

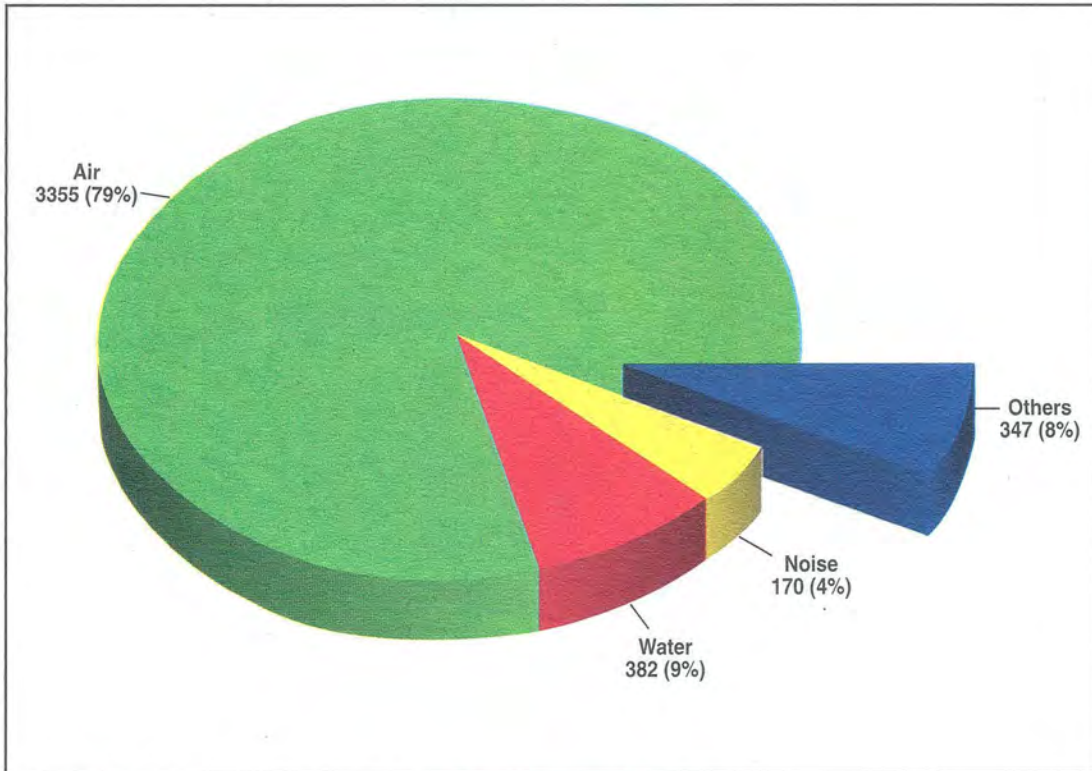


Figure 4.20 Malaysia: Types of Complaint Received, 1997

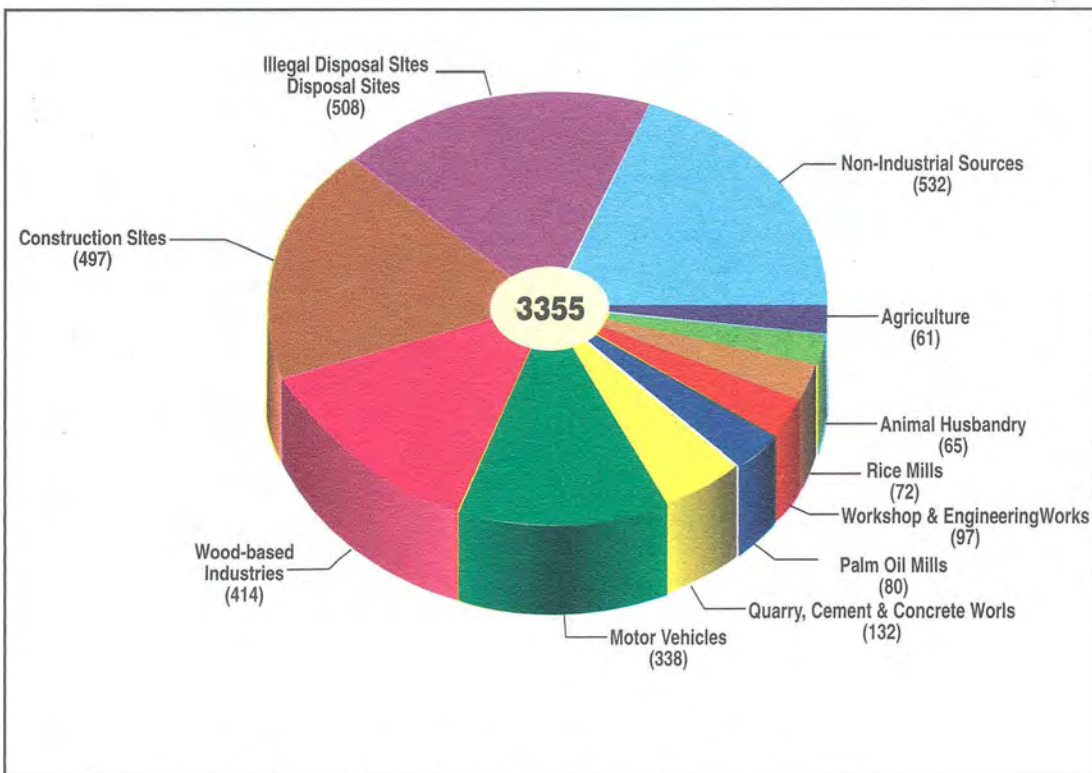


Figure 4.21 Malaysia: Sources of Air Pollution Complaints, 1997

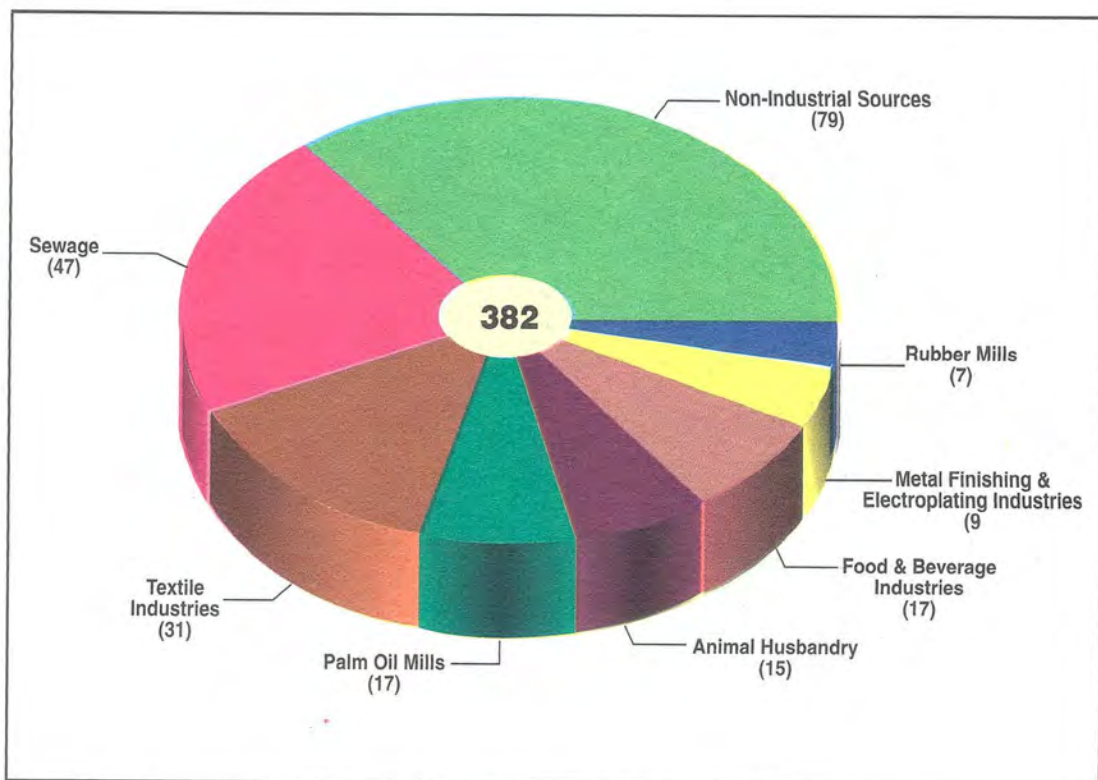


Figure 4.22 Malaysia: Sources of Water Pollution Complaints, 1997

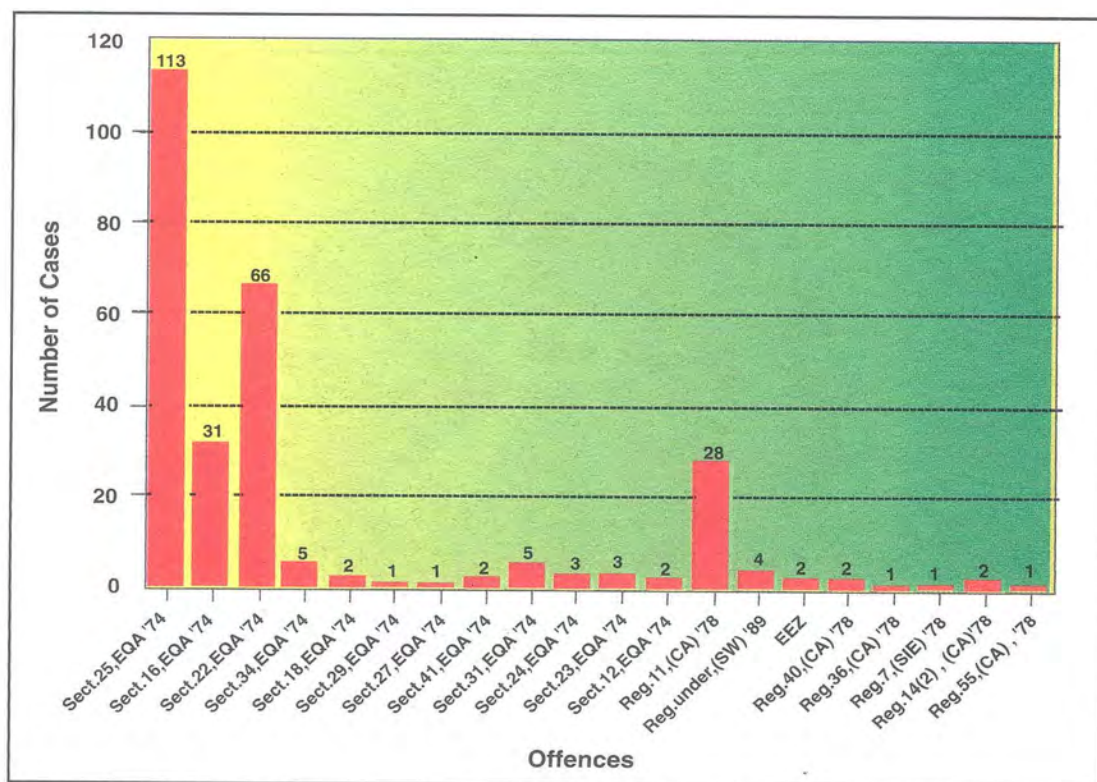


Figure 4.23 Malaysia: Number of Cases Prosecuted according to Offences, 1997

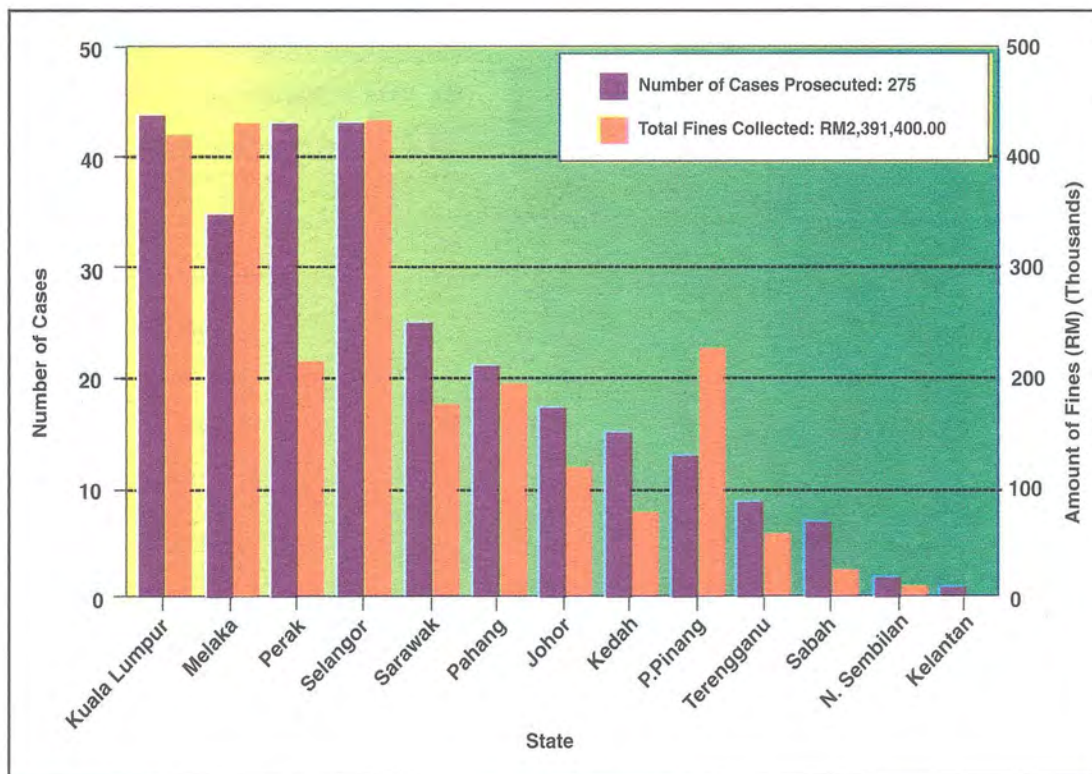


Figure 4.24 Malaysia: Cases Prosecuted and Fines Imposed by State, 1997

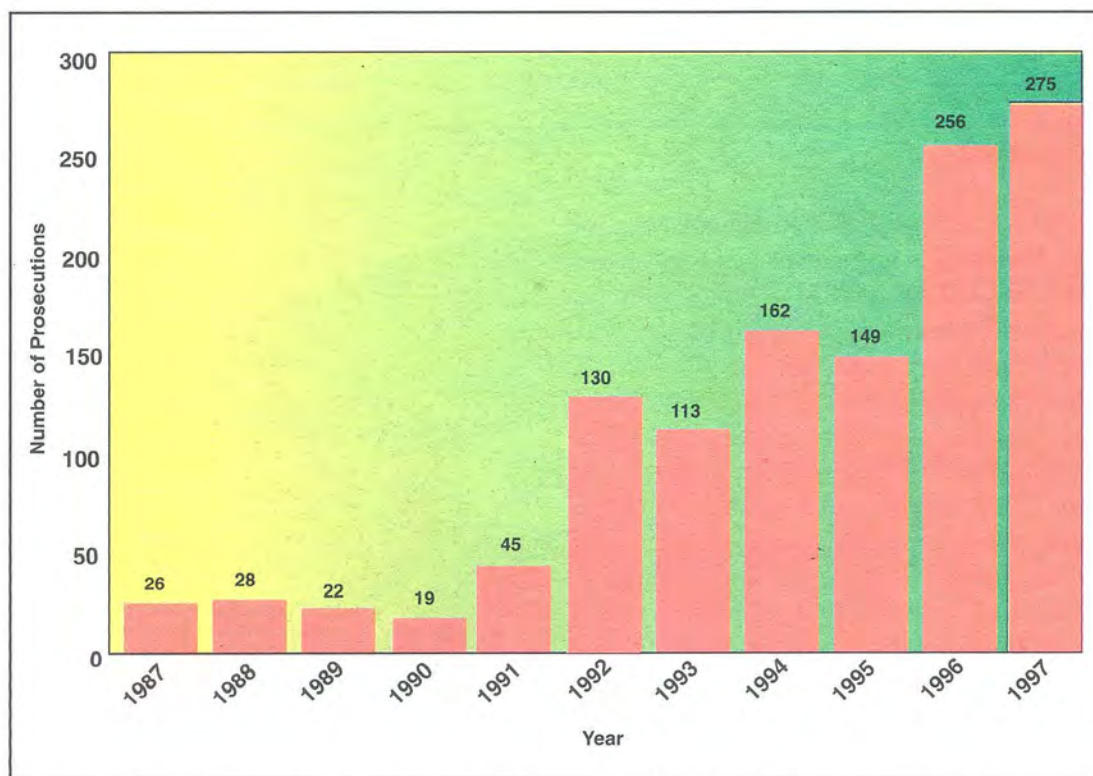


Figure 4.25 Malaysia: Number of Offences Prosecuted under the Environment Quality Act, 1974 and Regulations made thereunder, 1987-1997

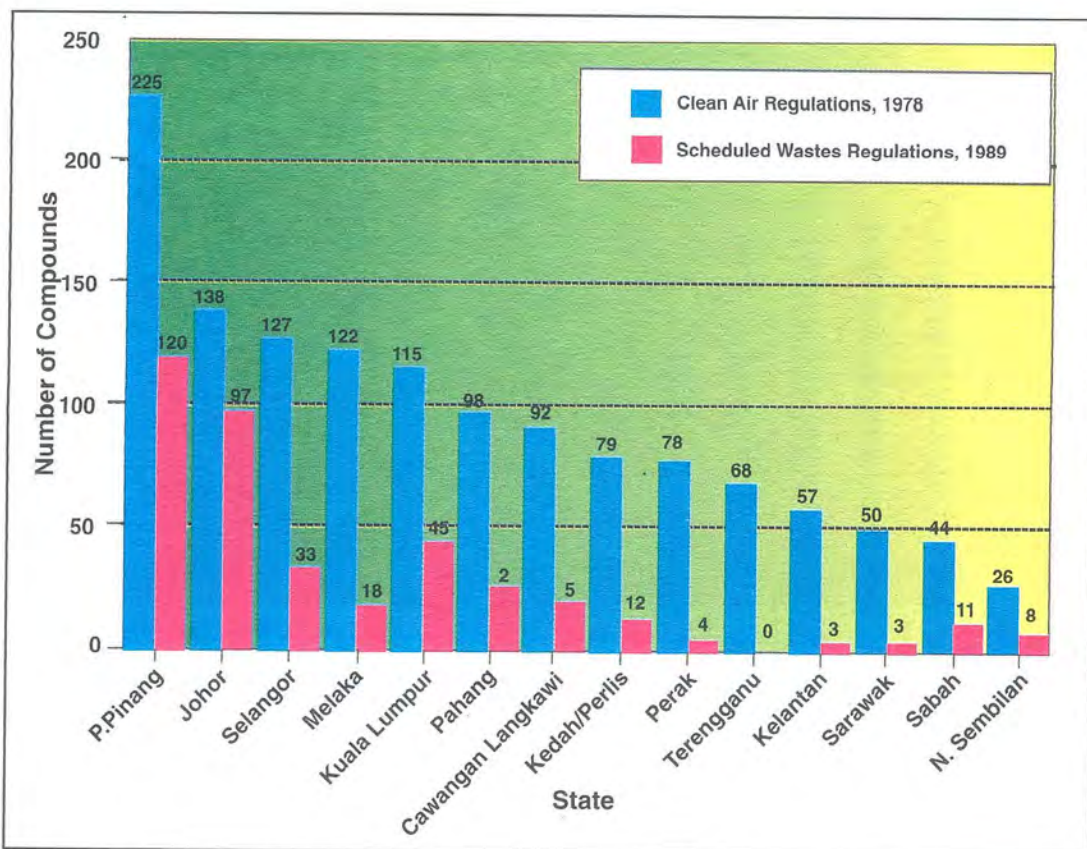


Figure 4.26 Malaysia: Number of Compounds Issued by State and Type of Offences, 1997

Compounds

In 1997, a total of 2684 compounds were issued to premises and companies for various offences. A total of RM 2,062,950.00 in compound fines were collected. Of the total 80 percent were cases involving offences contravening the Environmental Quality (Clean Air) Regulations 1978 pertaining to open burning offences, while the remaining 20% were offences involving scheduled wastes handling as shown in Figure 4.26. Compounds issued under the Environmental Quality (Control of Emission From Diesel Engines) Regulations 1996 totalled 6088 and RM2,552,805.00 in fines were collected. This was largely due to the amendment to the Act which increased the quantum for maximum compound from RM500.00 to RM2000.00 (Figures 4.27 and 4.28).

