi juga kepada orang awam. Sehingga 31 Disember 2005, koleksi bahan rujukan adalah sebanyak 33,000 buah. Bilangan pengunjung ke perpustakaan telah meningkat kepada 1,086 orang dibandingkan dengan 929 orang pada tahun sebelumnya. Tujuh puluh peratus (70%) daripada pengguna perpustakaan pada tahun 2005 merupakan pelajar (Rajah 5.2 & 5.3).

Radio Environmental Quiz

A series of Environmental Quizzer were organized by DOE in collaboration with RTM Radio Muzik and also in conjuction with Malaysia Environment Week 2005.

Environmental Information

In 2005, DOE published more than 594,000 copies of environmental reading materials consisting of the Environmental Quality Report 2004, the 2004 DOE Annual Report, IMPAK magazines, brochures, books and calendars with environmental messages.

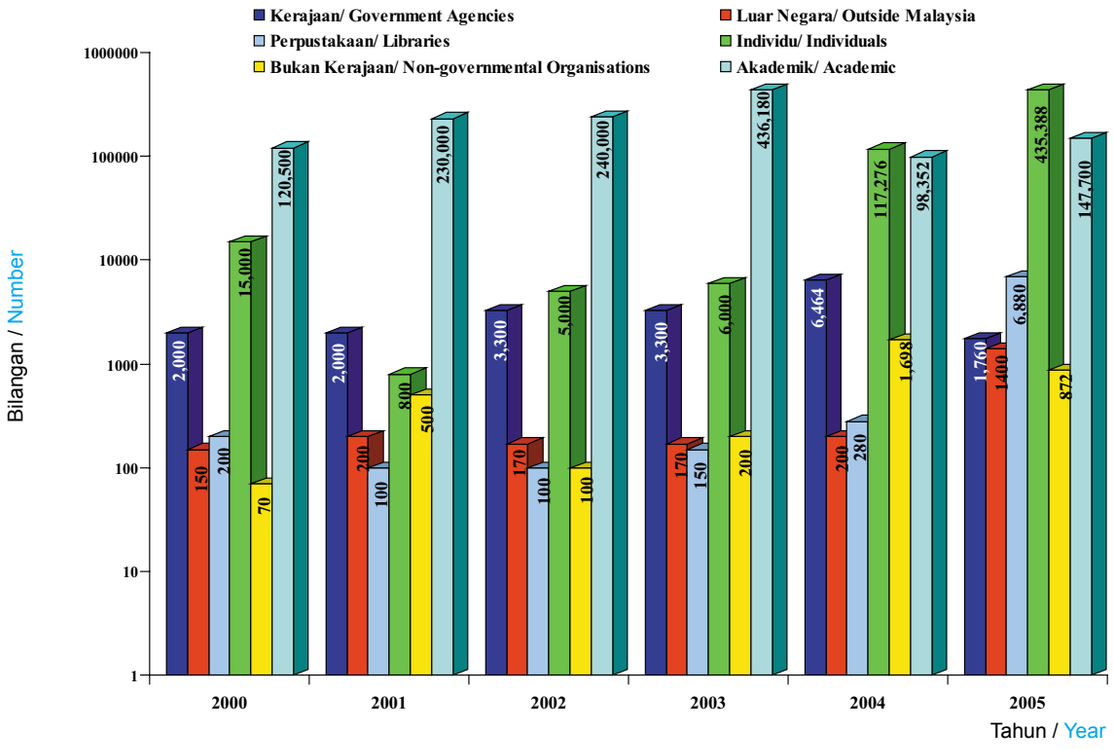
These printed materials were distributed to various government agencies, libraries, reference centres, educational institutions, non-governmental organizations and individuals (Figure 5.1).

In conjunction with the Exhibition on Environmental Drawings from Malaysian Cartoonists' Perspective on 1 June – 31 July 2004, a selection of 40 cartoon drawings was compiled and published. A total of 10,000 copies were printed and distributed to all schools in Malaysia.

In 2005, DOE initiated its environmental photography collections through the setting up of its image bank. To date, a total of 2015 images under various categories and themes had been captured and stored in the image bank.

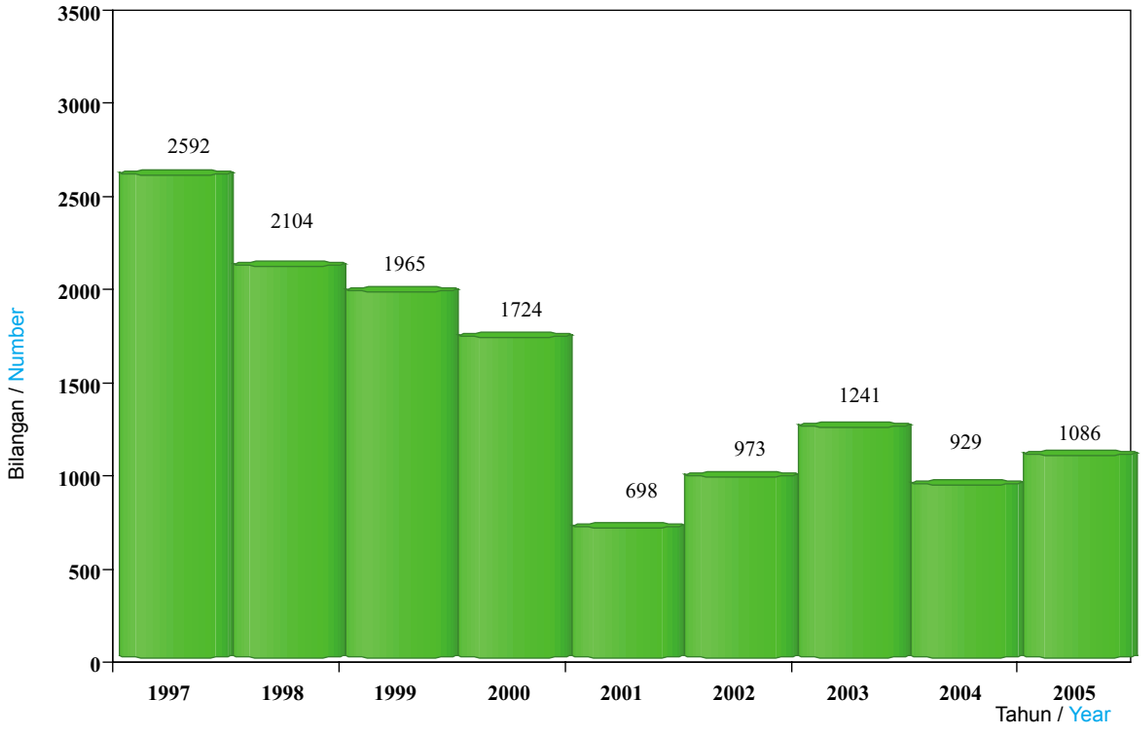
Enviro-Library Services

The Enviro-Library located at the DOE Head Office served as an important reference centre not only for DOE staff but also for the public who are registered users. As of 31 December 2005, the entire collection of reference materials totaled 33,000. The number of library users increased to 1,086 compared to 929 in 2004, of which 70% of library users in 2005 were students (Figure 5.2 & 5.3).



