Rm 30

Environmental Quality Report

Department of Environment
Ministry of Science, Technology
and the Environment
Malaysia

Environmental Quality Report 1994

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1994

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FOREWORD

The yearly publication of the Environmental Quality Report besides fulfilling the requirement of Section 3(1) (i) of the Environmental Quality Act, 1974 also brings into focus the progress made in the defence of the environment in Malaysia and to a lesser extent highlights the inadequacies for further improvement to our environmental effort.

The year 1994 was yet another eventful and challenging period for the Department of Environment. A multitude of programmes and activities were initiated reflecting the commitment and sincerity of the government in dealing with environmental issues as well as in protecting and enhancing the quality of the environment and development.

The air quality was generally healthy throughout the country for the first eight months of the year until September when many parts of the country became shrouded by haze. Ground visibility dropped to 1000 metres and down to 500 metres in some places. Besides causing a lot of public inconvenience and other socio-economic and health impacts, it also brings home the point that air is vital for healthy living. The impact and realities of transboundary pollution was never more clearly demonstrated.

Similarly water quality continued to be monitored to gauge the quality and effectiveness of both preventive and control measures. The number of clean rivers increased to 38 as compared to 33 in 1993. However, suspended solids due to uncontrolled earthworks, untreated or partially treated sewage and animal waste still remained the main pollutants of both fresh and marine waters.

The processing of EIA reports was extended to all the ten State DOE Offices. The average processing time also had been reduced further from 2.9 months in 1993 to 2.7 months in 1994, well within the target of 3 months of DOE Clients' Charter.

Increasing number of exhibitions by 100 per cent, library users by 81 per cent, talks and lectures by 54 per cent and involvement of the private sector in environmental programmes clearly indicate that environmental education and awareness among the public has remarkably improved. The Malaysia Environment Week logo was launched during the year 1994 with the "bee" as a symbol to denote its environment-friendly and non-destructive nature.

In the international arena, our regional co-operation with ASEAN

countries and collaboration with international agencies had never been better. We actively performed our role as the focal point for environmental matters and we were honoured with the official visit of Ms. Elizabeth Dowdeswell, UNEP's Executive Director, in June 1994.

It is with a pleasant duty that I hereby present this Environmental Quality Report of 1994 for the consideration and perusal of all concerned over the state of our environment and development.

DATO' IR. DR. ABU BAKAR JAAFAR,
DPMP, JSM, KMN
Director-General of Environmental Quality,
Malaysia

August 30, 1995

ABBREVIATIONS

ALAM	Maritime Academy of Malaysia
AMME	ASEAN Ministerial Meeting on the Environment
APELL	Awareness and Preparedness for Emergencies at Local Level
ASEAN	Association of South East Asian Nations
ASOEN	ASEAN Senior Officials on the Environment
AWGEE	ASEAN Working Group on Environmental Economics
BOD	Biochemical Oxygen Demand
CDC	Curriculum Development Centre
CETDEM	Centre for Environmental Technology Development Malaysia
CETEC	Centre for Environmental Technologies
CFC	Chlorofluorocarbon(s)
COBSEA	Co-ordinating Body on the Seas of East Asia
COD	Chemical Oxygen Demand
CPO	Crude Palm Oil
DANCED	The Danish Co-operation for Environment and Development
dB	decibel(s)
DOE	Department of Environment
DOKUMAS	Document Management System
E. coli	*Escherichia coli*
EERC	Environmental Education Resource Centre
EIA	Environmental Impact Assessment
EIP	Environmental Improvement Project
EPSM	Environmental Protection Society of Malaysia
EQA	Environmental Quality Act
EQC	Environmental Quality Council
EQR	Environmental Quality Report
ESCAP	Economic and Social Commission for Asia and the Pacific
EXCO	Executive Council
EXCOM	Executive Committee
FMM	Federation of Malaysian Manufacturers
FOMCA	Federation of Malaysian Consumers Association
FRIM	Forest Research Institute of Malaysia
GIS	Geographic Information System
HSU	Hartridge Smoke Unit(s)
INFOTERRA	International Referral System for Sources of Environmental Information
INTAN	National Institute of Public Administration
IRPTC	International Register of Potentially Toxic Chemicals
JICA	Japan International Co-operation Agency
MAC	Mobile Air Conditioning
MACRES	Malaysian Centre for Remote Sensing
MAMPU	Malaysian Administrative Modernisation and Management Planning Unit
MARDI	Malaysian Agricultural Research and Development Institute
MASAAM	Motorcycles and Scooter Assemblers Association of Malaysia

MAYC	Malaysian Association of Youth Centre
MEW	Malaysia Environment Week
MEXCOE	Ministers and State Executive Councillors Responsible for Environmental Matters
MIDA	Malaysian Industrial Development Authority
MIMOS	The Malaysian Institute of Microelectronic Systems
MITI	Ministry of International Trade and Industry
MMTA	Malaysian Motor Traders Association
MMVAA	Malaysian Motor Vehicles Assemblers Association
MNS	Malayan Nature Society
MOA	Ministry of Agriculture
MOH	Ministry of Health
MOHR	Ministry of Human Resources
MOLPA	Malaysia Ozone Layer Protection Award
MOPGC	Malaysian Oil Palm Growers' Council
MOSTE	Ministry of Science, Technology and the Environment
MOT	Ministry of Transport
MRPC	Malaysian Rubber Producers' Council
MSJCE	Malaysia-Singapore Joint Committee on the Environment
NFP	National Focal Point
NGO	Non-Government Organisation
NH_3N	Ammoniacal Nitrogen
ODS	Ozone-Depleting Substance(s)
ODSONET	Ozone-Depleting Substances Network
OECD	Organisation for Economic Co-operation and Development
OPAC	On-line Public Access Catalogue
OSPAR	Oil Spill Preparedness and Response
OSRAP	Oil Spill Response Action Plan
PAJ	Petroleum Association of Japan
PIC	Prior Informed Consent
PM	Particulate Matter
RM	Ringgit Malaysia
RNR	Raw Natural Rubber
SEAP	South East Asia Pacific
SIRIM	Standards and Industrial Research Institute of Malaysia
SNAL	Significant New Alternatives List
SOM	Senior Officials Meeting
SOP	Standard Operating Procedure
SS	Suspended Solids
TSP	Total Suspended Particulate
TSS	Total Suspended Solids
UKM	Universiti Kebangsaan Malaysia
ULG	Unleaded Gasoline
UM	Universiti Malaya
UMNO	United Malay National Organisation
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIMAS	Universiti Malaysia Sarawak
UPM	Universiti Pertanian Malaysia
UTM	Universiti Teknologi Malaysia
WQI	Water Quality Index
WWF	World Wide Fund for Nature

1

Overview

Throughout the year in review, the Department of Environment (DOE) had a busy and productive year. As in the previous year, the activities of the DOE in 1994 were focussed more on preventive than on curative measures. However, as emissions from motor vehicles remained the significant source of air pollution in Malaysia, enforcement activities were concentrated on the control of black smoke emission from diesel-powered vehicles. During the year, DOE carried out intensive round-the-clock operations to combat smoky vehicles in the Klang Valley Region, and similar enforcement actions by DOE State Offices were also stepped up.

Pollution control and abatement remained the principal thrusts of DOE and enforcement activities continued to be given high priority. This is reflected in the increase in the number of prosecution cases by 61 per cent; revenue collection from industrial offences by 48 per cent; directives and notices to polluting factories by 24 per cent; and number of compounds by 19 per cent. The year 1994 also saw an increase in the number of premises applying for contravention licences as indicated by a negative rate of change of 117 per cent. The increase in the number of applications for contravention licences was a direct outcome of enforcement activities. Licences were issued to industries facing genuine difficulties in complying with the discharge standards as required under Sections 22(1) and 25(1) of the Environmental Quality Act, 1974.

The promotion of environmental awareness and wider dissemination of information, as a preventive strategy in environmental management continued to be given high priority. This was reflected by the increase in the number of environmental exhibitions by 100 per cent, as well as talks and lectures to school children and the general public by 54 per cent. The increase in the number of enviro-library users by 81 per cent and enviro-media coverage by 25 per cent was an indicator of the level of environmental awareness in the country .

The decentralisation of EIA report processing was further extended to four other DOE State Offices, namely Melaka/ Negri Sembilan, Pahang, Terengganu/ Kelantan and Sabah. However, the review and approval of EIA reports involving projects in Kedah and Perlis, and those in the Exclusive Economic Zone were still handled at the Head Office. To enhance the EIA process, specific EIA sector guidelines were published and the registration of EIA consultants were initiated.

The state of the environment in respect of air, river, coastal and marine water quality continued to be monitored. Though the overall environmental quality trend appeared to be still on the decline, the rate of change was less marked than previous years. However, the level of ambient airborne lead improved by 8 per cent whilst *E. coli* contamination of coastal waters experienced a marked improvement.

During the last quarter of the year, the air quality was unhealthy due to the recurrence of haze, particularly between September 27 to October 11, where horizontal visibility in some places dropped to as low as 500 metres. The haze conditions were mainly caused by smoke particulates transported from forest fires in Kalimantan and Southern Sumatra, and aggravated by local sources such as emission from motor vehicles and

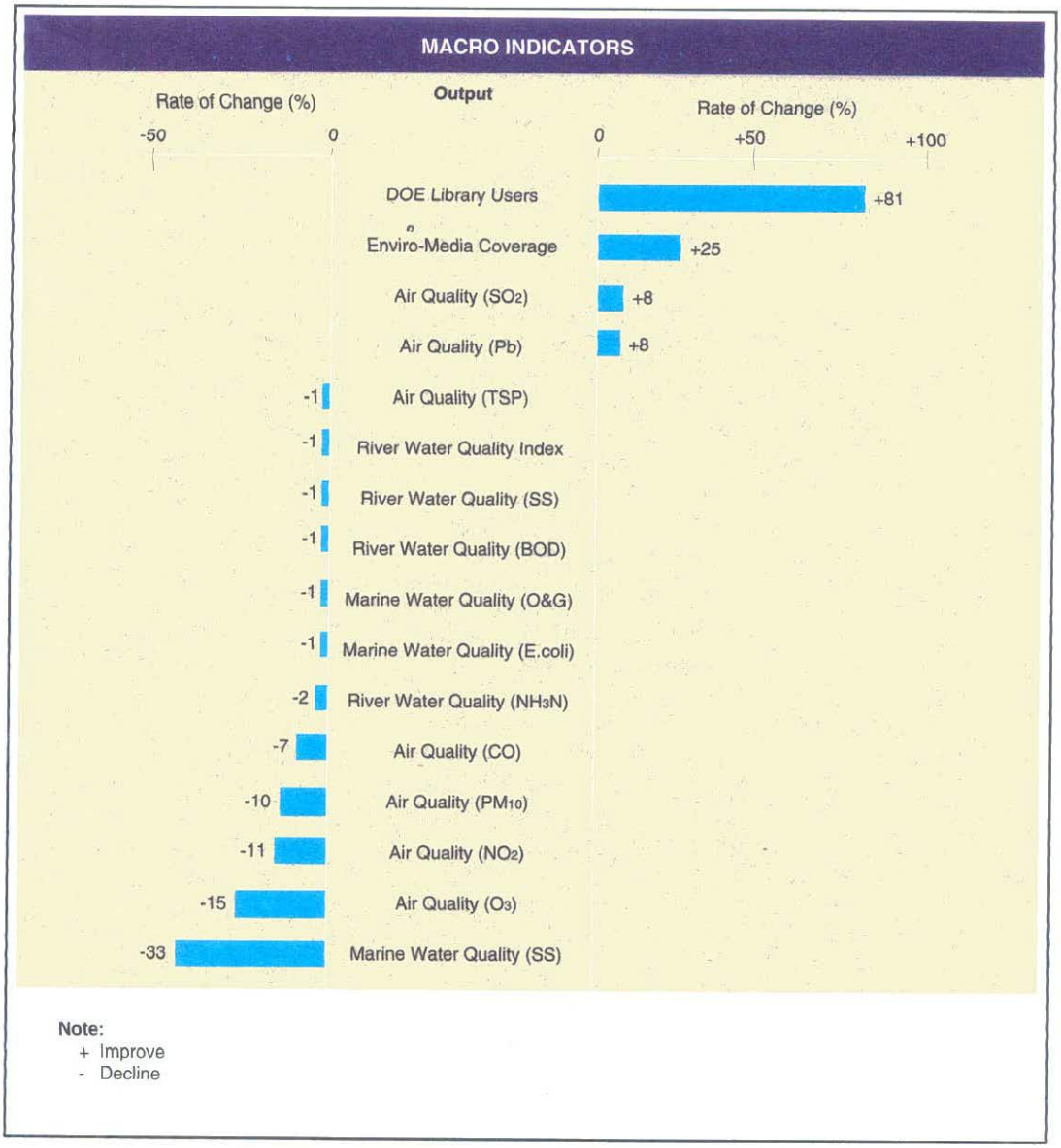


Figure 1.1 Department of Environment: Macro Performance Indicators for the State of the Environment and Public Awareness, 1977–1994

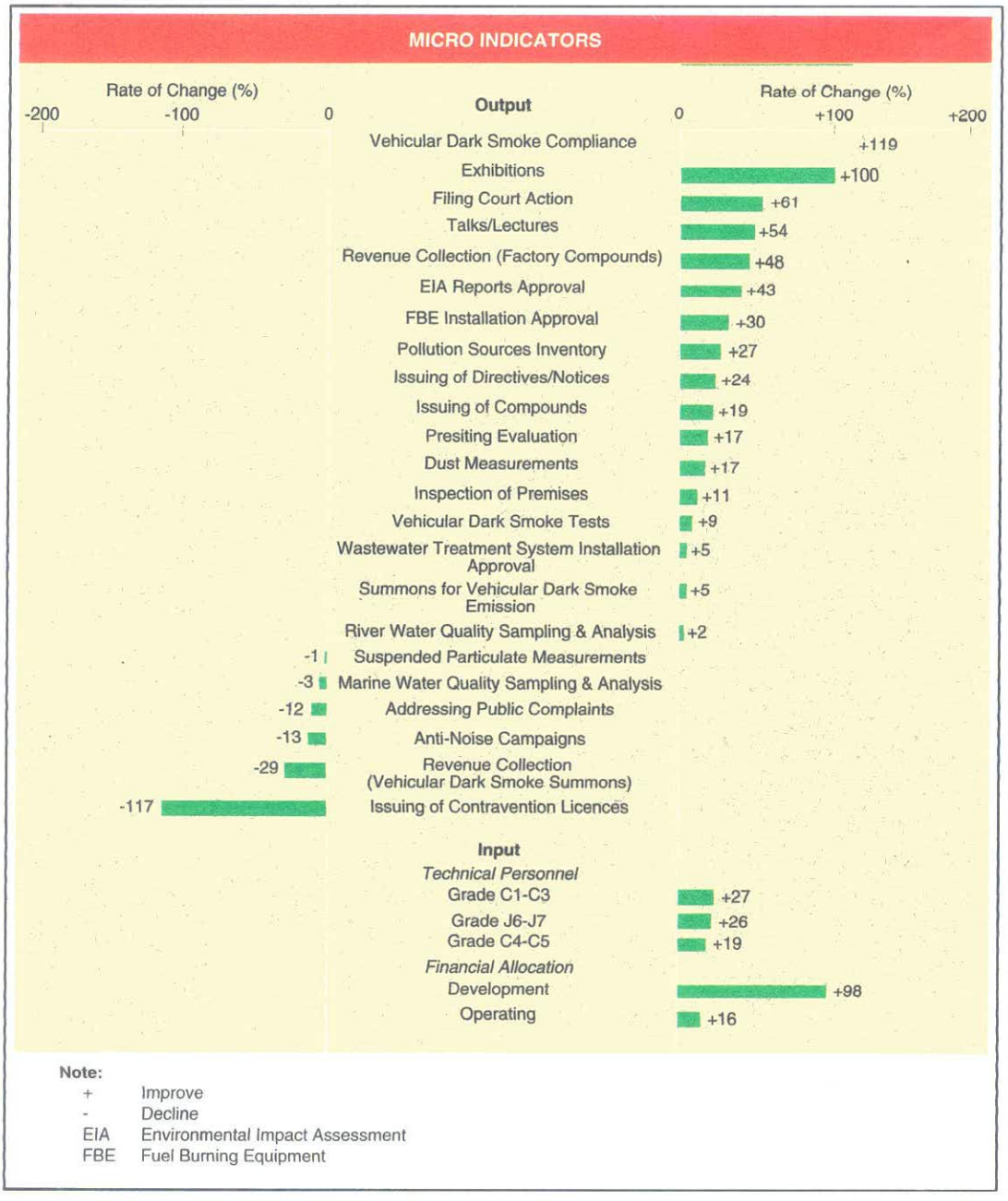


Figure 1.2
Department of Environment: Productivity by Input and Output Indicators, 1975–1994

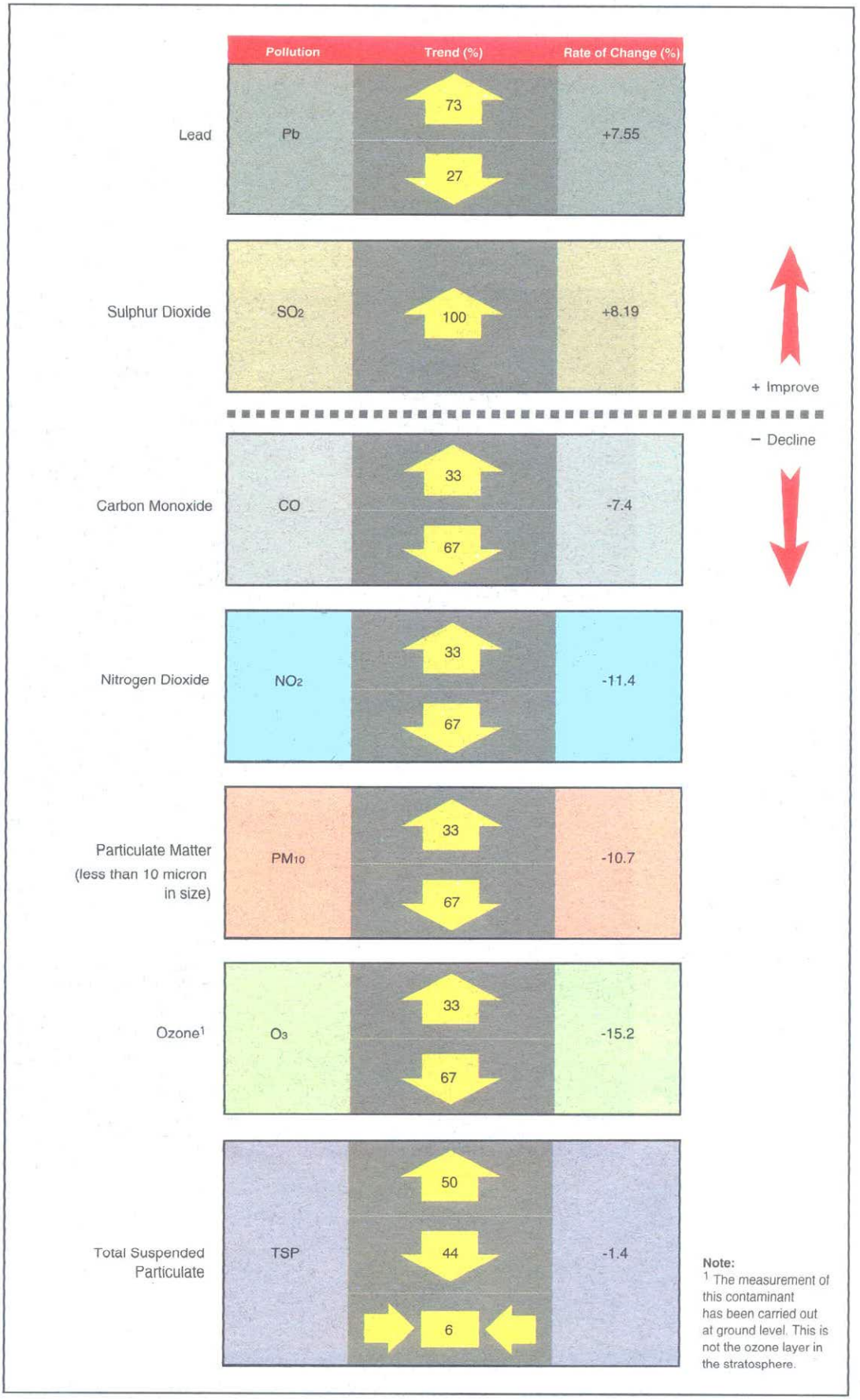


Figure 1.3 Changes in Air Quality, 1988–1994

industries, as well as open burning activities. The prolonged dry weather condition and the prevailing south-westerly winds occurring during the period have intensified the haze situation.

In the field of excellence in environmental management, the Department was awarded the Director-General of MAMPU's Quality Award, the best Client Charter Award for Federal agencies for the second consecutive year, as well as winning MOSTE's Best Award for Inter-departmental Quality Control Circle.

The Director-General of Environment receiving the Director-General of MAMPU's Quality Award from the Director-General of MAMPU

DOE's Quality Control Circle winning team receiving their award from the Honourable Deputy Minister of Science, Technology and the Environment

2

Environmental Quality Council

INTRODUCTION

The Environmental Quality Council (EQC) established under Section 4(1) of the Environmental Quality Act, 1974 and launched on April 12, 1977 is a body to advise the Minister of Science, Technology and the Environment on matters pertaining to the Act and also on any matter referred to it by the Minister. In addition, the Council also provides policy guidance to the Department of Environment (DOE) in the formulation of policies and strategies towards a more holistic approach to environmental management. Professor Dato' Dr. Mohd. Sham Mohd. Sani was appointed the Chairman replacing Tan Sri Datuk Dr. Hamzah Sendut who had served EQC ever since its inauguration in 1977. Council members are appointed by the Minister from the academia, the State Governments, Federal agencies, the industrial sector and non-governmental organisations.

The Department of Environment, who was represented by Dato' Dr. Abu Bakar Jaafar, the Director-General of Environment, served as the Secretariat for the Council.

ACTIVITIES

During the year, the Council held three meetings in Kuala Lumpur on March 1, July 1, and October 3. At its first meeting, the new Council expressed its appreciation and gratitude to Tan Sri Datuk Dr. Hamzah Sendut for his able chairmanship over the past 17 years.

In addition to providing guidance and advice to DOE on policy and strategy formulation, the Council deliberated and dealt with a gamut of issues put before it. In particular, priority was given to enforcement issues and the strengthening of environmental legislations such as the amendments to the Environmental Quality Act, the expansion of the EIA Order and the development of specific sectoral guidelines for EIA prescribed activities; the state of the environment vis-a-vis the monitoring and surveillance programmes and privatisation proposals; and the emerging problems of toxic and hazardous wastes associated with industrialisation.

The Council also discussed the new development arising from the amendment to the Natural Resources and Environ-

55th EQC Meeting on July 1,1994

ENVIRONMENTAL QUALITY COUNCIL 1994

Chairman
Y. Bhg. Prof. Dato' Dr. Mohd. Sham Mohd. Sani

DOE

Y. Bhg. Dato' Dr. Abu Bakar bin Jaafar

Academic

UPM
Assoc. Prof. Dr. Muhamad Awang

State

Sabah
Y. Bhg. Datuk Chin Kui Bee

Sarawak
Abang Helmi bin Tan Sri Ikhwan

Federal

MOSTE
Y. Bhg. Encik V. Danabalan

MITI
Y. Bhg. Encik Asmat Kamaludin

MOA
Y. Bhg. Tan Sri Ir. Tuan Haji Shahrizaila bin Abdullah

MOHR
Ir. Zakaria bin Nanyan

MOT
Encik Ahmad Pharmy bin Abdul Rahman

MOH
Dr. Mukundan Pillay

Industry

Petroleum
Ir. Hussein bin Rahmat

MOPGC
Dr. Gurmit Singh

FMM
Tuan Haji Mohamed Saufi bin Haji Abdullah

MRPC
Ir. Yeo Siow Poh

Non-Governmental Organisation

EPSM
Ir. Gurmit Singh K.S.

MNS
Y. Bhg. Dato' Dr. Salleh bin Mohd. Nor

ment Ordinance of Sarawak to provide for environmental requirements and the implementation of EIA for natural resources development.

Among other matters, the Council also considered proposals to strengthen existing enforcement programmes such as proposals to introduce a scheme for monetary reward to informers of environmental pollution. It also reviewed the achievements in the treatment of rubber and palm oil mill effluents, and deliberated on proposals to review the fees for disposal of their effluents. Further, the Council paid particular attention to activities for promotion of environmental awareness and education and strongly recommended that greater efforts be expanded to intensify these activities.

3

State of the Environment

AIR QUALITY

Monitoring

The Department of Environment continued to monitor the ambient air quality for total suspended particulates (TSP) and respirable particulates (PM_{10}) through a network of 35 monitoring stations located all over the country. Of these stations, 26 were selected for measurement of lead content in the air.

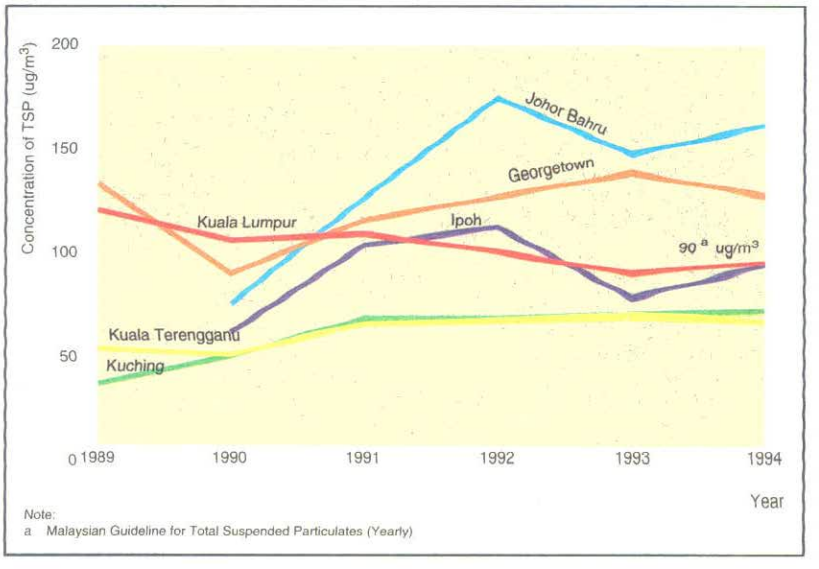
Concentrations of gaseous pollutants over urban and industrial areas of the Klang Valley were monitored at three other stations installed since 1992 during the JICA Air Quality Management Study for the Klang Valley Region. Two of these stations were managed by the Department of Environment, while the third by the Agriculture University of Malaysia (UPM).

Status

The air quality in the country for 1994 was generally good and the levels of pollutants measured were usually below the Malaysian recommended guidelines. The levels of TSP were below the annual recommended guideline value of 90 ug/m^3. Figure 3.1 shows the trend of TSP in a few major cities in the country since 1989. There was a slight improvement of dust levels in the cities of Georgetown and Kuala Terengganu. However, Kuala Lumpur, Ipoh, Johor Bahru and Kuching each recorded a slight increase in dust content in the air over the period of assessment. Lead content in the air for all stations monitored remained below the stipulated guideline value of 1.5 ug/m^3.

The gradual decrease of lead levels since 1990 as shown in Figure 3.2 was principally due to the mandatory requirement of reducing lead content in petrol from 0.40 g/litre to 0.15 g/litre since January 1 of the year. The slight increase of lead content in the air at a number of stations monitored in 1994 could well be attributed to the increase in the number of motor vehicles on the road. Levels of gaseous pollutants recorded at the four stations located within the Klang

Figure 3.1 Malaysia: Average Concentration of Total Suspended Particulates (TSP), 1989–1994



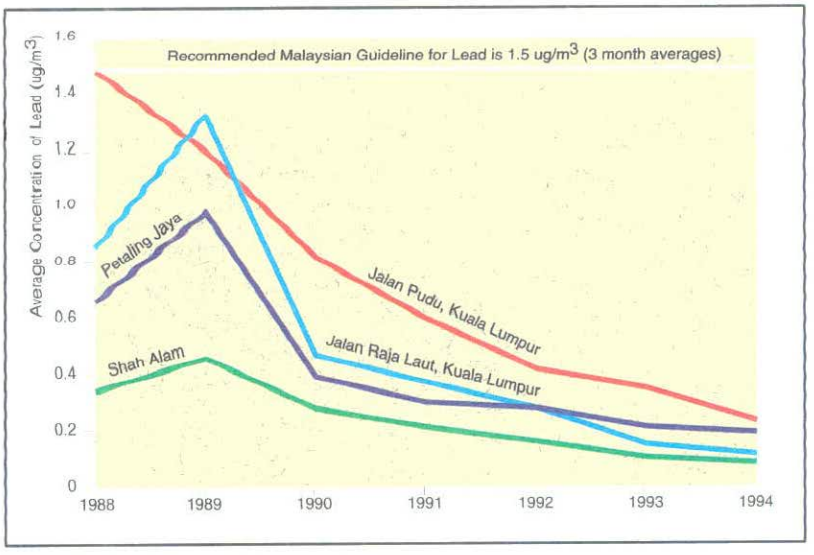


Figure 3.2 Kuala Lumpur & Selangor: Annual Average Concentration of Lead, 1988-1994

Valley were comfortably well below the recommended guideline levels (as indicated in Figure 3.3). There had been no significant increase nor decrease in the levels since measurements were first made in 1992 using the continuous automatic monitoring equipment. Since the Klang Valley is the most industrialised and urbanised area of the country, the rest of the country would be expected to experience similar if not lower levels of gaseous pollutants in its ambient air.