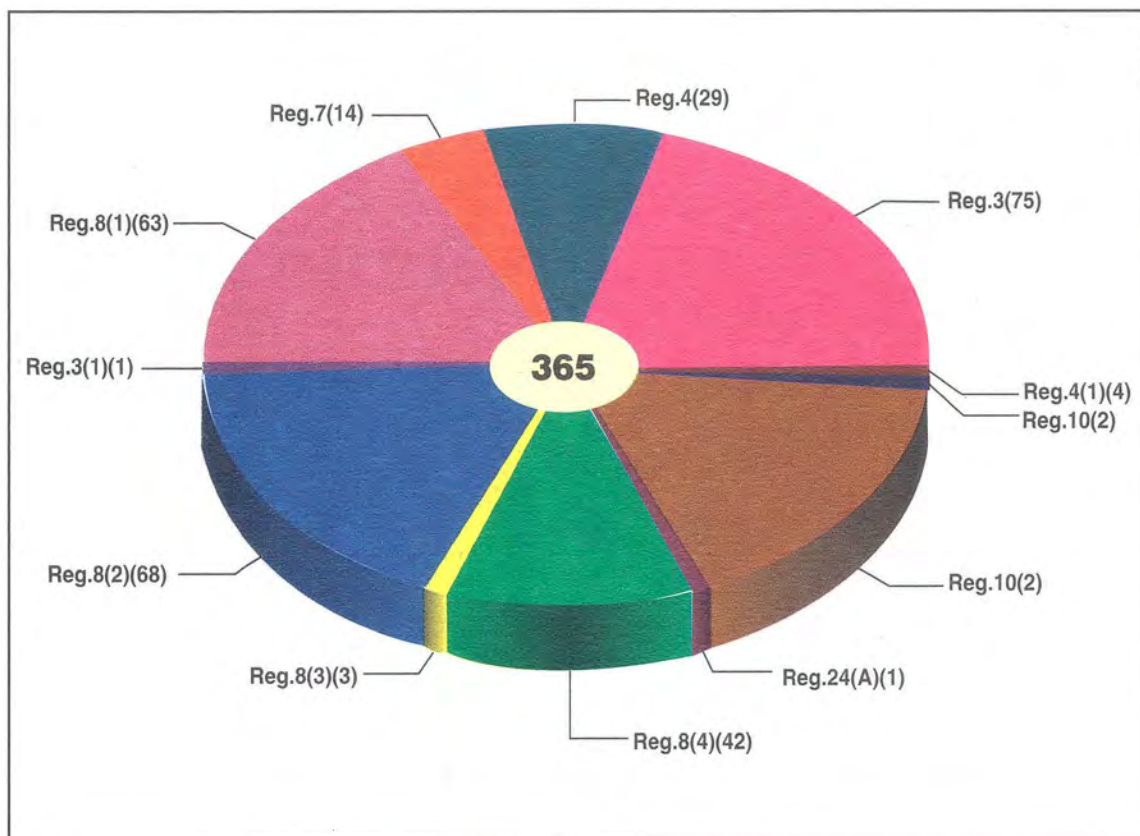


Figure 4.27 Malaysia 1997: Cases Compounded under the Environmental Quality (Scheduled Wastes) Regulations 1989

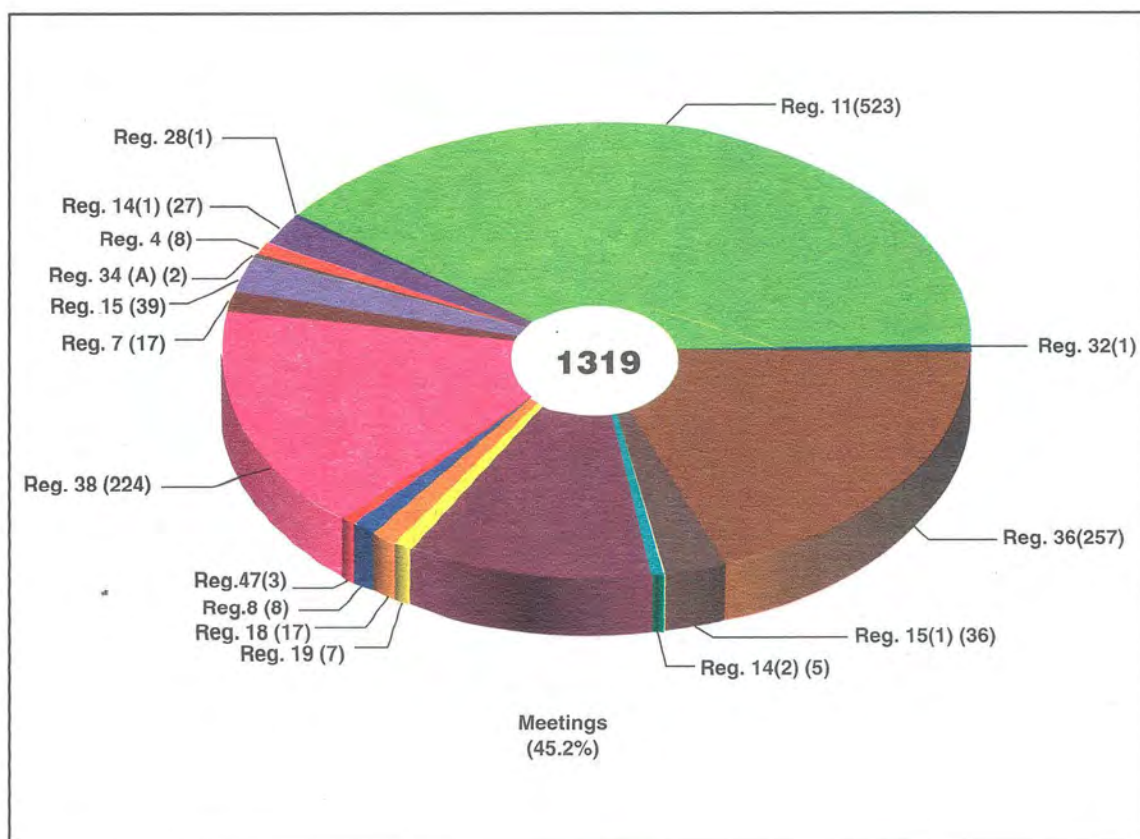


Figure 4.28 Malaysia 1997: Cases Compound under the Environmental Quality (Clean Air) Regulations, 1978

Environmental Assessment

Chapter 5



ENVIRONMENTAL ASSESSMENT



Environmental Impact Assessment (EIA) has been promoted as a planning tool for better environmental management. It also serves as the first line defence against environmental degradation before the implementation of development projects, where impacts are assessed, mitigation measures recommended and environmental management plans proposed.

In assessing impacts, various techniques, including models are used. A variety of techniques can be used depending on preferences and acquisition cost which need not necessarily be the best. However in using these models, be it dispersion or hydraulic models, some degree of transparency must be apparent in terms of assumptions, boundary conditions and applicability to local conditions as such models have been developed in other countries. There should also be some level of confidence in using such models as decisions will be made based on the findings which ultimately lead to the question of the expertise of assessors.

From some of the EIA reports received in 1997, it was clear that the level of professionalism could be further improved in terms of accountability and areas of expertise. Due to lack of specialized expertise the quality of some of these reports were found wanting.

In order to ensure that the EIA process becomes an effective planning tool, post-EIA monitoring and enforcement need to be carried out. It is useful in enhancing the effectiveness of the EIA process by reviewing how the predictions and recommended mitigation measures actually work on the ground, and to identify what needs to be done to rectify the deficiencies.

In 1997, the issues of qualification and experience of EIA consultants, post-EIA enforcement and the review process were given due attention in order to enhance the EIA process.

Registration of EIA Consultants

The registration of EIA consultants was administratively initiated in 1994 to ensure quality, professionalism and accountability of EIA consultancy services. To date 216 individuals and 63 firms have been registered with the Department of Environment to undertake EIA. However this does not preclude others from submitting EIA reports. Various shortcomings had been identified such as poor quality work due to non-specialized areas of expertise and no provision for delisting. To overcome this inadequacy the Department has proposed that the registration of EIA consultants be made mandatory. The proposal was tabled at the 66th Meeting of the Environmental Quality Council and had received its support. The draft amendment to the EIA Order has been submitted to the Attorney General's Office.

The amendment will include new criteria for registration based on academic and professional qualifications, training and practical experience. A Code of Practice defining consultant's responsibilities will also be introduced. There is also a proposal to include provisions for deregistration arising from genuine complaints of malpractices or breach of the Code of Practice.

EIA report review checklist

To ensure uniformity and greater transparency, a checklist on the minimum requirements for an EIA report was drawn up to supplement existing specific EIA guidelines. This checklist was discussed at a dialogue on 20 March 1997 with 80 EIA consultants. Subsequent to this dialogue, another meeting was held to further streamline the checklist and their views were incorporated in the final checklist. However the checklist will be used only as a guide and EIA reports will continue to be reviewed based on its contents and depth in addressing core issues namely, impact identification and assessment, mitigation measures, etc.



A formal training course on the review of EIA reports was conducted for the first time to increase the level of competency of DOE officers and also to gauge the effectiveness of the checklist. Initial feedback indicated that the checklist had provided some improvement in the quality of the reports and some degree of consistency in the review process.

EIA approval conditions

EIA approval conditions are imposed to minimise and mitigate impacts that might arise from the project. In setting conditions the main criteria will be the fulfillment of the legal requirements under the Environmental Quality Act 1974 and its subsidiary regulations. As environmental quality transcends departmental jurisdictions, conditions beyond the ambit of the EQA are also imposed i.e after consultation with the relevant departments to ensure adequate comprehensive environmental protection. In this regard these relevant department are expected to play their part in enforcing those conditions. A workshop participated by the relevant departments had been held to discuss these issues and a set of guidelines had been drawn to ensure that conditions imposed are consistent with existing regulations and codes of practice and are specific to facilitate compliance and enforcement purposes.

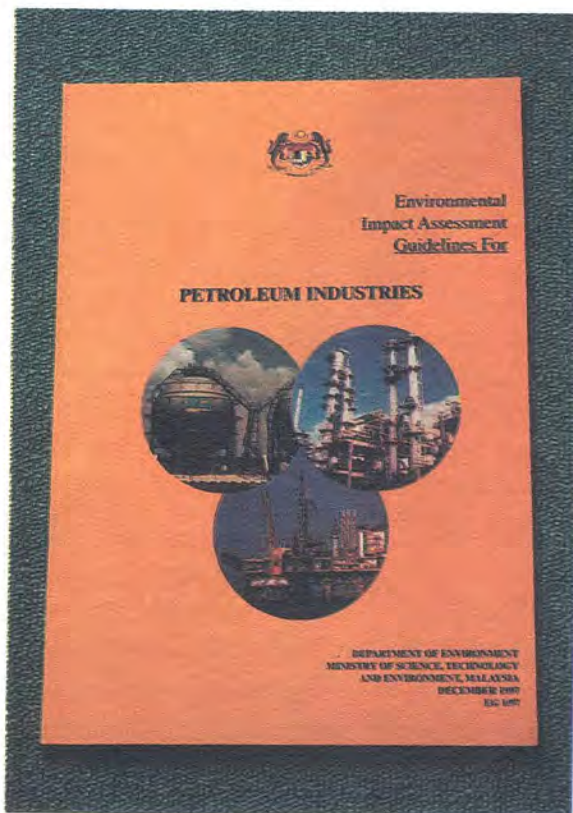
During the construction and operation phases of a project, post-EIA and compliance monitoring must be carried out to ensure adequate mitigation measures are implemented. However based on past experience, where approval conditions were not adhered to resulting in air and water pollution, soil erosion and flooding problems, there was a need for a more systematic and structured post-EIA monitoring procedure. A workshop was conducted for DOE officers to familiarize with monitoring techniques and also to establish procedures for sampling, including critical parameters, sampling frequencies and reporting format.

EIA Specific Guidelines

Specific EIA Guidelines were prepared to supplement the Handbook of Environmental Impact Assessment Guidelines, first published in 1987 and revised in 1995. Through the use of these specific guidelines, EIA consultants, project proponents and operators would understand better the basic requirements of EIA, the selection of alternatives, mitigation measures as well as post-EIA compliance responsibilities. To date 17 of these guidelines have been prepared and published. Two more guidelines for land reclamation and forestry are under preparation.

Administrative EIA

Several States such as Selangor, Pahang, Perak, Melaka, Sabah, Pulau Pinang dan Kelantan have made it an administrative requirement to conduct EIA for development of highland, ex-solid waste dumping grounds and ex-mining land before approval. In Sarawak construction of buildings exceeding 4 storeys on hill land with slopes of 20° or more and establishment of golf courses are subjected to the Natural Resources and Environment (Prescribed Activities) Order 1994. The Selangor State Government had taken a step further by requiring a macro EIA be undertaken for a mixed development project in a hilly terrain covering an area of 300 hectares involving 5 developers. The Department also recommended to the relevant Perak State Government authorities that an EIA should be carried out for the Bukit Larut development, that had received a lot of public attention although the development was not subjected to the EIA Order, 1987.



Environmental Impact Assessment Guidelines for Petroleum Industries



EIA Specific Guidelines

EIA REPORTS PROCESSED

In 1997 the number of EIA reports showed an increase as compared with 1996. A total of 414 reports were received, the highest recorded since 1988 (Figure 5.1). Realizing the need for greater public participation for informed decision, 1997 also saw the most number of detailed EIA reports processed since the coming into force of the EIA Order. (Figure 5.2 to Figure 5.4)

Preliminary Reports

As in the previous year, housing development activity again top the list with 96 reports. This was followed by infrastructure development including mixed development which total 74 reports. The quarrying sector was also active where 73 reports were received compared to 61 in 1996. However there were no report received for drainage and irrigation, fisheries and water supply activities.

Detailed Reports

A total of 9 detailed EIA reports were received in 1997. These were:

- Sea-front reclamation involving an area of 250 hectares in Kuantan, Pahang (PASDEC Corporation);
- Manufacture of industrial grade paper in Parit Jerman, Perak (MPI Paper Mill Sdn Bhd);
- Seafront reclamation involving an area of 400 hectares in Lekir, Perak (Desa Kilat Sdn Bhd);
- Seafront reclamation involving an area of 789 hectares in Bagan Datoh, Perak (Innovest Bhd);
- Cold rolling and continuous galvanizing, colour coating and electro galvanizing lines of steel plant in Ayer Keroh, Melaka (Ornasteel Sdn. Bhd.);
- Expressway construction involving land reclamation in Penang (Jelutong Expressway Sdn Bhd);

- Lead recovery from automotive battery in Pulau Indah, Selangor (Metal Reclamation Sdn Bhd);
- 2100 MW coal-fired power plant in Manjung, Perak (TNB Jana Manjung Sdn Bhd); and
- Sea -front reclamation in Kedah * involving an area of 20,390 hectares along 110 km of coastline from Kuala Sanglang to Kuala Muda, Kedah (Kedah State Government).

By the end of the year, 4 reports were approved and the remaining five pending, mainly due to insufficient information. Public participation in the review of detailed EIA reports was still very much lacking. From the 9 reports, only 16 comments from the public were received for industrial projects.

Enforcement of EIA projects

A stop work order was issued to a project proponent for failure to comply with EIA conditions. Remedial measures were imposed to be instituted before the order was lifted. The proponent was brought to court and fined RM40,000. Development of highland areas was closely monitored due to its sensitive nature. In 1997, a total of 371 enforcement visits were

carried out, resulting in 262 notices issued and 16 cases filed in court for non-compliance of EIA conditions (Figure 5.5).

ENVIRONMENTAL INPUT TO DEVELOPMENT PLANNING

The Department provided environmental input to development plans, policies and studies initiated by other agencies. These were:

- Study on modernisation of water management in padi areas;
- Sungai Petani drainage master plan study, Kedah;
- Study on coastal zone management for Daro Mukah, Sarawak; and
- National Wetland Policy.

The Department also assisted in the formulation of environmental guidelines for the Multimedia Super- Corridor undertaken by the Town and Country Planning Department.



Erosion Prevention and Control Measures: Terracing /Benching

Slope terracing consists principally of transforming relatively steep land (20-50% slopes) into a series of level or nearly level strips, or steps, running across the slope.