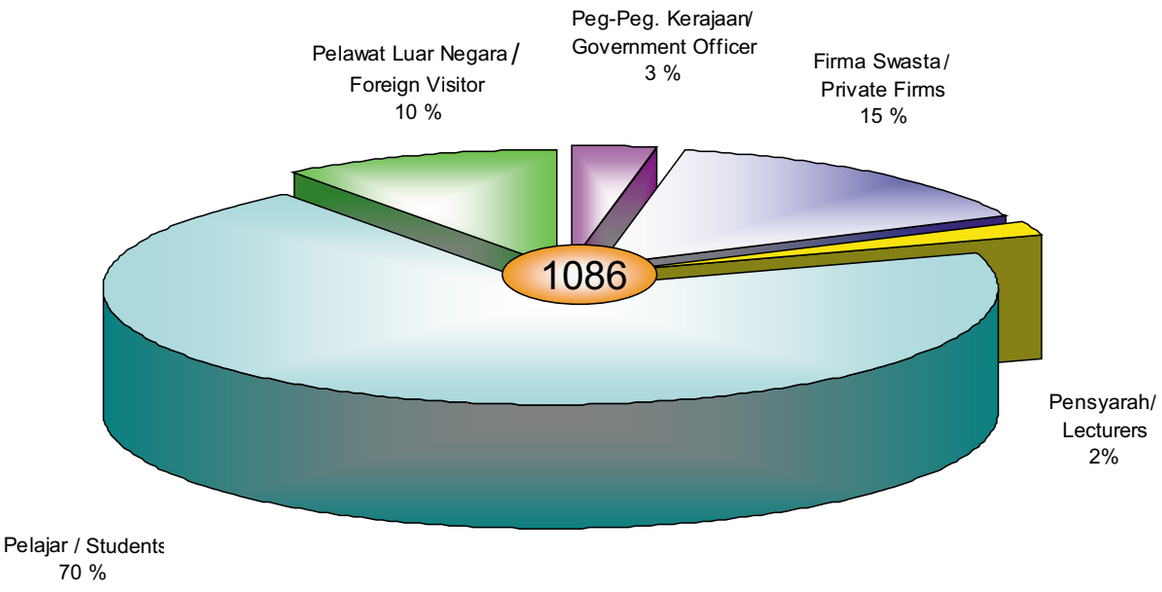
Rajah 5.1 JAS: Kategori Penerima Terbitan-Terbitan Alam Sekitar, 2000-2005

Figure 5.1 DOE: Category of Recipients of Environmental Information, 2000-2005



Rajah 5.2 JAS: Bilangan Pengunjung Perpustakaan, 2005

Figure 5.2 DOE: Number of Library Users, 2005



Rajah 5.3 JAS: Kategori Pengguna-pengguna Perpustakaan Jabatan Alam Sekitar, 2005
Figure 5.3 DOE: Category of Library Users, 2005

Gambarfoto 5.5 JAS: Koleksi Bahan Terbitan JAS
Photo 5.5 DOE: Collection of DOE Publications

Bab 6

Jabatan Alam Sekitar Department of Environment

Laporan Tahunan 2005 Annual Report

Chapter 6

Hal-Ehwal Alam Sekitar Antarabangsa / International Environmental Affairs

Kerjasama Serantau

Mesyuarat Bersama Keenambelas Kumpulan Kerja ASEAN mengenai 'Sub-Regional Fire-fighting Arrangements (SRFAs) untuk Sumatra dan Borneo

Mesyuarat Bersama Keenambelas Kumpulan Kerja ASEAN mengenai 'Sub-Regional Fire-fighting Arrangements (SRFAs) untuk Sumatra dan Borneo telah diadakan di Singapura pada 17 Mac 2005. Mesyuarat ini telah dihadiri oleh kesemua anggota Negara SRFAs yang terdiri daripada Brunei Darussalam, Indonesia, Malaysia, Singapura serta wakil dari JICA-Forest Fire Prevention Management Project 2, Global Environment Centre, Wetlands International Indonesia Programme dan juga Sekretariat ASEAN.

Di antara isu yang telah dikemukakan dan dibincangkan adalah:

- laporan peristiwa kebakaran dan jerebu serta ramalan keadaan meteorologi oleh ASEAN Specialised Meteorological Centre (ASMC)
- langkah pencegahan serta persediaan menghadapi musim kering oleh setiap negara anggota SRFAs
- laporan kemajuan berkenaan ASEAN Cooperative Projects on Transboundary Haze Pollution oleh Sekretariat ASEAN
- program bantuan antarabangsa.

Regional Cooperation

Sixteenth Joint Meeting of ASEAN Working Group on Sub-Regional Fire-fighting Arrangements (SRFAs) for Sumatra and Borneo

The Sixteenth Joint Meeting of the ASEAN Working Group on Sub-Regional Fire-fighting Arrangements (SRFAs) for Sumatra and Borneo was held on 17 March 2005 in Singapore. The Meeting was attended by all SRFA Member Countries, ie. Brunei Darussalam, Indonesia, Malaysia, Singapore and also by representatives from JICA-Forest Fire Prevention Management Project 2, Global Environment Centre, Wetlands International Indonesia Programme and the ASEAN Secretariat.

Among the issues that were presented and discussed were:

- report of fire and haze occurrences and forecast of meteorological conditions by the ASEAN Specialised Meteorological Centre (ASMC)
- preventive measures and readiness for the dry season by all SRFA Member Countries
- progress report on ASEAN Cooperative Projects on Transboundary Haze Pollution by the ASEAN Secretariat
- international assistance programme

Mesyuarat Ketujuh ASEAN Working Group on Coastal and Marine Environment

Mesyuarat Ketujuh ASEAN Working Group on Coastal and Marine Environment telah diadakan di Kuala Lumpur pada 11 – 12 Ogos 2005. Mesyuarat ini telah dihadiri oleh Negara Brunei Darussalam, Cambodia, Indonesia, Malaysia, Singapura, Thailand, Vietnam serta Sekretariat ASEAN. Mesyuarat ini turut dihadiri oleh pemerhati daripada PEMSEA (Partnerships in Environmental Management for the Seas of East Asia), COBSEA Coordinating Body on Seas of East Asia, Conservation International-Philippines; Australian Marine Science and Technology (AMSAT) dan Australian Centre Tropical Freshwater Research.

Antara isu yang telah dikemukakan dan dibincangkan adalah kemajuan aktiviti di bawah ASEAN Strategic Plan of Action on the Environment, program dan projek di peringkat serantau serta aktiviti utama AWGCME yang perlu dicapai di bawah Vientiane Action Programme 2004 – 2010.

Mesyuarat Bersama Ketujuhbelas Kumpulan Kerja ASEAN mengenai 'Sub-Regional Fire-fighting Arrangements (SRFAs) untuk Sumatra dan Borneo

Mesyuarat Bersama Ketujuhbelas Kumpulan Kerja ASEAN mengenai 'Sub-Regional Fire-fighting Arrangements (SRFAs) untuk Sumatra dan Borneo telah diadakan di Bandar Seri Begawan, Brunei Darussalam pada 14 November 2005. Mesyuarat ini telah dihadiri oleh kesemua anggota Negara SRFAs yang terdiri daripada Brunei Darussalam, Indonesia, Malaysia, Singapura. Pegawai-pegawai dari Myanmar dan Thailand juga turut serta. Mesyuarat ini juga turut dihadiri oleh wakil dari Wetlands International Indonesia Programme, Global Environment Centre, EU South Sumatra Fire Management Project (EU-SSFFMP) dan juga Sekretariat ASEAN.

Seventh Meeting of the ASEAN Working Group on Coastal and Marine Environment

The Seventh Meeting of the ASEAN Working Group on Coastal and Marine Environment was held in Kuala Lumpur on 11 – 12 August 2005. The Meeting was attended by officials from Brunei Darussalam, Cambodia, Indonesia, Malaysia, Singapore, Thailand, Vietnam and the ASEAN Secretariat as well as observers from PEMSEA (Partnerships in Environmental Management for the Seas of East Asia), COBSEA (Coordinating Body on Seas of East Asia), Conservation International-Philippines, Australian Marine Science and Technology (AMSAT) and Australian Centre for Tropical Freshwater Research.

The meeting discussed the progress of activities under the ASEAN Strategic Plan of Action on the Environment, programmes and projects at regional level and AWGCME key activities to be achieved under the Vientiane Action Programme 2004 – 2010.