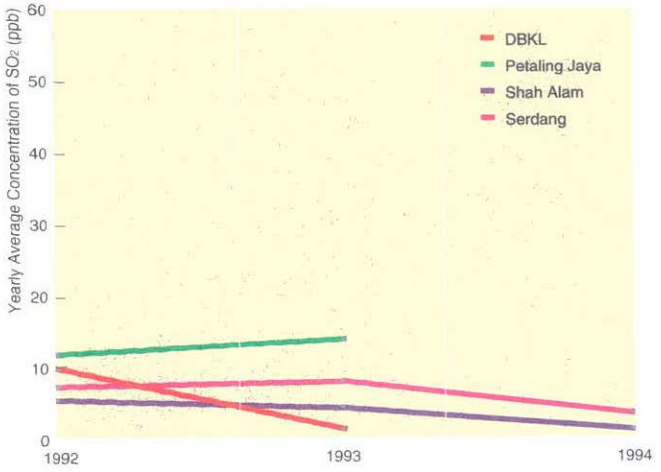
Haze Episode

In 1991, the country experienced very hazy weather condition due to the forest fires in Sumatra. After a lapse of three years, during the month of September 1994 the haze recurred and lasted for over a month, only this time more severe compared to 1991. Serious forest fires in Kalimantan and Southern Sumatra were again identified as the main cause of the problem. The dry weather, and stable lower wind conditions coupled with emissions from local pollution sources such as from motor vehicles, industries, and open burning of wastes also aggravated the situation.

During this period most parts of Peninsular Malaysia, Sabah and Sarawak were engulfed by an unusually prolonged and thick haze. Horizontal visibility at several places dropped drastically to below 1,000 metres and during exceptionally bad days to even as low as 500 metres. Analyses showed that the haze condition was due to very high TSP and PM_{10} content in the air. The worst days were September 7 and 30, 1994 as clearly shown in Figure 3.4. The highest level of respirable particles was 511 ug/m^3 recorded in Shah Alam on September 30, 1994 at about 2100 hours.

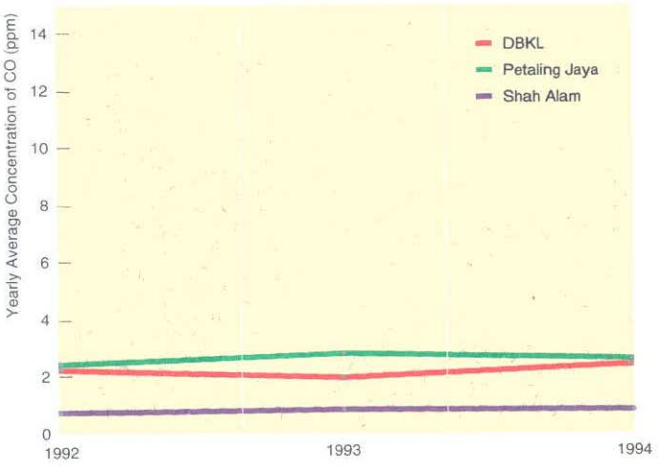
On average, the hourly concentrations of respirable particles during peak hazy days were four to six times higher than on normal days. As indicated in Figure 3.5, the ambient air quality was rated as either unhealthy or very unhealthy

Figure 3.3 Klang Valley: Yearly Average Concentration of Nitrogen Dioxide (NO_2), Carbon Monoxide (CO), Sulphur Dioxide (SO_2), 1992–1994



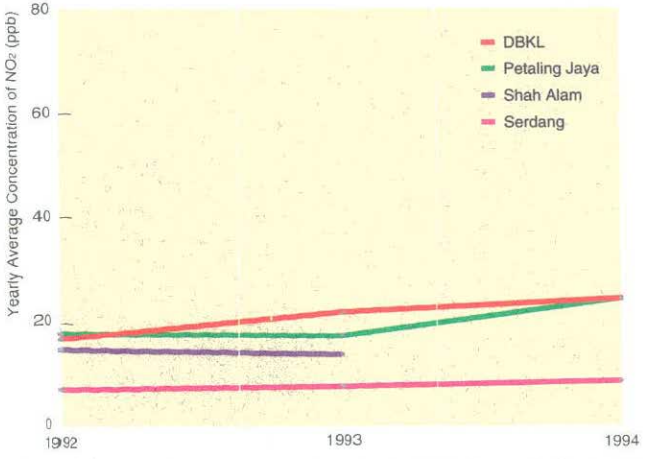
Klang Valley: Yearly Average Concentration of Sulphur Dioxide (SO_2), 1992-1994

Note: Recommended Malaysian Guideline for SO_2 = 40 ppb (24 hr average)



Klang Valley: Yearly Average Concentration of Carbon Monoxide (CO), 1992-1994

Note: Recommended Malaysian Guideline for CO = 9 ppm (8 hr average)



Klang Valley: Yearly Average Concentration of Nitrogen Dioxide (NO_2), 1992-1994

Note: Recommended Malaysian Guideline for NO_2 = 40 ppb (24 hr average)

Figure 3.4

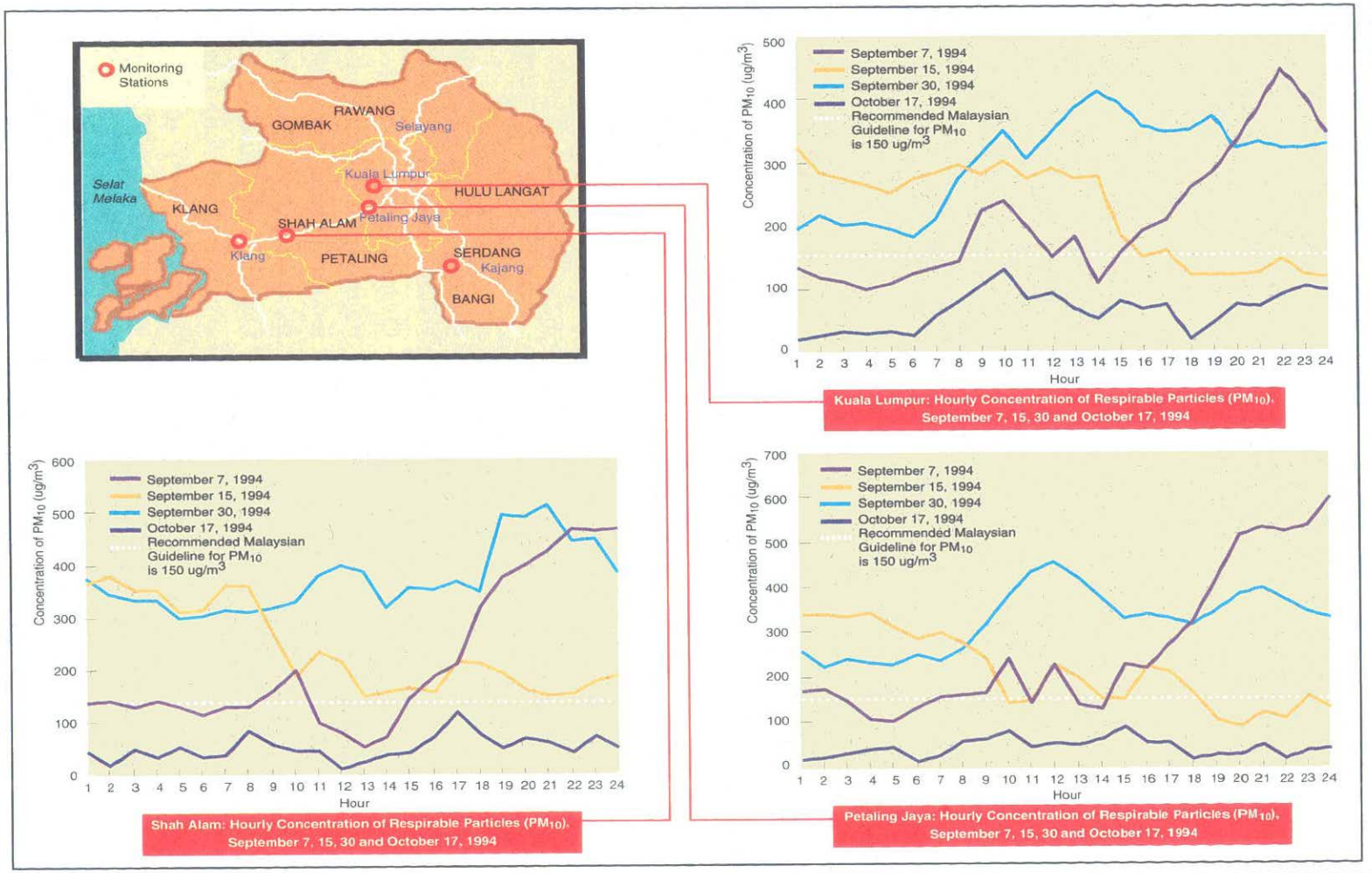


Figure 3.4 Klang Valley: Hourly Concentration of Respirable Particles (PM_{10}), September 7, 15, 30 and October 17, 1994

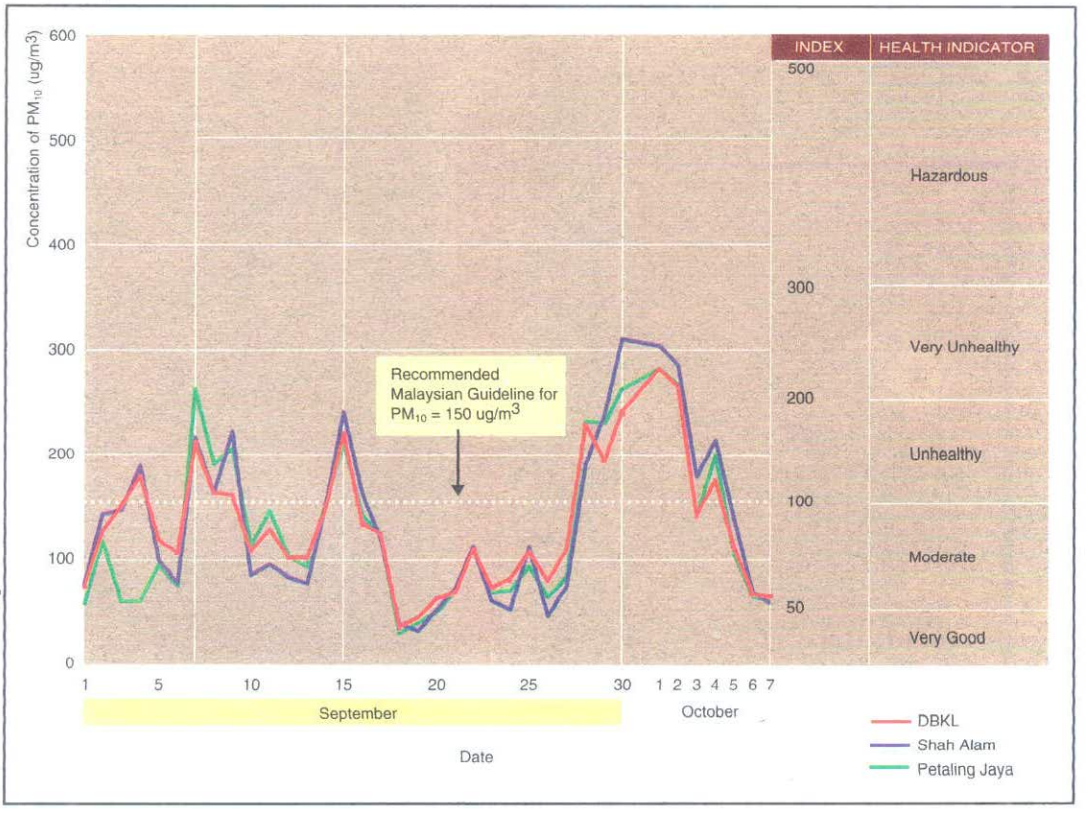


Figure 3.5 Klang Valley: Daily Status of Air Quality [Average Concentration of Respirable Particles (PM_{10})], September 1 - October 7, 1994

according to the Malaysian Air Quality Index. During the haze period, the prevailing winds in the lower troposphere were south-easterlies over western Sarawak and south-westerlies over Peninsular Malaysia transporting smoke particulates from the intense forest fires in Kalimantan and Southern Sumatra. The haze finally dispersed by early October when the low level winds changed direction from south-easterlies to easterlies and north-easterlies.

NOISE MONITORING

Monitoring

Noise measurements were focused mainly in industrial areas. Some 169 sites were selected to monitor noise levels at the boundaries of light, medium and heavy industrial premises as shown in Figure 3.6.

Status

Overall, noise levels recorded at the boundaries of the various types of industrial premises exceeded 65 dB(A)Leq, the guideline value recommended by the Department of Environment. The range of measurements for premises of medium, light and heavy industries were respectively 51.7 dB(A)Leq - 80.9 dB(A)Leq, 52.9 dB(A)Leq - 81.5 dB(A)Leq and 56.4 dB(A)Leq - 76.9 dB(A)Leq.

By comparison, the noise levels at the boundaries of industrial premises were much higher than the recommended value. Only a few premises registered noise levels below 65 dB(A)Leq.

A clear day in Kuala Lumpur

A hazy day in Kuala Lumpur

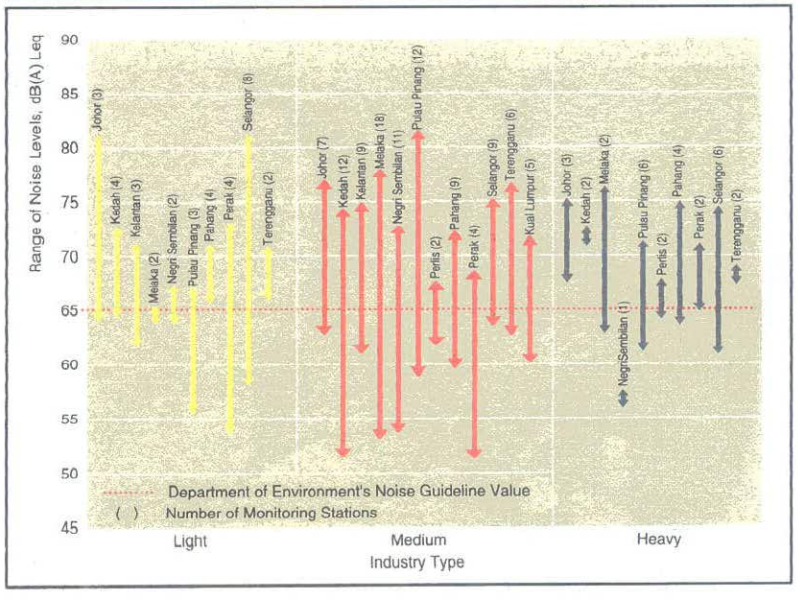


Figure 3.6
Malaysia: Range of Noise Levels by Industry Type, 1994

RIVER WATER QUALITY

Monitoring

A total of 116 major rivers were monitored under the Annual River Water Quality Monitoring Programme. A total of 3,700 samples from 936 monitoring stations were taken, a decrease of about 9 per cent compared to the number of samples collected in 1993.

Status

Though the overall river water quality in 1994 had deteriorated at a rate of 0.92 per cent, it was still a slight improvement from the previous year. From the 936 stations monitored, 238 stations showed an improvement in water quality while at 698 stations, the quality had deteriorated. The appraisal of water quality was based on the Water Quality Index (WQI) for five parameters namely, Biochemical Oxygen Demand (BOD_5), Chemical Oxygen Demand (COD), Ammoniacal Nitrogen (NH_3N), Suspended Solids (SS) and pH. The number of clean rivers had increased from 32 (27 per cent) in 1993 to 38 (33 per cent) in 1994. Of these, 16 rivers were in Peninsular Malaysia, 16 in Sabah and 6 in Sarawak. The number of polluted rivers had also increased from 11 (9 per cent) in 1993 to 14 (12 per cent) in 1994, and the number of slightly polluted rivers had decreased from 73 (85 per cent) in 1993 to 64 (55 per cent) in 1994. The polluted rivers were Sg. Dondang, Sg. Juru and Sg. Jejawi in Pulau Pinang, Sg. Kempas, Sg. Tukang Batu, Sg. Rambah, Sg. Benut and Sg. Pasir Gudang in Johor, Sg. Sepang, Sg. Kelang and Sg. Buloh in Selangor, Sg. Batu in Perak, Sg. Miri/Lutong in Sarawak and Sg. Jimah in Negri Sembilan.

Figure 3.7, shows that major contributors to river pollution were silt due to soil erosion and organic loadings from sewage and animal waste as indicated by SS and NH_3-N. BOD indicated the extent of river pollution due to organic discharges from agro-based and other industries.

As in the previous years, heavy metals were monitored only at 76 selected rivers. It was found that in certain rivers, mercury, lead, cadmium, zinc and copper

***In-situ* water quality measurements**

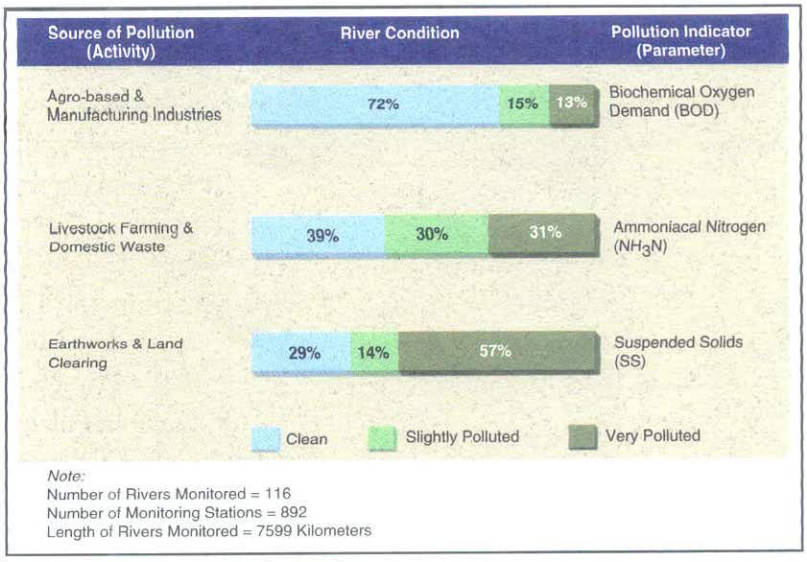


Figure 3.7 Malaysia: Status of River Water Quality Based on Activity, 1994

levels had exceeded the Interim National Water Quality Standards for Class III in Malaysia. Sg. Dámit/Tuaran, Sg. Sedili Besar, Sg. Pahang, Sg. Kempas were rivers which recorded higher concentrations of heavy metal content. Sg. Damit/Tuaran in Sabah was noted to have exceeded most of the heavy metal standards compared to other rivers in the country. Heavy metal pollution in the rivers were caused mainly by industrial discharges.

Faecal coliform is another indicator of river pollution caused by human or animal wastes. Out of the 76 rivers monitored, 18 rivers exceeded the standards for *Escherichia coli* and total coliform. The four most contaminated rivers were in Selangor namely, Sg. Sepang, Sg. Klang, Sg. Buloh and Sg. Selangor. Sg. Golok in Kelantan which received pollution loads from Malaysia and Thailand, also indicated high coliform counts of 5,400/100 ml for *Escherichia coli* and 21,000/100 ml for total coliforms.

MARINE ENVIRONMENTAL QUALITY

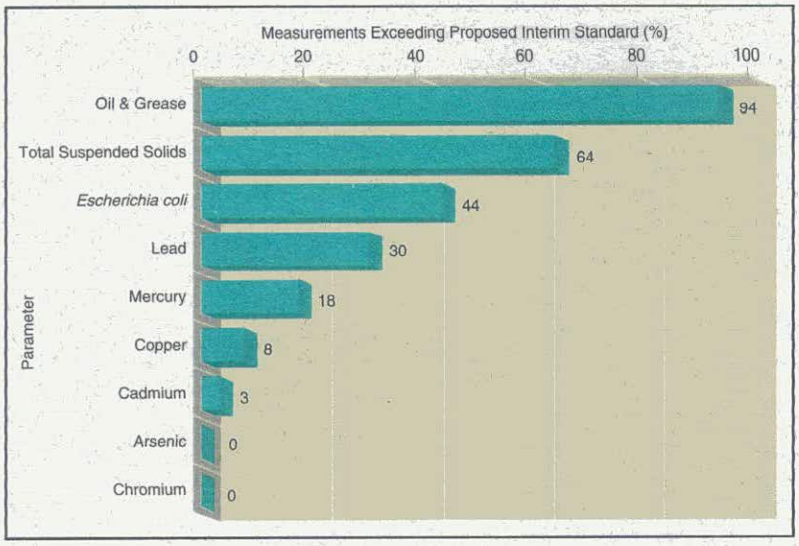
Monitoring

During the year, a total of 681 samples were collected from 207 marine sites compared to a total of 996 samples taken from 229 marine sites in 1993.

Status

The marine environmental quality in 1994, when compared to 1993 had slightly deteriorated. As in previous years, oil and grease, total suspended solids (TSS) and *Escherichia coli* (*E. coli*) were the main contaminants of the coastal waters of all states except Perak. About 98 per cent of the total number of monitoring sites were polluted by oil and grease, 62 per cent by TSS and 58 per cent by *E.coli*. Traces of heavy metals were detected in coastal waters off Perak, Johor, Pulau Pinang, Kelantan and Sabah. Almost all the beaches were found to be free from oil pollution in the form of tarballs, except some beaches in Johor and Pahang.

Figure 3.8 Malaysia: Status of Marine Water Quality, 1994



***In-situ* measurements of marine environmental quality**

In terms of *E. coli* readings exceeding the Proposed Interim Standard of 100 MPN/100ml were observed in the states of Melaka, Negri Sembilan, Selangor and Johor, whereas in coastal waters off Pulau Pinang, Pahang, Kelantan and Perak the levels were fairly low.

The contamination by TSS remained evident in the coastal waters off Perak, Pulau Pinang, Kedah, Melaka, Pahang, Kelantan and also Sarawak. These states recorded higher percentages of readings exceeding the Proposed Interim Standard of 50 mg/l.

More occurrences of lead levels exceeding the Proposed Interim Standard of 0.1 mg/l were recorded in the coastal waters off Perak, Pulau Pinang and Kelantan, and as for mercury, levels exceeding the Proposed Interim Standard of 0.001 mg/l were most frequently observed in coastal waters off Johor. Levels of the other heavy metals monitored such as cadmium, chromium, arsenic and copper were within the interim standards (Figure 3.8).

4

POLLUTION ABATEMENT

CONTROL OF AGRO-BASED PRESCRIBED PREMISES

Status of Compliance with the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977

Investigations carried out by the Department of Environment in 1994 revealed that the overall compliance of crude palm oil (CPO) mills to the specified regulations was 72 per cent, an increase of 10 per cent from the previous year. Figure 4.1 shows that CPO mills in Terengganu, Melaka, Selangor and Kedah achieved the highest compliance rate, while those in Sarawak and Pulau Pinang were the lowest. Of the 275 CPO mills licenced, 15 mills were taken to court for various offences under the Environmental Quality Act, 1974 (Figure 4.2).

As in previous years, the lack of maintenance of effluent treatment systems was found to be the principal reason for non-compliance.

Status of Compliance with the Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978

As for raw natural rubber (RNR) processing factories, 87 per cent were found to comply with the discharge standards specified under the regulations, an increase of 12 per cent from the previous year. Figure 4.3 and Figure 4.4 respectively illustrate the status of compliance of the 178 licensed RNR factories and the cases of legal action taken against the violators for 1994.

The main reason of non-compliance by RNR factories, as in the case of CPO mills, was due to lack of proper and adequate maintenance of effluent treatment system, hence resulting in effluent discharge exceeding the prescribed standards.

Water Sampling at Final Discharge Point of a Crude Palm Oil Mill during an Enforcement Visit

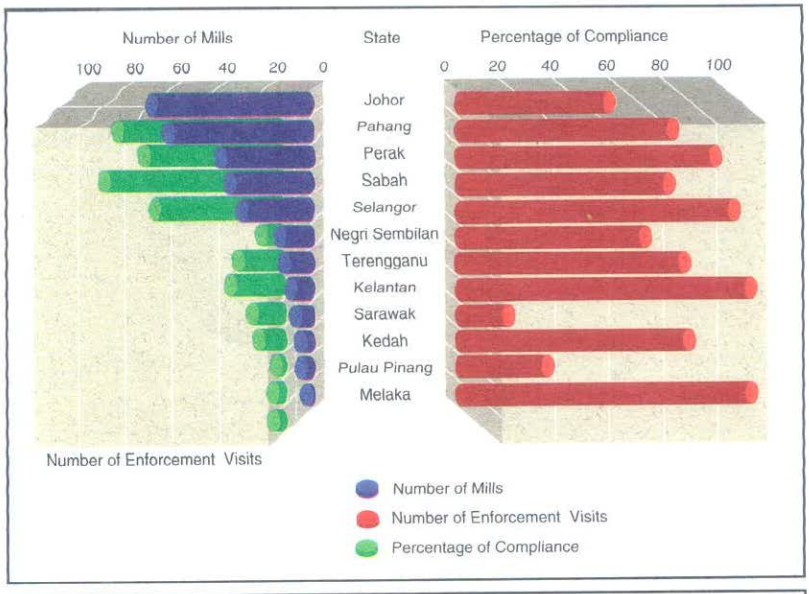


Figure 4.1 Malaysia: Status of Compliance of Palm Oil Mills, 1994

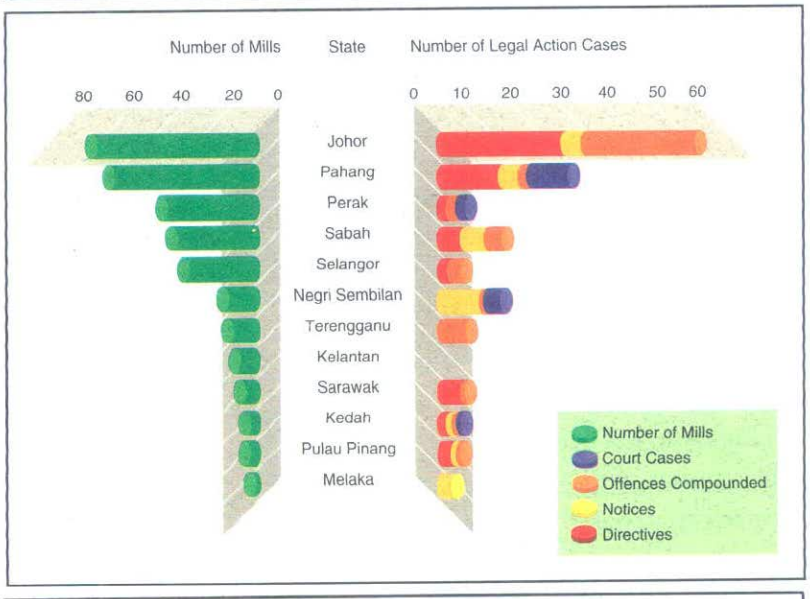


Figure 4.2 Malaysia: Number of Legal Action Cases Against Palm Oil Mills, 1994

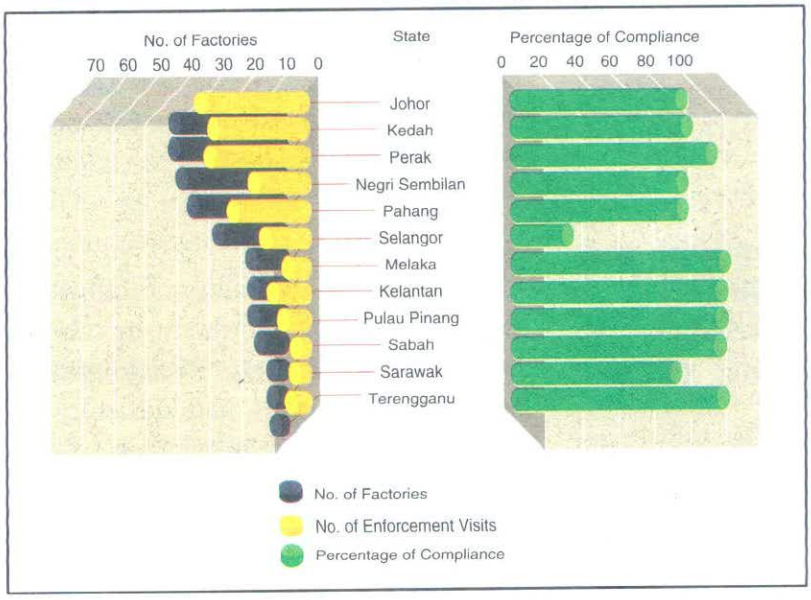
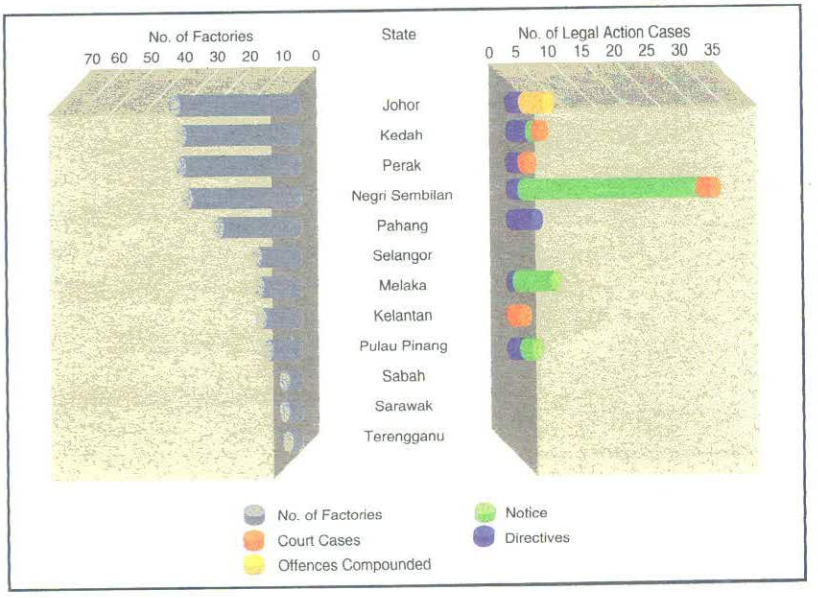


Figure 4.3 Malaysia: Status of Compliance of Raw Natural Rubber Factories, 1994

Figure 4.4
Malaysia: Number of Legal Action Cases Against Raw Natural Rubber Factories, 1994



CONTROL OF NON-PRESCRIBED PREMISES

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

The 1994 overall compliance by the industries to the Environmental Quality (Clean Air) Regulations, 1978 was generally satisfactory as shown in Figure 4.5. The compliance rate was similar to that of the previous year. However, wood, quarry and metal-based industries (mainly steel mills) still encountered problems in efficiently operating and maintaining on-site air pollution control systems such as water sprinklers, dust collectors and bag filters.