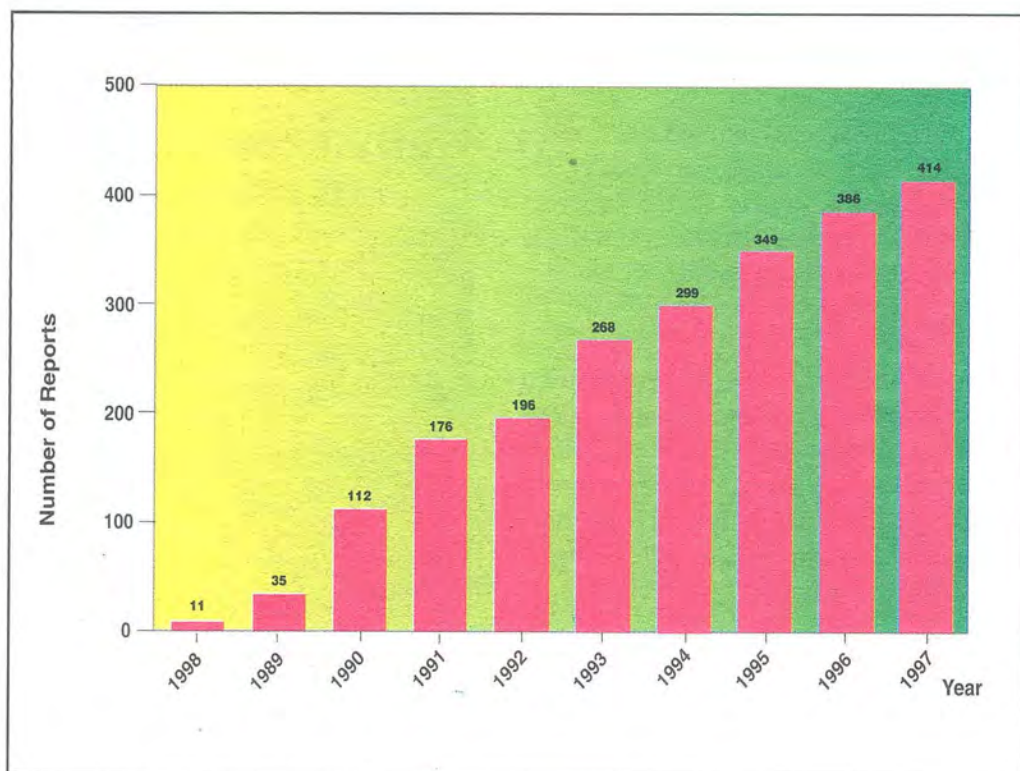


Figure 5.1 Malaysia: Department of Environment: Distribution of EIA Reports, 1988-1997

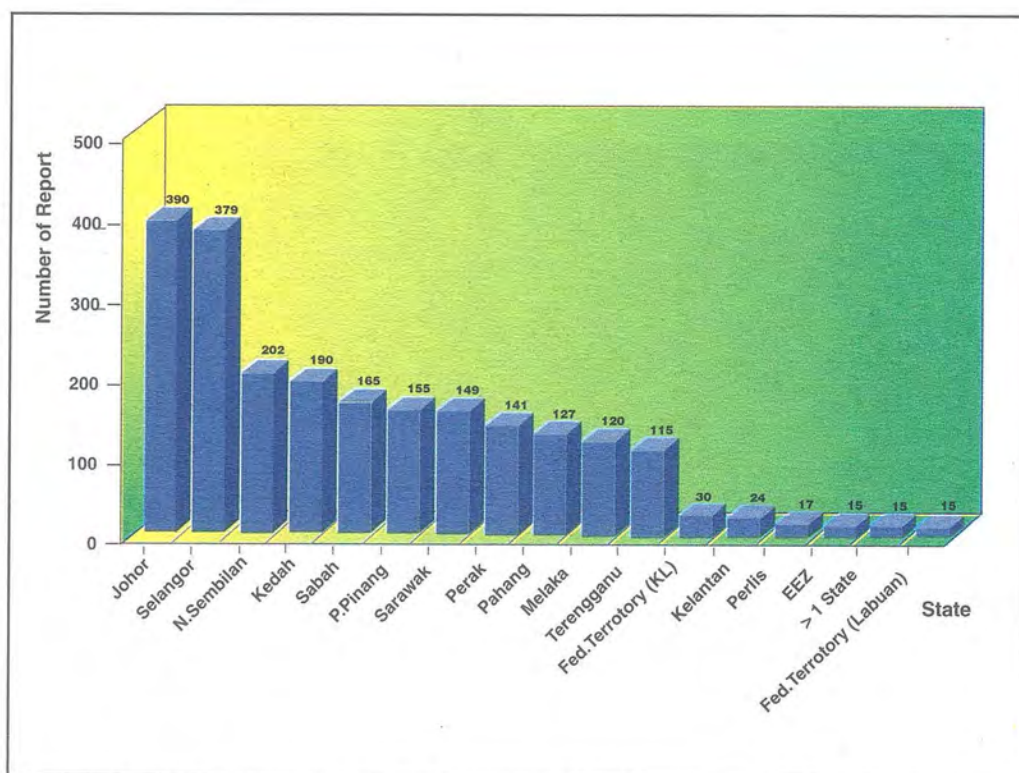


Figure 5.2 Malaysia: Department of Environment: Distribution of EIA Reports By State, 1988-1997

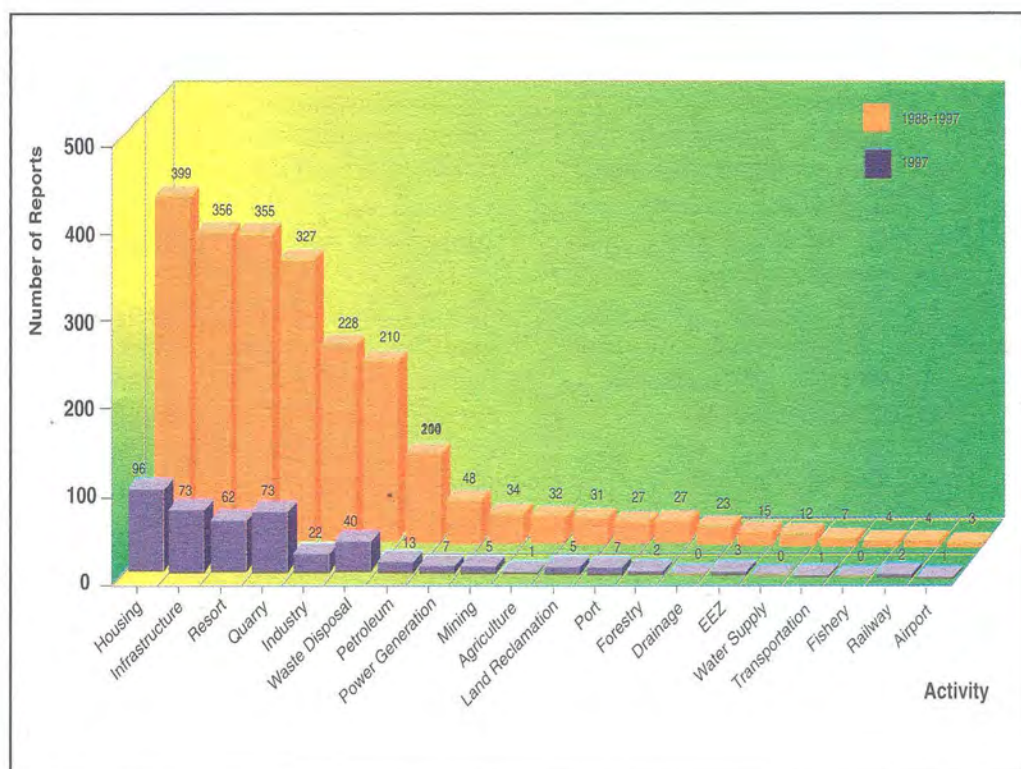


Figure 5.3 Malaysia: Department of Environment: Number of EIA Reports by Category of Activity, 1988-1997

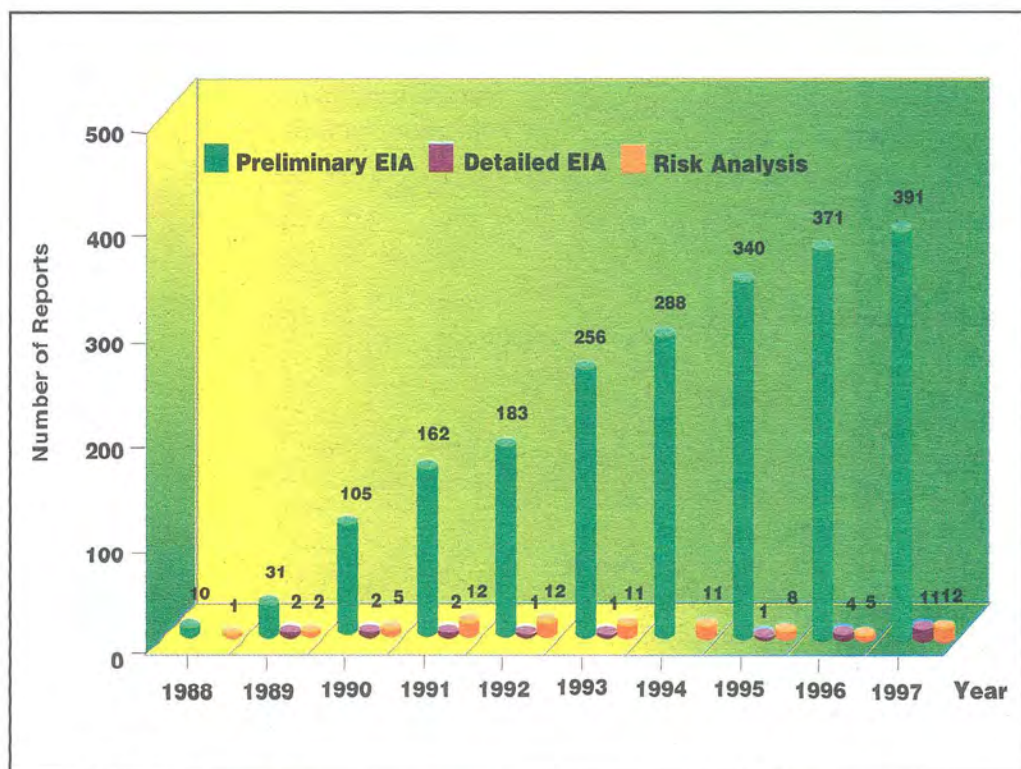


Figure 5.4 Malaysia: Department of Environment: Type of EIA Reports, 1988-1997

Geographical Information System (GIS)

The development of digital database was the main activity of the GIS Section in 1997. Mapping of EIA projects for two States, namely Negeri Sembilan and Terengganu was completed. Apart from development of digital database, inputs in the form of maps were produced to support the activities of other Sections of the Department. These were:

- map of land clearing in the District of Gombak, Selangor, to identify potential soil erosion areas
- map on the distribution of water quality monitoring stations and water treatment plants within the Sungai Langat (Selangor) catchment area to identify potential pollution sources
- map of hotspots based on the United States National Oceanic and Atmospheric Administration (NOAA) images during the haze episode.

An oil spill response support system using GIS functions for Negeri Sembilan was completed. This was part of the Coastal Zone Environmental and Resources Management Project (CZERMP) supported by the ASEAN-Australia Economic Cooperation Programme. The system was further enhanced by interfacing with the existing oil spill trajectory model.

Pre-Siting Evaluation

In 1997, a total of 7931 applications were received to determine the site suitability of development projects vis-a-vis other land use in particular residential areas. Proper siting especially of industrial projects is important to ensure that residual pollution would not create problems which can give rise to complaints. The number of applications received is as shown in Figure 5.6.

Approval of Wastewater Treatment Plant

The Department received 764 applications for the construction of wastewater treatment plants. The total volume of wastewater capable of being treated by these facilities was estimated to be 74408.5 m³/day.

Approval of Fuel Burning Equipment

The number of fuel burning equipment applications processed in 1997 showed an increase of 31% as compared to 1996. With the installation of 1455 equipment, it was estimated that an additional 789 tonnes/day of liquid fuel and 292 tonnes/day of solid fuel would be consumed.

DOE ADVISORY UNIT AT MIDA

The DOE Advisory Unit at MIDA was established to provide foreign and local investors with information and advice on environmental requirements in Malaysia. Table 5.1 shows the number of investments approved for 1997 compared to 1996. From the 754 projects approved, it was estimated that RM 3.0 million would be spent on pollution control and RM135 million would be spent on pollution protection measures.



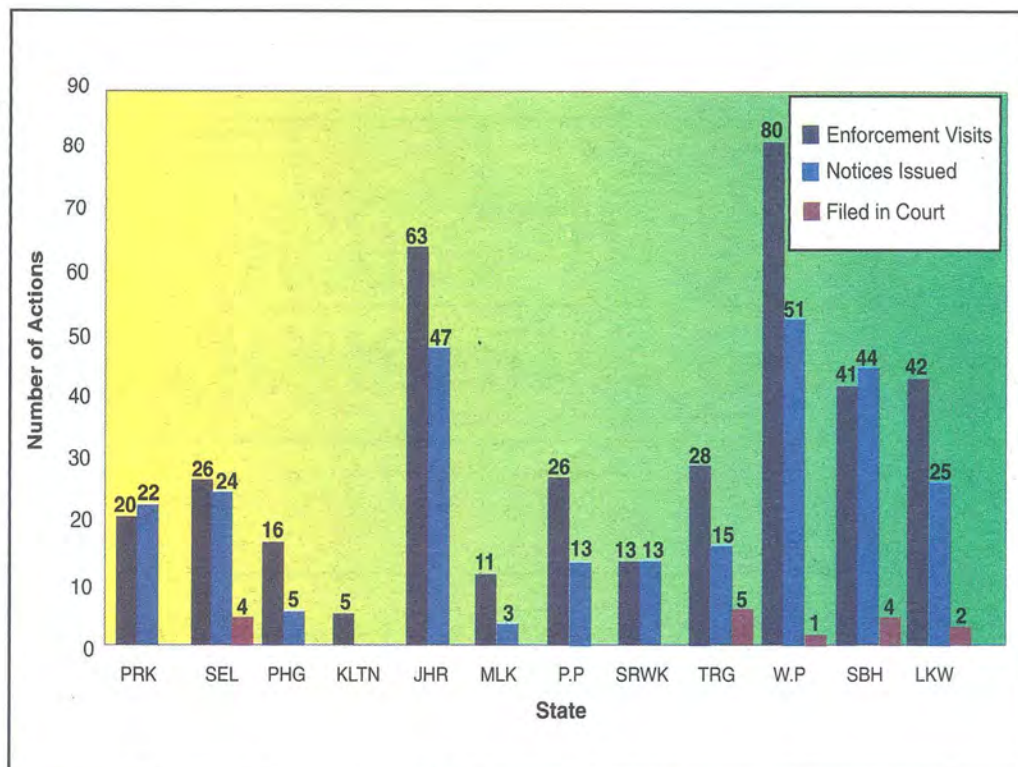


Figure 5.5 Malaysia: Department of Environment: Enforcement Visits, Notices Issued and Court Cases by State, 1997

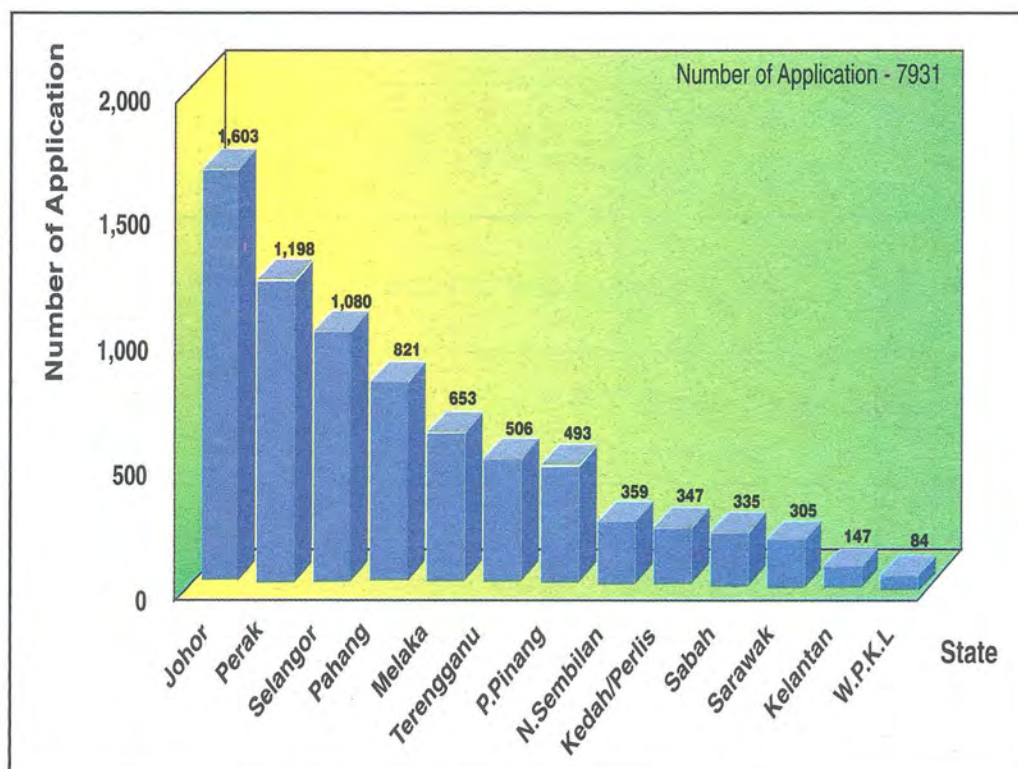


Figure 5.6 Malaysia: Applications for Pre-siting Evaluation of Development Project by State, 1997.