Seventeenth Joint Meeting of the ASEAN Working Group on Sub-Regional Fire-fighting Arrangements (SRFAs) for Sumatra and Borneo

The Seventeenth Joint Meeting of the ASEAN Working Group on Sub-Regional Fire-fighting Arrangements (SRFAs) for Sumatra and Borneo was held on 14 November 2005 in Bandar Seri Begawan, Brunei Darussalam. The Meeting was attended by all the SRFA Member Countries, ie. Brunei Darussalam, Indonesia, Malaysia and Singapore. Officials from Myanmar and Thailand were also present. The Meeting was also attended by representatives from Wetlands International Indonesia Programme; The Global Environment Centre; EU South Sumatra Fire Management Project (EU-SSFFMP) and the ASEAN Secretariat.

Antara isu yang telah dikemukakan dan dibincangkan adalah:

- laporan berkenaan kebakaran tanah dan hutan serta situasi jerebu dan langkah yang telah diambil
- pengoperasian Standard Operating Procedure (SOP) untuk pemonitoran, penilaian dan tindak balas kecemasan
- SRFA Fire and Haze Disaster Simulation Exercise
- mesyuarat Simulation Organising Committee (SOC)
- cadangan konsep pembersihan tanah tanpa pembakaran untuk komuniti tempatan
- Pembakaran untuk komuniti tempatan.

Among the issues that were presented and discussed were:

- updates on land and forest fires and haze actions taken
- review of the Standard Operating Procedure (SOP) for monitoring, assessment and joint emergency response
- SRFA Fire and Haze Disaster Simulation Exercise
- convening of the Simulation Organising Committee (SOC)
- Concept proposal on land clearing without burning for the local community
- Burning for the local community.

Gambarfoto 6.1 JAS: Persidangan Ahli Forum Ke-4, Malaysia-Japan Technology Information Exchange di Kuala Lumpur

Photo 6.1 DOE: 4th Malaysia-Japan Environmental Technology Information Exchange Forum in Kuala Lumpur

Gambarfoto 6.2 JAS: Mesyuarat ke-3 Kumpulan Kerja MSJCE di Singapura

Photo 6.2 DOE: The 3rd MSJCE Working Group Meeting in Singapore

Hal-Ehwal Alam Sekitar Antarabangsa / International Environmental Affairs

Kerjasama Dua-Hala

Forum Keempat *Malaysia - Japan Environmental Technology Information Exchange*

Forum Keempat *Malaysia - Japan Environmental Technology Information Exchange* telah diadakan di Kuala Lumpur pada 28 Februari 2005. Forum ini telah dihadiri oleh 55 delegasi Malaysia dan Jepun. Forum ini adalah anjuran kerjasama di antara Japan Society of Industrial Machinery Manufacturers (JSIM), Japan External Trade Organization (JETRO) dan Jabatan Alam Sekitar, Malaysia. Ucaptama bagi Forum ini telah disampaikan oleh Pengarah Urusan JSIM dan Pengarah Komunikasi Strategik Jabatan Alam Sekitar. Antara fokus Forum ini adalah pertukaran teknologi alam sekitar oleh syarikat-syarikat dari Jepun yang juga ahli JSIM.

Malaysia – Nepal

Satu delegasi yang terdiri dari sepuluh orang pegawai-pegawai kanan dari Kementerian Populasi dan Alam Sekitar, Nepal telah mengadakan lawatan sambil belajar ke Jabatan Alam Sekitar, Malaysia pada 13 Januari 2005. Delegasi yang diketuai oleh Duta Kerajaan Nepal di Malaysia, His Excellency Mr.Deepak Dhital ini telah diberi taklimat mengenai pengurusan dan pemuliharaan alam sekitar di Malaysia di samping tugas dan fungsi Jabatan Alam Sekitar.

Malaysia – Lao-PDR

Satu delegasi yang terdiri dari sepuluh orang pegawai kanan dari Jawatankuasa Alam Sekitar Kebangsaan Lao PDR, diketuai oleh Menteri di Jabatan Perdana Menteri, His Excellency Prof. Dr. Bountiem Phissamay telah mengunjungi Jabatan Alam Sekitar pada 31 Mei 2005. Satu taklimat bertajuk, 'Pengalaman Malaysia Di Dalam Pengurusan Alam Sekitar' telah diadakan.

Bilateral Cooperation

Fourth Malaysia - Japan Environmental Technology Information Exchange Forum

The Fourth Malaysia - Japan Environmental Technology Information Exchange Forum was held in Kuala Lumpur on 28 February 2005 and was attended by 55 delegates from Malaysia and Japan. The Forum was initiated by The Japan Society of Industrial Machinery Manufacturers (JSIM) in collaboration with Japan External Trade Organization (JETRO) and the Department of Environment, Malaysia. The keynote speeches were presented by Managing Director of JSIM and the Director of Strategic Communications, Department of Environment. The primary focus of the Forum is to facilitate the sharing, exchange and update of information on environmental technology, especially pertaining to research and development efforts by Japanese companies who are members of JSIM.

Malaysia – Nepal

A delegation consisting of ten senior officials from the Ministry of Population and the Environment of Nepal visited the Department of Environment on 13 January 2005. The delegation was headed by the Nepalese Ambassador to Malaysia, H. E. Mr. Deepak Dhital and was briefed on Conservation and Environmental Management Programmes in Malaysia as well as the work and functions of the Department of Environment.

Malaysia – Lao-PDR

A delegation consisting of ten senior officials from the National Environment Committee of Lao PDR, headed by the Minister at the Prime Minister's Office, H.E Prof Dr. Bountiem Phissamay visited DOE on 31 May 2005. A briefing on Environmental Management in Malaysia was presented. The group also visited Alam Sekitar Malaysia Bhd. (ASMA), the

Selain itu, rombongan juga telah dibawa melawat ke beberapa tempat seperti Alam Sekitar Malaysia Sdn. Bhd. (ASMA), Taman Wetland Putrajaya, Pusat Pelupusan Sisa Toksik Berjadual Bersepadu (Kualiti Alam Sdn. Bhd.) di Bukit Nanas, Jabatan Mineral dan Geosains dan Kementerian Pendidikan Malaysia.

Malaysia – South Africa

Satu delegasi yang terdiri dari enam belas Ahli-ahli Parlimen dari Jawatankuasa Bersama Mengenai Pembangunan Sosial dan Komuniti, Republik Afrika Selatan telah mengadakan lawatan ke Jabatan Alam Sekitar, Malaysia pada 30 September 2005 bagi mengetahui pengalaman Malaysia dalam menangani isu-isu alam sekitar. Beberapa agensi di bawah Kementerian Sumber Asli dan Alam Sekitar seperti Bahagian Pemuliharaan dan Pengurusan Alam Sekitar, Jabatan Perhutanan Semenanjung Malaysia, Jabatan Mineral dan Geosains Malaysia dan Jabatan Alam Sekitar telah menyampaikan taklimat masing-masing.

Malaysia – Sri Lanka

Satu delegasi yang terdiri daripada lapan orang pegawai dari Kementerian Alam Sekitar dan Sumber Asli, Sri Lanka telah mengadakan lawatan sambil belajar ke Jabatan Alam Sekitar pada 26 September 2006 untuk meningkatkan pengetahuan tentang pelaksanaan aktiviti alam sekitar di Malaysia serta peraturan dan undang-undang yang berkaitan dengannya.

Malaysia – Singapura

Mesyuarat ke 3 Kumpulan Kerja Jawatankuasa Bersama Malaysia - Singapura Mengenai Alam Sekitar (MSJCEWG) telah diadakan pada 29 – 30 Ogos 2005 di Singapura.

Antara isu alam sekitar yang telah dibincangkan ialah:

- Kawalan Pencemaran Kenderaan
- Pemantauan Kualiti Air di Selat Johor

Putrajaya Wetland, the Integrated Scheduled Waste Management Centre (Kualiti Alam Sdn. Bhd.) at Bukit Nanas, the Department of Mineral and Geoscience and the Ministry of Education.

Malaysia – South Africa

A delegation consisting of sixteen Members of Parliament from the Joint Committee on Social Development and Community Development of the Republic of South Africa visited the Department of Environment on 30 September 2005 to gather information on Malaysia's experience in handling environmental issues. Presentations were made by agencies under the Ministry of Natural Resources and Environment such as the Conservation and Environmental Management Division, the Department of Forestry, the Department of Mineral and Geoscience and the Department of Environment.