Measurement of Black Smoke Emission Using Ringelmann Chart

Status of Compliance with the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979

Figure 4.5 shows that electrical and electronic sectors achieved a compliance rate of 90 per cent to the Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979. However, the rubber-based, food and beverage, metal finishing and paper industries had difficulty to comply with the requirements of the regulations, due either to the absence or lack of proper wastewater treatment

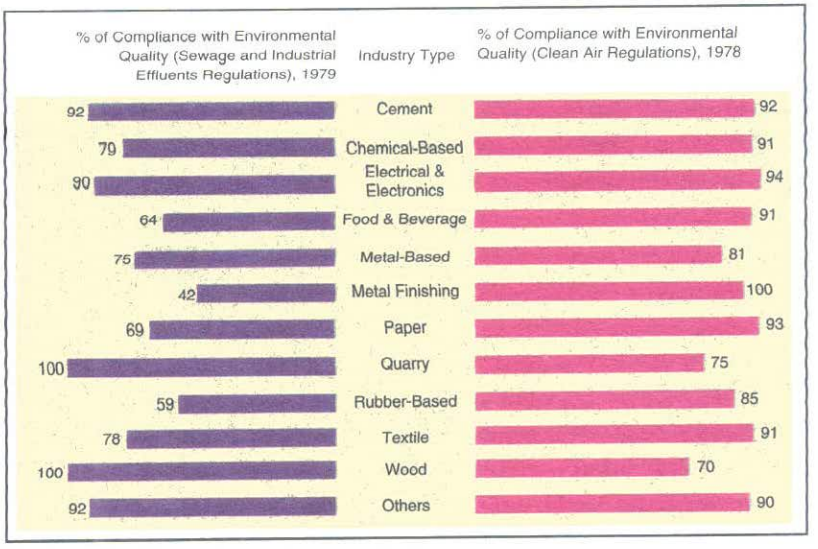


Figure 4.5
Malaysia: Compliance Status of Manufacturing Industries, 1994

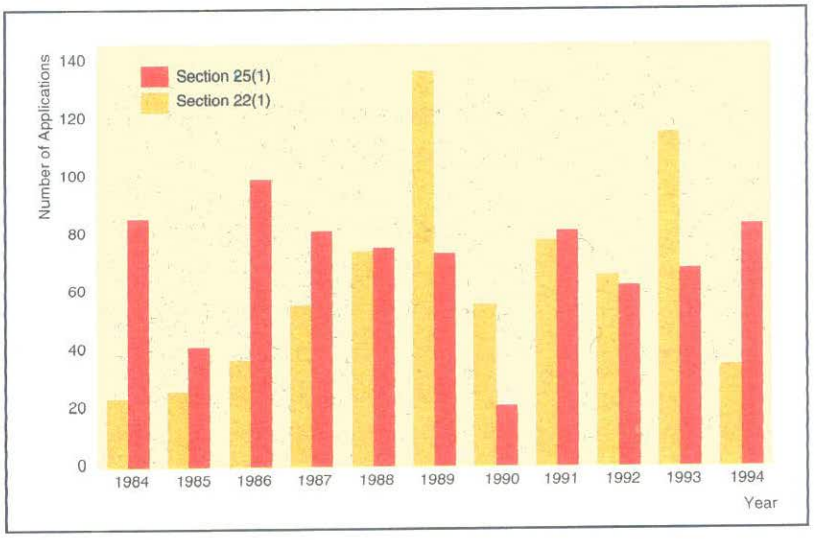


Figure 4.6
Malaysia: Number of Applications for Contravention Licence under Sections 22(1) and 25(1), Environmental Quality Act, 1974, 1984–1994

systems. The metal finishing industry had the lowest compliance rate of only 42 per cent due to the fact that most of the premises were small and medium scale without any form of treatment for its discharges to meet the specified effluents discharge standards.

CONTRAVENTION LICENCE

The Environmental Quality Act, 1974, provides for contravention licences to be issued to industries having genuine difficulties in complying with discharge standards and other stipulated conditions of the Act and subject to the criteria stipulated in the Act.

Figure 4.6 shows the total number of applications for contravention licences received since 1984 under Sections 22(1) and 25(1) of the Act to emit air pollutants and discharge effluents exceeding prescribed standards respectively. Compared to the previous year, the number of licences applied in 1994 for contravening Section 22(1) had declined substantially, while that for Section 25 (1) had slightly increased.

Figure 4.7 indicates that 77 per cent of the applications for contravention licences under Section 22(1) were for open burning of wastes. Of these, 21 applications were rejected, mainly those applications for open burning during the hazy weather conditions from September to November of the year.

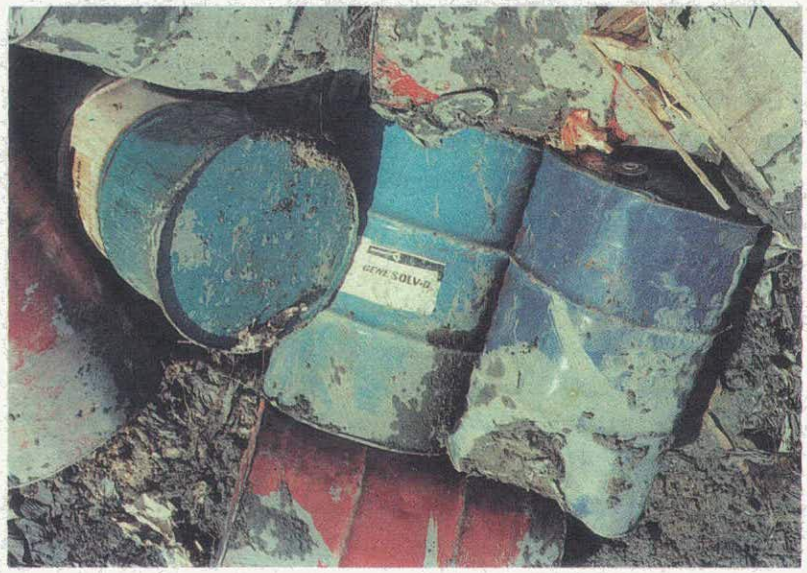
Figure 4.8 gives a breakdown of the 49 licences approved under Section 25(1) of the Act. 34 such applications were rejected due to inadequate information and other reasons. Of those licences approved, 84 per cent were to enable industries to construct or upgrade their effluent treatment plants, while the remaining were for industries unable to obtain appropriate treatment technology suitable for treating effluent to meet the stipulated standards or in the process of relocation.

AIRBORNE SURVEILLANCE

The joint Airborne Surveillance Programme between the Department of Environment and the Police Air Wing entered its third year of operation in 1994. A total of 275 offences were reported by the Police Air Wing. Under the surveillance programme, as shown in Figure 4.9, 114 cases of open burning, 79 cases of black smoke emission, and 39 cases of excessive white smoke from chimneys were detected. Based on the information provided, the Department of Environment instituted enforcement action by issuing 96 compound notices, 25 directives for remedial actions, and 2 prohibition orders. Four cases were prosecuted and 46 cases were referred to other agencies for follow-up actions under their jurisdiction.

SCHEDULED WASTE MANAGEMENT

Enforcement of the Environmental Quality (Scheduled Wastes) Regulations, 1989 was given priority in 1994. Significant quantities of wastes had accumulated in the premises of waste generators pending the establishment of the integrated facility for the collection, treatment and final disposal of scheduled wastes at Bukit Nanas, Mukim Jimah,



Indiscriminate Disposal of Toxic Wastes at Dumping Ground

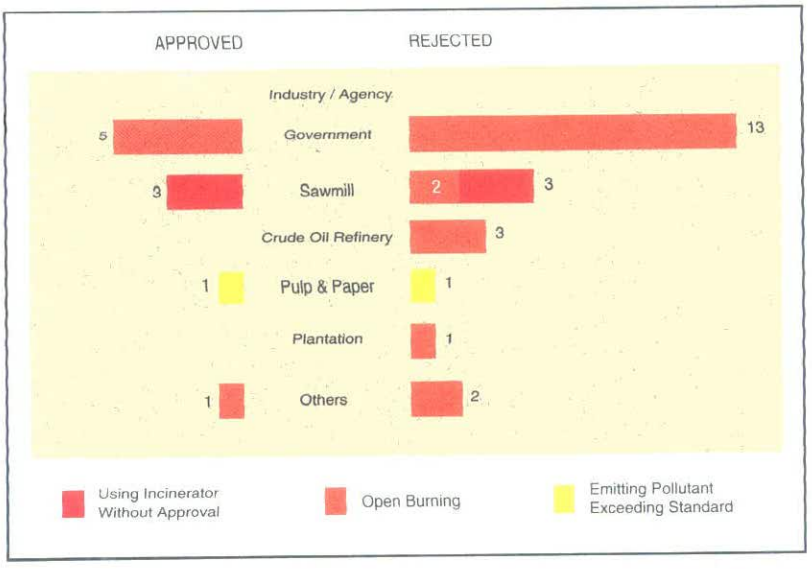


Figure 4.7
Malaysia: Status of Application for Contravention Licence under Section 22(1), Environmental Quality Act, 1974, by Industry, 1994

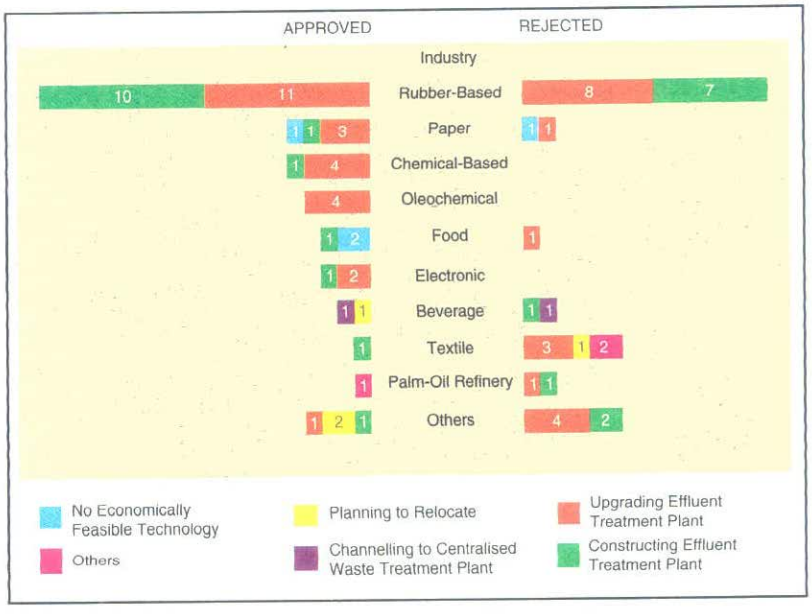


Figure 4.8
Malaysia: Status of Application for Contravention Licence under Section 25(1), Environmental Quality Act, 1974, by Industry, 1994

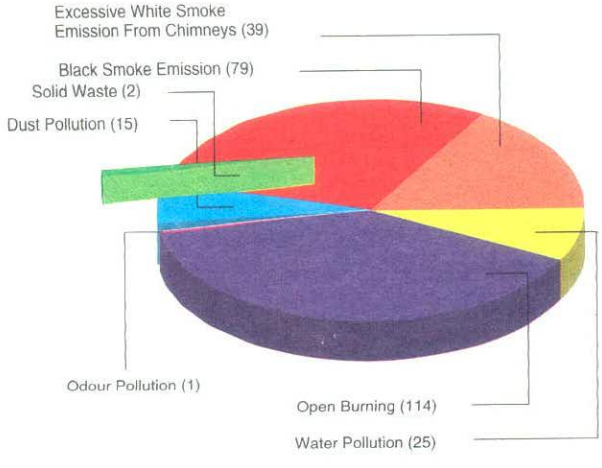
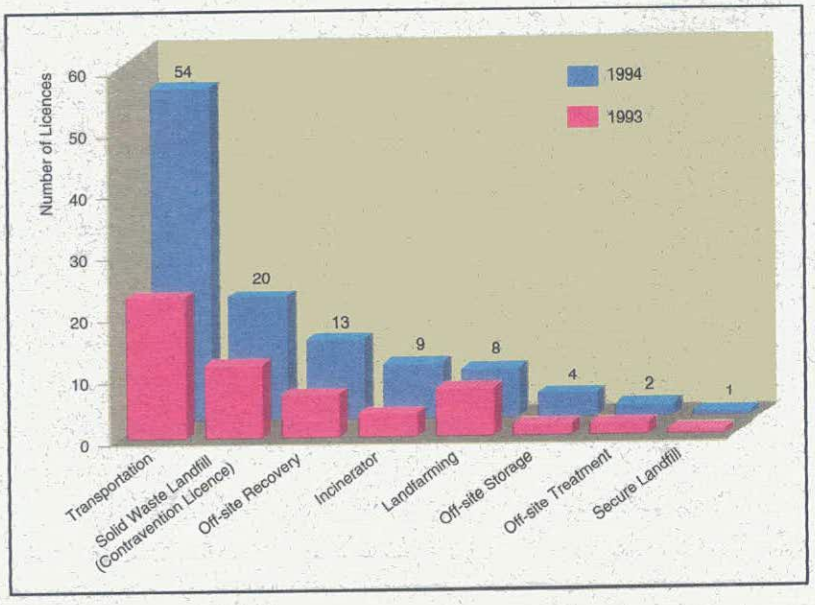


Figure 4.9
Malaysia: Distribution of Complaints Reported by Royal Malaysian Police (Air Wing), 1992–1994

Figure 4.10 Malaysia: Comparison of Licences of Hazardous Waste Treatment and Disposal Facilities Issued by the Department of Environment, 1993–1994



Negri Sembilan. The Department continued to license individual premises involved in recycling or processing of some categories of scheduled wastes into useful products, in line with the Department's objective to encourage as much as possible reutilisation of waste materials. Malaysia became a full-pledged party to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal, which represented another effort towards international co-operation in environmentally sound management of hazardous wastes.

Scheduled Waste Integrated Treatment and Disposal Facility

The construction of the treatment and disposal of hazardous waste facility at Bukit Nanas, Negri Sembilan which was expected to commence in mid-1994 had been delayed, due to difficulties faced by the project proponent in acquiring the site, securing commercial loans and some technical details of the contract which is to be signed between the project proponent and the Government of Malaysia.

Written Permission/Enquiries/ Licences to Handle Scheduled Waste

A total of 111 licences for the setting up of scheduled waste facilities and transportation licences were issued by the Department. The breakdown of the facilities approved in 1994 compared to 1993 is as shown in Figure 4.10. Figure 4.11 indicates the distribution of licences for hazardous waste treatment and disposal facilities issued according to State.

The number of applications and enquiries received (other than licences for scheduled waste prescribed premises) for handling of scheduled waste remained about the same as the previous year, except for waste exports which decreased to about half of that in 1993. Figure 4.12 shows the comparison in the number of enquiries and applications for handling of scheduled waste between 1991 to 1994.

Notification of Waste Generation

The number of waste generators that complied with the notification requirement as mandated under Regulation 3 of the Environmental Quality (Scheduled Wastes) Regulations, 1989, increased from 831 in 1993 to 960 in 1994. From the notification received, it had been estimated that the total amount of waste generated in Malaysia was about 420,000 metric tonnes annually. Figure 4.13 and Figure 4.14 show the distribution of waste according to State and waste categories, respectively.

Implementation of the Basel Convention in Malaysia

On January 6, 1994, the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal came into force in Malaysia.

As a member, Malaysia participated in the Second Meeting of the Conference of the Parties to the Basel Convention which was held in Geneva from March 21-25, 1994. A seven-member delegation led by the Honourable Minister of Science, Technology and the Environment attended the Meeting.

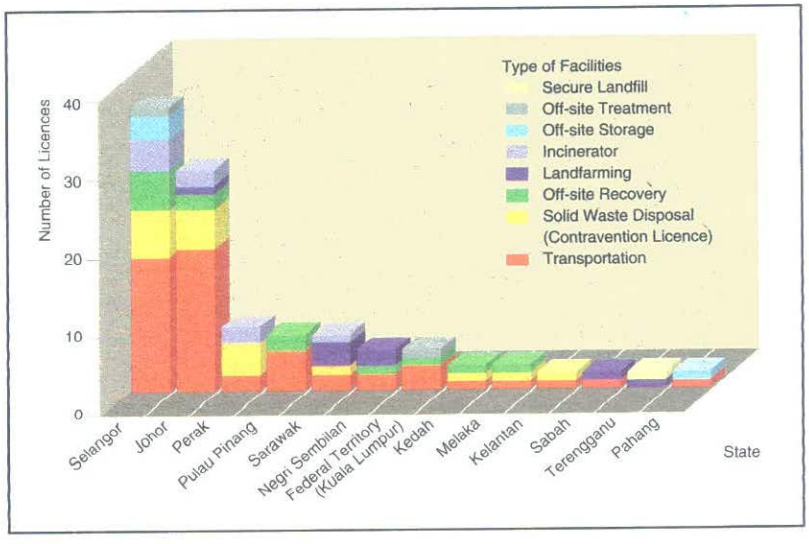


Figure 4.11 Malaysia: Distribution of Licences for Waste Treatment and Disposal Facilities Issued by the Department of Environment According to State, 1994

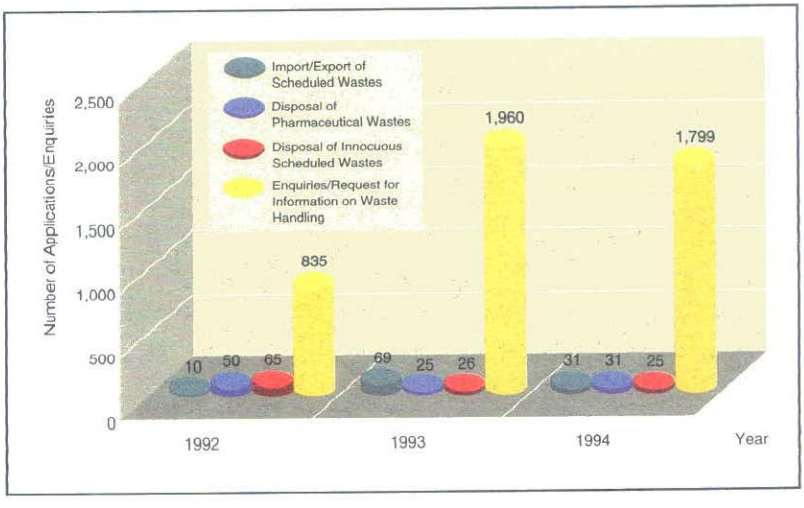


Figure 4.12 Malaysia: Number of Applications/ Enquiries Received by the Department of Environment for Handling Scheduled Waste, 1992–1994

Figure 4.13
Malaysia: Distribution of Scheduled Waste Generated According to State, 1994

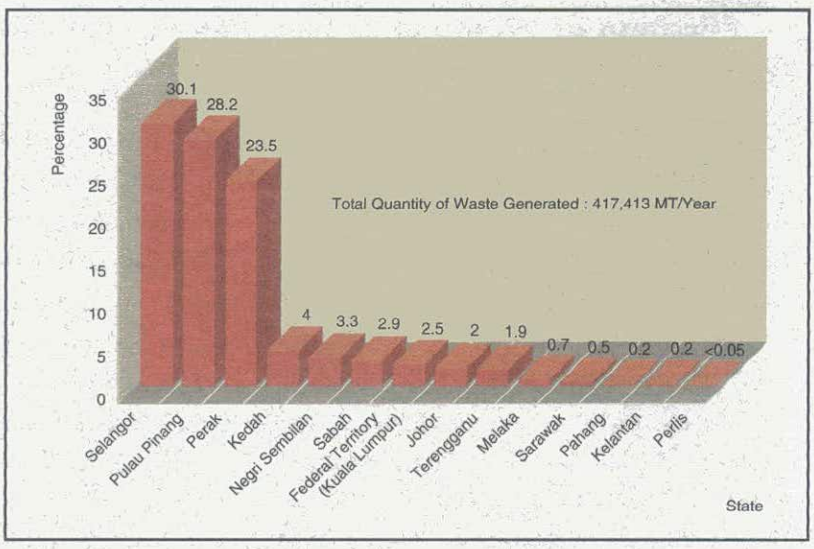
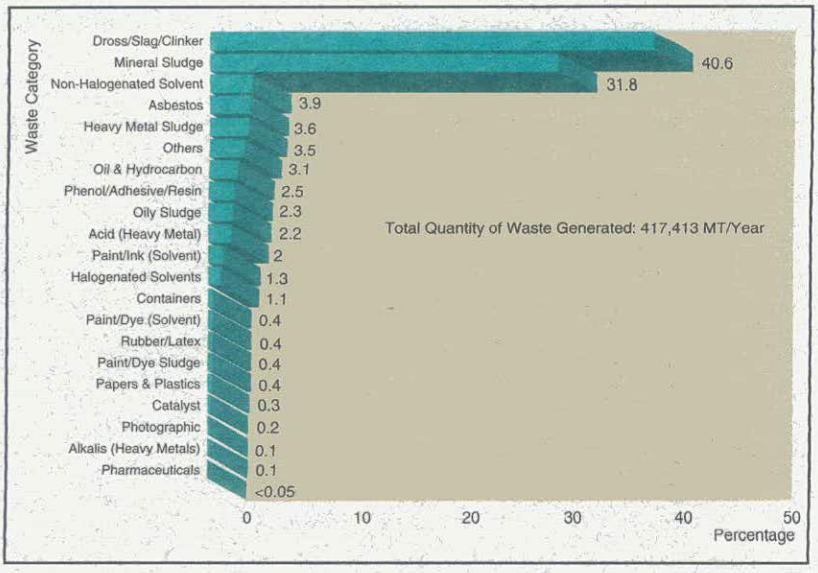


Figure 4.14
Malaysia: Quantity of Scheduled Waste Generated According to Waste Category, 1994



Among the issues discussed at this meeting were the formulation of a protocol on liability and compensation for damages resulting from the transboundary movement of hazardous wastes and their disposal; emergency fund; manual for the implementation of the Convention; bilateral and multilateral agreement and arrangement; technical guidelines for environmentally sound management of hazardous wastes; criteria for wastes destined for recovery operations; establishment of regional centres for training and technology transfer; and the 1995–1996 budget for the implementation of the Basel Convention.

By consensus, the following decisions were taken:

(i) All exports of hazardous waste from OECD to non-OECD countries for **final disposal would be banned immediately;**

(ii) All exports of hazardous waste from OECD to non-OECD countries for

recovery operations would be gradually reduced and totally stopped by December 31, 1997; and

(iii) Non-OECD countries which allow the import of hazardous waste from OECD countries for recovery purposes until December 31, 1997, should inform the Convention Secretariat on the categories, quantities, recovery process and final disposal methods for the residues arising from such operations.

Subsequently, Malaysia also attended the following meetings organised by the Secretariat of the Basel Convention:

(i) Ad Hoc Working Group of Legal and Technical Experts to consider and develop a draft protocol on liability and compensation for damage resulting from the transboundary movement of hazardous wastes and their disposal, Geneva, October 10-14, 1994; and

(ii) Open-Ended Ad Hoc Committee of the Conference of the Parties to the Basel Convention, Geneva, December 12-16, 1994.

The Honourable Minister of Science, Technology and the Environment, Malaysia, listening attentively to the proceedings of the Second Meeting of the Conference of the Parties to The Basel Convention, Geneva, March 21-25, 1994

Malaysian delegation to the Second Meeting of the Conference of the Parties to the Basel Convention, Geneva, March 21-25, 1994

A Regional Seminar on Basel Convention, attended by 39 participants from several ASEAN member countries was held from April 11–13, 1994, in Kuala Lumpur.

At the national level, the National Steering Committee for the Implementation of the Basel Convention, which was chaired by the Secretary-General of MOSTE, met three times during the year. Among the major issues discussed were those pertaining to Malaysia's stand at the Second Meeting of the Conference of the Parties in March and the strategies for the implementation of the decisions adopted at the Meeting.

CONTROL OF MOBILE SOURCES

The problem of air pollution in Malaysia is becoming serious especially in urban areas. The most significant source of air pollution is from motor vehicles. Apart from exhaust emission control measures, urban traffic management scheme has to be tuned to reduce congestion which indirectly would also reduce vehicular emissions.

Black Smoke Emissions

Under the existing legislative provisions, the organisation directly responsible for the control of black smoke emission from diesel vehicles is the Road Transport Department. However, the Department of Environment with the co-operation of the Royal Malaysian Police had also been involved in co-ordinating vehicular smoke emissions enforcement to complement the efforts of the Road Transport Department. Figure 4.15 shows the enforcement statistics for the last ten years. In 1994, a total of 268 enforcement campaigns were conducted. Out of 36,312 vehicles tested, 7,392 were summoned for violating the permissible limit of 50 HSU as specified under the Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977 (Figure 4.16). Pulau Pinang issued the highest summons (2,781) followed by Johor (1,218) and Perak (719). The breakdown according to compliance is shown in Figure 4.17.

Beginning from June 20, 1994 until end of the year, intensive 24-hour operations to combat smoky vehicles in the Klang Valley were conducted with the co-operation of the Kuala Lumpur Traffic Police. The test sites for these operations were at the Toll Plazas of Jalan Kuching, Sungai Besi and Shah Alam. Out of 88,331 vehicles tested, 8,295 vehicles (9.4 per cent) had excessive smoke and were compounded. Analysis of the data collected showed that there was no significant difference in the percentage between old and new vehicles summoned. Lack of maintenance of the vehicle was identified to be the major cause of black smoke emission.