Table 5.1 Malaysia: Projects Approved By Industry, 1997 and 1996

INDUSTRY	NUMBER		POTENTIAL EMPLOYMENT		PROPOSED CALLED-UP CAPITAL		LOAN (RM MILLION)		TOTAL PROPOSED CAPITAL INVESTMENT (RM MILLION)	
	1997	1996	1997	1996	1997	1996	1997	1996	1997	1996
Petroleum Products (IncPetrochemicals)	7	16	1,349	1,749	1,964.70	1,087.00	4,856.90	2,796.40	6,551.60	3,883.40
Electrical & Electronic Products	186	215	22,636	37,865	2,275.20	4,010.40	3,928.50	9,051.50	6,203.70	13,061.90
Basic Metal Products	39	39	3,139	3,015	1,112.70	463.1	2,649.10	731.7	3,761.80	1,194.80
Non-Metallic Mineral Products	61	35	3,332	2,809	400.6	637.3	1,190.40	2,700.70	1,591.00	3,338.00
Chemicals & Chemical Products	50	44	2,576	1,286	419.4	203.7	903.3	830.8	1,322.70	1,034.50
Transport Equipment	48	46	7,476	4,067	771.2	387.7	255.5	795.7	1,026.70	1,183.40
Fabricated Metal Products	48	60	3,698	5,231	326.4	436.5	674.3	535.1	1,000.70	971.6
Paper, Printing & Publishing	24	29	1,855	4,168	174.4	1,598.20	639.1	2,586.60	813.5	4,184.80
Machinery Manufacturing	49	60	2,976	5,020	250.5	312.7	439.4	264.3	689.9	577
Plastic Products	41	52	2,743	3,906	168.5	124.4	447.3	257.7	615.8	382.1
Food Manufacturing	54	30	3,581	2,620	184.8	117.6	356.2	258.5	541	376.1
Wood & Wood Products	31	51	4,230	7,452	120.7	225	357.5	597.6	478.2	822.6
Rubber Products	19	14	2,789	1,984	44.9	178.3	240.1	62.8	285	241.1
Textiles and Textiles Products	30	38	3,807	95.6	132.8	181.4	346.7	277	479.5	155.3
Furniture & Fixtures	35	30	4,597	3,924	78.7	56.7	187.4	98.6	266.1	29
Beverages & Tobacco	8	3	440	212	10.1	9.9	208.4	19.1	218.5	61.6
Scientific & Measuring Equipment	6	6	325	1,305	3.5	11.5	4.7	50.1	8.2	21.8
Leather & Leather Products	1	2	137	235	1	7	5.7	14.8	6.7	2,137.00
Natural Gas	-	1	-	402	-	2,137.00	-	-	-	122.1
Miscellaneous	17	11	1,252	834	40.2	48.1	65.1	74	105.3	
TOTAL	754	782	71,285	91,891	91,173.10	12,184.90	17,590.30	22,072.725	25,763.40	34,257.60

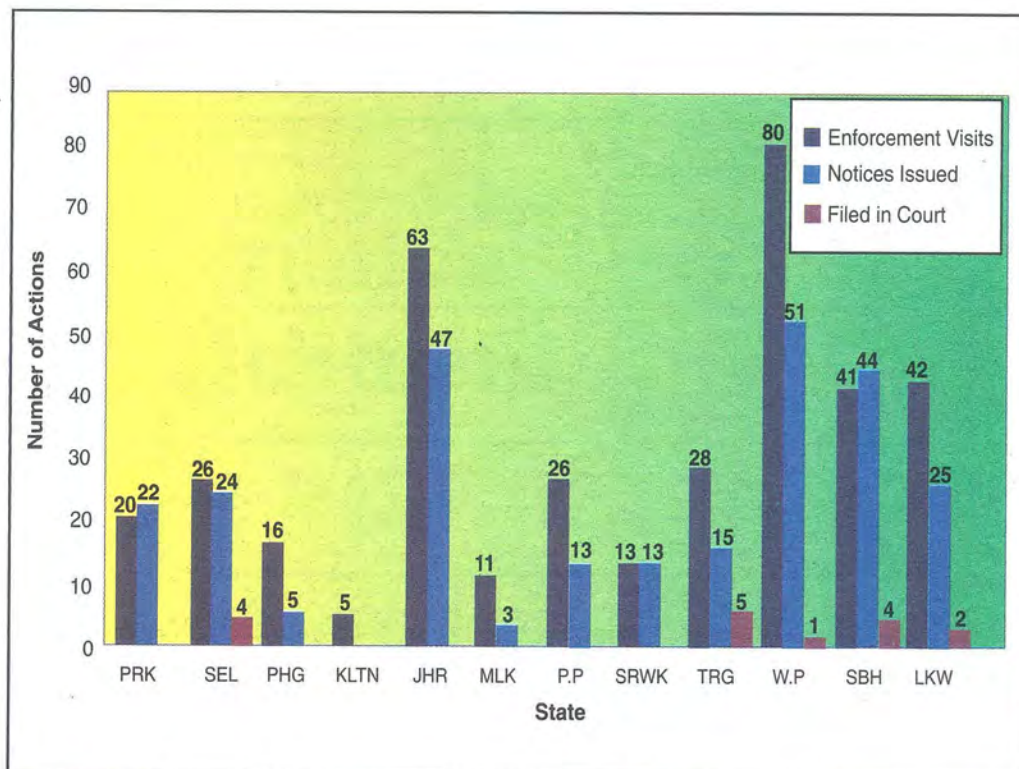


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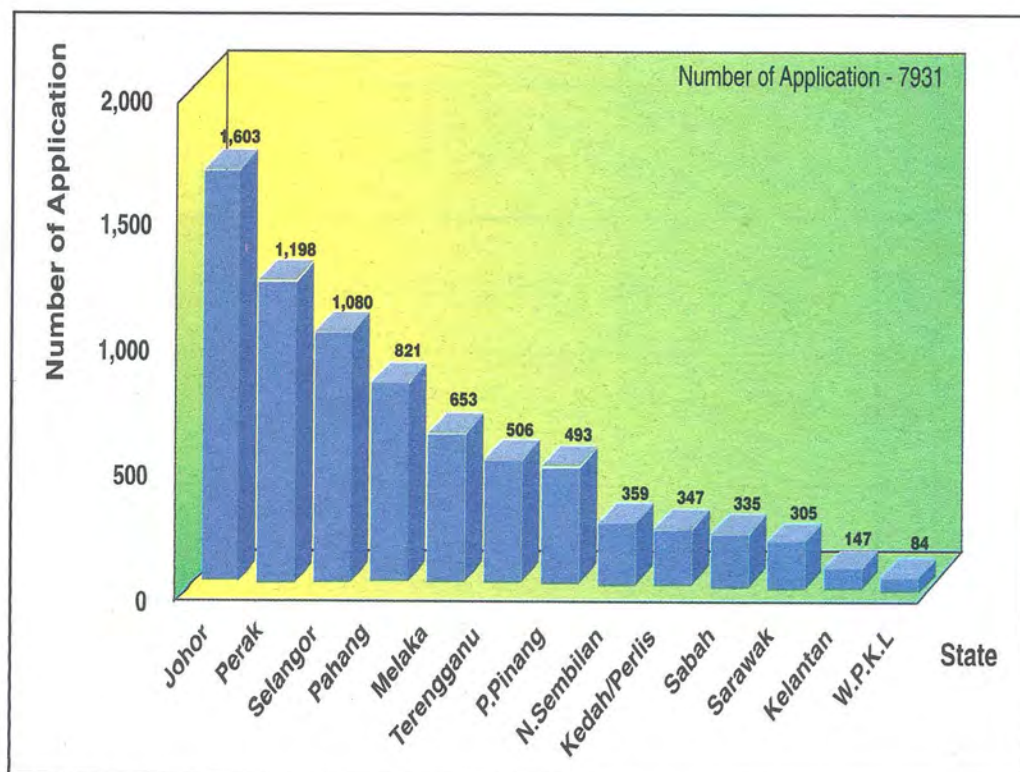


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Miscellaneous	17	11	1,252	834	40.2	48.1	65.1	74	105.3	122.1
TOTAL	754	782	71,285	91,891	91,173.10	12,184.90	17,590.30	22,072.725	25,763.40	34,257.60

Programme Development

Chapter 6



REVIEW AND FORMULATION OF REGULATIONS



The Department of Environment continued to give emphasis to the development of new regulations as well as reviewing existing regulations, addressing emerging environmental issues in order to strengthen the legal and regulatory framework for environmental protection and management in the country. Priority was given to the formulation of new regulatory control as provided for under the Environmental Quality (Amendment) Act 1996 which came into force on 1 August 1996. Preliminary work was carried out with respect to the environmental fund and imposition of cess, rebate and deposit schemes, hazardous substances, environmental audit and prohibition order for prescribed circumstances.

As part of the continuing effort to disseminate information on the new provisions and amendments in the Environmental Quality Act 1974, the Department organised a number of one-day workshops in collaboration with ENSEARCH Malaysia. A workshop was organized on 25 March 1997 in Johor Bahru which attracted about 100 participants from industries, consultancy firms and professional bodies. Workshops were also organised in Kuching, Sarawak on 26 August 1997 and in Kota Kinabalu, Sabah on 27 August 1997 which also attracted many interested industrialists, consultants, professionals and government officials.

The draft regulations in relation to strengthening legislative requirements pertaining to specific issues of inland and marine water pollution due to the discharge of effluents from the metal finishing industries and indiscriminate disposal of tanker sludges were further fine-tuned taking into consideration the various comments received.

The review of existing regulations which started in 1996 was continued into 1997, including the review on the Environmental Quality (Sewage and Industrial Effluents) Regulations 1979 and the Environmental

Quality (Clean Air) Regulations 1978. In reviewing these regulations, the Department took cognition of the various interests that would be impacted and thus frequent consultations were held with relevant parties to resolve various issues before the amendments could be finalised. In facilitating the enforcement of a particular provision of the Environmental Quality (Sewage and Industrial Effluents) Regulations 1979, an amendment was made to the citation of the standard methods of analysis of effluents, which was gazetted on 16 October 1997.

In addition to the work done to develop or amend regulations under the Environmental Quality Act 1974, a proposal on the environmentally sound management of natural resources was drafted by the Department to address the need for a model legislation to assist State Governments to deal with development of natural resources and its associated environmental issues.

Regular briefings on various aspects of environmental legislation were often carried out at seminars and training courses organised by the department, government agencies, private sector and other institutions such as NGOs.

MANAGEMENT OF CHEMICALS

The Department of Environment hosted a Joint UNEP/OECD Workshop on New Industrial Chemicals Notification and Information Sharing with the support of the Chemicals Inspection and Testing Institute of Japan (CITI) and the United Nations Institute for Training and Research (UNITAR) in Kuala Lumpur on 7 - 9 January, 1997. It was attended by 49 representatives from the Asia-Pacific geographical region, namely Australia, India, Indonesia, Japan, Democratic People's Republic of Korea, Malaysia, the Philippines, Republic of Korea, Singapore, Sri-Lanka, Thailand and Vietnam. There were also representatives from OECD member countries (Germany and United Kingdom), the European Commission, the South Pacific Regional En-

vironment Programme, UNEP, OECD, UNITAR and non-governmental organisations like Business and Industry Advisory Committee (BIAC), industry representatives from the Asia-Pacific region and Worldwide Fund for Nature (WWF). The primary aim of the workshop was to share information on procedures for new industrial chemical notification and assessment and also to learn from the experiences of each other.

Chapter 19 of Agenda 21 outlines elements and possible actions for achieving the sound management of chemicals and the development of a National Profile for sustainable chemical management. In line with this objective the DOE with the cooperation of DANCED (Danish Cooperation for Environment and Development) organised a Logical Framework Approach (LFA) Workshop to identify the areas that needed to be strengthened. This participatory workshop was held on 15 - 18 September 1997 at Genting Highlands and was attended by 34 Malaysian stakeholders comprising of representatives of government agencies, non-governmental organisations and the academia. Five DANCED experts also attended the Workshop.

At the international level, DOE participated at various international forums concerning chemical management .

- Second Session of The Intergovernmental Forum on Safety in Ottawa, Canada, 10 - 14 February 1997. This Forum provides a unique mechanism for co-ordinating global action on all aspects of assessment and management of chemical risks.
- Third Session of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (INC/PIC), in Geneva, 26 - 30 May, 1997 (INC/PIC)

- Fourth Session of the INC/PIC in Rome, 20 - 24 October, 1997.

Both INC/PIC meetings were important platforms for advocating the need to promote shared responsibility and cooperative efforts in international trade of certain hazardous chemicals in order to protect the environment and health.

ENVIRONMENTAL RESEARCH AND DEVELOPMENT

Environmental research and development is an important component of DOE's overall environmental management effort to complement the core activities of the department. The focus for 1997 was on the protection of water and water resources.

Project on Classification of Malaysian Rivers

The Project is an extended phase of the overall DOE programme on the Development of Water Quality Criteria and Standards and the Classification of Rivers in Malaysia. Unit Perundingan Universiti Malaya (UPUM) has been appointed to coordinate an inter-university joint consultancy group to implement the project and is expected to be completed within 18 months from its commencement.

The scope of the project involving 8 critical river basins are:

- river basin inventory covering a wide spectrum of technical information such as landuse, geology, hydrology, socio-economics, pollution sources and pollutant loads, physical-chemical and biological characteristics of the rivers;
- development of appropriate river classification utilising scientifically sound methodologies; and



- setting up databases and technical analysis utilising GIS tools.

Development of River Basin Environmental Management Plan for Sungai Terengganu

The Sungai Terengganu River Basin has been identified as a model for the development of environmental management plans for other river basins in Malaysia besides providing a sustainable framework for water resources management.

A joint consultancy group comprising of Universiti Kebangsaan Malaysia and Universiti Teknologi Malaysia has been appointed to undertake the study. Preliminary work started in 1997 and is expected to be completed within 18 months. The scope of the study includes:

- Identification of problems and causes of river pollution and recommend measures to overcome such problems, particularly at the source;
- Mitigation of environmental impacts arising from existing and future development activities within the basin;
- Rehabilitation of the river to an acceptable water quality;
- Sustainable use of water resources in relation to the beneficial uses of the river basin; and
- Keeping the rivers alive and healthy.

INVENTORY OF SOURCES AND POLLUTION CONTROL TECHNOLOGY

Pollution Sources Inventory

The compilation of data on sources of pollution is an ongoing process to update databases arising from inclusion of new sources.

Information is collected from various sources based on input from relevant agencies and industries concerned. For air pollution inventory, data are processed to determine the pollution load using standard emission factors. Similarly for water pollution, the amount of effluent discharged and the concentrations of pollutants are determined to estimate the pollution loading.

Sources of Air Pollution

The significant sources of air pollution are stationary sources, mobile sources and open burning activities. Emissions from motor vehicles were the principal sources of air pollution (Figure 6.1) as compared to other air pollution sources. The total number of vehicles registered in 1997 were 8,510,976; the Federal Territory of Kuala Lumpur having the highest number (1,728,354), followed by Johor (1,185,454) and Selangor (1,111,369) and the least in Perlis (29,423).

The number of stationary sources identified by DOE increased from 9,415 in 1996 to 10,619 in 1997 (Figure 6.2). The most number of stationary sources were found in Johor (2252) followed by Selangor (2176), Sarawak (1179) and Perlis had the least number of stationary sources (54).

Air Pollution Load

Figure 6.3 shows percentage distribution by major air pollution sources between 1993 to 1997. In terms of percentage distribution (combined estimated emissions of carbon monoxide, hydrocarbon, oxides of nitrogen, sulphur dioxide and particulate matter), 81 % came from motor vehicles, 8 % from power stations, 6 % from industrial fuel usage, 3 % from open burning practices at solid waste disposal sites, 1.4% from industrial process and 0.6% from domestic fuel usage.