Malaysia – Sri Lanka

A delegation of eight officials from the Ministry of Environment and Natural Resources, Sri Lanka visited the Department of Environment, on 26 September 2005 to enhance knowledge on the implementation of environmental programmes, activities and environmental rules and regulations in Malaysia.

Malaysia – Singapore

The 3rd Working Group Meeting of the Malaysia - Singapore Joint Committee on the Environment (MSJCEWG) was held on 29 - 30 August 2005 in Singapore.

Among the issues discussed were:

- Vehicular Emission Control

- Pencemaran di kawasan Tadahan Air Skudai
- Pelan Tindakan Kecemasan Tumpahan Bahan Kimia di Lintasan Kedua Malaysia-Singapura
- Kerjasama di dalam Latihan Alam Sekitar di antara Institut Latihan Alam Sekitar Singapura (SEI) dan Institut Alam Sekitar Malaysia (EiMAS)
- Pencemaran Jerebu Merentasi Sempadan

Laporan Kumpulan Kerja ini telah dibentangkan semasa Mesyuarat ke 20 Jawatankuasa Bersama Malaysia-Singapura Mengenai Alam Sekitar (MSJCE) yang telah diadakan pada 19 September 2005 di Kuching, Sarawak.

Mesyuarat Tahunan Dua Hala ke 19 antara Menteri Alam Sekitar Malaysia–Singapura telah diadakan pada 20 September 2005. Kedua-dua Menteri telah meneliti perkembangan aktiviti yang telah dilaksanakan oleh Kumpulan Kerja Jawatankuasa Bersama Malaysia-Singapura Mengenai Alam Sekitar (MSJCE) dan bertukar-tukar pendapat mengenai isu jerebu merentasi sempadan yang telah melanda negara pada Ogos 2005.

Susulan dari mesyuarat ke 20 Jawatankuasa Bersama Malaysia – Singapura Mengenai Alam Sekitar (MSJCE), Mesyuarat ke Empat Kumpulan Kerja Jawatankuasa Bersama Malaysia – Singapura Mengenai Alam Sekitar (MSJCEWG) telah diadakan di Putrajaya pada 14 – 15 November 2005. Mesyuarat telah membincangkan serta menggariskan secara terperinci Terma – Terma Rujukan Kumpulan Kerja Jawatankuasa Bersama Malaysia – Singapura Mengenai Alam Sekitar (MSJCEWG).

Pada 9 Jun 2005, 30 orang ahli dari Institut Jurutera Singapura (IES) dengan kerjasama Institut Jurutera Malaysia (IEM) telah melakukan satu kunjungan hormat kepada Ketua Pengarah Alam Sekitar, Malaysia. Satu taklimat mengenai peranan dan fungsi Jabatan telah disampaikan selain sesi soal jawab bersama pegawai-pegawai Jabatan.

- Water Quality in the Straits of Johor
- Pollution in the Skudai Water Catchment Area
- Emergency Response Plan for Chemical Spills at Malaysia - Singapore Second Crossing
- Cooperation in Environmental Training between Environmental Institute of Malaysia (EiMAS) and Singapore Environment Institute (SEI)
- Transboundary Haze Pollution

The MSJCE Working Group Report was presented to the 20th Malaysia-Singapore Joint Committee Meeting on the Environment (MSJCE) on 19 September 2005 in Kuching, Sarawak.

The 19th Annual Exchange Visits (AEV) between Malaysia and Singapore Environment Ministers was held on 19 September 2005. Both Ministers reviewed the progress of work carried out by the Malaysia-Singapore Joint Committee on the Environment and exchanged views on issues of mutual interest such as that relating to transboundary haze which affected Malaysia and Singapore in August 2005.

Following the 20th MSJCE Meeting, the 4th MSJCE Working Group Meeting (MSJCEWG) was held on 14 - 15 November 2005 in Putrajaya. The meeting reviewed and agreed on the Terms of Reference of the Malaysia - Singapore Joint Committee on the Environment Working Group (MSJCEWG) in view of the expanded scope of work to include the reclamation activities in the Straits of Johor.

On 9 June 2005, 30 members from the Institute of Engineers Singapore (IES) together with their colleagues from the Institute of Engineers Malaysia (IEM) paid a courtesy call to the Director General of Environment, Malaysia. A briefing on the functions of DOE was presented and a Q & A session with DOE Officers was held.

Sesi Ke-23 Forum UNEP Governing Council/Global Ministerial Environment, 21 - 25 February 2005

Forum Alam Sekitar Majlis Lembaga/Menteri Sedunia untuk "United Nations Environment Programme" (UNEP) sesi yang ke-23 telah diadakan pada 21-25 Februari 2005 di pejabat PBB di Nairobi, Kenya. Dalam mesyuarat ini, menteri-menteri dan ketua delegasi telah membincangkan tentang pelaksanaan pembangunan objektif yang dipersetujui dalam Deklarasi Milenium (MDG) yang berkaitan dengan jantina dan alam sekitar, isu polisi yang berkaitan dengan air, sanitasi dan penempatan manusia, international environmental governance; dan mengemukakan cadangan dan objektif untuk accelerated and sustainable implementation kepada "Summit Level Meeting" dalam Perhimpunan Am pada September 2005.

Mesyuarat tersebut telah membincangkan tentang cadangan draf untuk international environmental governance; bajet tabung untuk alam sekitar bagi tahun 2006-2007; pentadbiran dan lain-lain hal-hal belanjawan; keadaan alam persekitaran dan sumbangan UNEP untuk menangani cabaran alam sekitar, pengurusan kimia dan isu yang berkaitan dengan air.

Dalam mesyuarat tersebut, H.E Encik Rachmat Witoelar, Menteri Alam Sekitar Dalam Negeri dari Indonesia telah dilantik sebagai Pengerusi Majlis untuk menggantikan Yang Berhormat Encik Arcado Ntagazwa.

Delegasi Malaysia diketuai oleh Menteri Sumber Asli dan Alam Sekitar, Yang Berhormat Dato' Sri Hj. Adenan b. Hj. Satem dan wakil dari Bahagian Pemulihan dan Pengurusan Alam Sekitar, Kementerian Sumber Asli dan Alam Sekitar, Unit Perancang Ekonomi, dari Kementerian Luar Negara dan Jabatan Alam Sekitar.

23rd Session of UNEP Governing Council/ Global Ministerial Environment Forum, 21 - 25 February 2005

The 23rd Session of the UNEP's Governing Council/ Global Ministerial Forum was held on 21-25 February 2005 at the UN Office at Nairobi, Kenya. Ministers and Heads of Delegations attending the Meeting discussed the implementation of the internationally- agreed development goals contained in the Millennium Declaration (MDG) relating to gender and environment, as well as policy issues relating to water, sanitation and human settlements, and international environmental governance; and put forward recommendations for accelerated and sustainable implementation of the MDG goals to the Summit Level Meeting of the General Assembly for September 2005.

The Meeting also discussed draft decisions on international environmental governance; environment fund budgets for 2006-2007; administrative and other budgetary matters; the state of the environment and UNEP's contribution to addressing substantive environmental challenges; chemicals management and relevant water-related issues.

The Meeting elected H.E Mr. Rachmat Witoelar, the State Minister for the Environment of Indonesia as President of the Council replacing Hon. Mr. Arcado Ntagazwa.

The Malaysian Delegation was headed by the Minister of Natural Resources and Environment, the Honourable Dato' Sri Hj. Adenan b. Hj. Satem and comprised of members from the Environment Management Division of Natural Resources and Environment (NRE), the Economic Planning Unit, the Ministry of Foreign Affairs and the Department of Environment.