Dialogue with Motor Vehicle Assemblers and Traders

In 1994, two dialogue sessions were held between the Honourable Minister of Science, Technology and the Environment, and the local motor vehicles assemblers. The first session was held on April 19, 1994, with the Motorcycles and Scooter Assemblers Association of Malaysia (MASAAM), while the second was held on December 5, 1994, with the

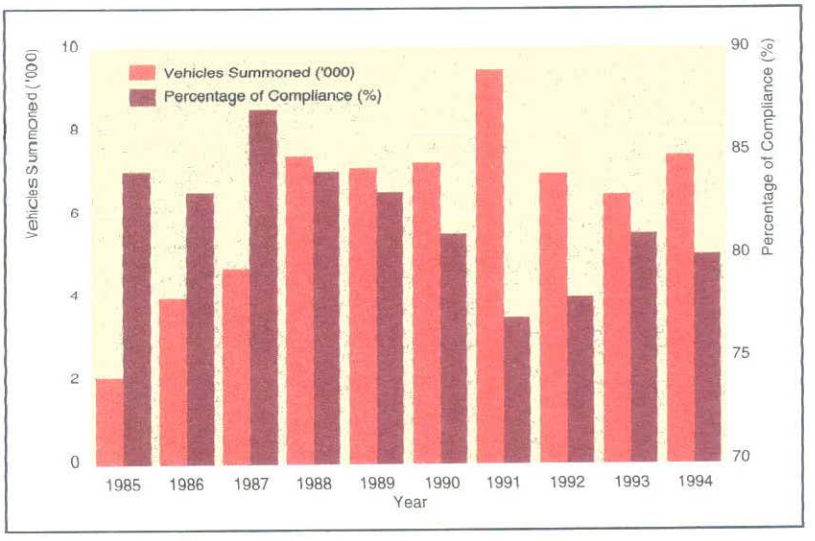


Figure 4.15
Malaysia: Enforcement of Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977, by the Department of Environment and the Royal Malaysian Police, 1985-1994

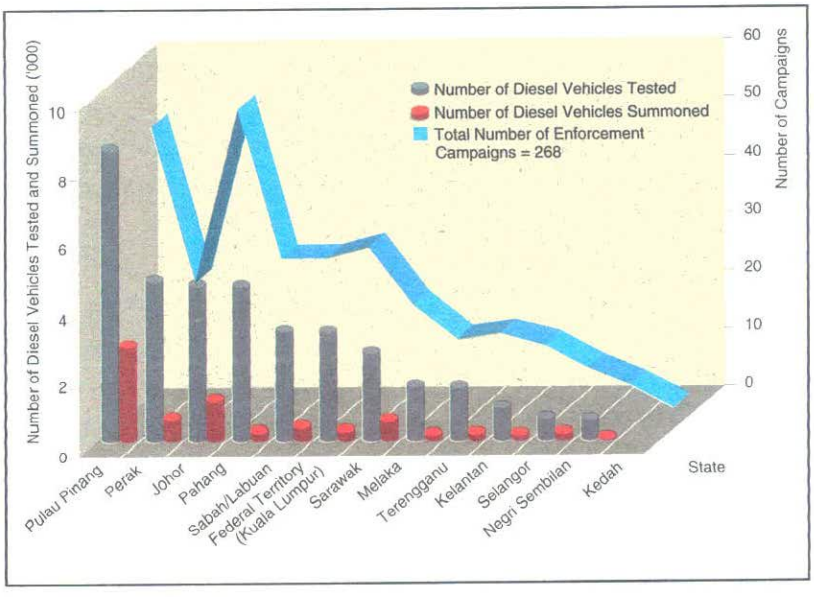


Figure 4.16
Malaysia: Enforcement of Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977, by the Department of Environment and the Royal Malaysian Police by State, 1994

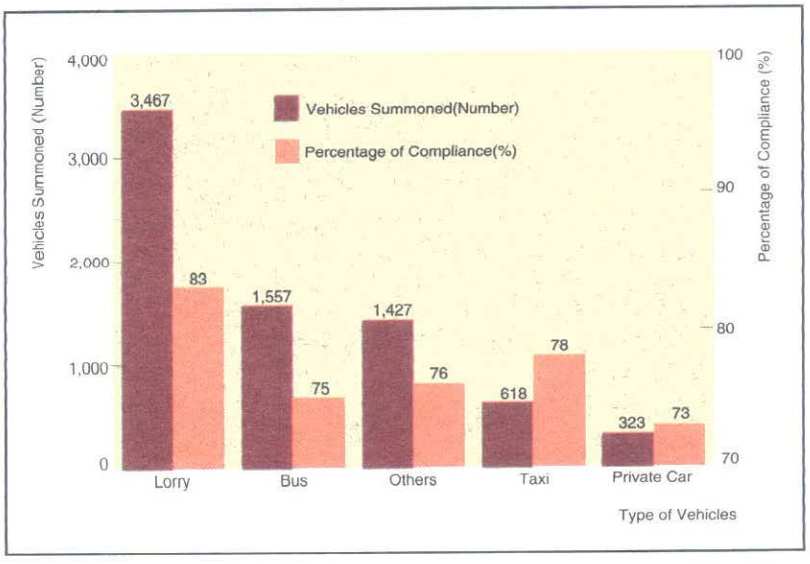


Figure 4.17
Malaysia: Enforcement of Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977. Vehicles Summoned and Percentage of Compliance According to Type of Vehicles, 1994

Malaysian Motor Traders Association (MMTA) and Malaysian Motor Vehicles Assemblers Association (MMVAA). In both dialogues these associations were informed of the government's concern on the increasing air pollution caused by motor vehicle emissions, and they were urged to take necessary measures to reduce this problem. In addition, the industries were informed of future control strategies envisaged by the government to control air pollution from motor vehicles.

Lead in Motor Gasoline

Out of 59 fuel samples randomly collected from petrol kiosks, none was found to have exceeded the current lead level of 0.15 g/l as required under the Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations, 1985.

Compared to 1993, the retail sale of unleaded gasoline (ULG) in 1994 has increased from 31.3 per cent to about 48.2 per cent (Figure 4.18). The increase was mainly due to the three cents per litre price difference between unleaded and leaded gasoline introduced since January 1, 1994.

Motor Vehicle Noise

Throughout the year, 135 enforcement campaigns were conducted by DOE State Offices with the co-operation of the Royal Malaysian Police. Out of 8,986 motorcycles tested, 2,087 or 23.2 per cent were summoned for violating the permissible noise limits as prescribed under the Environmental Quality (Motor Vehicle Noise) Regulations, 1987. Pulau Pinang had the highest number of vehicles summoned followed by Johor, Terengganu and Melaka (Figure 4.19).

RESPONSE TO PUBLIC COMPLAINTS

The Department of Environment received a total of 1,963 complaints on environmental pollution in 1994, the highest recorded so far, as per Figure 4.20. Selangor received the highest number of complaints followed by Pulau Pinang, Johor, Perak, Kuala Lumpur and Melaka as shown in Figure 4.21.

As in the previous years the number of air pollution complaints far exceeded other complaint cases (70 per cent) as shown in Figure 4.22. Figure 4.23 and Figure 4.24 show the nature of air pollution complaints and water pollution complaints by sources, respectively.

Air pollution complaints were mainly due to open burning and illegal disposal of wastes, while water pollution complaints were significantly erosion problems arising from land-clearing activities and uncontrolled logging.

All complaints were investigated and actions against the culprits under the relevant provisions of the Environmental Quality Act, 1974, and Regulations made thereunder, were taken accordingly.

LEGAL ACTION

Prosecution

The year 1994 recorded the highest number of cases filed in court since 1980

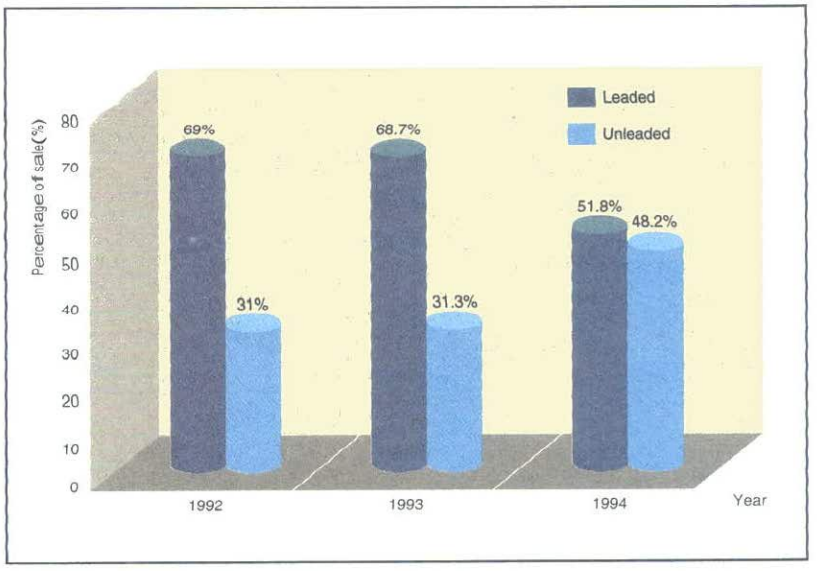


Figure 4.18 Malaysia: Percentage of Sale of Leaded and Unleaded Gasoline, 1992–1994

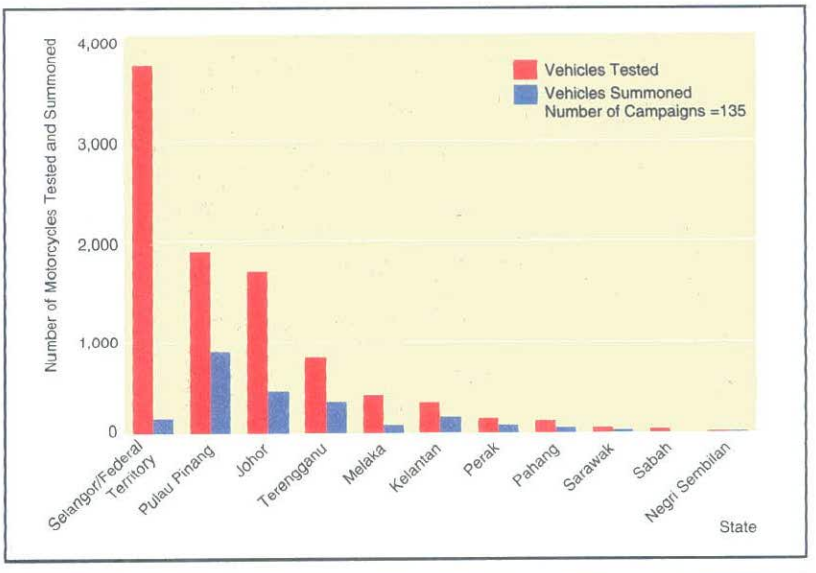


Figure 4.19 Malaysia: Enforcement of Environmental Quality (Motor Vehicle Noise) Regulations, 1987. Number of Vehicles Tested and Summoned by State, 1994

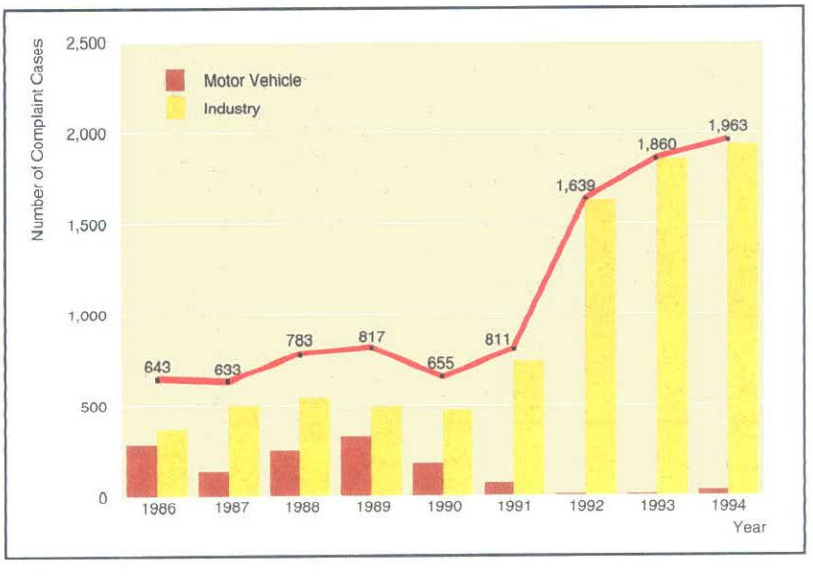


Figure 4.20 Malaysia: Trend in the Number of Complaint Cases Received by the Department of Environment, 1986–1994

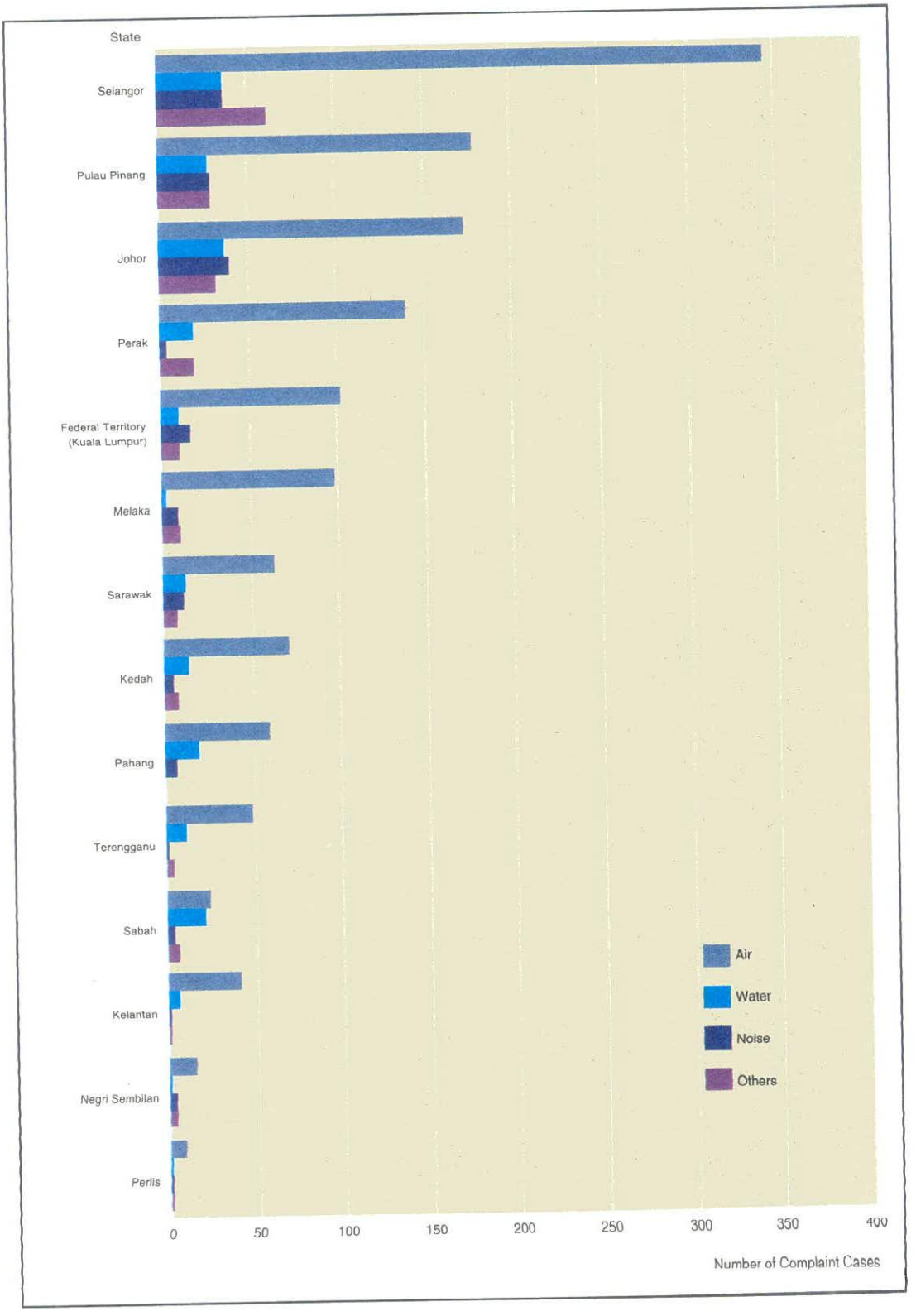


Figure 4.21
Malaysia: Nature of Pollution Complaints by State, 1994

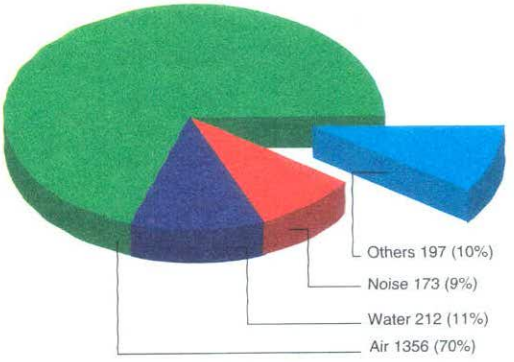


Figure 4.22
Malaysia: Nature of Complaints Received by the Department of Environment, 1994

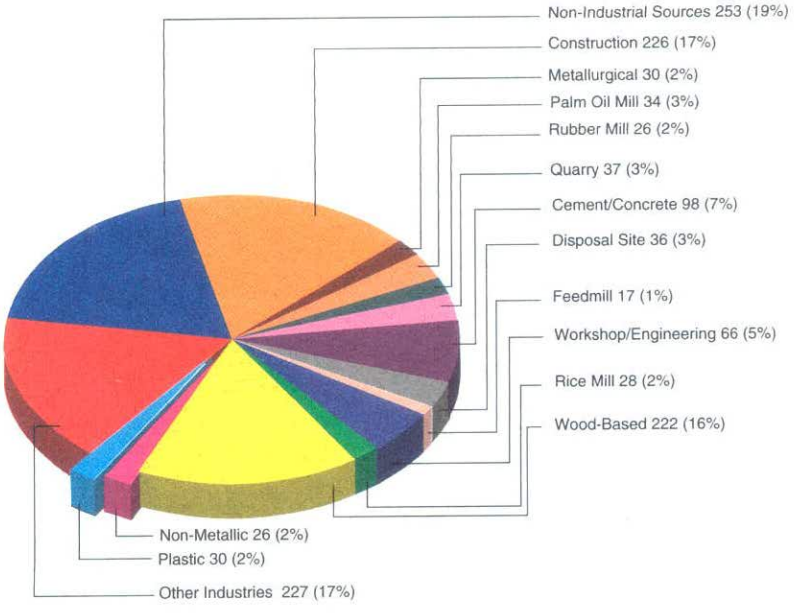


Figure 4.23
Malaysia: Sources of Air Pollution Complaints, 1994

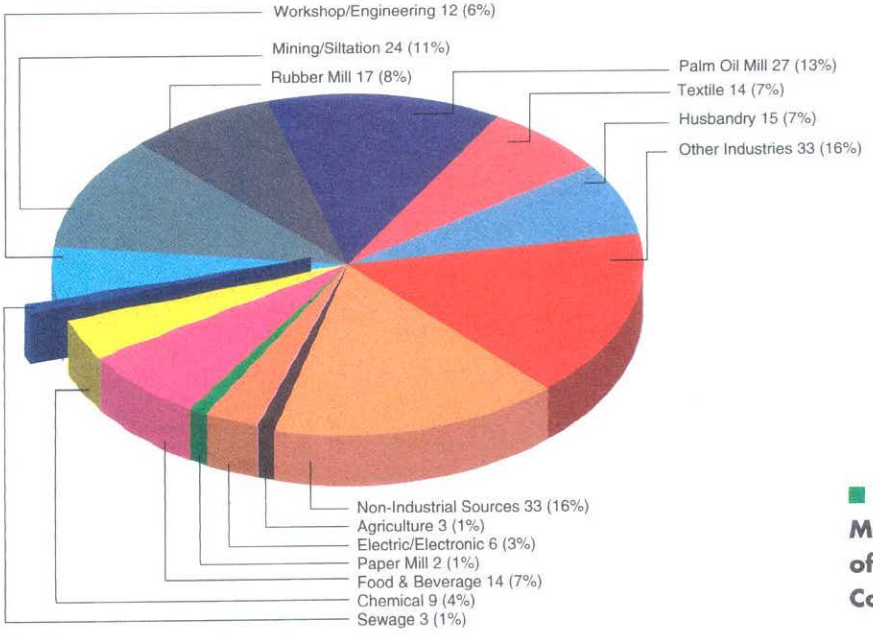


Figure 4.24
Malaysia: Sources of Water Pollution Complaints, 1994

with Selangor leading the other states as shown clearly in Figures 4.25 and 4.26. About 70 per cent of the offences committed in 1994 were cases involving the discharge of effluents exceeding the stipulated standards contrary to Section 25 of the Environmental Quality Act, 1974, while the rest were offences under other provisions of the Act and Regulations as indicated in Figure 4.27.

Fines collected from the 162 cases prosecuted amounted to RM561,700, an increase of 74 per cent from 1993 as illustrated in Figure 4.28. Figure 4.29 shows the range of fines collected by state for 1994.

Compounds

Violation of certain provisions of the Environmental Quality (Clean Air) Regulations, 1978, and the Environmental Quality (Scheduled Wastes) Regulations, 1989, are compoundable. In 1994, a total of 1,205 compounds were issued for

Figure 4.25 Malaysia: Offences Prosecuted under the Environmental Quality Act, 1974 and Regulations Made Thereunder. Number by Year, 1980–1994

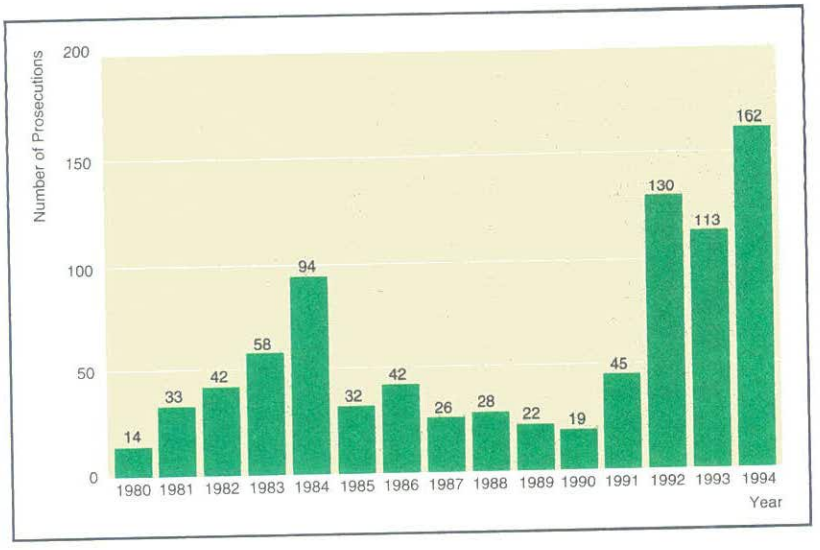
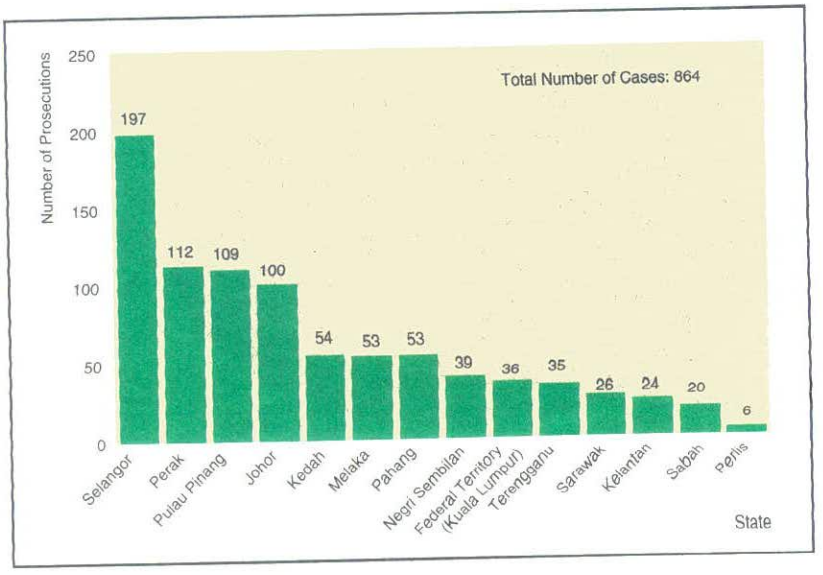


Figure 4.26 Malaysia: Offences Prosecuted under the Environmental Quality Act, 1974 and Regulations Made Thereunder. Number by State, 1980–1994



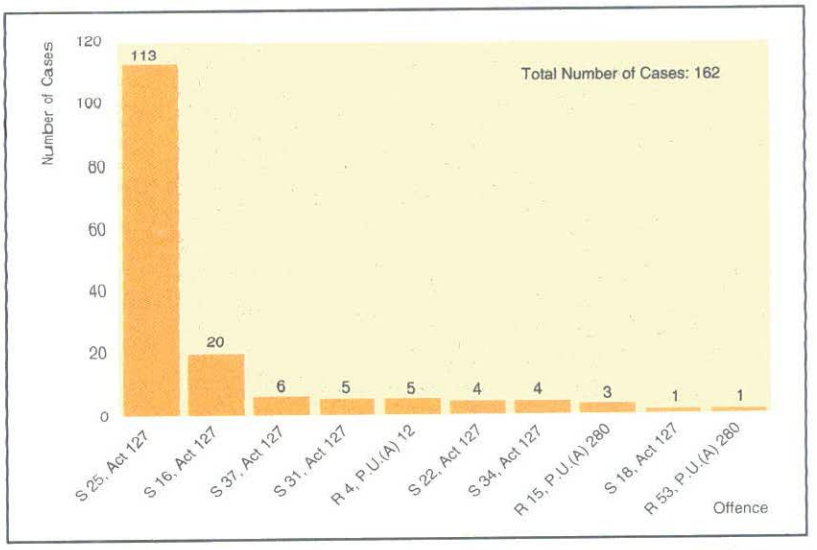


Figure 4.27
Malaysia: Number of Cases by Type of Offences, 1994

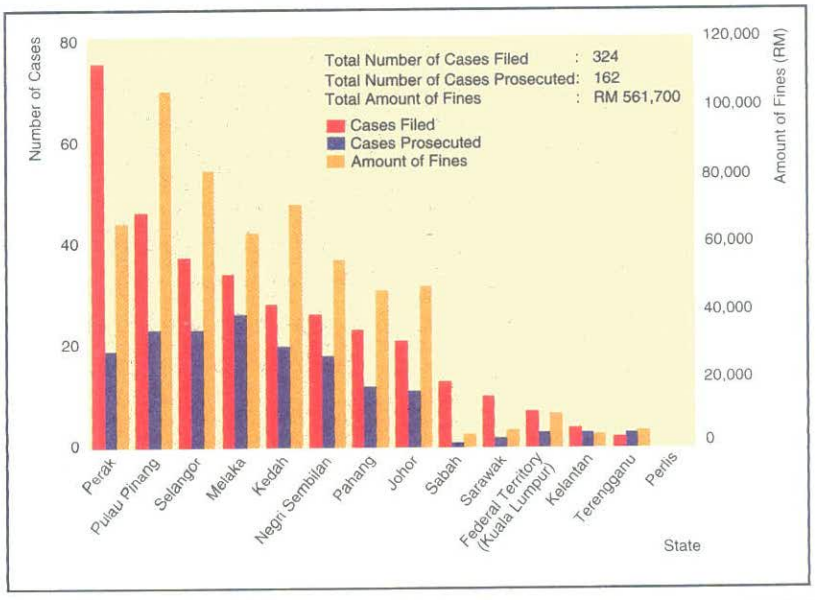


Figure 4.28
Malaysia: Cases Filed, Prosecuted and Fines Imposed by State, 1994

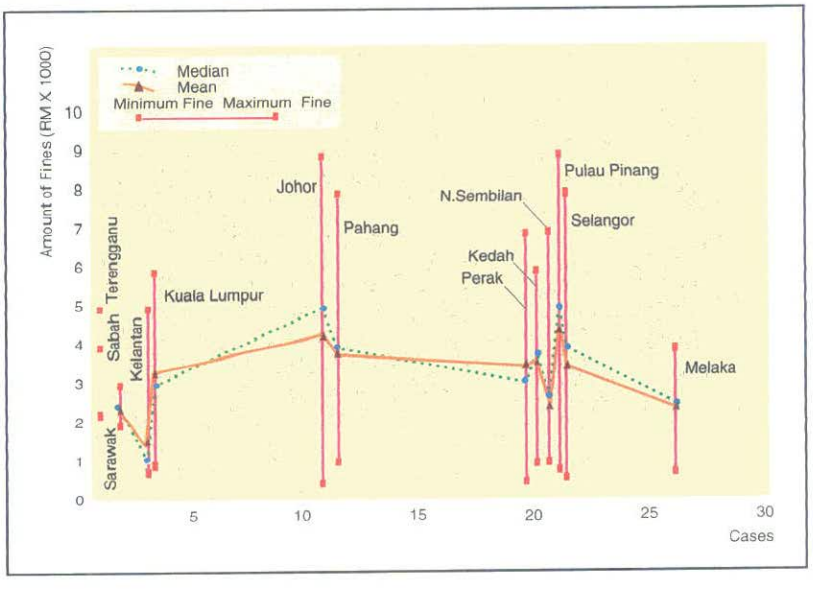


Figure 4.29
Malaysia: Range of Fines Imposed by Number of Court Cases, 1994

various offences, a decrease of 40 per cent from the year before. From this total, 84 per cent of the compound cases involved offences under the Environmental Quality (Clean Air) Regulations, 1978, while the remaining 16 per cent for offences involving scheduled waste handling.