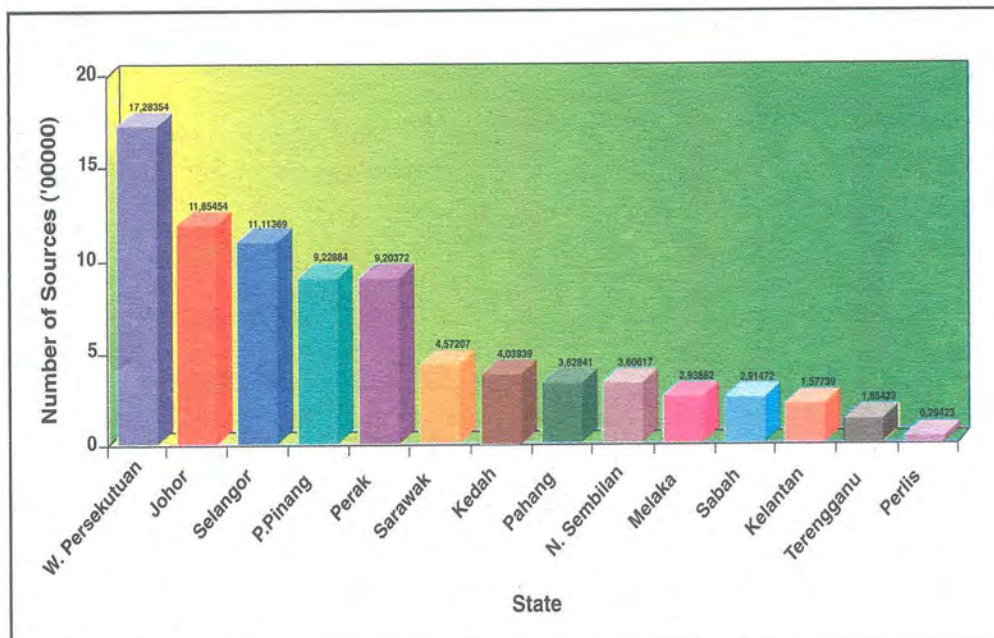


Figure 6.1 Malaysia: Number of Mobile Sources by State, 1997

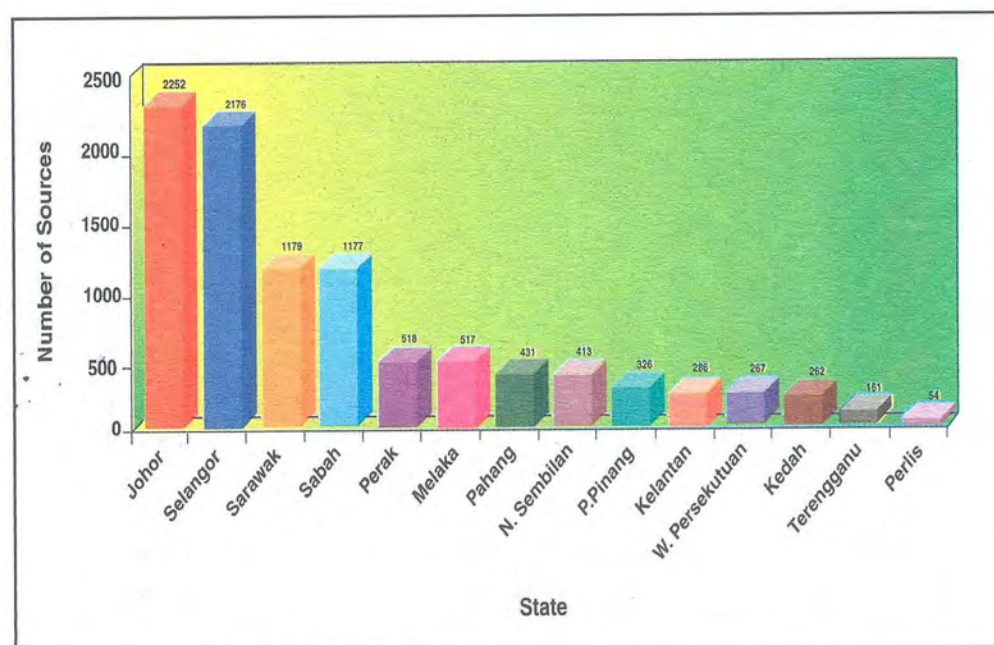


Figure 6.2 Malaysia: Number of Stationary Air Pollution Sources by State, 1997

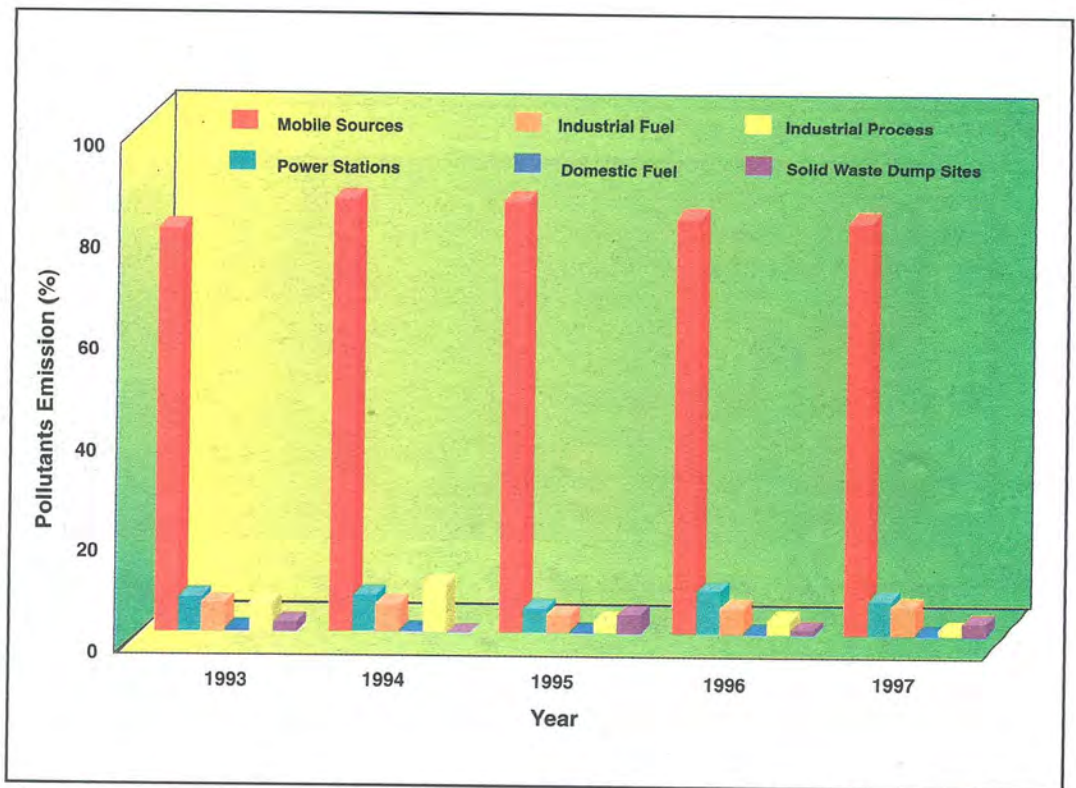


Figure 6.3 Malaysia: Atmospheric Emissions by Major Sources, 1993-1997

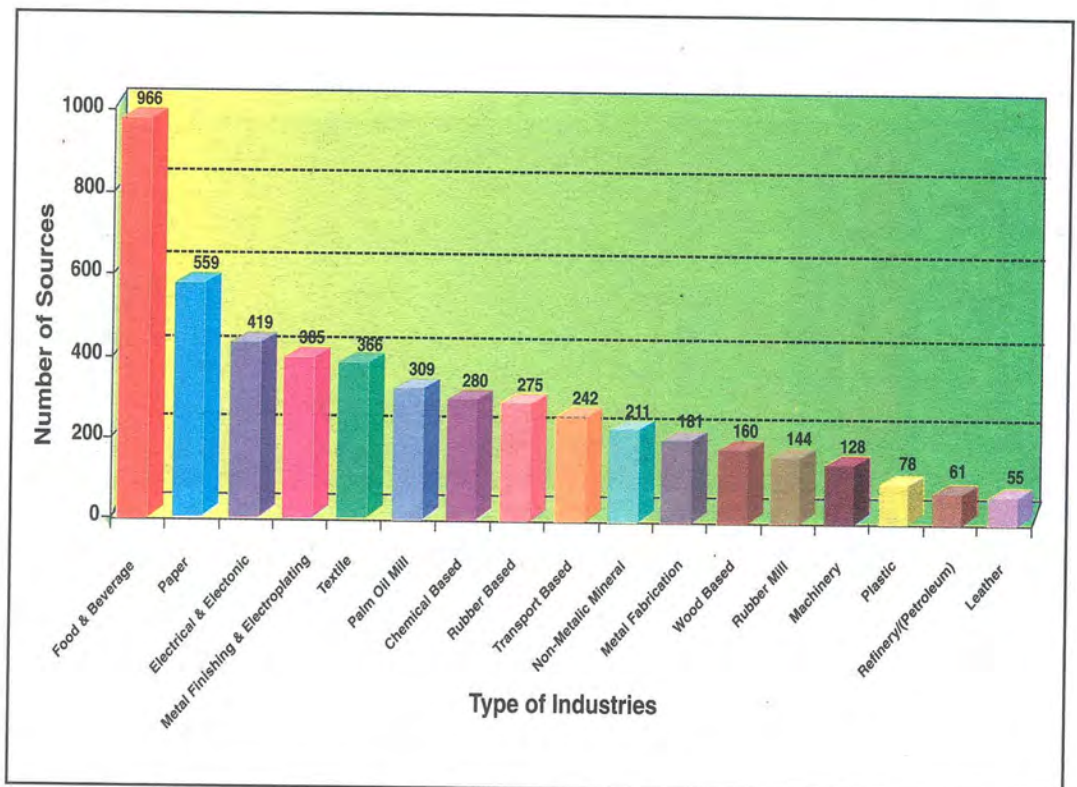


Figure 6.4 Malaysia: Water Pollution Sources by Type of Industry, 1997

Water Pollution Sources

In 1997, a total of 4,932 industries were identified (based on questionnaires returned) as significant water pollution sources, such as the food & beverage industries (966, 20%), the paper industries (559; 13%) and the electrical and electronic industries (419, 10%) and metal finishing (385, 9%). Figure 6.4 shows the distribution of industrial sources by type.

Selangor had the highest number of industrial sources (1,668), followed by Johor (945), Negeri Sembilan (371) and Melaka (349).

Figure 6.5 shows the distribution of water pollution sources by State. The Klang River Basin recorded the highest number of industrial water pollution sources (1,391), followed by the Tēbrau River Basin (324) and the Melaka River Basin (287).

Beside industrial sources, sewage treatment plants (4,359 sources) and animal husbandry farms (2,029 sources) were other significant contributors.

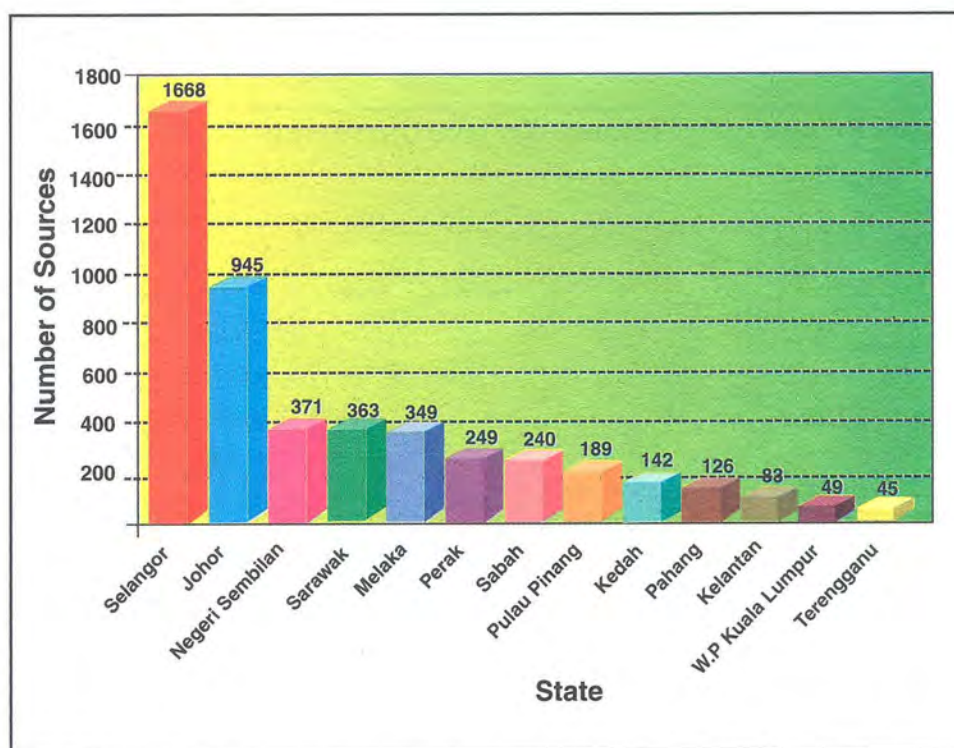


Figure 6.5 Malaysia: Distribution of Industrial Water Pollution Sources by State, 1997

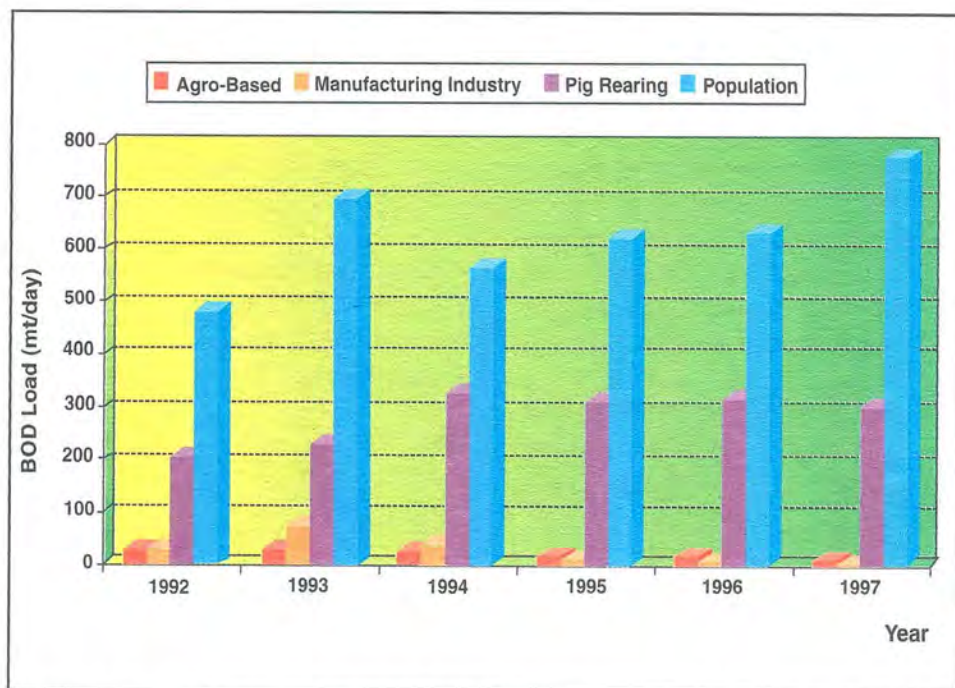


Figure 6.6 Malaysia : Estimated BOD Load Discharged by Sector, 1992-1997

Water Pollution Load

Based on data collated from questionnaires returned in 1997, it was estimated that the largest contributor of organic pollution load was sewage (BOD, 776.4 mt/day), pig rearing (BOD, 304.5 mt/day), manufacturing sector (BOD, 5.9 mt/day) and the agrobased industrial sector (BOD, 8.4 mt/day). Figure 6.6 shows estimates of BOD load by sector, 1992-1997

Figure 6.7 shows estimate of BOD pollution loading contributed by the different types of manufacturing industries in Malaysia. Of the total BOD loading contributed by manufacturing industries, the largest contribution came from the food and beverages sector amounting to 1166.4 kg/day (20%).

IMPLEMENTATION OF THE MONTREAL PROTOCOL

Effective from 1 January 1997, the Ozone Protection Unit of the Department of Environment was established upon receiving approval from the Public Services Department. The Unit serves to coordinate and monitor the implementation of ODS phase-out projects funded by the Multilateral Fund in order to fulfill Malaysia's obligations as an Article 5 country under the Montreal Protocol. Table 6.1 indicates the activities that were carried out in 1997.

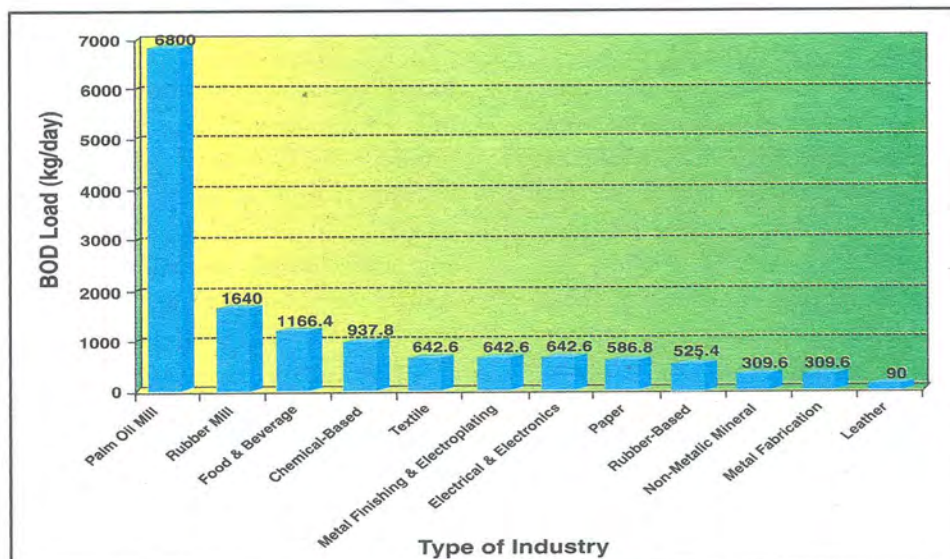


Figure 6.7 Malaysia: Estimated BOD Load by Type of Industry, 1997

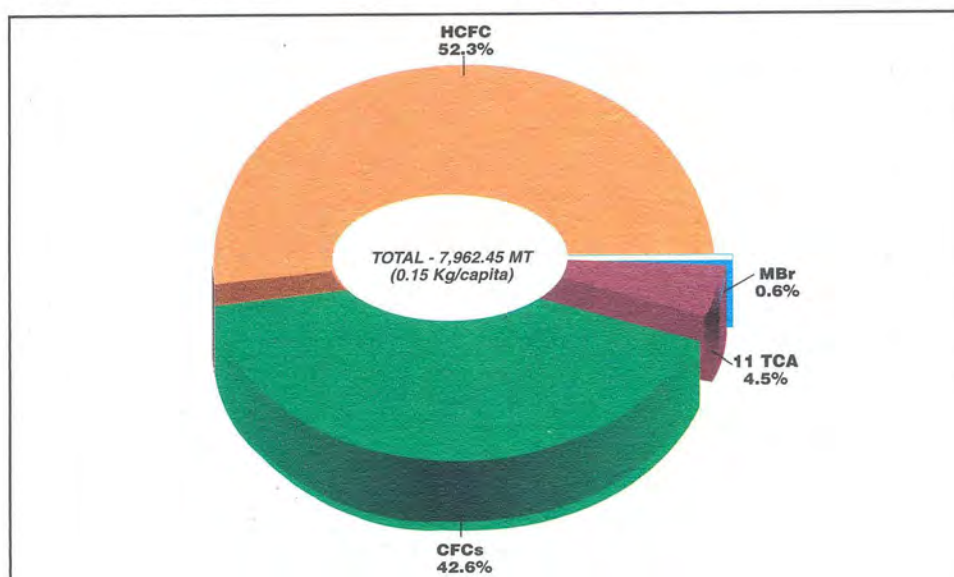


Figure 6.8 Malaysia: ODS Consumption by Type, 1997

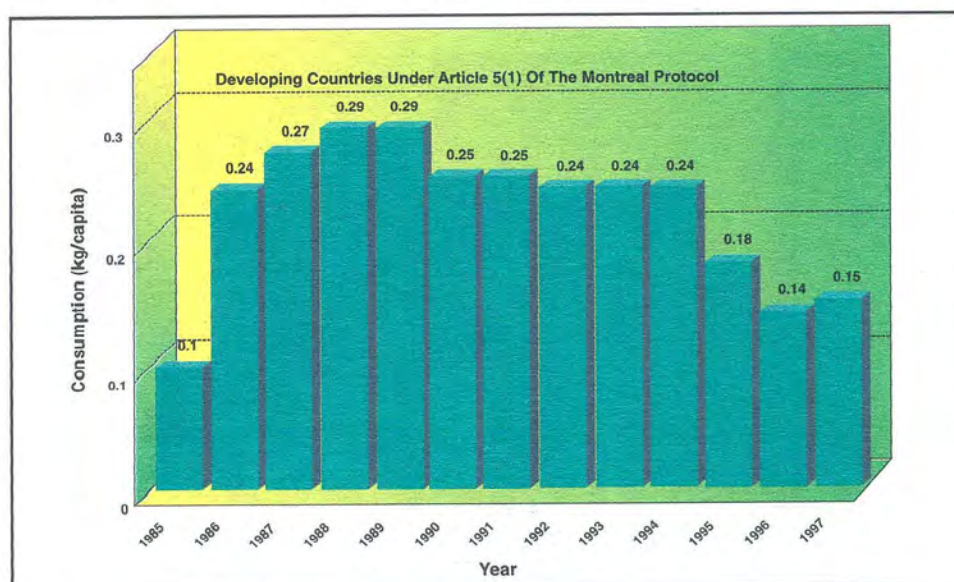


Figure 6.9 Malaysia: Trend of CFC and Halon Consumption (kg/capita), 1985 - 1997



Technology Development and ODS Phase out Projects

Financial and technical assistance were provided to industries by the Multilateral Fund of the Montreal Protocol. The Executive Committee (EXCOM) approved 18 more projects in addition to the 84 projects and activities already approved as shown in Table 6.2. The total cost allocated for these projects is about USD 30.2 million which is expected to phase out 5,786.98 ODP tonnes of ODS. As at 31 December 1997, Malaysia successfully completed 60 projects and activities that would phase out 3,241.4 ODP tonnes of ODS.