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Jabatan Alam Sekitar Department of Environment

Laporan Tahunan 2005 Annual Report

Chapter 7

Bahagian Teknologi Maklumat
Information Technology Division

Unit Applikasi

Penambahbaikan Dan Peningkatan Modul Applikasi Sistem e-KAS 1

Penambahbaikan dan peningkatan modul applikasi Sistem e-KAS 1 dilakukan hasil daripada audit sistem yang dijalankan. Pada tahun 2005, penambahbaikan dan kursus modul SIMPAS (Sistem Maklumat Asas Premis), PLDS (Pollution Load Database System), Penguatkuasaan, Pelesenan dan Pemantauan telah dilaksanakan dan mula digunapakai oleh Jabatan Alam Sekitar (JAS) Negeri. Penambahbaikan modul SWIS (Scheduled Waste Information System), SMLK (Sistem Maklumat Loji Kumbahan) sedang dijalankan dan akan mula digunapakai oleh JAS Negeri pada awal tahun 2006.

Applikasi e-Consignment Note

Aplikasi e-Consignment Note merupakan sistem untuk pengeluar, kontraktor dan pengendali buangan terjadual menggunakan applikasi web bagi memasukkan maklumat 'Nota Konsainan Buangan Terjadual' – Jadual Keenam (Peraturan 10). Melalui applikasi ini, kemudahan e-mail digunakan sebagai pemberitahuan awal kepada Jabatan Alam Sekitar mengenai sebarang pengeluaran buangan terjadual oleh premis. Projek perintis applikasi e-Consignment telah dilaksanakan mulai bulan Julai 2005 dan akan digunakan sepenuhnya mulai 1 Januari 2006.

Application Unit

Enhancement and Upgrading of e-KAS 1 Application System

Enhancement and upgrading of e-KAS 1 Application System was carried out based on the earlier audit system. In 2005, enhancement and SIMPAS course modules (Premise Basic Information System), PLDS (Pollution Load Database System), Enforcement, Licensing and Monitoring were carried out and began to be implemented by DOE State Offices. Upgrading of SWIS (Scheduled Waste Information System), SMLK (Sewage Plant Information System) was in progress and would be ready for use by State DOE in early 2006.

e-Consignment Note Application

e-Consignment Note Application is a system that enables generator, contractor and scheduled waste handler to use web application to complete the Sixth Schedule of the Scheduled Waste Consignment Note. Using this application, a waste generator can use e-mail to notify DOE. This pioneer project was initiated in July 2005 and would be fully implemented by January 2006.

Unit Operasi Perolehan ICT
ICT Procurement Operation Unit

Perkakasan / Perisian *Accessories / Software*	Kuantiti *Quantity*
Server	15
Komputer Desktop/*Desktop Computer*	225
Notebook	21
GPRS Modem	17
Projektor / *Projectors*	15
Pencetak Laserjet (Hitam/Putih) / *Laserjet Printers (Black/White)*	25
Pencetak Laserjet Warna / *Laserjet Colour Printer*	16
Switch 16-port	
Perisian *Software*	
Antivirus for Windows Workstation	750
Administration Kit for Antivirus	16
Implementation Proposal and Training for Antivirus Software	2 sites

Jadual 7.1 JAS: Perolehan ICT Jabatan Alam Sekitar, 2005
Table 7.1 DOE: DOE's ICT Procurement, 2005

Pemverifikasian Stok Peralatan Komputer

Pemverifikasian stok peralatan komputer telah dilakukan dua kali pada tahun 2005 oleh Jawatankuasa Pemverifikasian Stok Peralatan Komputer. Ianya bertujuan memastikan semua peralatan ICT berada dalam keadaan baik dan mempunyai kad harta modal (Kew. 312).

Penandaan nombor siri yang seragam untuk semua peralatan ICT dilakukan bagi memudahkan kerja penyelenggaraan mana-mana peralatan ICT dengan sistematik.

Computer Device Stock Verification

Computer Device Stock Verification was done twice a year by the Computer Device Stock Verification Committee to ensure all ICT components were in good working condition and tagged with fixed asset card (Kew. 312).

Standardized serial tagging for all ICT components was also carried out to facilitate systematic maintenance works on all components.

Web Portal Jabatan Alam Sekitar

Bermula 1 Oktober 2005 Jabatan Alam Sekitar telah mengubah *url* web portal yang sedia ada (www.jas.sains.my) kepada www.doe.gov.my. Selaras dengan Keputusan Kabinet pada 10 Ogos 2005, bacaan Indeks Pencemar Udara (IPU) pada 11.00 pagi dan 5.00 petang setiap hari disiarkan melalui web portal.

Selain dari menyalurkan maklumat mengenai alam sekitar, web portal JAS juga bertindak sebagai saluran untuk orang ramai mengemukakan aduan, pertanyaan dan cadangan mengenai alam sekitar.

Department of Environment Portal

From 1 October 2005, the existing DOE's web portal *url* (www.jas.sains.my) was changed to www.doe.gov.my. In line with the Cabinet Decision on 10 August 2005, Air Pollution Index readings at 11.00 am and 5.00 pm were made public via the portal.

Apart from channelling environmental information, DOE's web portal also served as a platform for public complaints, enquiries and suggestions on the environment.

Kuiz Interaktif Alam Sekitar dan Teknologi Maklumat

Bahagian Teknologi Maklumat telah menyediakan dua kuiz interaktif mengenai alam sekitar dan satu kuiz interaktif mengenai teknologi maklumat. Kuiz interaktif ini merupakan sebahagian dari aktiviti Hari Bersama Pelanggan JAS. Kuiz interaktif alam sekitar mensasarkan golongan murid-murid sekolah rendah dan dewasa, manakala kuiz teknologi maklumat pula untuk golongan dewasa.

Environmental and Information Technology Interactive Quiz

The IT Division introduced two interactive quizzes on the environment and one for information technology during DOE Clients' Day. The interactive quiz was for both primary school students and adults, while the information technology quiz was for adults only.

Gambarfoto 7.1 JAS: Sesi Kuiz Interaktif Alam Sekitar melalui Modul Teknologi Maklumat.
Photo 7.1 DOE: Environmental Interactive Quiz Session through Information Technology Module.

Kolokium Video Editing

Satu Kolokium Video Editing telah diadakan sempena Hari Bersama Pelanggan anjuran BTM, JAS. Kolokium ini bertujuan untuk mendedahkan kaedah – kaedah menyunting video yang dirakam melalui perakam video ke dalam bentuk digital (seperti CD) kepada kakitangan Jabatan Alam Sekitar. Seramai dua orang wakil dari setiap Bahagian telah menghadiri kolokium ini.

Video Editing Colloquim

A Video Editing Colloquim was organized by the Multimedia Unit in conjunction with DOE Clients' Day. This colloquim was to train DOE staff on the methods of editing recorded video into the digital format (such as CD). Two representatives from each Division within the Head Office participated in the colloquim.

Gambarfoto 7.2 JAS: Aktiviti yang dijalankan bersempena dengan Program Hari Bersama Pelanggan JAS
Photo 7.2 DOE: Activity held in conjunction with DOE Client's Day

Projek Distributed Computing

Projek ini bertujuan untuk mengatasi masalah proses kemasukan data terlalu lambat dan perlahan kerana masalah talian. Setiap pejabat JAS Negeri telah dibekalkan dengan sebuah server yang dilengkapi dengan Aplikasi E-KAS dimana penghantaran data JAS Negeri ke server di Ibu Pejabat dibuat melalui teknik *data replication*. Projek ini telah siap sepenuhnya dan digunakan di pejabat JAS Negeri pada bulan Oktober 2005.

Distributed Computing Project

The objective of this project is to solve the network problem of slow data entry process from the e-KAS users especially at DOE State Offices. All DOE State Offices had been provided with one server each equipped with E-KAS application. Data from the State Offices' servers would be sent to the main HQ server using *data replicatio*n technique. The project was completed and implemented in all State Offices in October 2005.