Figure 4.30 shows that Melaka topped the list of states with the highest number of compounds issued, of which 90 per cent were cases violating the Environmental Quality (Clean Air) Regulations, 1978. Selangor issued the most number of compounds for offences involving scheduled waste handling.

Figures 4.31 and 4.32 give a breakdown of cases compounded under the two sets of regulations. A total of RM571,450 of fines were collected during the year under review.

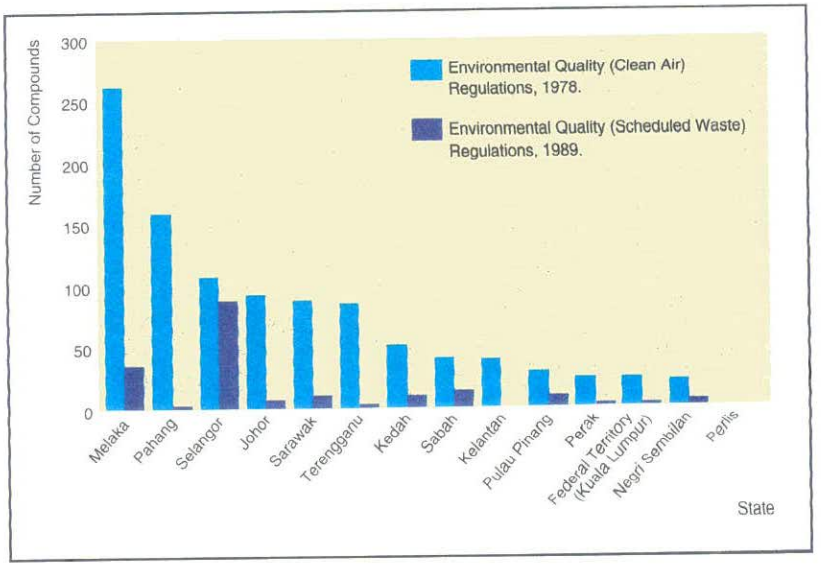
OIL SPILL RESPONSE

Being a maritime nation, the Government places high priority to the preservation of marine resources and environment. Although oil spills incidents are infrequent, the Department of Environment will continue its emphasis on the monitoring and controlling of oil spills in Malaysian waters.

In 1994, the National Oil Spill Control Contingency Plan was reviewed by the National Committee on Oil Spill Control. Two other major activities were implemented under the oil spill control programme, namely the Marine Oil Spill Response and Control Training Course held in September, 1994, at the Maritime Academy of Malaysia (ALAM), Melaka and the National Oil Spill Response Exercise (Oil Combat' 94) in November, 1994, Port Dickson, Negri Sembilan.

On January 31, 1994, a Memorandum of Understanding on an ASEAN Oil Spill Response Action Plan (OSRAP) was signed by the Government of Malaysia to participate in the ASEAN Preparedness and Response Programme (OSPAR) sponsored by the Government of Japan. Under the programme, Malaysia was given a total of RM2 million for the acquisition of oil spill equipment to

Figure 4.30 Malaysia: Number of Compounds Issued by State, 1994



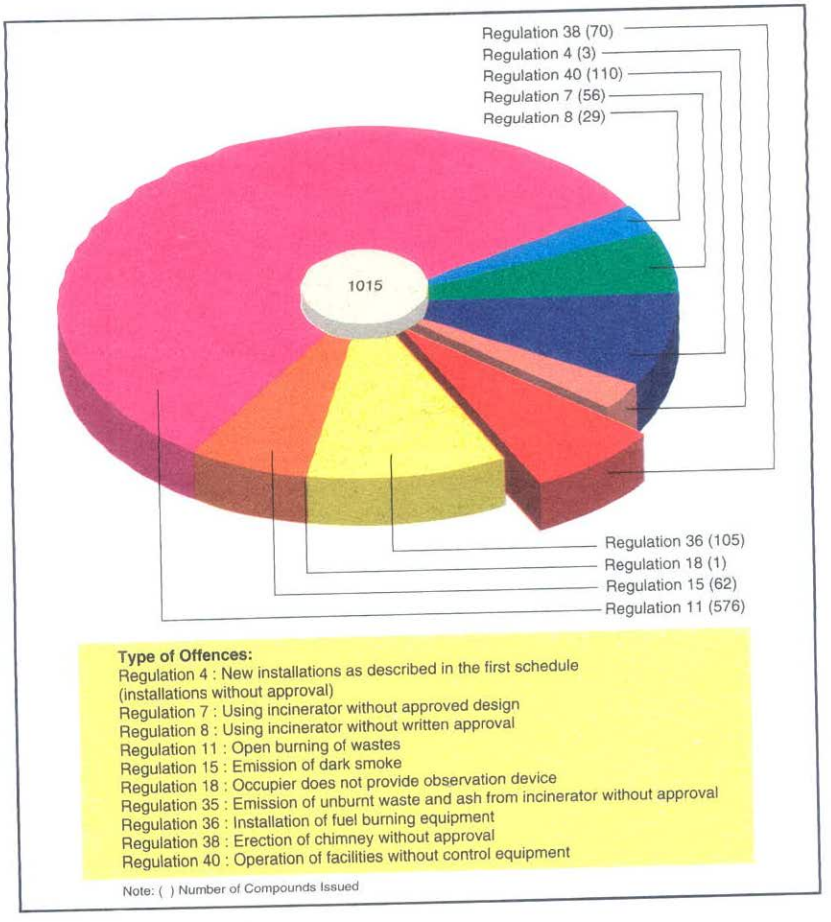


Figure 4.31
Malaysia:
Cases Compounded under the Environmental Quality (Clean Air) Regulations 1978, 1994

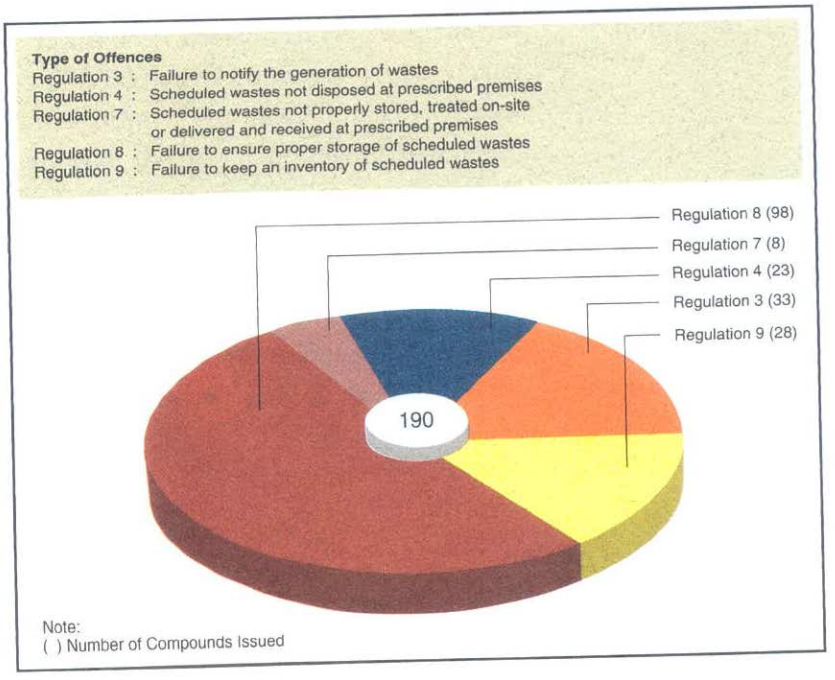
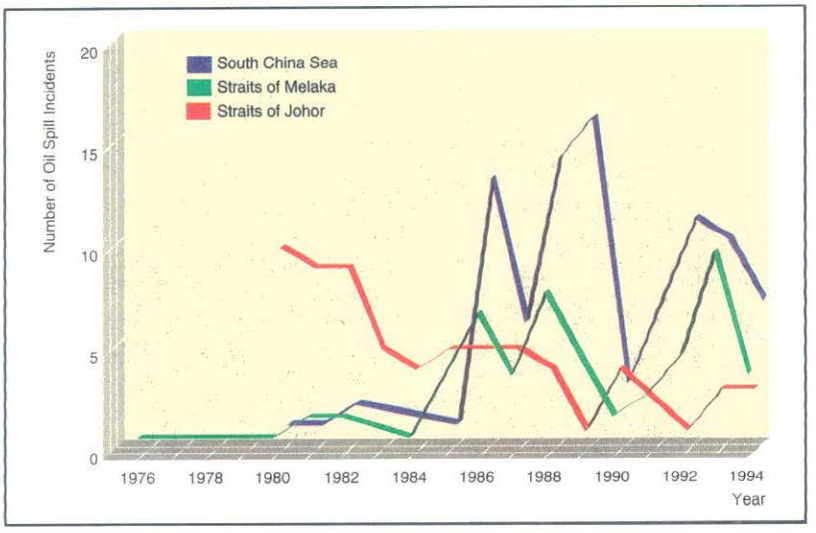


Figure 4.32
Malaysia:
Cases Compounded under the Environmental Quality (Scheduled Wastes) Regulations 1989, 1994

Figure 4.33
Malaysia: Annual Trend of Oil Spill Incidents, 1976–1994



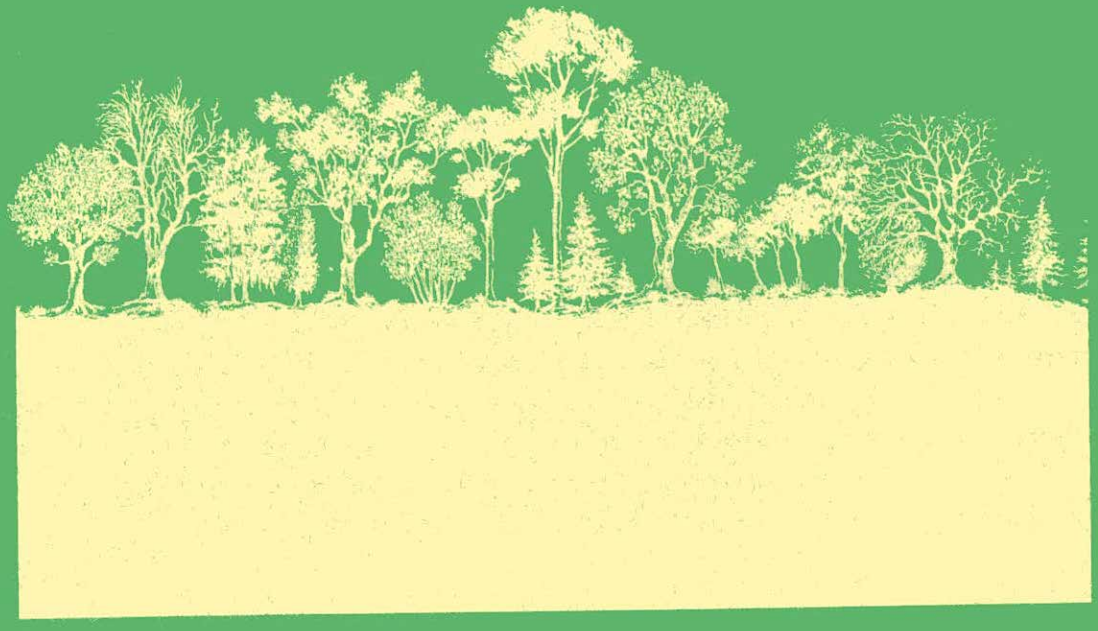
be located at Port Klang, Johor Bahru, Penang and Labuan. Further, the Government of Japan through the Ministry of International Trade and Industry of Japan (MITI) and the Petroleum Association of Japan (PAJ) agreed to establish yet another oil spill equipment stockpile to be based in Port Klang with the intention to strengthen the oil spill combatting capabilities of the region.

Oil Spill Incidents

In 1994, 14 oil spill incidents were reported as shown in Figure 4.33. Most of the incidents reported were due to oil sludge discharges, oily water discharges, leakages during transfer and tanker cleaning activities. A major incident that occurred on January 15, 1994, when the Department of Environment Malaysia detained a Liberian registered tanker, the *Arabian Sea,* for alleged pollution in the Straits of Melaka. The tanker had on board oily sludges amounting to about 900 tonnes. However, the tanker was released on February 2, 1994, when the tanker owner deposited a banker's guarantee for the sum of RM500,000 as security to compensate and reimburse the Malaysian Government for all expenses incurred in mitigating the pollution caused by the tanker. On February 25, 1994, the tanker was allowed by the Ministry of Environment, Singapore, to sail into Singapore for repair and for proper disposal of their sludges.

5

Environmental Assessment



INTRODUCTION

In 1994, the decentralisation of EIA report processing was expanded to four other DOE state offices, namely Melaka/ Negri Sembilan, Pahang, Terengganu/ Kelantan and Sabah. Only reports of projects in Kedah and Perlis, those encompassing more than one state and those in the Exclusive Economic Zone were processed at the DOE headquarters.

Measures to enhance EIA continued and towards the end of the year, four sets of specific sector guidelines were published; for coastal resorts, petrochemical industries, industrial estates and for the development of golf courses. Work also continued on the formulation of guidelines for other priority sectors and activities. The average time taken to process EIA reports was significantly reduced from 6.2 months in 1991 to 2.7 months in 1994, thus fulfilling the EIA Clients' Charter. The exercise to register EIA consultants began in April and the list of those who fulfilled the criteria specified was ready by the end of the year.

To realise the findings of the EIA, project proponents were urged to ensure that contracts, and sub-contracts contain provisions which clearly spell out responsibilities related to environmental management including those related to conservation. To ensure that mitigation measures to minimise soil erosion are taken at the early stage of project implementation, a revised schedule of payment was proposed. Environmental requirements including provisions for EIA conservation and rehabilitation were included in the Treasury Circular 14/1994.

The second year of the establishment of the GIS saw the production of improved outputs to support decision making for management of natural resources and land-use planning. Examples include the planning and design of the Federal Administrative Centre at Putrajaya (Perang Besar), and the production of soil erosion risk maps for the Klang Valley and highland resorts.

The awareness programme was stepped up through numerous presentations and better DOE-Client consultation. Materials related to EIA, and environmental requirements were revised and a Directory of Environmentally-sensitive Areas in Malaysia was published. 1994 also saw the relaunch of the EIA magazine renamed IMPAK.

EIA PROCEDURE

Notification

The Department continued to register projects subject to EIA on being notified by the proponents or through reports and announcements in the mass media despite the absence of requirement for notification. A total of 344 proposed projects subject to EIA were monitored compared to 400 in 1993, and among these the highest number were related to resorts and recreational development (23 per cent), quarry (17 per cent), housing (11 per cent), and both industry and infrastructure activities accounting to 10 per cent. In contrast, quarrying projects had accounted for 25 per cent of the projects identified in the previous year.

Review

The number of EIA reports submitted to the DOE in 1994 increased by 11 per cent over 1993. Out of 300 reports received, 289 are preliminary EIA reports and 11 are risk analyses associated with hazardous installations (Figure 5.1).

Since the enforcement of EIA on April 1, 1988, until December 31, 1994, the number of EIA reports submitted to the Department totalled 1,097 reports, of which 1,035 (95 per cent) comprise preliminary EIAs, 55 (5 per cent) risk analyses, 7 detailed EIA reports and the remaining 11 were reports of studies carried out on development proposals in the Exclusive Economic Zone.

Prescribed Activities and Project Categorisation

To date, the highest number of reports submitted since the enforcement of the EIA Order, were for resorts and recreational development (18 per cent) followed by infrastructure-related development (15 per cent), and housing and quarrying (13 per cent each). It is interesting to note the number of reports related to quarry activity had risen considerably in 1993 and 1994. On the other hand, the number related to industry had gone down in the 1994 after remaining steady between 1991-1993. The first detailed EIA report on airport construction i.e. for the Kuala Lumpur International Airport, Sepang, was approved. The second report for a major transportation development involving the second light rail transportation system in the Klang Valley was submitted and approved. Figure 5.2 compares the distribution of reports according to the category of activities both for 1994 and the period 1988-1994.

In 1994, the number of EIA reports to be reviewed totalled 366, including 66 brought forward from 1993. This represented an increase of 36 over the previous year. By December 31, 1994, a total of 304 reports (83 per cent) had been reviewed. The remaining 62 reports were either still under review or decision deferred

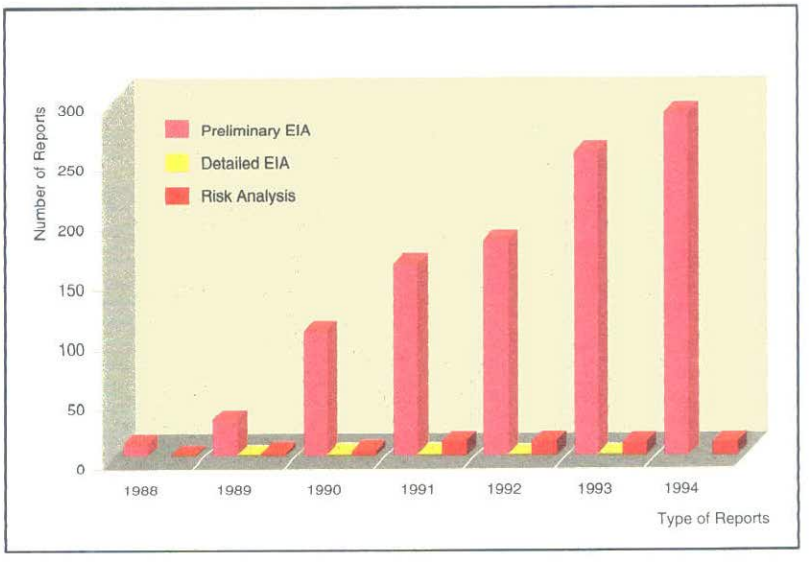


Figure 5.1 Department of Environment: Type of EIA Reports Submitted, 1988-1994

Figure 5.2 Department of Environment: Number of EIA Reports Submitted by Category of Activity, 1988–1994

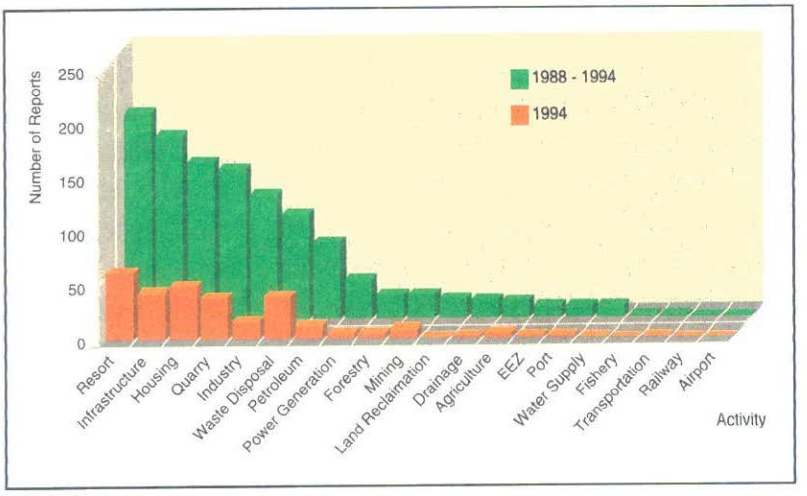


Figure 5.3 Department of Environment: Number of EIA Reports Submitted and Reviewed, 1988–1994

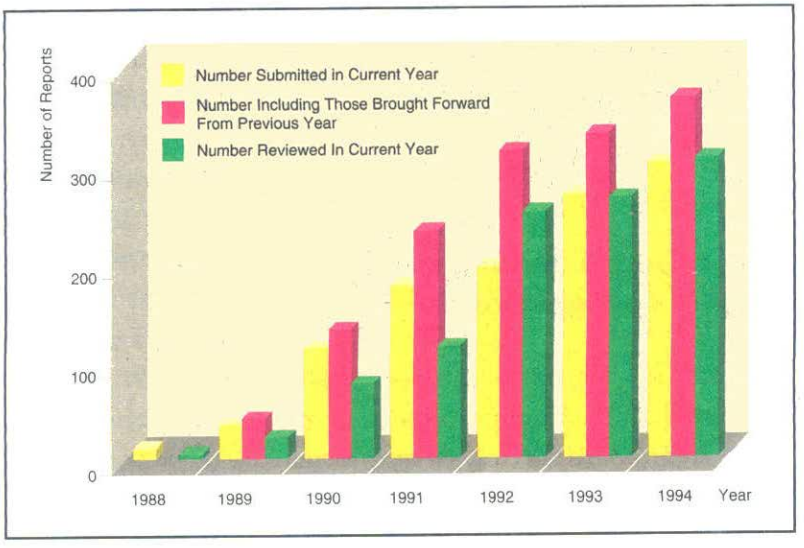
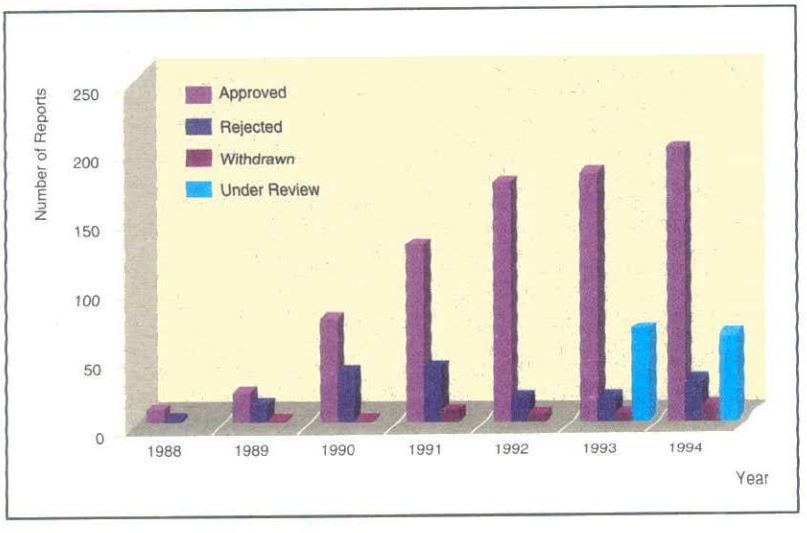


Figure 5.4 Department of Environment: Number of EIA Reports Processed, 1988–1994



pending the submission of supplementary information. Figure 5.3 shows the number of EIA reports reviewed each year throughout the period 1988-1994.

Of the 300 reports received in 1994, 176 reports were approved, 30 rejected, 12 withdrawn by the project proponents and the remaining 62 reports brought forward to 1995. Thus, by year end the number of EIA reports approved since April 1, 1988 was 843 reports (81 per cent), 156 reports (15 per cent) rejected, and 36 reports were withdrawn by the proponents. Figure 5.4 compares the status of EIA reports processed annually over the period 1988-1994.

Figure 5.5 indicates an improvement in processing time which was brought down to below the time specified in the EIA Clients' Charter. At the same time, the monthly average number of EIA reports reviewed in 1994 had achieved 25 compared to 22 in 1993, and 21 in 1992 before the decentralisation of processing began.

Analysis of the distribution of EIA reports by State over the period of EIA implementation indicates a similar trend to 1992, with Selangor and Johor far outnumbering the other states, accounting 41 per cent of the total number of reports submitted. Federal Territory (Kuala Lumpur and Labuan) are the states with the least number of reports, followed by Perlis and Kelantan with 13 reports each and other states each contributed between 34 to 62 reports each. Figure 5.6 illustrates the distribution of EIA reports in the states for the period 1988-1993.

Progress in the Implementation of the Recommendations on EIA Procedure

SPECIFIC GUIDELINES

Besides reviewing EIA reports, follow-up actions recommended to improve the effectiveness of the EIA procedure which were endorsed by the Cabinet on December 9, 1992, were continued. In 1994, specific guidelines for industrial estates, petrochemical industries, resorts and recreational development and golf courses

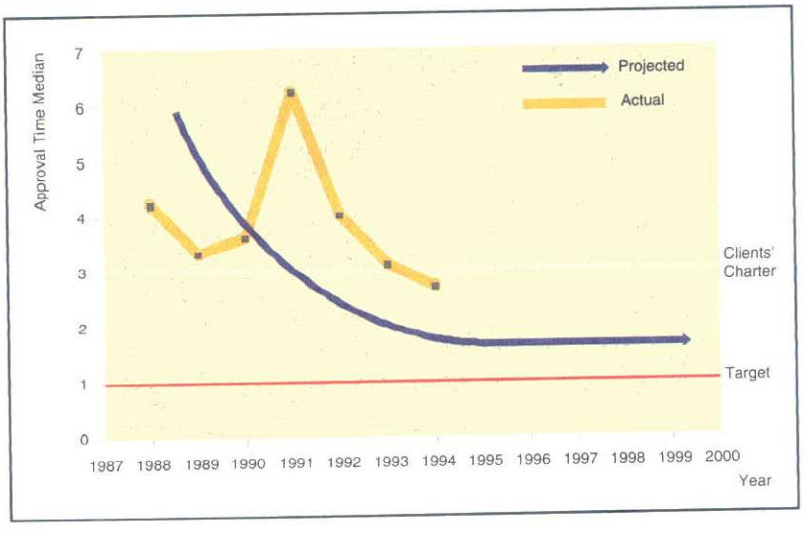
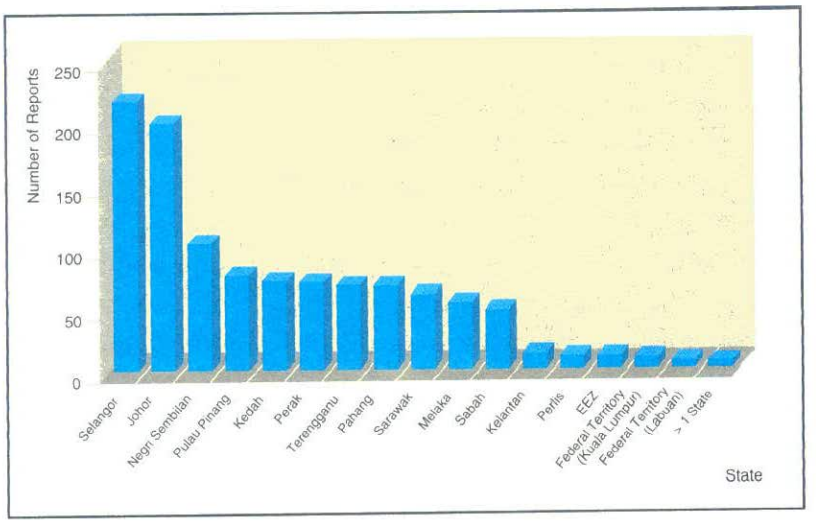
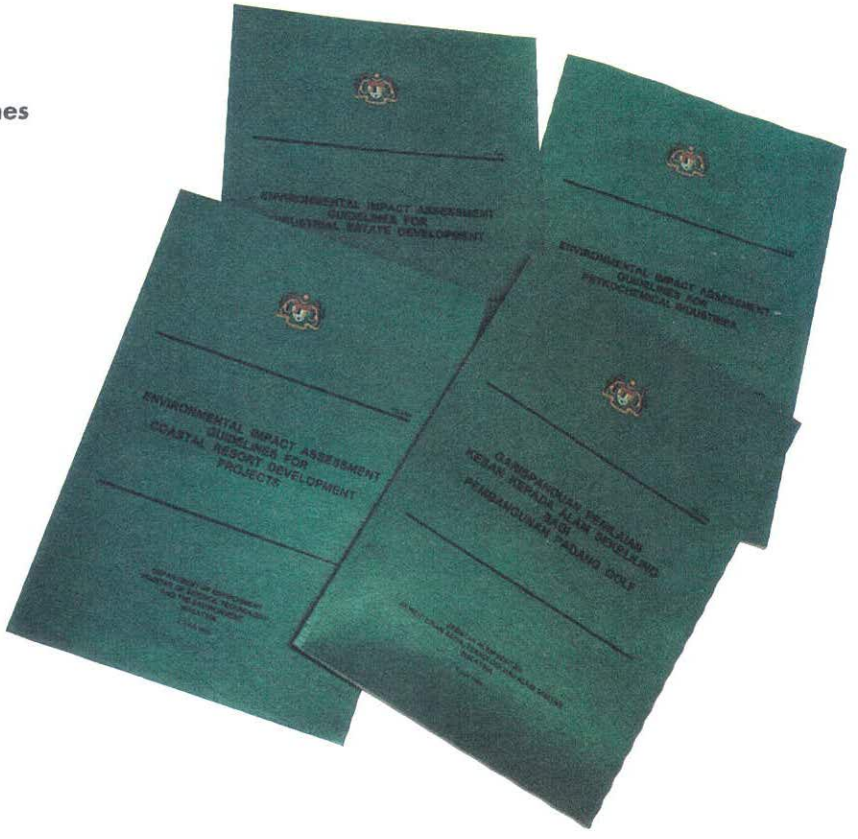


Figure 5.5 Department of Environment: Time Taken for EIA Reports Approval

Figure 5.6 Department of Environment: Distribution of EIA Reports Submitted by State, 1988–1994



Specific EIA Sector Guidelines



were published. These guidelines include checklists and reporting formats.