ODS Consumption

In 1997, the total import of ODS was 7,962.45 MT. CFC consumption was 3,351.48 MT, bringing the 1997 per capita consumption to 0.15 kg. A slight increase in the consumption of CFC 11 and 12 was observed which contributed to the increase in the per capita consumption for 1997 as compared to 1996 (Figure 6.8). The consumption by type is shown in Figure 6.9.

DATE	ACTIVITIES	VENUE
25 May 1997	Mobile Air-Condition (MAC) Retraining	Kuala Lumpur
12 June 1997	Signing Ceremony and Cheque Presentation for ODS Phase out Projects under UNDP	Kuala Lumpur
4 August 1997	National ODS Seminar	Kuala Lumpur
5-7 August 1997	ODSONET/SEAP Meeting	Kuala Lumpur
3 November 1997	CFCs Workshop for Refrigeration Sector	Petaling Jaya
3 November 1997	Malaysia Ozone Layer Protection Awards	Kuala Lumpur

Table 6.1 ODS Phase-Out Awareness Activities



Aerosol Industry: Project under the Multilateral Fund

Table 6.2 Malaysia: Projects and Activities Approved Under The Multilateral Fund of the Montreal Protocol (as of 31 December 1997)

SECTORS	NO.OF PROJECTS/ ACTIVITIES	COST(USD)
Refrigeration & Air-Conditioning (Mac/Commercial Refrigeration)	16	12,341,996.00
Solvent	10	2,161,956.00
Foam	47	10,322,144.00
Aerosol	7	2,819,480.00
Halon	2	922,932.00
Several Activities	19	1,626,728.00
Agriculture (Methl Bromide)	1	5,000.00
TOTAL	102	30,200,236.00
YEAR	EXPECTED NO. OF ACTIVITIES PROJECTS COMPLETED/TO BE COMPLETED	EXPECTED ODS TO BE PHASE- OUT (MT)
1993	5	150.00
1994	8	100.00
1995	13	544.00
1996	18	1,532.50
1997	15	914.90
1998	31	1,437.65
1999	12	1,107.95
TOTAL	102	6,787.00
	TOTAL NO. OF ACTIVITIES/ PROJECTS COMPLETED	ODS PHASE-OUT (ODP Tonnes)
TOTAL	17 + (43) = 60	3,241.40
AMOUNT DISBURSED = USD 19.8 MILLION		



Malaysia's Success Story

Throughout 1997, DOE with the cooperation of other related government agencies, NGOs and the private sector continued to be dynamically involved in various environmental programmes to phase out ODS. In recognition of our commitment and contribution towards the global effort to protect the ozone layer, Malaysia received the following awards:

- **1997 UNEP Ozone Award**

This prestigious award was received on the occasion of the 10th Anniversary of the UN Montreal Protocol on Substances that deplete the Ozone Layer on 16 September 1997. Malaysia was the only developing country out of 23 recipients chosen based on commitment, achievement and successes in the implementation of the Montreal Protocol. The Honorable Deputy Minister of Science, Technology and the Environment, Datuk Abu Bakar Daud received the award in Montreal, Canada from the Honourable Minister of Environment Canada, Ms. Chritine Steward, witnessed by the Executive Director of UNEP, Ms. Elizabeth Dowdeswell.

- **USEPA's Best-the Best Stratospheric Protection Award 1997**

DOE was chosen by USEPA to receive the Best-of-the-Best Stratospheric Protection Award for its exemplary efforts towards fulfilling Malaysia's commitment in the implementation of phase-out activities under the Montreal Protocol. The award in the form of a plaque and certificate were presented on 14 September 1997, in Montreal, Canada.

- **Outstanding National Ozone Unit Award 1997**

The National Ozone Unit of Malaysia, namely the Ozone Protection Unit of DOE, also received an award for its outstanding work in the implementation of Montreal Protocol obligations. The award certificate was presented by Ms. Elizabeth Dowswell, UNEP Executive Director, on 15 September 1997 in Montreal, Canada.

- **1997 USEPA Stratospheric Ozone Protection Award**

On 13 November 1997, Ir. Tan Meng Leng, the Director General of Environment and Mr. Ismail Ithnin, Principal Assistant Director of the Ozone Protection Unit, received the USEPA Stratospheric Ozone Protection Awards, for international diplomacy pertaining to ozone protection.

INFORMATION TECHNOLOGY

The use of Information Technology for intra-office and external communication, information dissemination, specific multilateral packages and office automation was intensified in 1997 with the acquisition of new PCs, upgrading of existing systems and development of new software packages.

Communication

Emailing is gradually becoming the norm for communication between officers at the Head Office with DOE State Offices, with other Government Agencies and NGOs, etc and for overseas communication. The public can contact DOE using DOE@jas.sains.my.



Office Automation

The DOE Head Office has a Local Area Network (LAN) connecting seventy-five percent of its staff equipped with desk PCs in line with its policy to reduce the use of paper such as for minutes of meetings and intra-office memos. Computers are used in word processing, preparation of worksheets and presentation materials, desktop publishing, and development of small applications and databases for managing statistics, inventory, documents, and personnel management. Computers are used for recording of appointments, events, activities and meetings, bringing about efficiency in diary maintenance, calendar checking, and weekly/monthly schedule preparations.



1997 UNEP Ozone Award

Environmental Education and Information

Chapter 7



ENVIRONMENTAL EDUCATION, AWARENESS AND INFORMATION DISSEMINATION

The Department of Environment has taken on a catalytic role to organise, promote and co-sponsor environmental awareness programmes and activities in order to increase environmental awareness among the public. The premiere programme in 1997 was the Malaysia Environment Week (MEW), which was launched on 21 October 1997 by the Chief Minister of Penang, YAB Tan Sri Dr Koh Tsu Koon at Dewan Sri Penang, Penang. The theme chosen was "Alam Gemilang, Hidup Cermelang" to reflect the vision for all Malaysians to participate and be instilled with greater awareness and concern for the environment. Among the invited guests were State Executive Council Members responsible for environmental matters, Environmental Quality Council Members, H.E Ambassador of Zimbabwe, H.E. Ambassador of Nigeria and H.E Ambassador of Singapore and representatives of ASEAN Diplomatic Missions in Malaysia. MEW was also observed throughout the country with various kinds of environmental-friendly activities. At the national level, the main activities included:

- 15th Meeting of Ministers and State Executive Council Members Responsible for the Environment (MEXCOE);
- Langkawi Award Presentation;
- Environmental Awareness Camps
- Clean Tech Expo 97;
- Seminar on Smoke Emission from Diesel Vehicles;
- National Conference on Chemistry & Technology Development in Environmental Management;
- Environmental Tracking and Envirohunt;
- Launching of Environmental Cadet Corps;
- Tree-planting activities; and
- Environmental Debate for Institutions of Higher Learning.

A summary of environmental education and awareness activities held throughout Malaysia is as shown in Table 7.1

ASEAN Youth Environmental Awareness Camp

On 21-30 August 1997, DOE with assistance from MNS, WWF, Universiti Malaya, Universiti Putra Malaysia, CETDEM and the Selangor Consumers' Association organised the first ever ASEAN Youth Environmental Awareness Camp '97 for 30 young participants between ages of 18 to 21 years from ASEAN member countries. The main objectives of the camp were to:

- promote environmental education and awareness among ASEAN youth;
- promote skills development in environmental education;
- enhance the role and responsibilities of ASEAN youth for a safe and healthy environment;
- encourage youth networking in sustainable environmental activities; and
- encourage exchange of information and knowledge among ASEAN youth.



Launching of the MASM '97 poster by the Hon. Minister of Science, Technology and the Environment.

Table 7.1 Summary of Environmental Education and Awareness Activities held throughout Malaysia

DATE	ACTIVITIES	LOCATION
20/5/97	Enviro-Camp: Estuary and Mangrove Swamp Ecosystem (DOE)	Kelantan
22/5/97 - 24/5/97	Enviro-Camp Consumerism and Conservation 1997 (Ministry of Domestic Trade and Consumer Affairs)	Kuala Lumpur
1/6/97 - 31/8/97	Photography Competition (DOE)	Kelantan
5/6/97	Dialogue With Other Agencies (DOE / State Government)	Johor
12/6/97 - 15/6/97	Enviro-Camp (DOE)	Terengganu
6/7/97	Treasure Hunt (DOE)	Kelantan
7/7/97	Launching of Environmental Day and Programme On Science and Technology (DOE/State Government)	Pahang
23/8/97	Colouring Contest (DOE)	Kelantan
4/10/97-11/10/97	World Birdwatch (Malaysian Nature Society)	Kuala Lumpur
11/10/97	Talk on Solid and Toxic Waste Management by Ir. John Maxwell, CEO Worldwide Environmental Management Sdn. Bhd.	Institute of Post Graduate Studies and Research, Universiti Malaya
11/10/97	Activities on Environment for Undergraduates	Institute of Post Graduate Studies and Research, Universiti Malaya
21/10/97	Malaysia Environment Week Launching at National Level (DOE/State Government)	Penang
21/10/97	Malaysia Environment Week (DOE/State Government)	Johor
	Environmental Expo (DOE/State Government)	Johor
	Seminar On Environment (DOE/State Government)	Johor





DATE	ACTIVITIES	LOCATION
25/10/97	Malaysia Environment Week (DOE /Sate Government)	Melaka
25/10/97- 26/10/97	Seminar on Local Commities and the Environment EPSM)	Petaling Jaya, Selangor
25/10/97	Malaysia Environment Week (DOE/State Government)	Kelantan
26/10/97	Launching of Environmental Education Center (WWF Malaysia)	Bukit Fraser, Selangor
October	Tree Planting and Clean-up Campaign (DOE/State Government)	Johor
October	Clean Factory Competition (DOE)	Johor
Ocotber	Environmental Talk for School Children (Kelantan Consumers' Association)	Kelantan
October	Bengkel dan Bimbingan bertemakan alam sekitar untuk pelajar-pelajar sekolah (Kelantan Consumers' Association)	Kelantan
October	Forum and Dialogue Kelantan Consumers' Association	Kelantan
October	Seminar On Environment (Kelantan Consumers' Association)	Kelantan
October	Study On Local Environmental Issues (Kelantan Consumers' Association)	Kelantan
October	Environmental Awareness Seminar (DOE)	Terengganu
October	Seminar on International Year of Coral Reefs (Malaysian Nature Society)	Kuala Lumpur
October	Malaysia Environment Week (DOE/State Government)	Sarawak
October	Seminar on Healthy Cities (Terengganu Health Department)	Terengganu
October 1997- Mac 1998	Migrating Raptor Watch (Malaysian Nature Society)	Kuala Lumpur
27/10/97	Presentation of ICI-CCM Journalism Award	Kuala Lumpur

DATE	ACTIVITIES	LOCATION
21/11/97	Art Competition for School Children (DOE/State Government)	Negeri Sembilan
22/11/97	Malaysia Environment Week (DOE/ State Government)	Negeri Sembilan
23/11/97	Green Run (DOE/ State Government)	Negeri Sembilan
25/11/97	Seminar on Environmental Management (DOE/ State Government)	Negeri Sembilan
26/11/97- 27/11/97	Radio Talk Show and Quiz (DOE)	Negeri Sembilan
4/12/97	Presentation of Hibiscus Award (ENSEARCH/MCCI/BCSDM/FMM)	Kuala Lumpur

In addition, the DOE also co-organised a National Youth Camp with Penang Seagate Industries (M) Sdn. Bhd. involving 100 working youth in P.Pinang on 20 - 23 October 1997. Altogether DOE organised 24 camps for 1080 secondary school students (14 to 16 years old) throughout Malaysia. The camps were conducted based on Ecosystem modules pertaining to River, Marine, Highland, Forest, Urban, Organic Farming and Agriculture prepared by DOE in collaboration with UM, UPM, WWF, MNS, FOMCA, CETDEM and Golden Hope Bhd.



Presentation of Certificate to ASEAN Youth Environmental Awareness Camp, Participants.



Students participating in an Environmental Awareness Camp: River Ecosystem

Infokiosk

The Honourable Minister of Science, Technology and the Environment, Y.B Datuk Law Hieng Ding launched the DOE Infokiosk on 6 May 1997. The Infokiosk represents an application of multimedia technology to provide environmental information to the public in an attractive and colourful manner with songs, voice-overs, photos and environmental pictures. At a touch, visitors to the DOE Head Office and all DOE State Offices can access the environmental information bank.



Promoting Environmental Awareness Via Mass Media

Television and radio media were effectively utilized to promote environmental awareness over programmes such as Global, "Selamat Pagi Malaysia", Short Promo "Alam Sekitar" and quizzes over Radio 1.

Three green songs were composed and presented to DOE by Dr Wan Zawawi Ibrahim and the Environmental Protection Society of Malaysia. The songs were "Dayung Anak Alam", "Sewaktu Di sisi" and 'All It Takes'.

Environmental Awards

- The Langkawi Award for 1997 was presented to Ir. K. Kumarasivam, for his outstanding contribution to the environmental cause, both in his personnel capacity and as the President of ENSEARCH. The award was presented on 20 October 1997, consisting of a plaque and a certificate signed by DYMM Yang DiPertuan Agong
- The Joint ICI/CCM Environmental Journalism Award was presented to outstanding journalists in the local print and electronic media whose contributions had served as catalyst for positive change and improvements in the environment. DOE's Director of Development Planning, Mr. Patrick Tan Hock Chuan represented DOE in the Panel of Judges. The prizes were presented by the Minister of Science, Technology and the Environment on 27 October 1997.
- The 1997 Hibiscus Award Challenge Trophy was jointly won by Nestle Foods (Raja Muda Factory) and Shangri-La's Rasa Sayang Resort in Penang for notable achievement. The event is supported by the Department of Environment and the Ministry of Science, Technology and the Environment. Y.B Datuk Law Hieng Ding, gave away the Challenge Trophy on 4th December 1997.



The Seventh Langkawi Award Recipient, Ir. K.Kumarasivan

Environmental Awareness Competition

- A poetry competition for the public and schoolchildren was organised by DOE in 1997. The winners for the various categories received their prizes at the Poetry Night on 10 November 1997.
- DOE in collaboration with Tetra-Pak (M) Sdn. Bhd. and the Malaysian Science Association organised the Environmental Scrap-Book Competition (Project Riadah Alam Sekitar or PRIAS) for students in Form Four and Five throughout Malaysia for the sixth year. Through hands-on participation in environmental activities, in the form of essay-writing, poetry-composition, environmental photography, sketches, illustrations and school projects, participating students will get to know and understand more about the various components of the environment and their interactions.

ENVIRONMENTAL INFORMATION

Introduction

The primary objective of the Environmental Information Unit is to collate and disseminate environmental information to a wide spectrum of the population so as to create an environmentally informed society as well as to inculcate greater responsibilities towards caring for the environment and prevention of environmental pollution. The availability of reliable, relevant and up-to-date information is essential for sound environmental management.

In 1997, the Department allocated a sum of RM713,000.00 of its development budget to publish books, magazines, posters, newsletters, pamphlets and brochures on the environment for local distribution and Malaysian Missions abroad. In addition to collecting and collating environmental information, this Unit also attends to public queries and requests for environmental information from visitors and through letters, telephones, facsimiles and e-mails.

Publications

In 1997, fifteen DOE environmental publications were issued and 17,000 copies were distributed locally and abroad (Figure 7.1). These included the 1996 Environmental Quality Report, the ERA Hijau Magazine, INFOTERRA pamphlets, environmental guidelines such as "Environmental Guide for Investors", the IMPAK newsletter, environmental information booklets, posters and various other printed materials and environmental information kits for visitors.