Unit Khidmat Pengguna / Customer Service Unit

Jadual 7.2 JAS: Kursus-Kursus ICT, 2005
Table 7.2 DOE: ICT Courses, 2005

Bil. *No.*	Kursus *Course*	Tarikh *Date*	Bil. Peserta Yang Hadir *Number of participant*
1.	Dekstop Productivity Peringkat Basic Sessi I (Words, Excel, Powerpoint) *Desktop Productivity Basic Course Session I (Words, Excel, Powerpoint)*	21 - 23 Mac 2005	17
2.	Web Development menggunakan Macromedia Dreamweaver dan Photoshop *Web Development using Macromedia Dreamweaver and Adobe Photoshop*	22 - 24 Mac 2005	12
3.	Dekstop Productivity Peringkat Basic Sessi II (Words, Excel, Powerpoint) *Desktop Productivity Basic Session II (Words, Excel, Powerpoint)*	25 - 27 April 2005	16
4.	Windows XP *Windows XP*	14 - 15 Jun 2005	6
5.	Microsoft Outlook *Microsoft Outlook*	30 - 1 Julai 2005	7
6.	Desktop Productivity Peringkat Intermediate di HQ *Desktop Productivity (Intermediate Level) in HQ*	12 - 14 Julai 2005	15
7.	Desktop Productivity Peringkat Intermediate di EiMAS *Desktop Productivity (Intermediate Level) in EiMAS*	12 - 14 Julai 2005	15
8.	Pengemaskini Portal JAS *DOE Portal Updating Course*	21 Julai 2005	17
9.	Pengemaskini Portal JAS menggunakan MAMBO CMS *Jas Portal Updating Course using MAMBO CMS*	2 Ogos 2005	17

Bil. *No.*	Kursus *Course*	Tarikh *Date*	Bil. Peserta Yang Hadir *Number of Participants*
10.	Keselamatan Web & Rangkaian *Web & Networks Security*	15 - 16 Ogos 2005	15
11.	Pengendalian Firewall & Reporting Tool *Firewall & Reporting Tool Maintenance*	17 - 18 Ogos 2005	10
12.	Membaikpulih Komputer *Computer Repairing*	3 - 4 Oktober 2005	19
13.	Latihan Applikasi SMS *SMS Application Training*	12 - 16 Disember 2005	12
			JUMLAH / TOTAL: 178

Kursus Anjuran BTM 2005
Course Organized by BTM 2005

Jadual 7.3 JAS: Kursus E- KAS 2005
Table 7.3 DOE: E-KAS Course 2005

Bil. *No.*	Kursus *Course*	Tarikh *Date*	Bil. Peserta Yang Hadir *No. of Participants*
1.	Sistem Maklumat Asas Premis (Simpas) *Premise Basic Information System (Simpas)*	31 Januari 2005	35
2.	E-KAS I bagi Modul Penguatkuasaan *E-KAS I for Enforcement Module*	11 – 12 April 2005	32
3.	Penggunaan Applikasi VEMIS (Kumpulan I) *VEMIS Application (Group I)*	21 - 22 Jun 2005	20
4.	Penggunaan Applikasi VEMIS (Kumpulan II) *VEMIS Application Course (Group II)*	23 - 24 Jun 2005	20
5.	E-KAS Modul Perlesenan *E-KAS Licensing Module*	26 - 27 Julai 2005	20
6.	E-KAS I Modul PLDS & Pemantauan *E-KAS I PLDS Module & Monitoring*	20 - 21 September 2005	22
			JUMLAH : 149 **TOTAL : 149**

Bab 8

Jabatan Alam Sekitar Department of Environment

Laporan Tahunan 2005 Annual Report

Chapter 8

Institut Alam Sekitar Malaysia (EiMAS)
Malaysian Institute of Environment (EiMAS)

Program Latihan EiMAS

Bagi tahun 2005, kursus-kursus latihan yang dilaksanakan adalah dalam tujuh kategori utama (Jadual 8.1) iaitu :

i. Pengurusan Kualiti Udara
ii. Pengurusan Kualiti Air
iii. Undang-undang Alam Sekitar dan Penguatkuasaan
iv. Perancangan dan Penilaian Kesan Kepada Alam Sekeliling
v. Pentadbiran dan Pengurusan
vi. Teknologi Maklumat dan Komunikasi (ICT)
vii. Seminar dan Persidangan

Sebanyak 46 program latihan telah berjaya dilaksanakan oleh EiMAS dalam tahun 2005. Program latihan tersebut melibatkan seramai 1,605 orang peserta.

Program-program latihan yang diatur terdiri daripada kursus-kursus teknikal dan bukan teknikal yang bertujuan untuk meningkatkan kecekapan dan kompetensi kakitangan Jabatan Alam Sekitar dalam melaksanakan tugas mereka.

Buat pertama kalinya juga EiMAS telah mengadakan Kursus Asas Perkhidmatan untuk Pegawai Kawalan Alam Sekitar Gred C41 yang baru berkhidmat. Kursus ini dijalankan selama sebelas minggu.

Objektif Kursus Asas Perkhidmatan ini termasuklah tugas dan tanggungjawab sebagai seorang Pegawai Kawalan Alam Sekitar; penguatkuasaan Akta Kualiti Alam Sekeliling 1974 dan pengurusan alam sekitar; memberi pendedahan kepada pelbagai masalah dan pencemaran alam sekitar serta langkah-langkah kawalan yang berkesan; asas rekabentuk alat kawalan udara, air, bunyi bising dan bahan berbahaya; prosedur kerja yang betul dan seragam

EiMAS Training Programme

In 2005, the training provided by EiMAS were divided into seven main categories (Table 8.1) namely :

i. Air Quality Management
ii. Water Quality Management
iii. Environmental Legislations and Enforcement
iv. Environmental Planning and Impact Assessment (EIA)
v. Administration and Management
vi. Information and Communication Technology ICT)
vii. Seminars and Conferences

A total of 46 training programmes were successfully organized by EiMAS in 2005 involving 1,605 participants.

The training programmes were both technical and non-technical designed to enhance efficiency and competency among Department of Environment (DOE) personnel.

For the first time, the Basic Competency Course was conducted for newly-appointed Environmental Control Officers (Grade C41). The course was conducted over a duration of eleven weeks.

The objectives of the Basic Service Course include roles and responsibilities as an Environmental Control Officer; enforcement of the Environmental Quality Act 1974 and environmental management; exposure on various environmental pollution problems and as effective control measures; design basis for air, water, noise pollution and hazardous substances control equipment; proper and uniform work procedures for delivering quality services; enhance analytical skills,

bagi menghasilkan kerja yang berkualiti; meningkatkan daya menganalisis dan penjanaan hasil kerja yang berinovatif agar melahirkan Pegawai Kawalan Alam Sekitar yang berintegriti dan kompeten.

and innovative outputs in order to produce competent Environmental Control Officers of integrity.

Kursus untuk Agensi Kerajaan

EiMAS turut menganjurkan kursus-kursus untuk Agensi Kerajaan yang lain seperti Bengkel Prosedur Import Eksport dan Pengurusan Buangan Terjadual di Malaysia yang dianjurkan untuk Pegawai-Pegawai Kastam Diraja Malaysia. Melalui kursus ini peserta didedahkan kepada peraturan baru buangan terjadual yang telah digazetkan pada Ogos 2005.

Courses for Government Agencies

EiMAS also conducted courses for other Government Agencies such as the Workshop on Import and Export Procedures and Scheduled Wastes Management in Malaysia for officers of the Royal Malaysian Custom Department in line with the new Scheduled Waste Regulations, gazetted in August 2005.

Seminar, Bengkel dan Persidangan

Di samping kursus, beberapa sesi ceramah, seminar, bengkel, pameran serta persidangan telah dilaksanakan di EiMAS yang bertujuan mempertingkatkan pengetahuan pegawai dan kakitangan JAS dalam bidang pengurusan alam sekitar, keselamatan dan kesihatan pekerjaan serta teknologi pengeluaran bersih.