With technical assistance from the Asian Development Bank, a project began in 1994 for the formulation of specific guidelines for the following prescribed activities: fisheries; drainage and irrigation; power generation and transmission; and water supply. A series of workshops were held to discuss the guidelines which were expected to be published in early 1995. Under another technical assistance from the United Nations Development Programme (UNDP), EIA guidelines for the mining industry and quarrying were prepared and expected to be published in

1995. As part of the project, a DOE official participated in a training programme in Nova Scotia, Canada, from September to October 1994.

In a co-operative project between the department and the petroleum industry to draft EIA guidelines for petroleum development, a working group led by Petronas was formed to co-ordinate collection of information and to draft the guidelines. The department also initiated a joint effort with Petronas to transfer the EIA Guidelines on CD-ROM.

EIA guidelines for roads and highways were also discussed at a workshop organised by the Public Works Department in May. The Forest Research Institute of Malaysia (FRIM) also organised meetings to discuss EIA guidelines on forestry.

REGISTRATION OF EIA CONSULTANTS

Criteria for the registration of EIA consultants were announced in April. Between April and December 1994, 359 applications were submitted for registration. Of these, 125 firms and 42 individuals who met the criteria were registered by the end of 1994.

Promotion of EIA

The Department intensified its efforts to promote EIA. Lectures, briefings and seminars on EIA were given to a wide group of people in the government and private sectors as well as professional organisations.

The *Environmental Impact Assessment (EIA) Procedure and Requirements* booklet was revised in October and were published in Bahasa Melayu and English for wider dissemination to the public. A new version of *BERITA EIA* renamed *IMPAK* was launched in September as a medium for disseminating information related to EIA and good planning practices.

Training

To improve the capabilities and skills of EIA officers, training was emphasized. By the end of 1994, three officers obtained postgraduate degrees, two of whom wrote dissertations related to EIA. Another officer left to pursue a postgraduate degree in the United Kingdom. Short courses, seminars and workshops on EIA and related topics at home and abroad were attended. A total of 12 colloquiums were held, and 4 site visits to various development activities were organised in an effort to upgrade skills and expertise.

ENVIRONMENTAL INPUT TO DEVELOPMENT PLANNING

In line with the Sixth Malaysia Plan and the Second Outline Perspective Plan, the Department continued to promote the incorporation of environmental dimensions in the planning of projects. This integration at the early stages of project planning is crucial so as to ensure that the environment is protected as well as to maintain the long term sustainability of the country's development.

In 1994, the Department continued to provide environmental input to a total of 66 development and natural resources development project. This is an increase of 47 per cent from the number provided in

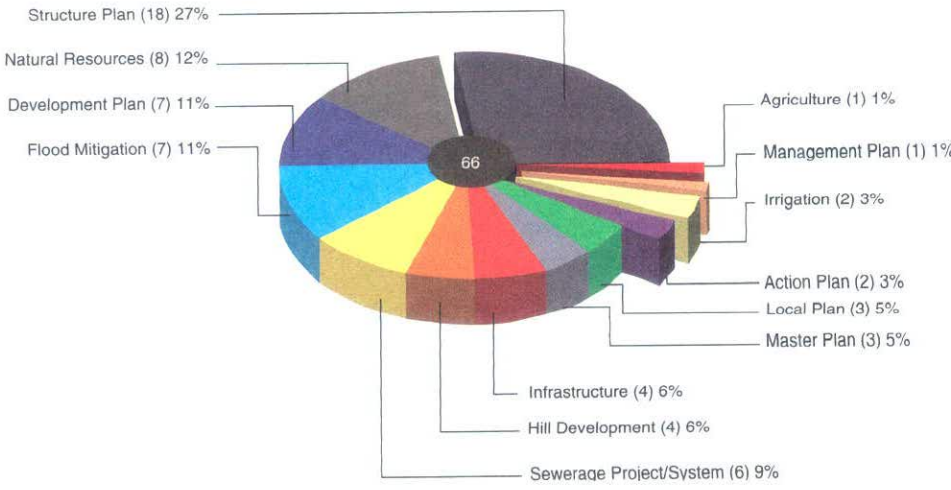


Figure 5.7 Department of Environment: Environmental Input to Project Development Planning, 1994

1993 as shown in Figure 5.7. These projects were mainly government initiated projects that include the formulation of structure plans (27 per cent), development plans (11 per cent), master plans (5 per cent), local plans (5 per cent) and management plans (1 per cent). Other projects that were also addressed include flood mitigation projects (11 per cent), sewerage projects (9 per cent), infrastructure (6 per cent), irrigation (3 per cent) and natural resources (12 per cent). Environmental inputs were also provided for new emerging issues and concerns such as projects located at hilly areas in Cameron Highlands, Fraser's Hill, Lojing, and Genting Highlands. The list of projects provided with environmental inputs is as shown in Table 5.1.

Geographical Information System

The use of Geographical Information System (GIS) as a tool for integrated environmental planning and management in natural resources utilisation, development and protection proved its usefulness via several projects undertaken in 1994. The integration of potential soil erosion risk map derived from GIS modeling with the cadestral map for the Highland Towers area indicated their usefulness in land-use planning, especially for hilly areas or hillside developments.

Apart from continuing the development of the digital database, input was provided for the following development projects:

(a) GIS thematic maps for the Town and Country Planning Department in the preparation of the structural plan for the Federal Administrative Centre at Putrajaya (Perang Besar);

(b) map of condominiums and apartments around Bangsar/Damansara area;

(c) map of hill development projects in Fraser's Hill and Genting Highlands;

(d) map of the administrative boundary within the Klang River basin for the 10-years Clean-up Programme; and

(e) supervision of the design and development of the cadestral-based GIS for the Klang Valley area, a component under the guidelines for the Siting and Zoning of Industries.

To facilitate this work, workstations, PCs memory, data storage capacity, faster disk access time and faster video display

TABLE 5.1
List of Environmental Input to Project Development Planning

Type	*Project*
Development Plan	Port Dickson Maritime Industrial Park
	Lembah Ruil, Cameron Highlands, Pahang
	Seberang Perai District
	Development of Hot Spring Areas
	Tasik Kenyir
	Land-use Planning for KLIA and its Vicinity
	Pulau Layang-Layang
Master Plan	Negri Sembilan Environmental Master Plan
	Jerai
	Sungai Buloh Botanical Park
Management Plan	Environmental Management Study at Sungai Sintuk and Sungai Badak Basin, Kubang Pasu District, Kedah
Structure Plan	Putra Jaya Federal Administrative Centre
	Kuala Langat and Part of Sepang District
	Tumpat
	Bachok
	Pasir Mas
	Kota Bharu
	Besut
	Hulu Terengganu
	Kuala Terengganu
	Setiu
	Baling
	Manjung and Perak Tengah
	Mersing
	Kota Tinggi
	North and South of Kluang
	Bentung
	Raub
	Lipis
Local Plan	Butterworth
	Bukit Mertajam
	Bukit Bendera
Action Plan	Strategic Development Action Plan for Pahang Darul Makmur
	Strategic Development Action Plan for Melaka

Type	*Project*
Hill Development	Lojing, Kelantan
	Fraser's Hill, Pahang
	Genting Highlands, Pahang
	Cameron Highlands, Pahang
Sewerage Project/ System	Sewerage System and Rubbish Disposal at Tasik Kenyir
	Loyal Impact Septic Tank
	Proposal on Sewage Treatment by Envilab
	Best Lindertres Sewage Treatment Plant
	Evaluation Studies on the Amfilco Tank in Treating Domestic Waste Water
	TCY Precast Cylindrical Septic Tank
Flood Mitigation	Klang River Basin
	National River Mouth Study
	Kinta's River Water Catchment Area
	Golok River Mouth Improvement
	Besut River
	Comprehensive Management Plan of Muda River Basin
	Feasibility Study and Specific Design for River Systems - Sg. Perai, Juru, Tengah and Jejawi
Infrastructure	Proposed Tanjung Lipis to Kuala Lanar - Kerambit Road
	Proposed Teluk Cempedak to Kuala Beserah Road
	Proposed Doubled Tracking Project from Padang Besar to Singapore and from Port Klang - Kuala Lumpur - Kuantan to Kuala Terengganu
	Proposed Deep Sea Festoon Fibre Optic Cable Network for Peninsular Malaysia
Irrigation	Feasibility Study of Small Reservoir Development
	Paya Peda Dam and Agriculture Development
Natural Resources	National Conservation Study
	Water Resource Master Plan for Sabah
	Sg. Buluh Botanical Park
	Hot Springs for Tourism
	Population
	Forest/Biological Diversity
	Aquaculture Development
	Coastal Zone Management
	Water Resources
	Energy
Agriculture	Tobacco Industry

capability were upgraded in line with the demand for more speed and power in processing. A colour copier/printer/scanning system for linking to the computer was also acquired.

Project Pre-siting Evaluation and Approval of Projects/Equipment/Facility

In 1994, a total of 5,883 applications for pre-siting evaluation of projects, 625 application for written permission for new sources of discharge including effluent treatment systems, and 1,018 applications for written approval for the installation of fuel burning equipment were received by the Department as shown in Figure 5.8. Compared with the number received the previous year, there was an increase of 23 per cent for pre-siting evaluation and 7 per cent for fuel burning equipment, while the percentage of applications for written permission had decreased by 10 per cent.

The difference in percentage for pre-siting evaluation cases at DOE State Offices is shown in Figure 5.9. Johor had a significant increase, while Selangor/

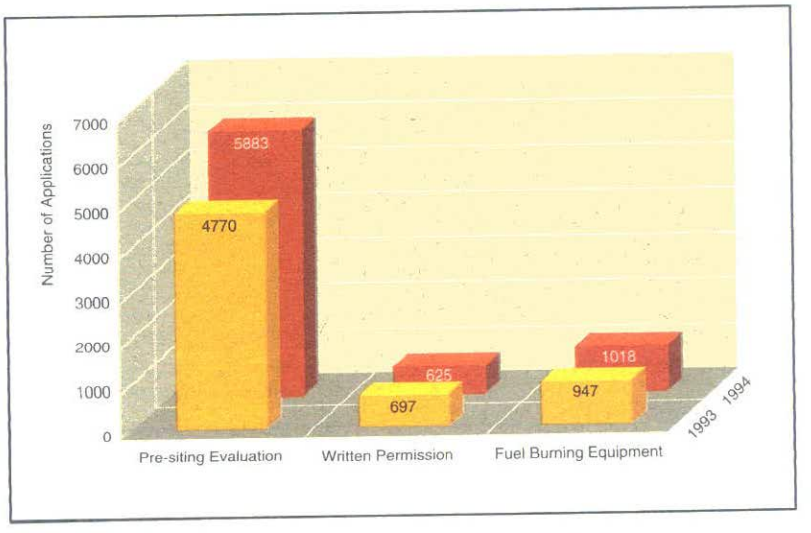


Figure 5.8 Malaysia: Total Number of Applications for Pre-siting Evaluation, Written Permission and Installation of Fuel Burning Equipment, 1993–1994

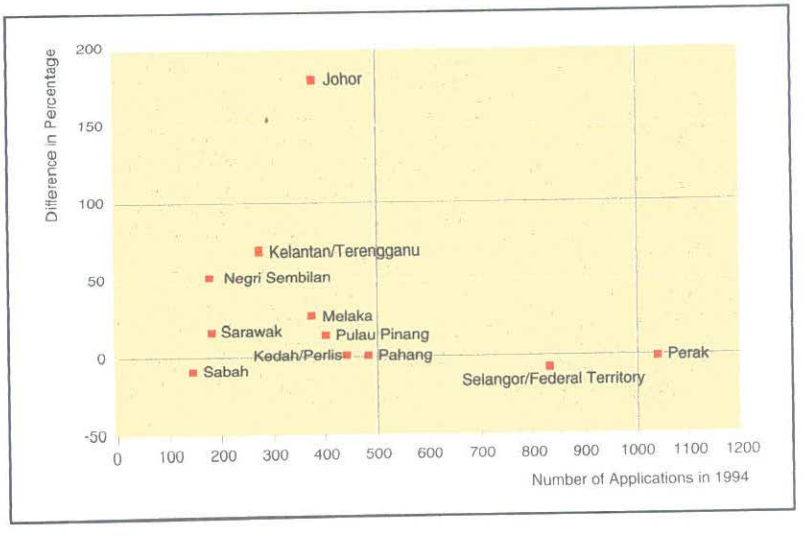


Figure 5.9 Malaysia: Percentage Difference in the Number of Pre-siting Evaluation Cases Received, 1993–1994

Figure 5.10
Malaysia: Percentage Difference in the Number of Applications for Written Permission, 1993–1994

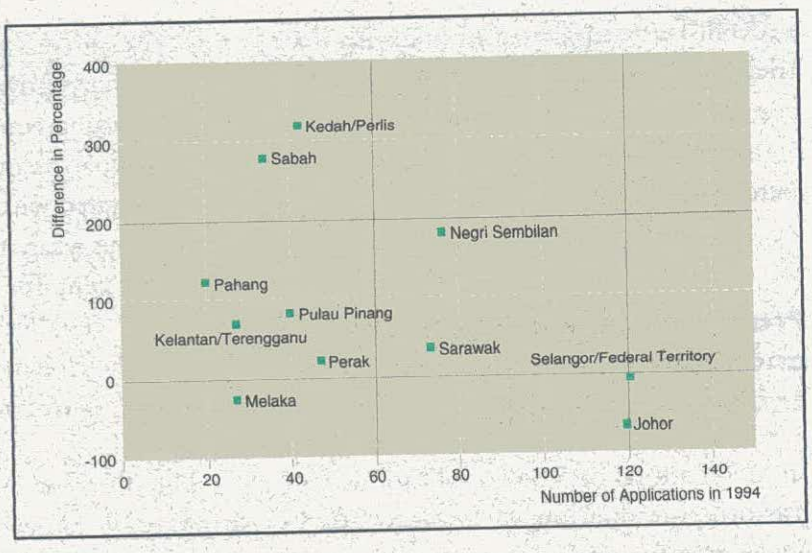


Figure 5.11
Malaysia: Percentage Difference in the Number of Applications for Installation of Fuel Burning Equipment, 1993–1994

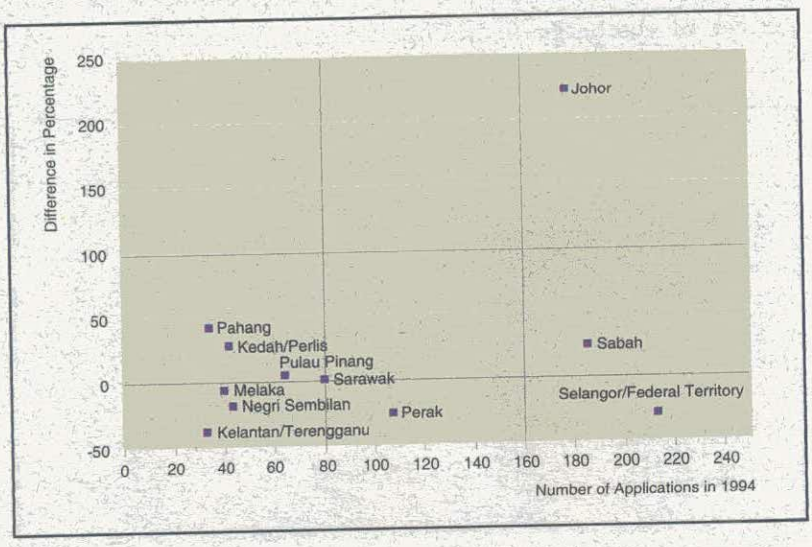
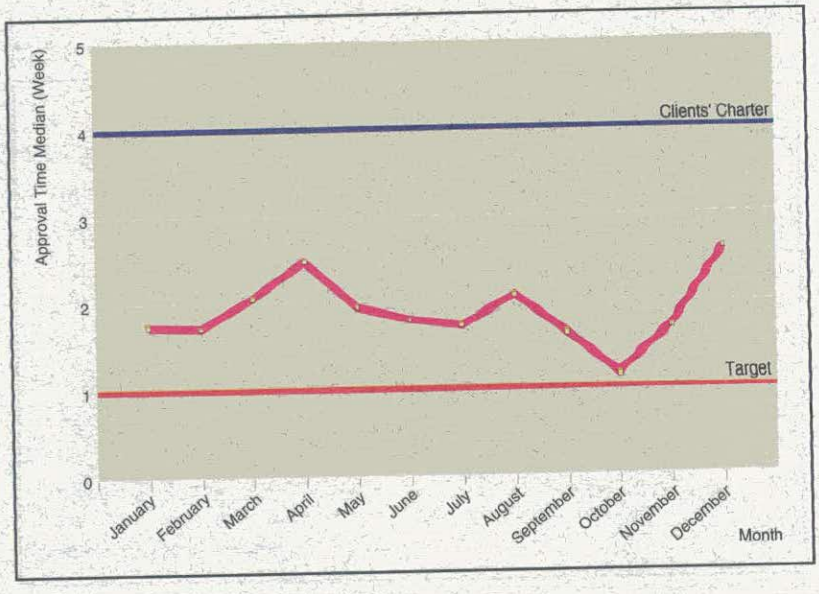


Figure 5.12
Department of Environment: Time Taken for Approval of Pre-siting Evaluation, 1994



Federal Territory showed a reduction in the number of applications received compared to the previous year.

Figure 5.10 shows the difference in percentage for applications of written permission to construct new sources of effluent discharge for 1994 and 1993. While Kedah/Perlis showed an increase in the number of applications received, Johor showed a significant decrease compared to 1993. Figure 5.11 provides an indication of the number of applications for fuel burning equipment received by the State Offices.

As shown in Figure 5.12, it was noted that the average time taken for processing application for pre-siting evaluation was between 1.8 to 2.8 weeks. Three peaks were observed in the month of April, August and December. The lowest average time taken for processing was observed in the month of October.

DOE ADVISORY SERVICES CENTRE AT MIDA

Since 1990, a senior officer from DOE continued to provide environmental advisory services at MIDA, to advise and assist investors on matters related to the requirements of the Environmental Quality Act, 1974. The duties and responsibilities are as follows:

(a) To assist and advise investors on policies and procedures related to the various environmental regulations and guidelines; and
(b) To help MIDA to expedite decision-making on matters under the purview of the Department.

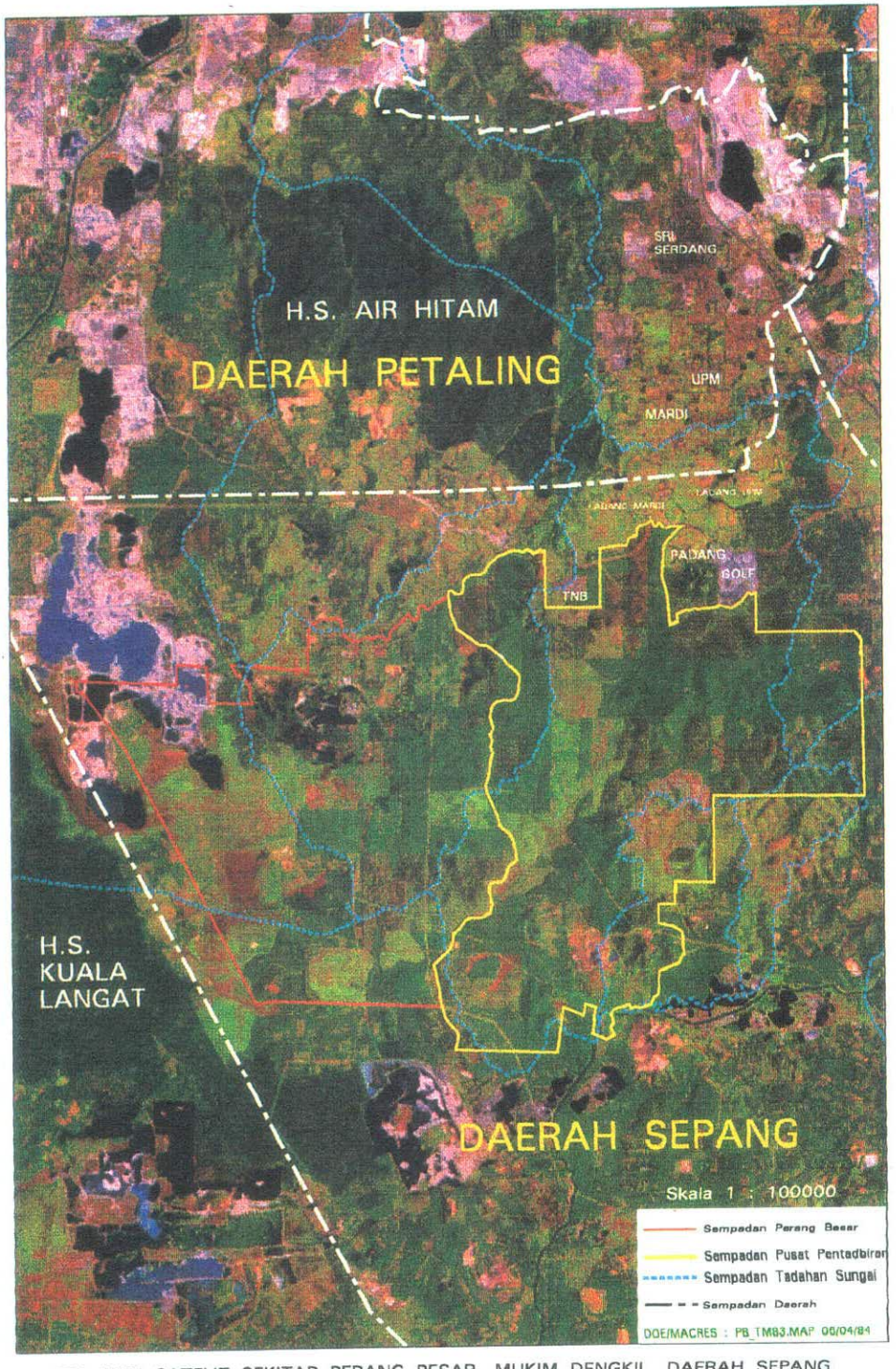
In 1994, 75 investors both local and foreign visited the Centre to seek advice and obtain information on environment-related matters such as:

(a) compliance and licensing requirements under the Environmental Quality Act, 1974, and regulations made thereunder;
(b) EIA requirements and identification of projects to be subjected to EIA;
(c) environmental suitability for project sites;
(d) information on toxic wastes management, Montreal Protocol and incentives for pollution control; and
(e) types of forms to be used for different purposes under the EQA 1974.

The DOE representative was consulted for environmental inputs and comments on applications to MIDA, both for manufacturing licence and incentives. In 1994, 78 applications were referred to it for written comments. Out of 973 applications received by MIDA for manufacturing, 871 projects were granted approvals, of which 15 projects were subject to EIA. Most of these projects involved chemical and petrochemical industries, and non-metallic products, namely cement, lime, and iron and steel industry. From the applications received for incentives, 7 approved projects, mainly coastal resorts were subject to EIA.

To assist the investors, a booklet on *Environmental Requirements: A Guide For Investors* is made available for investors at the Centre.

LAMPIRAN 2-8

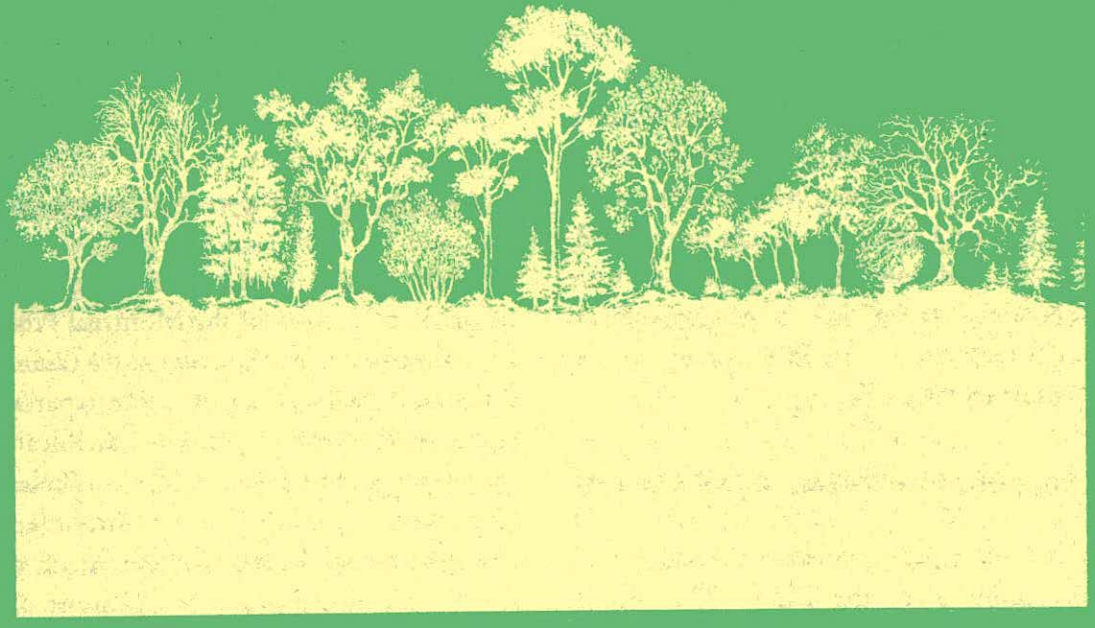


PETA IMEJ SATELIT SEKITAR PERANG BESAR, MUKIM DENGKIL, DAERAH SEPANG
(TM LANDSAT 26/02/1993)

An Output of the Department's GIS

6

Programme Development



REVIEW AND FORMULATION OF REGULATIONS

By June 1994, the Department completed the draft amendments to the Environmental Quality Act, 1974 (EQA), and in doing so, it took into consideration recommendations made by the Environmental Law Review Committee and views submitted by relevant Ministries and State Governments.

The scope of the proposed amendments covered two main areas: amendments meant to control new and emerging environmental issues, and to enhance or to streamline enforcement and administrative needs of the Department. The amendments were tabled and agreed by the Environmental Quality Council (EQC) and the Meeting of Ministers and State Executive Councillors Responsible for Environmental Matters (MEXCOE) in October, 1994. The amendments would have to be approved by the Attorney-General's Chambers before submission to Parliament for approval.

The draft amendments were also introduced to seek comments at nine seminars organised by the private sector and institutions.

To deal with new environmental issues, draft regulations to control waste incineration, metal finishing, industrial chemicals and tanker cleaning were also formulated.

In addition, eight legislations were received from other governmental agencies for comments from the environmental viewpoints.

ENVIRONMENTAL GUIDELINES

Environmental guidelines are developed to compliment the EQA 1974 and its regulations. It is also aimed to assist industries, developers and planners to incorporate the environmental dimension into their programmes and activities. In 1994 several guidelines were developed and published, *viz*:

(a) Guidelines for Management and Disposal of Wastes in Upstream Petroleum Industries;

(b) Guidelines for Management and Disposal of Wastes in Downstream Petroleum Industries;

(c) Guidelines for the Siting and Zoning of Industries (Revised); and

(d) Guidelines on Zero Burning of Felled Plant Materials.

The Guidelines for the Siting and Zoning of Industries was first developed in 1978 and was reviewed in 1994 to take into consideration the country's rapid development as well as technological advancement in industrial processes and pollution control. Buffer zone distances were revised. In addition, a GIS Map for Industries in Klang Valley and Selangor was developed.