Environmental Query-Response Service

A total of 2,713 queries were received in 1997 principally from Enviro-library users, followed by request through letters and e-mails and via the INFOTERRA Network (Figure 7.2 and Figure 7.3)

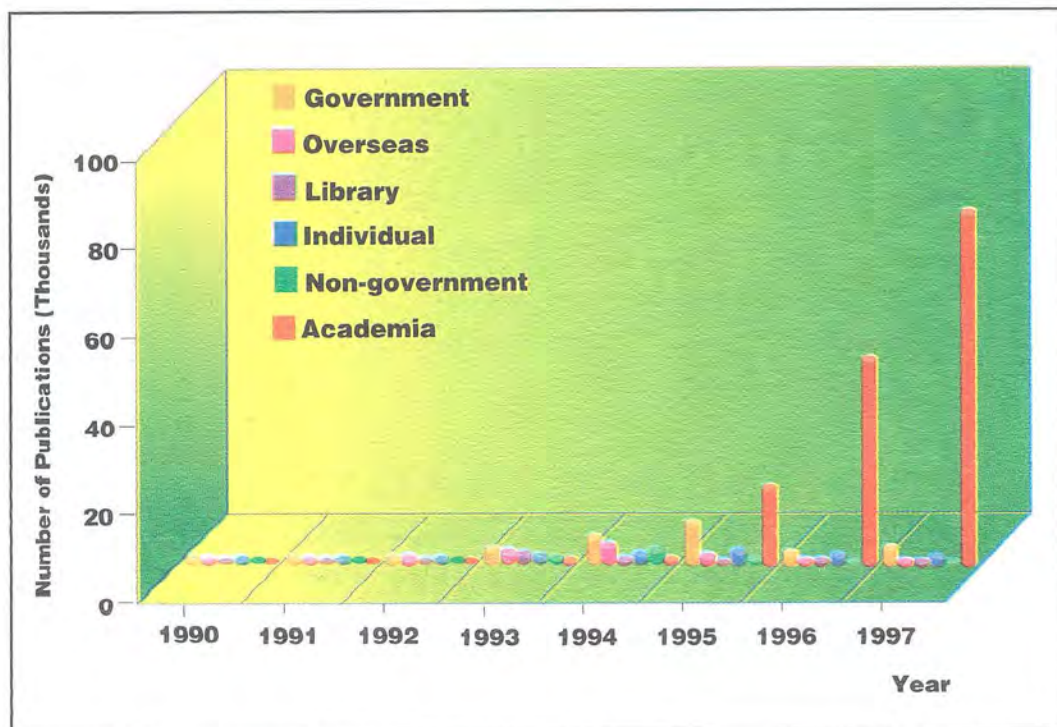


Figure 7.1 Department of Environment: Dissemination of Environmental Publications, 1990-1997



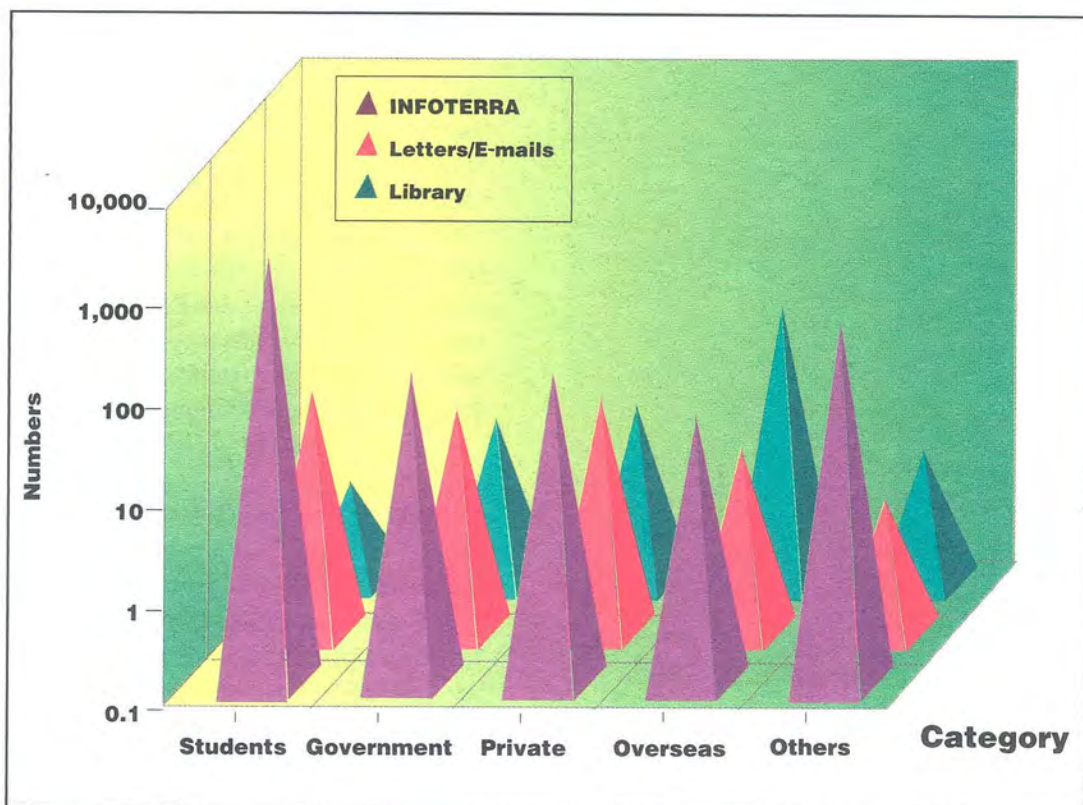


Figure 7.2 Department of Environment: Category of Information Applicants, 1997

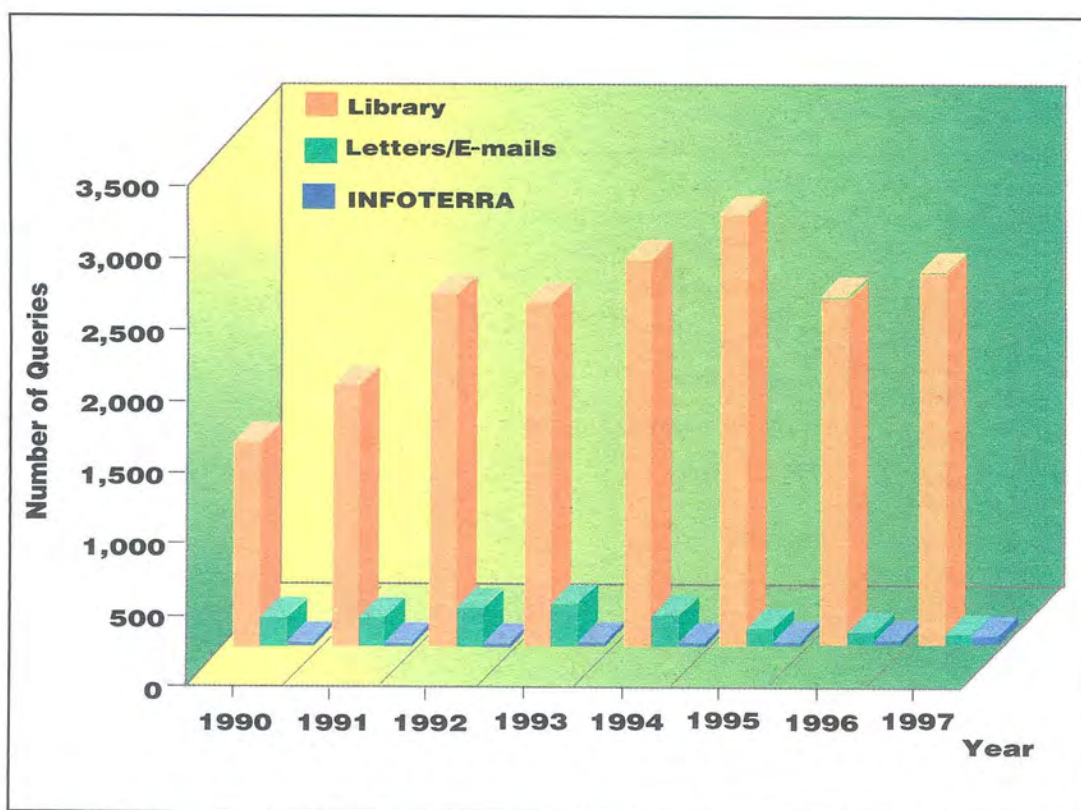


Figure 7.3 Department of Environment: Query Responses Services, 1990- 1997

As the National Focal Point for INFOTERRA, DOE received and processed a total of 56 official requests in 1997 through the INFOTERRA Network from the United States, Ghana, Iran, Japan, New Zealand, Hong Kong, Bangladesh, United Kingdom, Australia, Nairobi, Sri Lanka, Canada, Fiji, Switzerland, France, Singapore, India, Germany, Finland and Thailand.

The information sought after included environmental legislations, water and air pollution data, marine pollution, management of chemicals and environmental hazardous substances, wetlands particularly mangrove swamp management, sustainable development projects, eco-labelling, effluent standards, EIA guidelines, environmental requirements for investment projects, coastal erosion control and the duties and responsibilities of DOE.

DOE Enviro-Library Services

By the end of 1997, a total of 15,284 publications were catalogued into the Columbia Library System. Environmental reports, seminar papers, EIA reports and various types of manuscripts are available in the library for reference purposes only.

Seventy five per cent of library users were students (Figure 7.4), a reflection of the increasing involvement and awareness of environmental issues among students at secondary level and institutions of higher learning.

Local press coverage of environmental issues increased further in 1997, a general upward trend since 1977 (Figure 7.5). A total of 49,092 newspaper cuttings had been compiled since 1977.

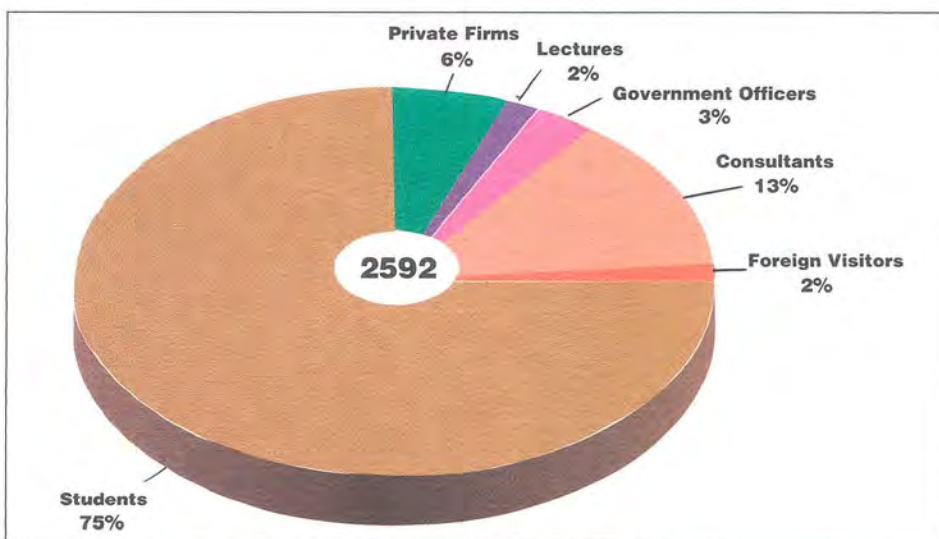


Figure 7.4 Department of Environment: Library Users, 1997

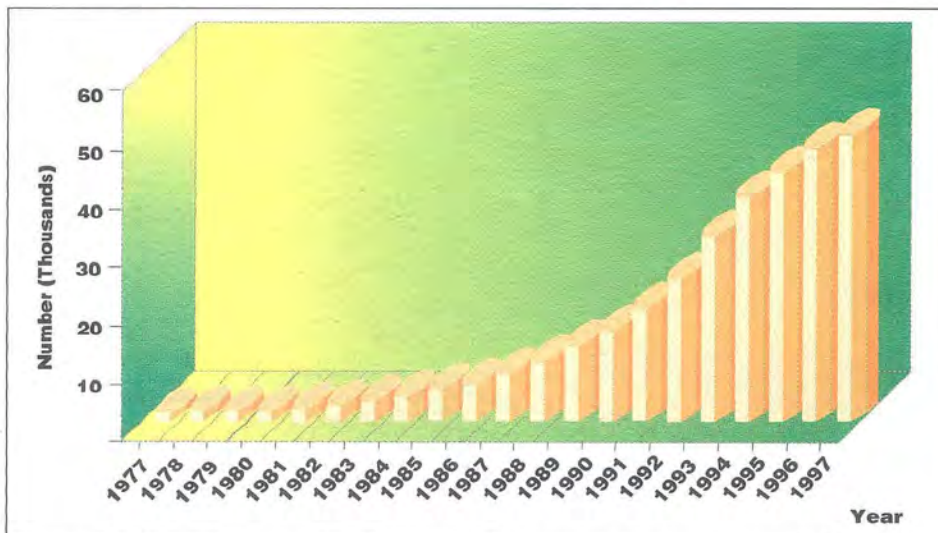


Figure 7.5 Department of Environment: Newspaper Cuttings , 1977-1997



International Environmental Cooperation

Chapter 8



INTERNATIONAL ENVIRONMENTAL AFFAIRS

The International Affairs Unit serves as the Secretariat for international environmental matters. It is also DOE's focal point for international agencies such as UNEP, UNDP, ESCAP, WHO, CSD as well as for regional and bilateral interactions.

Over the years, Malaysia has been an active and significant environmental player in the international scene, often speaking out in the interest of developing countries. Towards this end, the Unit collates and analyses environmental information and development in the environmental field for effective involvement at the international arena.

In 1997, the Unit facilitated the participation of DOE officials at 66 Meetings and Conferences, 36 Workshops (including seminars and forums) and 24 Training Courses as indicated in Figure 8.1 & 8.2. Through these participation the department was able to be actively involved in environmental programmes and activities at the regional and international level.

BILATERAL COOPERATION AND ASSISTANCE

● Malaysia-China

On 6-14 July 1997, 6 technical experts in Metal Finishing from China International Science Center (CISC) visited the department to share their experience and expertise with regard to metal finishing. Consequently, a MOU was signed to further enhance the existing cooperation on environmental management of metal finishing industries.

● Malaysia-Lao PDR

A group of 19 Senior Officials from

various Ministries in Lao PDR came on a study-tour to DOE on 8-14 April 1997, under the auspices of UNDP, to study Malaysia's experience in environmental management and in particular the environmental legal framework. The study tour also helped to strengthen friendship between environmental officials of both countries.

● Malaysia-Singapore

The Twelfth Meeting of the Malaysia-Singapore Joint Committee on the Environment (MSJCE) was held on October 31- November 1, 1997 in Singapore.

The 12th MSJCE discussed matters of mutual interest such as haze pollution from land and forest fires, cleaning up Straits of Johor and control of vehicular emissions. The meeting agreed to take the lead to develop a comprehensive and concrete Regional Action Plan to prevent future occurrence of haze.

The 1997 Annual meeting between the Minister of Science, Technology and the Environment of Malaysia and the Minister for the Environment of Singapore was held on 31 October 1997 in Singapore. Such meetings are held annually on a reciprocal basis to promote mutual understanding and foster closer working relationship between the two Ministries. The report of the 12th MSJCE was also presented and endorsed by the Ministers.

● Malaysia-Vietnam

Under the Malaysia - Vietnam Cooperation Program, DOE organised a seminar-tour programme on Environmental Management Protection for 17 Senior Vietnamese Officials between 17-28 March 1997. The programme was sponsored by the

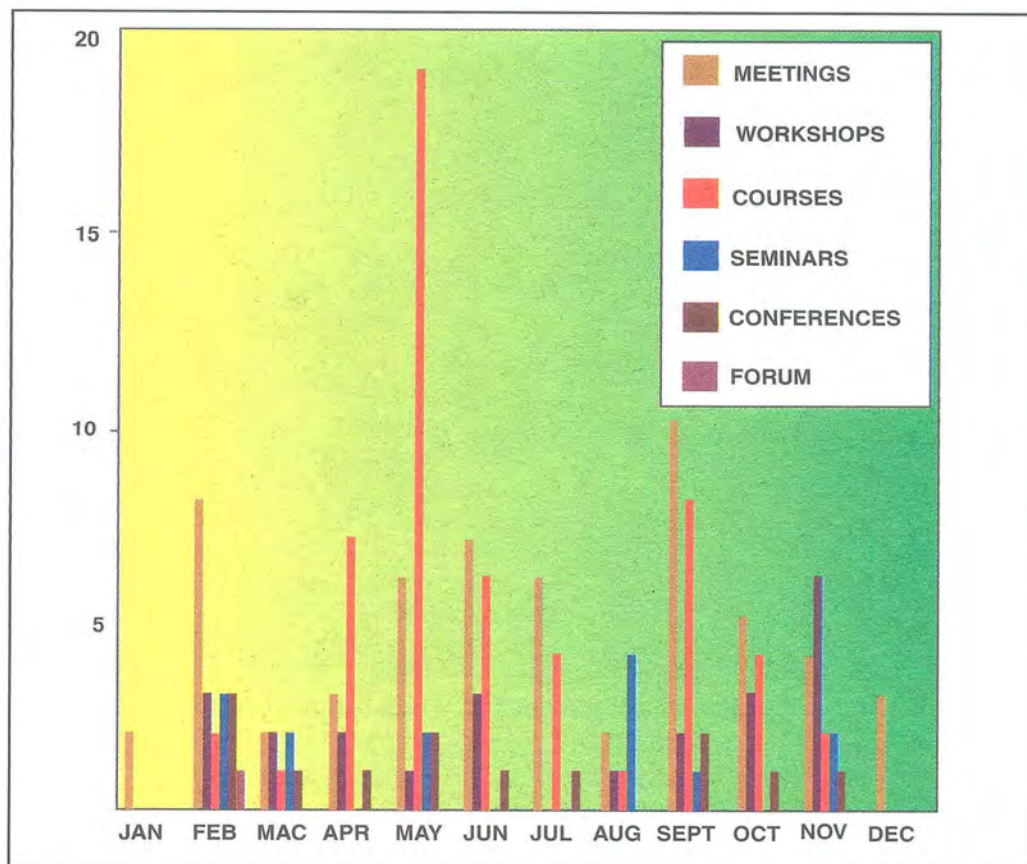


Figure 8.1 DOE: Monthly Environmental Assignments outside Malaysia,1997

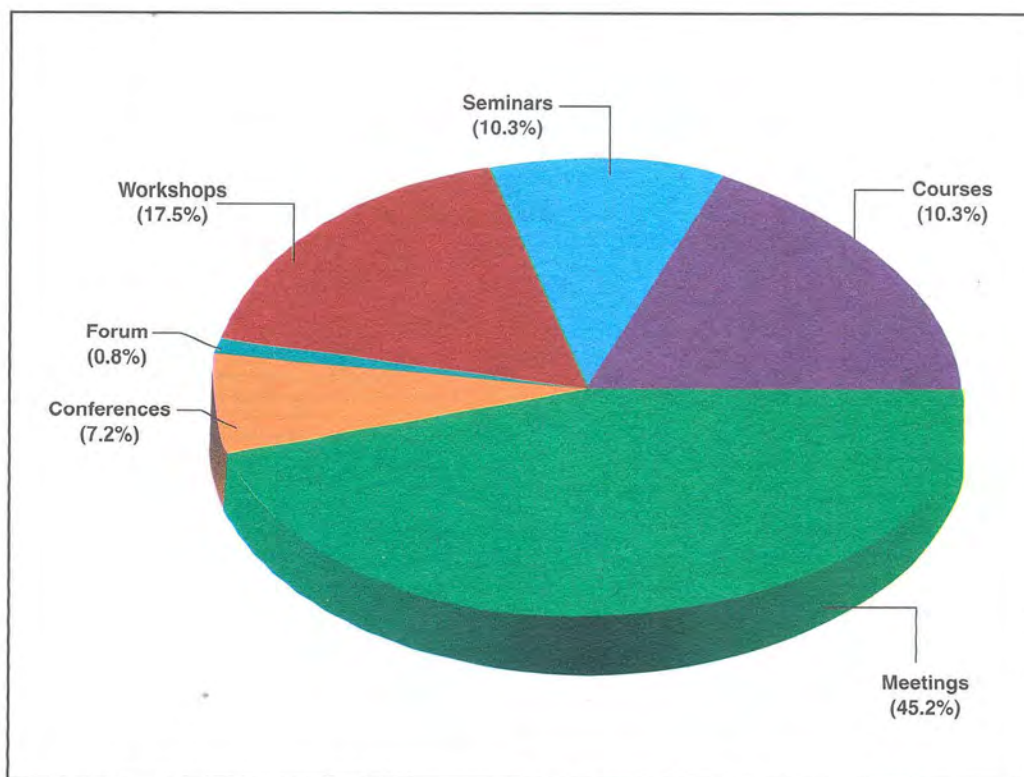


Figure 8.2 DOE: Nature of Environmental Assignments outside Malaysia,1997



Third Meeting of ASEAN Task Force on Transboundary Haze Pollution, 18 November 1997

World Bank. Mr. Jammi Ramachandra, a World Bank Consultant, was present throughout the programme to provide technical input. The programme covered the following areas:

- Industrialisation and the Environment
- Clean Technology Practices in Malaysia
- Environmental Management System
- Air Pollution and Water Quality Control in Malaysia
- Management of Solid, Toxic and Hazardous Waste
- EIA Procedure in Malaysia
- Environmental Education and Awareness
- ASEAN Framework for Environmental Management

Other Bilateral Cooperation Program

In 1997, DOE received 71 environmental missions from various countries as shown in Table 8.1. These missions facilitated exchanges of information on environmental management, EIA, environmental awareness and education, waste treatment, marine pollution, management of ozone depleting substances and ODS-free technology. The Minister of Science, Technology and the Environment also led several missions to Germany, Sweden, Finland, Indonesia as well as Singapore to discuss environmental matters of mutual interest.