Seminar, Workshop and Conference

Besides routine training courses, EiMAS also conducted talks, seminars, workshops, exhibitions and conferences, aimed at enhancing the knowledge of DOE officers in environmental management, occupational safety and health and cleaner production practices.

Mini Persidangan

Mini Persidangan Jabatan Alam Sekitar telah berlangsung di EiMAS pada 5 Ogos 2005. Mini Persidangan yang buat pertama kalinya diadakan adalah bertujuan memberi peluang dan ruang bagi kakitangan JAS yang telah mengikuti kursus di luar negara pada tahun 2005 iaitu bermula Januari hingga Julai untuk berkongsi pengetahuan dan pengalaman. Mini Persidangan ini telah dihadiri oleh pihak pengurusan tertinggi JAS, Pengarah-Pengarah JAS Negeri dan Bahagian serta kakitangan JAS yang dijemput dari seluruh negara.

Mini Conference

A mini Conference was held in EiMAS for the first time on 5 August 2005 to allow DOE staff who had attended overseas training courses from January till July 2005, to share their knowledge and experiences relating to the courses attended. The top management of DOE, State and Division directors, as well as DOE staff from all over the country participated in the conference.

Perbincangan ditumpukan kepada pendekatan dan kaedah baru dalam pengurusan alam sekitar yang diamalkan di luar negara. Beberapa cadangan yang praktikal turut diutarakan. Acara ini akan dijadikan aktiviti tahunan sebagai satu platform untuk perkongsian dan penyebaran maklumat di kalangan warga kerja JAS.

The focus of discussion was on new approaches or methodology in environmental management in other countries. Several practical recommendations on environmental management were presented. The event will be organised annually to provide a forum for information sharing and dissemination among the staff of DOE.

Seminar Kesedaran dan Kefahaman Keselamatan dan Kesihatan Pekerjaan

Menyedari betapa pentingnya aspek keselamatan dan kesihatan dalam pekerjaan, pihak EiMAS telah menjalankan satu seminar yang bertajuk Kesedaran dan Kefahaman Keselamatan dan Kesihatan Pekerjaan untuk kakitangan JAS dari seluruh negara.

Penceramah yang diundang adalah daripada Jabatan Keselamatan dan Kesihatan Pekerjaan (DOSH), Jabatan Bomba dan Penyelamat Malaysia, Alam Sekitar Malaysia Sdn. Bhd. (ASMA), Institut Kesihatan dan Keselamatan Pekerjaan Kebangsaan (NIOSH), serta wakil daripada Bahagian Bahan Berbahaya, Ibu Pejabat Jabatan Alam Sekitar.

Sempena seminar ini juga satu pameran turut diadakan dan melibatkan enam organisasi berkenaan.

Kerjasama dengan Institut Latihan Kehakiman dan Perundangan (ILKAP)

Dengan kerjasama ILKAP, EiMAS telah menganjurkan kursus berkaitan Pendakwaan dan Tatacara Mahkamah untuk memantapkan lagi kemahiran pegawai-pegawai pendakwa JAS.

Kerjasama dengan Jabatan Pengairan dan Saliran (JPS)

EiMAS juga telah mengadakan kerjasama dengan Jabatan Pengairan dan Saliran (JPS) dalam penganjuran kursus-kursus yang spesifik pada tahun 2005.

Tenaga pengajar dari JAS telah menjalankan dua kursus berkaitan *Erosion and Sediment Control Plan* (ESCP) berasaskan Manual Saliran Mesra Alam (MASMA) yang disediakan oleh JPS.

Seminar on Awareness and Understanding Occupational Safety and Health

Realizing the importance of occupational safety and health, EiMAS conducted a Seminar on Awareness and Understanding of Occupational Safety and Health for DOE staff throughout Malaysia.

Speakers were invited from the Department of Occupational Safety and Health (DOSH); the Malaysian Fire and Rescue Department; Alam Sekitar Malaysia Sdn. Bhd. (ASMA); the National Institute of Occupational Safety and Health (NIOSH) and the Department of Environment Head Office.

In conjunction with the Seminar, an exhibition was also organized and was participated by six relevant organizations.

Collaboration with the Judicial and Legal Training Institute (ILKAP)

In collaboration with ILKAP, EiMAS organised Prosecution and Court Procedures Courses to improve the prosecution ability of DOE prosecuting officers.

Collaboration with the Department of Drainage and Irrigation (DID)

EiMAS also collaborated with the Department of Drainage and Irrigation (DID), in organizing several specific courses in 2005.

DID trainers conducted two courses on Erosion and Sediment Control Plan (ESCP) based on DID's Manual Saliran Mesra Alam (MASMA).

Kerjasama dengan Institut Tadbiran Awam Negara (INTAN)

Kerjasama yang dijalankan dengan pihak INTAN meliputi penganjuran kursus dan penyediaan tenaga pengajar bagi kursus-kursus alam sekitar di bawah program kerjasama Teknikal Malaysia (MTCP).

Collaboration with National Public Administration Institute (INTAN)

In collaboration with INTAN, EiMAS regularly provided trainers for the Malaysian Technical Cooperation Programme (MTCP) Courses on Environment.

Kerjasama dengan Universiti Kebangsaan Malaysia (UKM)

Lokasi strategik EiMAS di dalam kampus Universiti Kebangsaan Malaysia (UKM), EiMAS telah mengadakan perbincangan dengan UKM tentang bentuk kerjasama yang boleh dilaksanakan yang melibatkan kepakaran UKM.

Collaboration with Universiti Kebangsaan Malaysia (UKM)

Being strategically located in UKM, EiMAS had initiated discussion with UKM on possible areas of cooperation that could be established involving expertise from UKM.

Kerjasama dengan pihak swasta (latihan industri amali)

Kursus-kursus latihan dengan kerjasama pihak swasta telah diadakan pada tahun 2005. Antaranya termasuklah Kualiti Alam Sdn. Bhd., Alam Sekitar Malaysia Sdn. Bhd. (ASMA), Master Jaya Environmental Sdn. Bhd., dan beberapa buah kilang yang telah sudi menerima peserta kursus EiMAS dalam lawatan sambil belajar (Jadual 8.2).

Collaboration with the private sector (industry practical training)

Training courses in collaboration with the private sector were held in 2005. Among the organizations involved were Kualiti Alam Sdn. Bhd., Alam Sekitar Malaysia Sdn. Bhd. (ASMA), Master Jaya Environmental Sdn. Bhd. and several factories who had willingly accepted participants from EiMAS for study visits (Table 8.2).

Program Sangkutan

Pada tahun 2005, EiMAS telah memulakan program sangkutan dengan pihak swasta bertujuan untuk menyediakan latihan ”hands-on” kepada pegawai-pegawai JAS yang terpilih bagi membantu mereka menyediakan modul dalam bidang latihan yang spesifik.

Attachment Programme

In 2005, EiMAS initiated a programme to provide ‘hands-on’ training for selected DOE staff to enable them to prepare modules for specific environmental training.

Program sangkutan yang pertama telah diadakan di Alam Sekitar Malaysia Sdn. Bhd. (ASMA) dalam bidang-bidang pengawasan kualiti udara dan air.

The first attachment programme was held at Alam Sekitar Malaysia Sdn. Bhd. (ASMA) for air and water quality monitoring.

Latihan di Luar Negara

Selain daripada program latihan, EiMAS juga telah menguruskan penghantaran pegawai dan kakitangan Jabatan bagi menjalani latihan di luar negara untuk kursus yang tempohnya kurang daripada tiga (3) bulan.

Overseas Training Courses

Besides carrying out internal training programmes, EiMAS also made arrangements for DOE officers and staff to go abroad for training of less than three (3) months.

Sepanjang tahun 2005, EiMAS telah menguruskan pencalonan bagi seramai 16 orang pegawai JAS untuk menghadiri 13 kursus di luar negara (Jadual 8.3).

Throughout 2005, arrangements were made for 16 DOE officers to attend 13 overseas training programmes (Table 8.3).