MANAGEMENT OF CHEMICALS

With the setting up of a specific Unit for the implementation of the Montreal Protocol on *Substances that Deplete the Ozone Layer*, the Chemical Unit was able to participate more effectively in other chemical-related programmes. Activities of particular importance during the year included strengthening the legal basis of the amended London Guidelines; development of

guidelines on international trade in chemicals; and hands-on training in the use of the International Register of Potentially Toxic Chemicals (IRPTC) database.

The Unit participated in 3 international meetings organised by UNEP in Geneva for developing a possible mandatory instrument on application of the prior-informed consent (PIC) procedure. Malaysia also participated in two other meetings on the formulation of a Code of Ethics on International Trade in Chemicals, which has been finalised and published by UNEP with the aim of setting out principles and guidance for the promotion of environmentally sound management of chemicals in international trade and for the protection of health, safety and the environment.

THE IMPLEMENTATION OF THE MONTREAL PROTOCOL

DOE is the national focal point for co-ordinating, monitoring and implementing all Montreal Protocol activities including ozone-depleting substances (ODS) phase-out projects. Under the assistance of the Multilateral Fund for the Implementation of the Montreal Protocol, a sum of US$322,520 has been approved for the period of 1994-1996 for DOE to establish the Montreal Protocol Unit to be called the Montreal Protocol Office for Project Management. The Unit's primary function is to promote and facilitate effective and efficient phase-out of ODS through the adaptation of policy, strategy, technological and monitoring procedures, covering the projects and programmes that have been specified in the Country Programme.

The other responsibilities are as follows:

- Development and preparation of control measures and phase-out strategy;
- Serving as the one-stop agency in information and advice for the ODS phase-out project;
- Collection, inventory and reporting of ODS consumption;
- Assisting all Malaysian ODS users in their efforts to phase-out ODS;
- Organising meetings, seminars, workshops and conferences for Malaysian ODS users;
- Publishing and disseminating of ODS information materials; and
- Co-ordinating activities related to the ODS issues.

In 1994, the following control measures and public awareness activities to facilitate the implementation of the action plan were formulated:

(i) Regional Workshops on Halon Bank Management, January 21-24, 1994, jointly organised with the Fire Services Department and UNEP;

(ii) Application Permit System gazetted in April 1994 to monitor actual import of Annex A and Annex B under the Montreal Protocol;

(iii) Launching of the MAC Recycling Project Agreement, June 21, 1994;

Workshop on Montreal Protocol Multilateral Fund Assistance for ODS Phase-Out Projects, September 14–15, 1994

Handing of Reports on "Classification of Malaysian Rivers" and Signing Ceremony of Memorandum of Understanding between the Institute of Higher Studies, University of Malaya and the DOE on December 21, 1994

(iv) ODS Project Preparation Workshop, September 14–16, 1994, jointly organised with CETEC and World Bank;

(v) Malaysia Ozone Layer Protection Award, December 20, 1994, jointly organised with DU Pont Far East Inc.;

(vi) ODS Awareness Publication - an awareness campaign carried out jointly with ICI; and

(vii) Update of the Malaysia Country Programme prepared jointly with CETEC.

A list of ODS publications produced in 1994 are as follows:

- ODS Solvents
- Significant New Alternatives List (SNAL)

- The Sooner the Better for the Protection of the Ozone Layer
- Guidelines for Project Preparation under the Multilateral Fund
- Guidelines on Control Measures for the Protection of Ozone Layer
- Guidelines on Control of the Parties to the Montreal Protocol
- *Skim Pengurusan dan Pengurangan CFC 12 pada Sektor Pendingin Kenderaan (MAC)*

As a member of the Executive Committee (EXCOM) of the Multilateral Fund since 1991, Malaysia was appointed Chairman of the Committee in 1994. Till December 1994, a total grant of US$14.6 million was approved by the Multilateral Fund for the implementation of 52 phase-out projects and activities to phase out nearly 2500 MT of ODS by the year 1996. Of the 41 phase-out projects approved, 4 had been completed resulting in the phase-out of 200 MT of CFCs. Another 15 would be completed by early 1995.

Malaysia participated in the Sixth Meeting of the Parties to the Montreal Protocol in Nairobi, on October 3-8, 1994. The Honourable Deputy Minister of Science, Technology and the Environment was appointed the Vice Chairman of the meeting. The major areas covered by the meeting were:

- *Status of Certain Parties vis-a-vis Article 5*
- *Exemption of ODS Production*
- *Supply of Controlled Substances to Article 5 Parties.*
- *Trade in Used and Recycled ODS*

ENVIRONMENTAL DEVELOPMENT PROGRAMMES AND STUDIES

Environmental Studies

Environmental studies were carried out to review and promote the development of environmental criteria and standards to keep pace with technological progress and development. Other activities included formulation of new regulations and the development of indigenous technology for pollution control and waste utilisation, mainly to assist small scale industries to comply with the various effluent discharge and air emission standards. Project findings and information obtained would be applied to support existing programmes for pollution control as well as to strengthen enforcement programmes.

In 1994, a total of 8 projects were implemented, 7 of which were carried over from 1993. The details of project studies carried out in 1994 are as follows:

Development of an Oil Spill Model

The development of a computer model for oil spill trajectory studies in the Straits of Melaka was completed in November 1994. The computer package developed was capable of computing both the forward and backward trajectory of oil slick motion. The predictions of the

model were compared with field studies of drifting objects as well as simulation with actual data of the *Nagasaki Spirit* oil spill incident.

Social Impacts of Noise Pollution to Population Residing in the Vicinity of Noise Sources

This study was conducted by the Institute of Noise and Vibration, Universiti Teknologi Malaysia and was completed in November 1994.

The objectives of the study were to establish the profile of noise pollution under different circumstances and to correlate annoyance with socio-economic and attitudinal variables.

During the implementation of the study, social data were obtained through interviews based upon a formulated questionnaire that met the basic criteria and information desirable of the survey. The results confirmed that noise was perceived as a greater source of environmental pollution followed by air quality and garbage affecting the neighbourhood. Recommendations on noise control and planning strategies were also proposed by the Study Group.

Study on Toxic and Hazardous Wastes Disposal Sites

The development of a Toxic and Hazardous Waste Disposal Sites Master Plan and Detailed Assessment Study of two selected sites of the Master Plan was completed in December 1994.

The approach in developing the Master Plan was based on regional spatial analysis. Under this study, eleven potential sites were identified in the northern, central, southern and eastern regions of Peninsular Malaysia.

Development of Groundwater Quality Monitoring Network

The study actually commenced in November 1993 and a draft final report was prepared in 1994 to determine the extent of pollution caused by disposal of industrial as well as domestic wastes to the underground environment. Under this study, preliminary groundwater monitoring were done at two disposal sites, namely Panji landfill site in Kota Bharu and the Jalan Sungai Besi landfill site in Kuala Lumpur.

A Manual for Groundwater Sampling Procedure was also produced. The Consultancy and Research Unit of Universiti Teknologi Malaysia was appointed to undertake the study.

Socio-Economic Study of Coastal Areas Threatened by Oil Spills

By the end of 1994, the main activities conducted were the reconnaissance survey, the socio-economic study, the marine ecology study and the sea-water quality study. Data gathered has been analysed and interpreted to outline a viable Action Plan to safeguard the socio economic interests of the population affected by oil spills. A draft final report was prepared by Perunding GEA (M) Sdn. Bhd.

Study of a Scheme on the Assessment and Registration of Chemicals

A draft final report was prepared which incorporated an inventory of chemicals using common computer software.

Recommendations on the assessment and registration of chemicals, the other component of the study were being finalised for later implementation. The Bureau of Consultancy and Development, Universiti Kebangsaan Malaysia was the consultant for the project.

The Development of Marine Pollution Control Regulations

The study commenced in December 1993 and was completed in December 1994 by A. I. Associates Sdn. Bhd. The study reviewed the weaknesses in the implementation of marine pollution control regulations and proposed recommendations for further improvement.

A Study for the Assessment of the Sources of Marine Pollution

This study which commenced in late December 1994 had the following objectives:

- to identify the major sources of oil and grease pollution of the coastal waters of Malaysia from land-based sources, riverine transport and fishing vessels and assess the level of pollution in the coastal waters of Malaysia;
- to evaluate the extent of oil and grease pollution in the coastal waters of Malaysia based on comparative studies to be carried out in specific areas;
- to assess the environmental impacts of oil and grease pollution on the marine water quality and on the coastal and marine resources;
- to review current and available treatment technologies; and
- to examine existing measures, to control marine pollution and draft a national plan of action and strategies to control marine pollution from oil and grease discharge.

The study was expected to be completed in 1995.

INVENTORY OF POLLUTION SOURCES

Databases for air and water pollution sources were updated in 1994 with additional information on the existing and new sources of pollution. Detailed source investigations were carried out through inspection visits and detailed questionnaires sent out to the industries and relevant agencies.

Air Pollution Sources

Summaries of air pollution emission sources are as shown in Figures 6.1 to 6.3. Fuel combustion constituted the bulk of stationary air pollution sources, numbering 3,421 out of a total of 8,899 sources, followed by wood-based products (1,817) and food and agriculture (1,727). Motor vehicles as mobile sources of air pollution were the most significant in number totalling 6,315,140. Sixteen solid waste disposal sites were potential sources.

The highest distribution of significant mobile sources in 1994 was in Selangor, followed by Johor and Federal Territory of Kuala Lumpur with the lowest in Perlis as

shown in Figure 6.1. The distribution of significant stationary air pollution sources is as shown in Figure 6.2, whereby Selangor had the highest number, followed by Pulau Pinang and Sarawak. The lowest number is again contributed by Perlis.

Air Pollution Load

The trend of load emission resulting from the main sources of air pollution is as shown in Figure 6.3. In terms of distribution, 75.1 per cent were from mobile sources, 8.6 per cent from industrial processes, 6.7 per cent from power stations, 5.1 per cent from industrial fuel combustion and 4.1 per cent from open burning practices at disposal sites.

Water Pollution Sources

A total of 3,799 industries were identified as significant water pollution sources in Malaysia in 1994. Of the total number

Figure 6.1 Peninsular Malaysia: Number of Significant Mobile Sources by State as at September 30, 1994

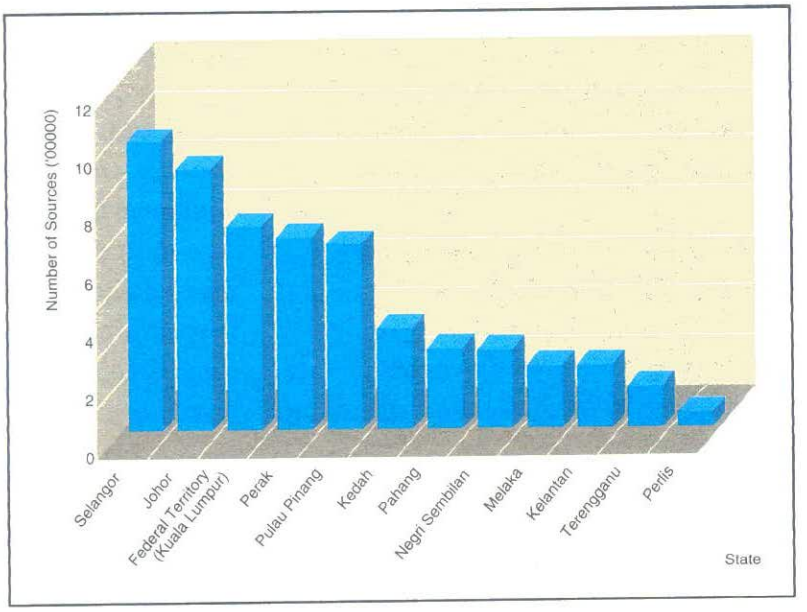
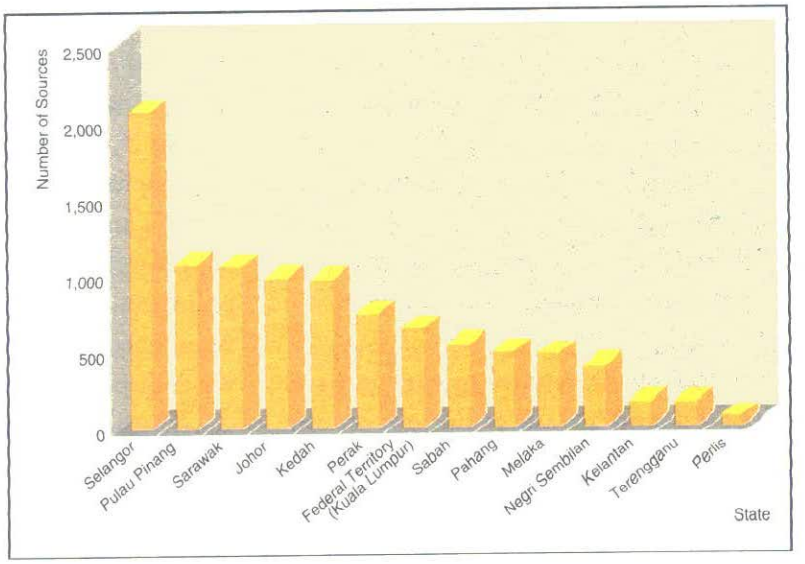


Figure 6.2 Malaysia: Number of Significant Stationary Air Pollution Sources by State, 1994



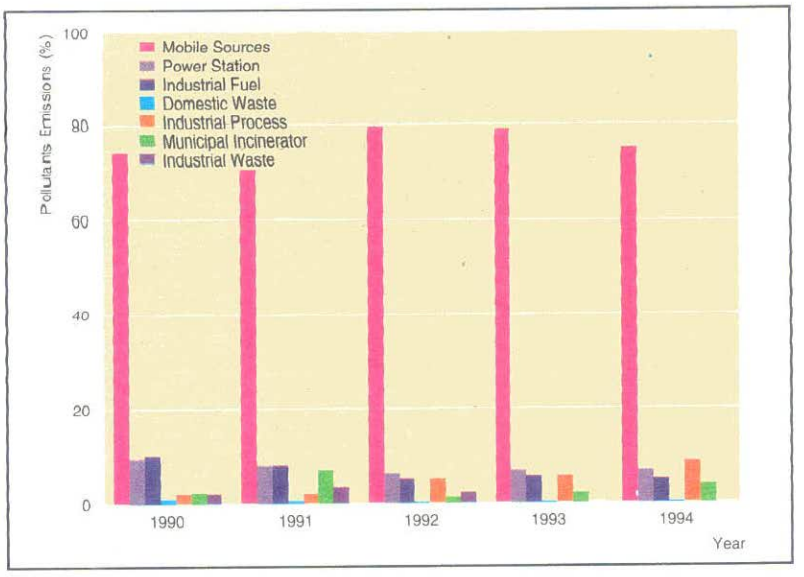


Figure 6.3
Malaysia: Trend of Emission of Pollutants to the Atmosphere by Various Sources, 1990–1994

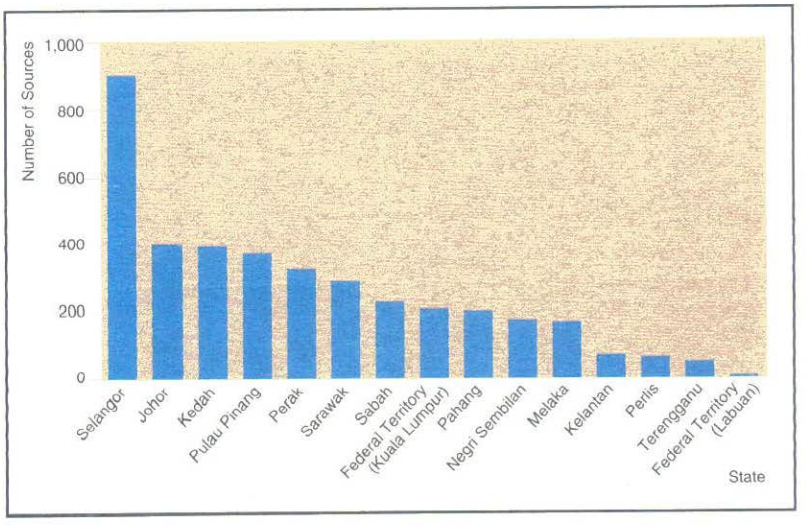


Figure 6.4
Malaysia: Distribution of Major Industrial Sources of Water Pollution, 1994

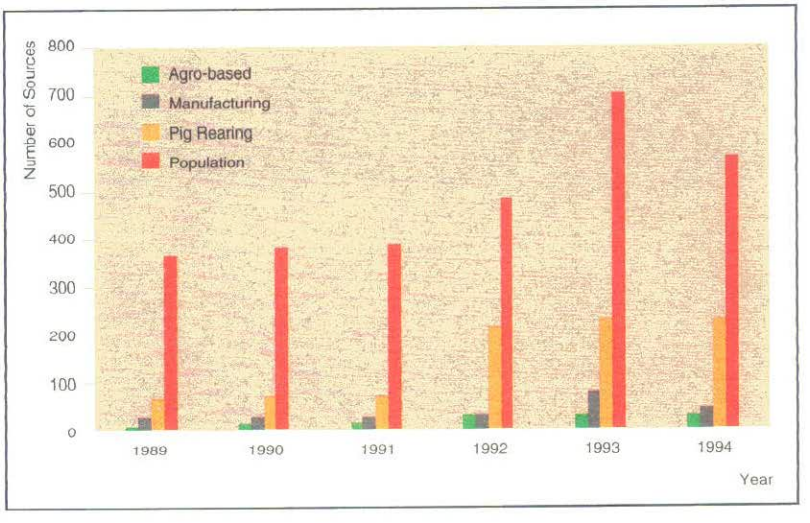


Figure 6.5
Malaysia: Organic Load Discharged According to Sector, 1989–1994

of sources, the food and beverage industries contributed 1,395 or 36.7 per cent, followed by the rubber product industries with 583 sources (15.3 per cent), and the chemical industries with 515 sources (13.6 per cent). Figure 6.4 shows the distribution of significant water pollution sources by States. Selangor had the highest number of industrial sources at 906, followed by Johor with 405, Kedah with 396 and Pulau Pinang with 378.

Figure 6.5 reinforces the findings of the Department's monitoring which had pinpointed sewage and animal wastes as the largest contributors of organic pollution load.

7

Environmental Education and Information

INTRODUCTION

The primary objective of DOE's environmental education, public awareness and information programmes is to enhance and promote public awareness and participation in environmental management by way of educational campaigns and activities, and the dissemination of environmental information. This in turn will complement the national educational effort to inculcate the right attitudes and values as well as to strengthen the participatory process towards sustainable environmental management.

PUBLIC AWARENESS PROGRAMMES AND ACTIVITIES

Public Education and Participation

Public awareness is essential for the improvement and maintenance of environmental quality. Without public support and involvement for environmental protection, unilateral effort would not be successful. Towards this end, the Department takes on a catalytic role to organise, promote and co-sponsor programmes and activities such as during the Malaysia Environment Week (MEW).

PROMOTIONAL CAMPAIGNS

Malaysia Environment Week

Malaysia Environment Week (MEW) is an annual event for DOE to strengthen public environmental awareness and concern for the environment as well as to inculcate environmental values in a responsible and caring society. A variety of activities are normally organised for the occasion as well as to commemorate the Langkawi Declaration on the Environment.

In 1994, the Environment Week Logo was launched as shown. The design was done in such a way to reflect harmony with the environment. The bee is selected to signify environmental friendliness and non-destructive nature. It also symbolises other positive characteristics such as productive, hardworking, and as nature's gift in line with the theme "Our Precious Earth, A Gift to Share, A Trust to Care" (*Alam Sejahtera, Anugerah Semua, Amanah Bersama*).

The national level MEW was launched in Kuching by the Chief Minister of Sarawak, the Right Honourable Datuk Patinggi Tan Sri (Dr.) Haji Abdul Taib Mahmud.

The launching was also attended by dignitaries from ASEAN member countries, Ministers and State Executive Councillors responsible for environmental matters, diplomatic missions of Commonwealth countries, Dr. Nay Htun of UNDP and other local dignitaries, government officials, school children and the general public.

Activities held in conjunction with the MEW at the national level included the following:

(i) *The 10th Meeting of Ministers and State Executive Councillors Responsible for Environmental Matters (MEXCOE) (October 20, 1994).*

The Right Honourable Chief Minister of Sarawak and the Honourable Minister of Science, Technology and the Environment at the UNEP/ Canon/DOE/Agfa Photo Exhibition in conjunction with the MEW, 1994

(ii) *The Informal ASEAN Ministerial Meeting on Environment (AMME) (October 21, 1994).*

(iii) *Briefing on the economic development of Sarawak by the State Planning Unit of Sarawak to ASEAN and MEXCOE dignitaries (October 22, 1994).*

(iv) *UNEP/Canon/DOE/Agfa photo exhibition (October 22-28, 1994).*

The MEW was also celebrated at the state level. The State Offices of DOE conducted various activities and programmes with the assistance and support of the state government and other government agencies. Table 7.1 summarises the list of events organised at the state levels.

Air Pollution Educational Campaign

As a result of the haze incident in Malaysia which caused much public concern, it was decided that a public campaign be launched with the following objectives:

- to give the public a more balanced perspective on the factors contributing to the haze;
- to give the public information on the practical steps they can individually take to reduce the haze levels;
- to give business community information on the practical steps they can personally take to help their companies reduce the haze levels;
- to inform the public on the measures the government is taking to monitor the situation and reduce its impact.

This campaign which carried the theme "Pollution: It starts with you. It ends with you" successfully reached the public through wide coverage in the printed and electronic media. This campaign was launched by the Minister of Science, Technology and the Environment on October 24, 1994. *Bates Malaysia* was the PR company which helped to execute the campaign.

DOE State Office		Activity/Programme
1	Pahang	Open Day, DOE Pahang
2	Perak	Drawing and Colouring Competition for Schools and Kindergartens. Official Launching of the Motivating Programme for Science, Technology and Environment, Perak, 1994.
3	Terengganu/Kelantan	Drawing Competition in Conjunction with Environment, Science and Technology Week. RTM, Kuala Terengganu Environment, Science and Technology Quiz. Official Launching and Exhibition of Environment, Science and Technology Week, Terengganu State Level. Appreciation Programme by Department of Agriculture. Appreciation Programme by the Fisheries Department. 'Love Nature' and Recreation Camp Organised by Department of Forestry.
4	Melaka/Negri Sembilan	Launching of Malaysia Environment Week.
5	Penang	Essay Writing Competitions, Secondary School Level. Sports Environment Quiz Environmental Role Play Jungle Walk Debate Talks Road Safety Campaign Free Testing of Noise Emission from Motorcycle Exhausts Environmental Forum

DOE State Office	Activity/Programme
6 Kedah/Perlis	Open Day for the public, especially students, throughout Malaysia Environment Week, 1994.
7 Selangor/Federal Territory	Launching of Malaysia Environment Week Environmental Exhibition Treasure Hunt Drawing Competition *Gotong-Royong* Photography Exhibition – Environmental Pollution Documentary Film Show
8 Sabah	Exhibition On-the-spot Drawing Competition Environmental Projects Tree Planting Project Cleanliness Programme for Food and Beverage Premises Essay Competition Still Photography Competition Inaman River Clean-up Campaign

Table 7.1
Events Organised at State Level in Conjunction with the Celebration of Malaysia Environment Week 1994

Plastic Awareness Campaign

The consumption of plastic per capita which stands at 35 kg, is likely to increase as the country's economy continues to grow. This issue has caused public concern, especially in the management of plastic wastes. In response to this, a Plastic Waste Management Task Force was established, to help bring about a healthy balance between consumption and disposal of plastics with overall minimal impact to the environment.

The Task Force successfully implemented programmes such as the "Plastic Bottles Collection Campaign", a workshop on "Plastics and the Environment", and a feasibility study on plastic waste management in Malaysia with the support of the Canadian Government.

A Plastics Recycling Coding System was also introduced in order to ease the separation of the different types of plastic bottles. Companies that responded positively to the use of such international coding system included: *Lever Brothers, Colgate Palmolive, Food Specialities, Dutch Baby Milk, Johnson & Johnson and Yeo Hiap Seng.* It is hoped that with such commitment by the corporate sector, the problem could be minimised.

OTHER PUBLIC AWARENESS AND EDUCATIONAL ACTIVITIES

Video Production

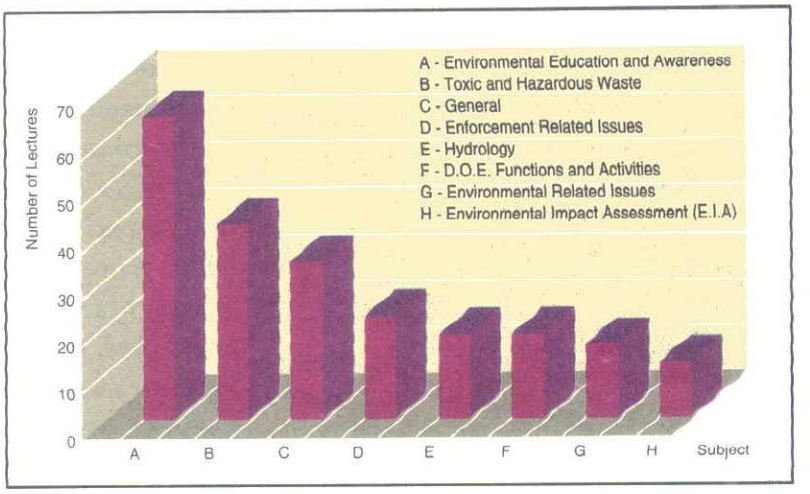
Environmental messages through the electronic media have significant impacts on the public. Recognising this fact, the Environmental Education Unit produced a documentary entitled *The Protection of the Ozone Layer* and two video clips entitled *Oh! Bangau* and *Kempen Hijau.* The Department also produced a documentary on *Guidelines for the Maintenance of Diesel Engine.* These documentaries and video clips were distributed to schools and other relevant places and also broadcasted on television.

Environmental Lectures and Exhibitions

Environmental lectures and exhibitions were conducted to enhance public understanding of the environment. These programmes enabled the public to gain access to correct information on the environment. Figure 7.1 provides an indication of the numbers and subject matters of lectures given in 1994.

Environmental exhibitions were also conducted throughout the year. Besides exhibitions, the Education Unit also provided posters, and loaned slides and photographs to interested individuals and

Figure 7.1 Lectures Conducted by Subject, 1994



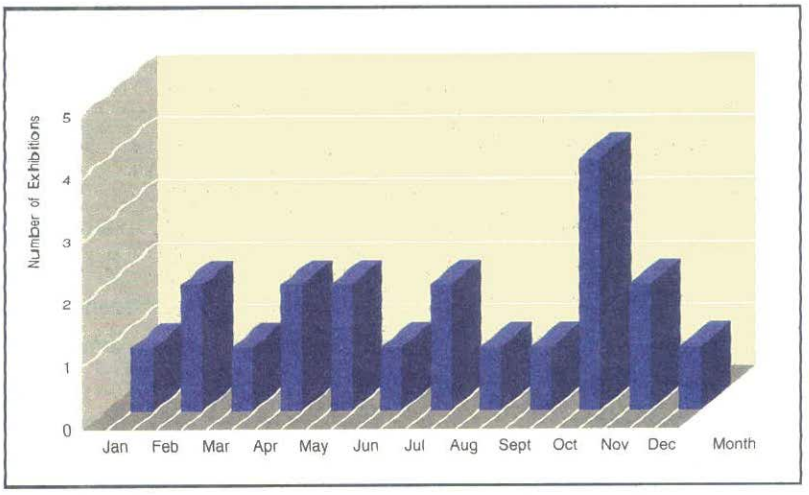


Figure 7.2
Exhibitions Conducted by Headquarters, 1994

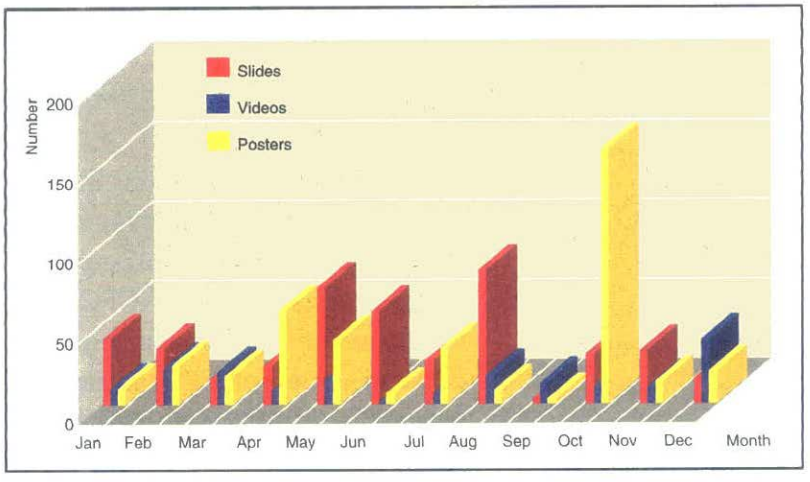


Figure 7.3
Audio-visuals Borrowed from the Environmental Education Unit, 1994

agencies. Figures 7.2 and 7.3, respectively show the number of exhibitions held by the Department, and the total number of posters, slides and photographs borrowed by interested individuals and organisations.