Table 8.1 Malaysia : List of Official Foreign Visitors to DOE, 1997

DATE	ORGANISATION/COUNTRY	SUBJECT MATTER
14 January	Mr. Dylan Tanner, Editor and Publisher, Asia Environment Review, UK	Privatisation of Malaysian Infrastructure Projects: Environmental Perspective
26 February - 2 March	4 Senior Officials from National Environmental Protection Agency (NEPA), China, led by Mr. Fen Yuangsheng, Deputy Director General, NEPA	ODS Phase-out Policy
18 Mac	Mr. Amirul Huq and Mr. Barry Hitchcock, Senior ADB Officials: Fact Finding Mission for ADB Technical Assistance	Industrial Pollution Control Management
24 Mac	Mr. Samuel Sarpong and Mr. Kwasi Boakye-Boateng, Senior Officials from the National Development Planning Commission (NDPC), Ghana	Environmental Information System Network in Development Planning
24 Mac	H.E. Mr. K.M Kangai, Minister of Land and Water Resource, Zimbabwe	Land and Water Management
25 Mac	A delegation of 10 Senior Members from California Foundation on the Environment and the Economy (CFEE), led by Mr. David G. Kelly, the California State Senate	Environment and the Economy
8-14 April	A delegation of 19 Senior Officials from various Ministries of Lao PDR, led by Ms. Monemany Nhoibouakong, Director of Environmental Management	Environmental Law and Management
8-26 April	Mr. Timothy Young, Ministry of Health, Fiji	Air Pollution Control
28 April	Ms. Patricia Henton, Director of Environmental Strategy, Scottish Environmental Protection Agency (SEPA), United Kingdom	Environmental regulatory issues, management and control of pollution
7 May	Ms. Virginia Jimenez, Director, Spanish Association of Electronic Industries	Environmental Management
17 June	Dr. Lursandagra and Dr. Lhagvasuren, WHO Fellows from Mongolia	Environmental Protection Programme on Water Quality and Monitoring
18 June	M. Kevin McDonald, Senior Officer from the US National Pollution Prevention Roundtable (NPPR)	Development of Pollution Prevention Round-table in Malaysia
24 June	Mr. B.J Bob Pigg, President, Asbestos International Association, North America	Industrial Waste Management





DATE	ORGANISATION/COUNTRY	SUBJECT MATTER
6-14 July	6 Experts from China International Science Centre (CISC), Beijing, China led by Mr. Bai Xianghung, Director General of CISC	Wastewater Treatment in Metal Finishing Industries
14 July	Six Senior Officials from JICA, Japan led by Mr. Yosumasa Odaka	Industrial Waste Management
15 July	Dr. Nguyen Hong Thao and Mr. Ir Quy Quynh, Senior Officials from Vietnam under the Asia-Pacific Ocean Cooperation Programme	Marine Affairs
29 July	Three Senior Officials from the Institute for Global Environmental Strategies (IGES), Japan, led by Prof. Akio Morishima, Chairman of the Board of Directors	Environmental Protection and Management
4 August	Four Associate Professors from JICA Japan, led by Dr. Gunzo Kawamura	Aquatic resources and environmental studies of Melaka Straits
19 August	Nine Officials of the Advisory Team for the Phase 11 SIRIM/JICA Project, led by Mr. Akira Okuyama, Director of Mining and Industrial Corporation Department, Japan	Environmental project on capacity building for Environmental Technology Centre
26 August	4 WHO Fellows from Vietnam, led by Dr. Nguyen Van Dung, Ministry of Health, Vietnam	Water Quality
8 September	Five Members of House of Councillors, Japan led by Mr. Yoshihiko Ebihara	Environmental Management
9 Septembet	Ms. Lim Shiao Feng and Ms. Wu Chia Chen, Research Fellows of Taiwan Institute of Economic Research, Taiwan	Environmental Impact Assessment
6 November	H.E Mr. Man Lannroth, Secretary of State of the Ministry of Environment, Sweden	Solid Waste Management

REGIONAL COOPERATION

ASEAN Environment Ministers Meeting (ASEM)

The Seventh Meeting of ASEAN Environment Ministers was held in Jakarta Indonesia from 17-18 September 1997. The meeting extensively discussed the haze situation caused by land and forest fires and agreed to intensify cooperation to mitigate transboundary haze pollution among ASEAN member countries.

ASEAN Senior Officials on the Environment (ASOEN)

The Eighth Meeting of ASEAN Senior Officials on the Environment was convened in Cebu, Philippines from 8-10 September 1997. The focus of the meeting was on regional marine environmental management. The meeting agreed to examine the possibility of establishing a regional mechanism to enhance surveillance and action against illegal discharges and dumping of waste into the sea. Other issues discussed included transboundary haze pollution, matters pertaining to various international conventions and protocols as well as activities of the various ASOEN Working Groups on the Environment.

ASEAN Environment Ministerial Meeting on Haze (AMMH)

The ASEAN Environment Ministerial Meeting on Haze was convened in Singapore on 22-23 December 1997. The meeting deliberated on the Regional Haze Action Plan and agreed to focus on preventive measures and increase public awareness. It also endorsed the scope of work of an ADB funded project on haze and requested ASMC in Singapore to step up its surveillance of haze.

ASOEN Task Force Meeting on Transboundary Haze Pollution

Several regional meetings at officials' level were held in relation to the haze problem affecting the ASEAN region including a Coordination Meeting in Jakarta, Indonesia on 11-12 August 1997, which agreed on a joint scientific assessment of the impact of haze.

On 18 November 1997, DOE organized the Third ASOEN Task Force Meeting on Transboundary Haze Pollution in Kuala Lumpur. This was followed by the Fourth Meeting on 20 December 1997 in Singapore. The draft Regional Haze Action Plan was presented and approved at the meeting.

International Cooperation

At the international arena, DOE participated actively in various meetings on environmental issues so as to keep abreast of international environmental development. Among notable cooperative activities were those involving:

- Basel Convention on Transboundary Movement of Hazardous Wastes
- Prior Informed Consent Procedure for Certain Chemicals and Pesticides in International Trade
- Multilateral Fund for Montreal Protocol relating to reduction of Ozone Depleting Substances
- Intergovernmental Negotiating Committee on Persistent Organic Pollutants
- United Nations Environment Programme Governing Council

Danish Cooperation for Environment and Development (DANCED)

DANCED funded Project on Capacity Building

In line with the Department's objective to put more emphasis on human resource development, an agreement was signed





between the Government of Malaysia and Denmark in December 1996. This project was an outcome of initial discussions between Danish and Malaysian officials in April 1994. The agreement covered DANCED support for a two and half year capacity building project.

The project which began on 1 August 1997 has four main components:

- Establishment of a system for human resources development in the Department of Environment
- Strengthening of existing and development of new guidelines and manuals on various aspects of environmental management.
- Development of training materials and training programmes for DOE staff and staff of other agencies delegated with the authority for the enforcement of the EQA. The training courses developed will be made available for use by the Environmental Skills and Training Institute (IKLAS), which is expected to be operational by the year 2001.
- Strengthening of existing environmental awareness programmes.

The DOE is assisted by two long-term Danish consultants, Mr. Christian Schriver (Chief Technical Advisor) and Mr. Peter Lind Jans (Environmental Advisor), both from Carl Bro International a/s. The project is further assisted by a local consulting company (CETEC). The overall project is coordinated by Puan Rahani Hussin, the Project Manager.

During the first 3 months of implementation, the project document was fine-tuned and adjusted to suit the present needs of the Department. This was done through a number of workshops and discussions with Senior Officials of DOE.

A Project Steering Committee representing DOE, DANCED and other important

stakeholders, has been established for overall supervision of project implementation. A Project Management Group comprising of the Project Manager, the Chief Technical Advisor and the Environmental Advisor meets regularly to discuss matters relating to the daily implementation of the project.

Agenda 21 for Sustainable Development

- The International Unit published the Agenda 21 Bahasa Malaysia Version entitled "Terjemahan Agenda 21: Program Tindakan Alam Sekitar"
- In addition, a children's version of Agenda 21 entitled "Malaysia Agenda 21: Versi Kanak-Kanak" was also published in an attractive pictorial style format specially designed by local artists to attract children's attention.

These publications are useful for teaching and as reference materials for preparing action plans for sustainable development.

United Nation Environment Programme (UNEP)

As the National Focal Point for UNEP, DOE also participated actively in numerous activities organised by UNEP throughout 1997 (Table 8.2).

NO.	ACTIVITY	DATE	VENUE
1.	Fifth Meeting of the Extended Bureau of the 3 rd Conference of the Parties to the Basel Convention	February 20-21	Geneva, Switzerland
2.	Twelfth Meeting of the Technical Working Group of the Basel Convention	February 24-28	Geneva, Switzerland
3.	The Fourth Workshop on ASEAN Network on Environmental Monitoring (ASNEM) with emphasis on Acid Deposition.	February 25-March 4	Pathumtani, Thailand
4.	The 1996 Follow-up Meeting for ODSNET/SEAP 1997	Feb 27-March 1	Melbourne, Australia
5.	The 5 th Session of the Commission on Sustainable Development	April 7-25	New York, USA
6.	Workshop on Implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities in the East Asian Seas Region	April 30-May 3	Cairns, Australia
7.	The 3 rd Session of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	May 26-30	Geneva, Switzerland
8.	The 15 th Meeting of Open-Ended Working Group (OEWG) Montreal Protocol on Substances that Deplete the Ozone Layer	June 3-6	Nairobi, Kenya
9.	UNEP Ozone Awards 1997	June 30	Washington, D.C, USA
10.	The 16 th Meeting of OEWG Montreal Protocol on Substances that Deplete the Ozone Layer	September 9-12	Montreal, Canada
11.	The 9 th Conference of the Parties to the Montreal Protocol	September 15-17	Montreal, Canada
12.	Environmental Management Seminar for South East Asia 1997 (UNEP/ROAP)	October 6-17	Cavite, the Philippines
13.	The 4 th Session of the Intergovernmental Negotiating Committee for an International Legally Binding Instrument for the Application of the PIC Procedure for Certain Hazardous Chemicals and Pesticides in International Trade	October 20-24	Geneva, Switzerland



ANNEX

Proposed Interim National Water Quality Standard for Malaysia

PARAMETERS	CLASSES					
	I	IIA	IIB	III#	IV	V
Ammoniacal Nitrogen	0.1	0.3	0.3	0.9	2.7	2.7
BOD (mg/l)	1	3	3	6	12	12
COD (mg/l)	10	25	25	50	100	100
DO (mg/l)	7	5-7	5-7	3-5	3	1
pH	6.5-8.5	6.5-9.0	6.5-9.0	5-9	5-9	-
Colour (TUC)	15	150	150	-	-	-
Elec. Conductivity (µmhos/cm)**	1000	1000	-	-	6000	-
Floatables	NV	NV	NV	-	-	-
Odour	NOO	NOO	NOO	-	-	-
Salinity(%)**	0.5	1	-	-	2	-
Taste	NOT	NOT	NOT	-	-	-
Total Dissolved Solid (mg/l)	500	1000	-	-	4000	-
Total Suspended Solid (mg/l)	25	50	50	150	300	300
Temperature (C)	-	Normal 2	-	Normal 2	-	-
Turbidity (NTU)	5	50	50	-	-	-
Feecal Coliform (counts/100 ml)	10	100	400	5000 (20000) @	5000 (2000) @	-
Total Coliform (counts/100 ml)	100	5000	5000	5000	5000	5000
Al (mg/l)	-	-	-	0.056	0.5	-
As (mg/l)	N	0.05	NR	0.045 (0.44)	0.1	+
Ba (mg/l)	N	1	NR	-	-	+
Cd (mg/l)	N	0.005	NR	0.001 (0.011**)	0.01	+
Cr (IV) (mg/l)	N	0.05	NR	0.054 (1.45)	0.1	+
Cr (III) (mg/l)	N	-	NR	- (2.53)	-	+
Cu (mg/l)	N	1	NR	0.01 (0.012*)	0.2	+
Hardness (mg/l)	N	100	NR	-	-	+
Ca (mg/l)	N	-	NR	-	-	+
Mg (mg/l)	N	0.05	NR	-	-	+
Na (mg/l)	N	-	NR	-	3 SAR	+
K (mg/l)	N	-	NR	-	-	+
Fe (mg/l)	N	0.3	NR	1	1(Leaf) 5 (Others)	+
Pb (mg/l)	N	0.05	NR	0.01 (0.014*)	5 -	+
Mn (mg/l)	N	0.1	NR	0.1	0.2	+



PARAMETERS	CLASSES					
	I	IIA	IIB	III#	IV	V
Hg (mg/l)	N	0.001	NR	0.0001 (0.004)	0.002	+
Ni (mg/l)	N	0.05	NR	- (0.9*)	0.2	+
Se (mg/l)	N	0.01	NR	0.037 (0.25)	0.02	+
Ag (mg/l)	N	0.05	NR	- (0.0002)	-	+
Sn (mg/l)	N	NR	NR	0.05	-	+
U (mg/l)	N	NR	NR	-	-	+
Zn (mg/l)	N	5	NR	- (0.35)	2	+
B (mg/l)	N	1	NR	3.4	0.75	+
Cl (mg/l)	N	200	NR	-	79	+
C12 (mg/l)	N	-	NR	0.022	-	+
CN (mg/l)	N	00.2	NR	0.0023 (0.058)	-	+
F (mg/l)	N	1	NR	- (11)	1	+
NO3/NO2 (mg/l)	N	7/3	NR	0.028 (0.37)	5	+
P (mg/l)	N	0.1	NR	0.1	-	+
Silica (mg/l)	N	50	NR	-	-	+
SO ₄ (mg/l)	N	200	NR	-	-	+
S (mg/l)	N	0.05	NR	0.001	-	+
CO ₂ (mg/l)	N	-	NR	-	-	+
Gross- (Bql)	N	0.1	NR	-	-	+
Gross- (Bql)	N	1	NR	-	-	+
Ra-226 (Bql)	N	+0.1	NR	-	-	+
Sr-90 (Bql)	N	+0.1	NR	-	-	+
CCE (µg/l)	N	500	NR	-	-	+
MBAS/BAS (µgl)	N	500	NR	200	NR	+
O & G (Mineral) (ug/ l)	N	40;NF	NR	NL	NR	+
O & G (Emulsified edible) (ug/ l)	N	7000;NF	NR	NL	NR	+
PCB (mg/l)	N	0.1	NR	0.044 (6.1)	NR	+
Phenol (µg/l)	A	10	NR	- (9900)	NR	NR
Aldrin/	A	0.02	NR	0.08	NR	NR
Dieldrin (µg/l)	A		NR	(0.2) 0.13	NR	NR
BHC (µg/l)	A	2	NR	(9.9)	NR	NR



PARAMETERS	CLASSES					
	I	IIA	IIB	III#	IV	V
Chlordane (µg/l)	A	0.08	NR	(2.2) 0.004	NR	NR
t-DDT (µg/l)	A	0.1	NR	(1)	NR	NR
Endosulfan (µg/l)	A	10	NR	- (0.01)	NR	NR
Heptachlor/	A	0.05	NR	0.06	NR	NR
Epoxide (µg/l)	A	-	NR	(0.91)	NR	NR
Lindane (µg/l)	A	2	NR	0.38 (2.9)	NR	NR
2,4-D (µg/l)	A	70	NR	(450)	NR	NR
2,4, 5-T (µg/l)	A	10	NR	(160)	NR	NR
2,4, 5-TP (µg/l)	A	4	NR	(850)	NR	NR
Paraquat (µg/l)	A	10	NR	(1800)	NR	NR

Notes:

CLASS I : Conservation of natural environment water supply I - practically no treatment necessary.
Fishery I - very sensitive aquatic species

CLASS IIA : Water Supply II - conventional treatment required
Fishery II - sensitive aquatic species

CLASS IIB : Recreational use with body contact

CLASS III : Water Supply III - extensive treatment required
Fishery III - common, of economic value, and tolerant species livestock drinking

CLASS IV : Irrigation

CLASS V : None of the above

NV : No Visible floatable materials or debris

NOO : No Objectionable odour

NOT : No Objectionable taste

** : Related Parameters, only one recommended for use

@ : Maximum not to be exceeded

NR : No Recommendation

* : At hardness 50 mg/l CaCO₂

: 24-hr average and maximum (bracketed) concentrations are shown

NF : Free from visible film, sheen, discoloration and deposits

NL : Free from visible layer, discoloration and deposits

N : Natural levels

+

A : Absent

ENVIRONMENTAL QUALITY REPORT

ISSN 0127-6433



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