Jadual 8.1 JAS: Program Latihan EiMAS, 2005
Table 8.1 DOE: EiMAS Training Programmes, 2005

Bil. *No.*	**Kursus** *Courses*	**Bil. Kursus** *No. Of Courses*	**Peserta JAS** *DOE Participants*	**Peserta Luar** *Other Participants*	**Bil. Hari Latihan** *No. Of Training Days*
1.	Pengurusan Kualiti Udara *Air Quality Management*	6	196	-	18
2.	Pengurusan Kualiti Air *Water Quality Management*	2	47	-	10
3.	Undang-Undang Alam Sekitar dan Penguatkuasaan *Environmental Legislation and Enforcement*	6	139	13	19
4.	Perancangan dan Penilaian Kesan Kepada Alam Sekeliling *Environmental Planning and Impact Assessment (EIA)*	6	171	-	23
5.	Pentadbiran dan Pengurusan *Administration and Management*	18	618	-	234
6.	Teknologi Maklumat (ICT) *Information and Communication Technology (ICT)*	4	96	-	13
7.	Seminar dan Persidangan *Seminars and Conferences*	4	297	-	5
	JUMLAH / TOTAL	46	1564	28	322

Jadual 8.2 JAS: Premis Kilang/Tapak Projek Yang Dilawati Oleh Peserta Kursus, 2005
Table 8.2 DOE: Industrial Premises/Project Sites Visited by Participants, 2005

Bil. *No.*	**Premis Kilang / Projek** *Industrial Premises / Project Sites*
1.	Samsung Electronic Sdn. Bhd., Kawasan Perindustrian Tuanku Jaafar, Negeri Sembilan.
2.	Nestle (Malaysia) Sdn. Bhd., Shah Alam, Selangor.
3.	Indah Water Konsortium, Bandar Baru Bangi, Selangor.
4.	Kilang Kelapa Sawit Jugra, Banting, Selangor.
5.	Akademi Laut Malaysia (ALAM), Sungai Udang, Melaka.
6.	Masterjaya Environmental Sdn. Bhd., Sri Kembangan, Selangor.
7.	On Semiconductor SCG Industrial Sdn. Bhd., Seremban, Negeri Sembilan.
8.	Pusat Pemeriksaan Kenderaan Berkomputer Sdn. Bhd. (PUSPAKOM Sdn. Bhd.), Negeri Sembilan Seremban, Negeri Sembilan.
9.	N.S. Cement Sdn. Bhd., Bahau, Negeri Sembilan.
10.	Kualiti Alam Sdn. Bhd., Bukit Nanas, Port Dickson, Negeri Sembilan.
11.	Alam Sekitar Malaysia (ASMA) Sdn. Bhd., Stesen Pengawasan Kualiti Air Sungai *Alam Sekitar Malaysia Sdn. Bhd. (ASMA), River Water Quality Monitoring Station Sungai Batang Labu, Negeri Sembilan.*
12.	Pusat Teknologi Minyak Kelapa Sawit, Kumpulan Kemuning Sdn. Bhd. (POMTEC) *Kumpulan Kemuning Sdn. Bhd., Palm Oil Technology Centre (POMTEC), Labu, Negeri Sembilan.*
13.	HITACHI Air Conditioning Product Malaysia Sdn. Bhd., Kawasan Perindustrian Bangi, Selangor.
14.	AGIBS Revenue Sdn. Bhd. (Lawatan ke tapak projek EIA, Cadangan Pembangunan Perumahan Taman Rekreasi Belia Antarabangsa), Bukit Katil, Melaka *AGIBS Revenue Sdn. Bhd. (EIA site visit to the Proposed Housing Development of International Youth Park), Bukit Katil, Malacca.*

Jadual 8.3 JAS: EiMAS : Latihan Luar Negara, 2005
Table 8.3 DOE: EiMAS : Overseas Training, 2005

Bil. *No.*	**Program** *Programme*	**Penganjur** *Organizer*	**Tarikh** *Date*	**Peserta** *Participants*
1.	Urban Environment Control Management : Capacity Building in Environmental Protection Among ASEAN Countries, Beijing, China	JICA	17 – 30 Jan 2005	En. Abu Bakar Arshad (EiMAS)
2.	JICA – KOICA Joint Training Program on Environmental Protection Technology and Management Against Air Pollution, Jepun / Korea	JICA - KOICA	Korea : 22 Mei – 04 Jun 2005 Japan : 05 – 18 Jun 2005	En. Yahya Atan (JAS Johor)
3.	Capacity Building for Project Staff Regarding Kyoto Mechanism, Jepun	JICA	13 Jun – 31 Jul 2005	En. Hamzah Mohamad (JAS Putrajaya)
4.	Minamata Disease Workshop, Jepun	Earth, Water & Green Foundation, Japan	21-26 Mac 2005	Pn. Rozita Yunus (JAS Kelantan)/ En. Maidy Peter (JAS Sabah)
5.	Environmental Improvement on Automobile Technology and Policy, Japan	JICA	14 Jun – 06 Ogos 2005	En. Mohd. Zaidi Hassan (JAS Selangor)
6.	The International Environmental Policy Training Course, National Institute of Environmental Research, Korea	National Institute of Environmental Research Republic of Korea	13 Jun – 08 Jul 2005	Pn. Halimah Taib (EiMAS) En. John Rampai (JAS Putrajaya) Pn. Raseli Mat Lazim (JAS Putrajaya)

Jadual 8.3 JAS: (samb)
Table 8.3 DOE: (cont))

Bil. *No.*	**Program** *Programme*	**Penganjur** *Organizer*	**Tarikh** *Date*	**Peserta** *Participants*
7.	International Training Course on Industrial Ecology and Environment, Thailand	Royal Thai Government & The Colombo Plan	05 – 23 Sept 2005	Cik Sharifah Zakiah Syed Sahab (JAS Putrajaya)
8.	Management and Development of Executive Officers at Central Officials Training Institute (COTI), Korea	Central Officials Training Institute (COTI)	29 Ogos – 16 Sept 2005	En. Salahuddin Sidik (JAS Sarawak)
9.	JICA – KOICA Joint Training Programme on Restoration of Freshwater Environment by ECO – Sound Technology	JICA, KOICA	16 Okt – 12 Nov 2005	Cik Norina A/K Frederick Sambang (JAS Miri)
10.	UNEP Training Workshop on Environmental Law, Bali, Indonesia	UNEP	16 -19 Okt 2005	Pn. Zuraini Ahmad Tajuddin (JAS Selangor)
11.	Korea Environmental Industry Association Conference, Korea	KEIA – Korea Environmental Industry Association	08 – 15 Nov 2005	En. Abdul Aziz Chik (JAS Sandakan)
12.	Training Workshop on Multilateral Environmental Negotiation, Bangkok, Thailand	UNEP, UNITAR, ROAP	7 – 11 Nov 2005	Pn. Nor Hayati Yahaya (JAS Putrajaya)
13.	Capacity Building in Environmental Protection Among Asian Countries, Beijing, China	JICA	13 – 27 Nov 2005	Pn. Norlin Jaafar (JAS Putrajaya)

Gambarfoto 8.1 JAS: Peserta Kursus Asas Perkhidmatan (Gred C41)
Photo 8.1 DOE: Basic Service Course Participants (Grade C41)

Gambarfoto 8.2 JAS: Peserta Kursus Mengenai 'Prosedur Import, Eksport dan Pengurusan Buangan Terjadual'
Photo 8.2 DOE: Participants at Workshop on 'Import, Export and Management of Scheduled Wastes'

Gambarfoto 8.3 JAS: Aktiviti Kembara Kursus Induksi Khusus (Gred C27), Port Dickson
Photo 8.3 DOE: 'Kembara' Activity at Induction Course (Grade C27), Port Dickson

Gambarfoto 8.4 JAS: Lawatan Sambil Belajar ke Tapak Projek EIA, Melaka
Photo 8.4 DOE: Study Visit to EIA Project Site, Malacca