Educational Programme via the Mass Media

The Department also contributed articles on environment-related subjects to local newspapers, magazines, and the electronic media. Such articles appeared weekly in *The Borneo Post*, monthly in *PELANCAR* (a magazine published by *ANGKASA*) and in *DEWAN SISWA* through its *LESTARI* column. Educational interviews and commentaries were also conducted through the electronic media namely, over Radio 1 and TV3 (*Malaysia Hari Ini*) to sensitise the public on environmental matters.

Forum on "Poverty and the Environment"

The forum, held on October 18, 1994, highlighted the inter-relationship between poverty and environmental degradation. It was officiated and chaired by the Honourable Mr. Peter Chin Fah Kui,

Deputy Minister of Science, Technology and the Environment. The event was one of the activities for the Malaysia Environment Week. The invited panelists were Encik A. Kadir Jasin of the *New Straits Times*; Puan Kamalia Ibrahim of *UMNO*; Encik Gurmit Singh of the *Environmental Protection Society of Malaysia* (EPSM); and Encik A.Selvanathan of the *United Nations Development Programme* (UNDP). The speakers discussed the topic from different perspectives namely, economy, social, business, academic, political, scientific and technical, from a woman's point of view as well as from the regional programme perspective. The forum concluded that problems of poverty and the environment were so inter-related, thus explaining why poverty in the underdeveloped countries had caused serious environmental degradation, such as forest degradation. As such, the issue of poverty must be acknowledged and given priority for global environment needs to be addressed.

Presentation of Awards

(i) *Langkawi Award*
The Langkawi Award which was introduced in 1991, is a recognition by the Government to any Malaysian individual who has contributed towards the betterment of the environment. Professor Dato' Dr. Mohd. Sham Mohd. Sani, the Vice-Chancellor of Universiti Kebangsaan Malaysia (UKM) and a well-known environmentalist was the fourth recipient of this prestigious Award for 1994. He was presented with a plaque and a cash prize of RM10,000.00 which he in turn donated to UKM's Geography Department as an award to its best student.

(ii) *Malaysia Ozone Layer Protection Award (MOLPA)*
The Award was launched for the first time on December 22, 1994, as part of the Department's effort to accelerate the phasing-out of CFCs and to encourage the development and implementation of CFCs alternative technology in Malaysia. The Award which is sponsored by Du Pont Far East Inc. (Malaysian Branch) was given to selected organisations and industries as well as individuals in recognition of their efforts to protect the ozone layer. The recipients received a commemorative plaque

Recipient of the MOLPA receiving a plaque from the Honourable Deputy Minister of Science, Technology and the Environment

Category	Winners
A. Effort in ODS Substitution Award - This category is based on the overall contributions to phase out ODS particularly from S.M.I. and Malaysia owned industries. The candidates shall include industrial organisations, NGOs, suppliers, universities and trade associations who have played key roles in formulating ODS phase-out policies, strategies, plans and activities over the past few years.	1. Jumaya Industries Sdn. Bhd. 2. Island Resources Sdn. Bhd. 3. Ngai Cheong Metal Industries Sdn. Bhd. 4. Key Asset Sdn. Bhd. 5. Associated Air-Pack Industries Sdn. Bhd. 6. ASHRAE, Malaysia Chapter 7. PROTON Sdn. Bhd. 8. Pexafoam Sdn. Bhd.
B. Technical Contribution Award - This category is based on individual technical contribution and initiative leading to the effective phase-out of ODS in Malaysia.	1. Mr. Jee Say Loo 2. Mr. X'avier H.K. Yoong 3. Mr. M. Chelliah 4. Prof. Dr. Mohammad Ilyas 5. Mr. Kam S. Leong 6. Mr. Haw En Kai

from the Honourable Deputy Minister of Science, Technology and the Environment, Mr. Peter Chin Fah Kui. The full list of the winners are as above.

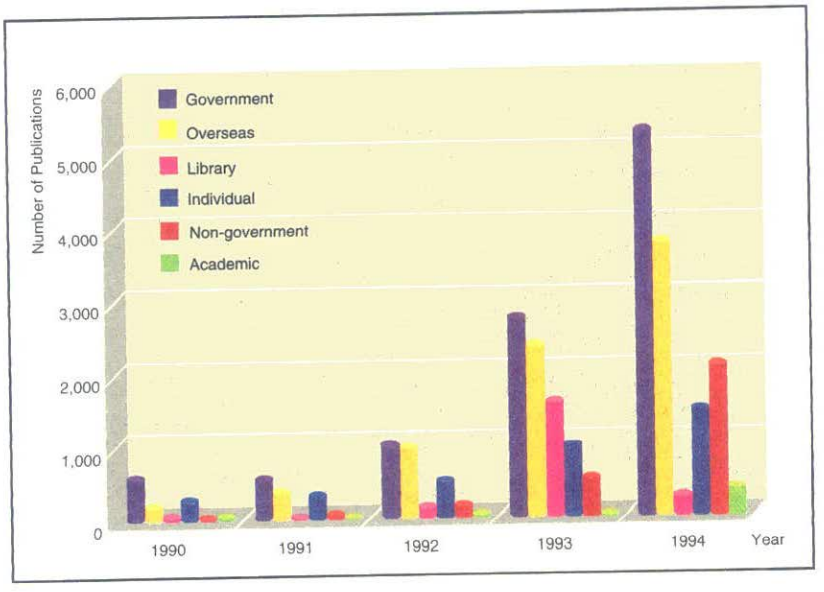
Malaysia Ceria Photography Competition

The competition was organised between the months of August to October, 1994, to enhance environmental awareness through the camera lens. It was jointly organised by AGFA Malaysia and DOE with the theme *Malaysia Ceria* to capture the beauty of mother nature. The winning entries were exhibited during the launching of MEW in Sarawak.

Publications

In 1994, a total of 13,306 environmental publications comprising the *Environmental Quality Report*, *Environmental Requirements: A Guide to Investors*, environmental guidelines and newsletters, as well as environment-related booklets, pamphlets, and posters were distributed locally as well as overseas to various targeted groups. These included individuals, government agencies, universities and institutions of higher learning, libraries, non-governmental organisations (NGOs) and the press. This was a significant 54 per cent increase compared to the previous year, thus indicating the continuing increase in demand for environmental publications published by DOE. Figure

Figure 7.4
Dissemination of Environmental Publications, 1990–1994



7.4 gives an indication of the distribution and readership of environmental publications produced by DOE.

The increasing number of questions and answers debated in both Houses of Parliament over the years is a positive indication of the importance of environmental issues in the minds of the Legislature. A compilation of questions and answers between 1976 to 1993 was prepared.

In 1994, the Department's mailing list increased by another 2 per cent from 1,428 the previous year to 1,461.

ENVIRONMENTAL EDUCATION

Textbook Review

The Department initiatied the review of the present school textbooks in order to incorporate environmental values, as well as to remove incorrect or misleading environmental facts. The Department, with the co-operation of the Ministry of Education, appointed the Writers' Academy and the Institute for Policy Research to implement this project, starting with the review of Form One textbooks. Primary School textbooks were not reviewed as the Ministry of Education was in the process of changing them. The nine subjects reviewed were: English, Bahasa Malaysia, Mathematics, Science, Geography, History, Islamic Studies, Living Skills as well as Physical and Health Education. The findings of this project show that in certain books namely, English, Geography, Science and Living Skills, the incorporation of environmental values and facts are adequate. However, for History, Physical and Health Education, as well as Islamic Studies, environmental facts and values were not adequately incorporated. Bahasa Malaysia and Mathematics books were found to be lacking in environmental facts and values.

Environmental Awareness Camps (Enviro Camps)

Six Enviro Camps were organised during

Launching of Enviro Camp '94 at the Environmental Education Centre, Bukit Gasing by the Honourable Minister of Science, Technology and the Environment on November 7, 1994

the school semester break, from November 7 to 22, 1994.

The objectives of these Camps were:

(i) to develop enviro camp modules that can be used as teaching aids for schools in environmental subjects; and

(ii) to instill awareness of the need to protect the environment.

A total of 180 students between the ages of fifteen and seventeen from 12 selected schools were chosen to participate in these Camps. Six specific ecosystems were chosen namely, forest, marine, river, hill land, organic farming and urbanisation. Universiti Pertanian Malaysia (UPM), Universiti Malaya (UM), World Wide Fund for Nature Malaysia (WWF), Centre for Environmental Technology Development Malaysia (CETDEM), Malayan Nature Society (MNS) and the Federation of Malaysian Consumers Association (FOMCA) provided the resource personnel to run the camps. The camps were conducted at the Nature Education Centre, FRIM (forest ecosystem), UM Field Study Centre at Gombak (river ecosystem), UPM Offshore Study Center at Port Dickson (marine ecosystem), Environmental Education Centre at Bukit Gasing (hill land ecosystem), CETDEM Environmental Education Centre at Paya Jaras Dalam (organic farming) and Youth Centre at Brickfields (urbanisation).

Projek Riadah Alam Sekitar (PRIAS '94)

PRIAS '94 was officially launched by the Honourable Dr. Leo Michael Toyad, the Deputy Minister of Education at Pulau Langkawi, Kedah on March 26, 1994. A total of 198 schools from the states of Perak, Kedah, Penang and Perlis took part.

The 1994 competition received a total of 289 entries consisting of 149 entries from Perak, 50 from Kedah, 72 from Penang and 18 from Perlis. The team from Sekolah Menengah Jalan Damai, Bukit

Mertajam comprising Teh Poh Siang, Teh Chee Keong, Tan Khang Khai, Tan Hee Khoon and Lim Mei Huey, was awarded the First Prize and cash of RM1,000.00. The team from SMJK Hua Lian, Taiping received the Second Prize worth RM700.00 while the Third Prize which was worth RM500.00 went to SM Tun Syed Shah Shahabudin. Twenty other teams received consolation prizes. The Prize-Giving Ceremony will be held at the Department of Environment in early 1995.

River Watch Programme

The River Watch Programme which was part of the "Love Our Rivers" Campaign, entered its second year, since it was launched on February 20, 1993. Interested schools were given basic equipment to monitor the quality of a selected river close to their schools. The students had to carry out river sampling every two weeks and the results submitted to the Department for further analysis. Through this programme, the Department hopes to inculcate interest of students and to further motivate them to protect the rivers from pollution.

In 1994, an additional number of twenty-nine (29) schools participated in the programme, bringing the total to 50. As the highlight of the programme, DOE organised a symposium on August 24, 1994, at the Malaysian Association of Youth Centre (MAYC). Five schools which had participated actively in the programme were invited to present their findings in the symposium. Sekolah Menengah Kerajaan Batu Kawa, Sarawak was awarded the first prize, followed by Sekolah Menengah Ulu Kinta, Perak and Sekolah Menengah Telok Datuk, Banting, Selangor. Meanwhile, Sekolah Menengah King George V, Seremban was awarded the best performer in the report presentation. The winners received their prizes from the Honourable Datuk Law Hieng Ding, Minister of Science, Technology and the Environment.

Inter Varsity Environmental Debate

Environmental consciousness is also promoted at the tertiary level through the annual inter varsity environmental debate. As future leaders, youths need to be implanted with the right attitude and knowledge of issues pertaining to the environment.

All the universities including Universiti Malaysia Sarawak (UNIMAS) participated in 1994. The team from Universiti Pertanian Malaysia (UPM) repeated their success of 1991 and walked away with the challenge trophy and cash prize of RM3,000.00. The second prize was awarded to the Universiti Teknologi Malaysia (UTM) team. The topic for the final debate was *Environmental Issues have been Commercialised.*

Publications

Posters

In line with the on-going *River Watch* campaign and also to emphasise the importance of water, the Environmental Education Unit has published a series of bilingual "Water Conservation Posters" consisting of the following topics:

(i) *Hargai Air* – an activity oriented poster
(ii) *Pencemaran Air*
(iii) *Kitaran Air*

Leaflets/Magazine

In its efforts to increase awareness among students, the Department also produced *Environmental Information Leaflets* complete with colourful illustrations as well as a quarterly magazine called *ERA HIJAU*, which is to be launched in 1995.

Books

To educate and enhance environmental awareness among students of secondary schools and institutions of higher learning, the Department distributed two books entitled *Acid Rain* and *Sources of Groundwater Pollution* to all secondary schools throughout Malaysia through the Schools Division of the Ministry of Education. They were also distributed to private colleges, teachers training colleges, University Libraries, the Curriculum Development Centre (CDC), Institute Aminuddin Baki, the Educational Planning and Research Division and the Educational Technology Division of the Ministry of Education.

To cater for the much younger generation namely, the Year 1-3 pupils of Primary Schools, the Department initiated another project to publish story books for children on environment-related topics. The Writers' Academy was appointed to write 10 story lines pertaining to *Water, Air, Habitat, Food, Plants, Rivers, Industry, Town, Transportation and Wastes,* with a story line related to each topic. The manuscripts and coloured illustrations would be ready by early 1995. These books will serve as supplementary readers for the pupils to be exposed to environmental issues they are associated with and which affect their daily lives.

ENVIRONMENTAL INFORMATION DISSEMINATION AND SERVICES

Query-Response Services

Responding to public queries is one of the primary roles of the Information Services Unit. A total of 2,939 queries for environmental information were received in 1994, an increase of 8 per cent compared to the previous year. The highest percentage of queries still came from the users of the Department's library, followed by requests through letters and via the INFOTERRA network. Requests through letters decreased by 30 per cent compared to 1993 as enquirers preferred to come personally to the library, instead of requesting information through letters, as shown in Figure 7.5.

The requests for information were received from various groups, of which students were found to be the major users of the Department's library and also the major enquirers via letters. The speed of response would depend on the urgency of the information required. A comprehensive analysis on the category of information users is given in Figure 7.6, showing that the relative number of students using the library is high in correlation between users of the information resources.

Figure 7.5 Channels of Query Responses, 1990–1994

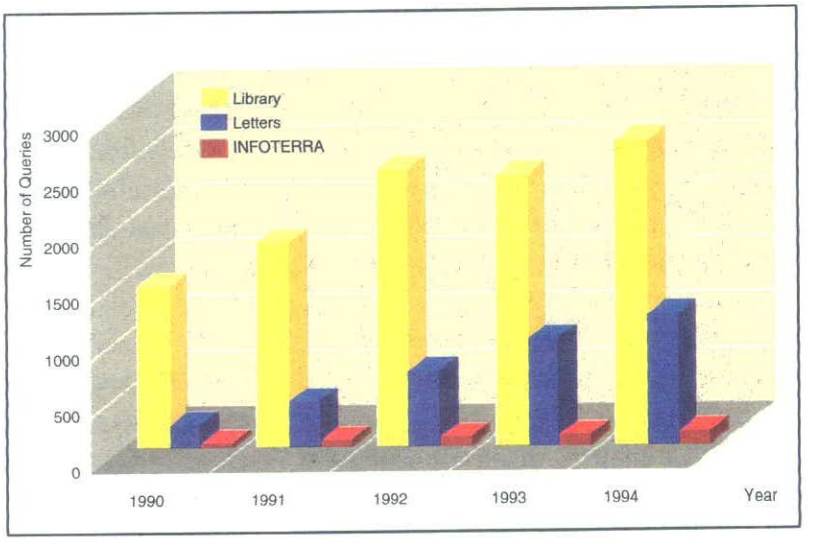
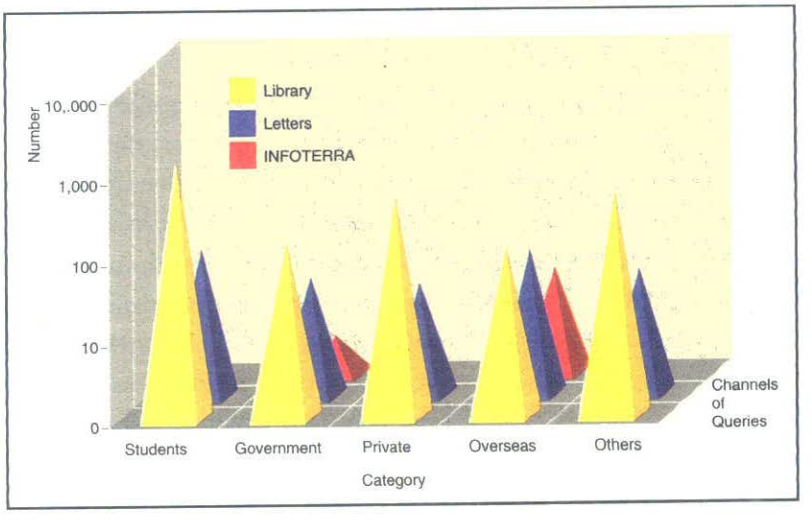


Figure 7.6 Category of Information Users, 1994



International Referral System for Sources of Environmental Information (INFOTERRA)

As the National Focal Point (NFP) for Malaysia, the DOE received and processed a total of 23 queries in 1994 through the INFOTERRA Network. This was a significant 92 per cent increase compared to only 12 the previous year. Out of these 23, only 3 were enquiries from DOE staff while the other 20 were overseas enquiries from Belize (Central America), France, India, Japan, Kenya, Oman, Pakistan, Samoa, Sri Lanka, Swaziland, United Kingdom and the United States of America. The main subjects of enquiries pertained to terrestrial ecosystems, human health, environmental laws and institutions, pollution and wastes, environment and development, human settlements, industry and fresh water.

Enviro-Library Services

In early 1994, the On-line Public Access Catalogue (OPAC) came into full use for

library users. The DOE Library Computerisation System was officially launched by the Director General of National Library, Puan Hajah Mariam bt. Abdul Kadir on August 6, 1994, to introduce the Columbia Library System fot the DOE enviro-library services. Till the end of 1994, a total of 13,629 reference materials were catalogued and 13,429 records were computerised. Materials that were catalogued included: books, reports, seminar papers as well as working papers produced by DOE.

Press coverage of environmental matters continued to increase and hence, the number of newspaper cuttings relating to the subject matter increased exponentially since 1977 as shown in Figure 7.7. This gives a positive indication that the subject of environment is of news value by the mass media. Retrieval of these cuttings is available through the *DOKUMAS* computerisation system or could be searched manually.

Figure 7.8 shows that 1994 had the highest number of outside users since the library was opened in 1983, while Figure 7.9 shows the category of users for 1994. The latter clearly shows that students form the main category of users comprising 50

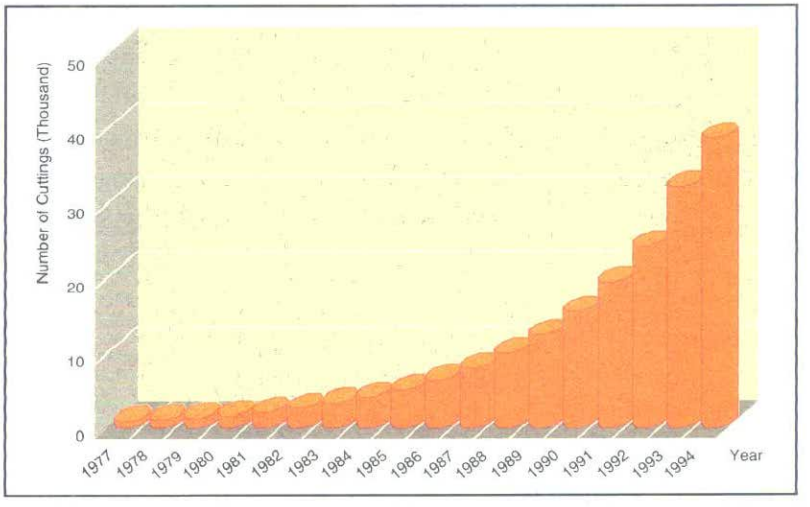


Figure 7.7 Number of Newspaper Cuttings Compiled, 1977–1994

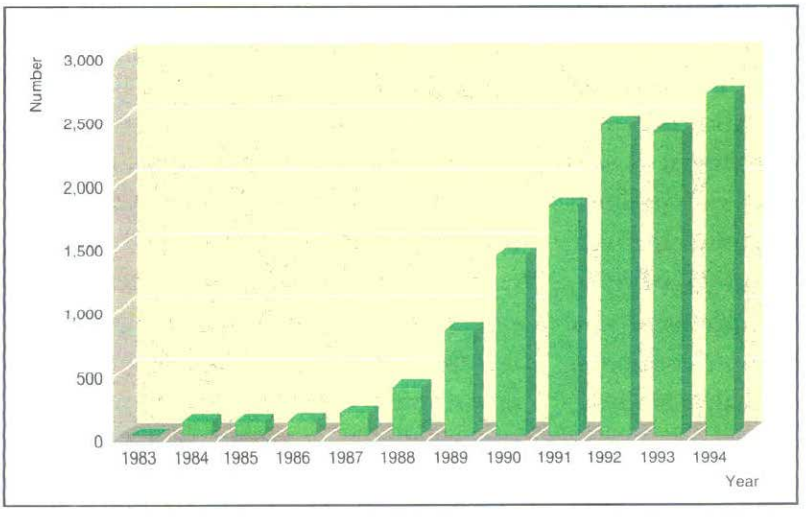


Figure 7.8 Number of Library Users, 1983–1994

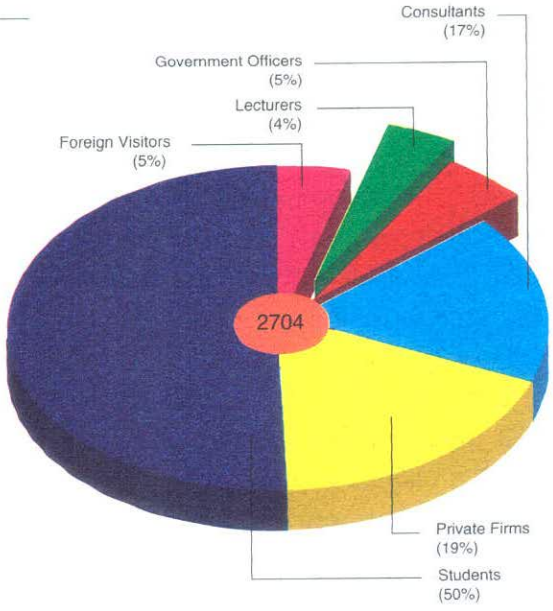


Figure 7.9
Library Users, 1994

per cent of the total. This was a clear reflection of the increasing awareness on the subject of environment among the students at secondary level and institutions of higher learning.

Environmental Briefings

Giving environmental briefings to visitors mainly from abroad is another function of the Information Services Unit. Throughout 1994, nine briefings were given to foreign visitors from Australia, Indonesia, Japan, Lao PDR, Sri Lanka and Netherlands; the International Islamic University students and lecturers, as well as to the participants of an international course organised by the National Institute of Public Administration (INTAN). Besides briefings, discussions were also held for single visitors or those coming in small groups namely, Germany, Norway, Netherlands, Indonesia, South Africa, Canada and Taiwan.

Environmental Education Resource Centre (EERC) & Audio Visual Room

The demand for environmental materials such as posters, slides, films/videos and photographs had increased significantly over the past few years. An Environmental Education Resource Centre (EERC) was set up to facilitate the loaning as well as to accommodate the collection of audio visual materials. To upgrade services such as screening of environmental videos, slides and photographs, an Audio Visual cum Visitors Room was set up in 1994. Visitors are allowed to view the videos or slides with the assistance of the Environmental Education Unit personnels. To date, there are 88 environment related videos, hundreds of slides and photographs available for loan to the public. To assist the borrowers, a catalogue and synopsis of the videos had been published.

CONTRIBUTION OF ENVIRONMENTAL ORGANISATIONS AND PRIVATE SECTORS

Non-Government Organisations

Non-government organisations (NGOs) play an important role in complementing the Department's efforts to promote environmental consciousness and responsibility among the Malaysian public. A number of NGOs have significantly contributed expertise and resources in environmental programmes and activities conducted by the Department such as the

Environmental Awareness Camps, enviro-debates, publication of environmental information and educational campaigns.

Private Sectors

The corporate sector and other business organisations in Malaysia had been forthcoming in supporting DOE's educational and awareness programmes by making contributions to the Environmental Education and Awareness Trust Fund. The Department would like to acknowledge the contributions from various corporate bodies such as Acenix, Tetra Pak (M) Bhd., Pudu Rotary Club, Malaysia Airline System and AGFA (M) Bhd. Through these contributions, the Department has fairly succeeded in overcoming the financial constraints faced and to strengthen the Malaysia Incorporated concept in the field of environmental education and public awareness.

Launching of the Malaysia Environment Week Logo on October 15, 1994

Launching of the Public Education Campaign on Haze by the Honourable Minister of Science, Technology and the Environment on October 24, 1994

8

Environmental Affairs

NATIONAL CO-OPERATION

Federal-State Relations

The 10th Meeting of Ministers and State Executive Councillors responsible for environmental matters (MEXCOE), chaired by the Honourable Minister of Science, Technology and the Environment was held on October 20, 1994, in Kuching, Sarawak. The primary objective of this Ministerial forum is to strengthen the co-operation and collaboration between the Federal and State Governments on environmental matters. The following subject matters were discussed: the state of the environment; the National Contingency Plan for Oil Spill; the establishment of a one-stop agency for the enforcement of environment-related laws; amendments to the Environmental Quality Act, 1974, and the development of scheduled waste transfer stations.

Malaysia Incorporated

The annual dialogue between the Minister of Science, Technology and the Environment and non-governmental organisations (NGOs), professional bodies and business associations was held on August 18, 1994. It was the fourth annual dialogue session held and organised by the Department to further strengthen the existing co-operation and understanding between the Government and NGOs. It also serves as a forum for exchange of information and experience on environmental issues, in line with the Malaysia Incorporated concept.

The dialogue was chaired by the Honourable Minister of Science, Technology and the Environment, Datuk Law Hieng Ding. A total of 150 participants representing 26 NGOs and relevant government agencies were present. Among the main issues highlighted were scheduled waste management, matters relating

The 10th MEXCOE Meeting on October 20, 1994 in Kuching, Sarawak

to industrial effluent standards and pollution problems, environmental impact assessment and environmental development programmes such as environmental awareness and education. NGOs were urged to play a constructive role and to give their full co-operation to the Government in environmental education and awareness activities held from time to time. In addition to the dialogue, the Department also held regular consultative meetings with the private sector, professional bodies and universities on specific environmental issues such as waste treatment and environmental standards, EIA guidelines and other non-statutory environmental control measures.

BILATERAL CO-OPERATION AND ASSISTANCE

Malaysia-China

The First Meeting of the Malaysia-China Joint Committee on Science and Technology was held in Kuala Lumpur on January 10–12, 1994, as a follow-up to the Memorandum of Understanding on Science and Technology signed in 1992. The Malaysian delegation was led by the Honourable Mr. Peter Chin Fah Kui, Deputy Minister of Science, Technology and the Environment while the Chinese delegation was headed by H.E. Madame Deng Nam, Vice Chairman, State Science and Technology Commission of China. This Joint Committee serves as an important bilateral forum for co-operation in Science and Technology between Malaysia and China.

The first meeting discussed on the various areas of co-operation in environmental management, computer system, microelectronic, nuclear energy, remote sensing, meteorology, conservation, marine resource for co-operation, joint resume projects, consultancy/experts sciences, training/technical seminar and conferences.

Malaysia-Denmark

The existing bilateral ties between Malaysia and Denmark in the environmental arena was further strengthened when officials of Malaysia and Denmark met in Copenhagen, Denmark on November 2–3, 1994, to discuss the Joint Initiatives on Environmentally Sound Management of Toxic Chemicals. An action plan for the environmentally sound management of toxic chemicals was drafted. The meeting also agreed to take a common stand to prohibit the exportation of banned toxic chemicals. Both countries also agreed to have regular consultations on matters pertaining to the Prior Informed Consent (PIC) procedure, Agenda 21 and in particular, the control of trade on toxic chemicals.

The other major co-operative effort was the formulation of environmental projects under the DANCED programme.

Malaysia-Singapore

The Seventh and Eighth Meeting of the Malaysia-Singapore Joint Committee on the Environment (MSJCE) were held on June 2–3, 1994, in Singapore and October 6–7, 1994, in Penang, Malaysia, respectively.

The Seventh Meeting of the Malaysia-Singapore Joint Committee on the Environment (MSJCE) on June 2–3, 1994, in Singapore

Various environmental issues of mutual concern to both countries were discussed, *inter alia*:

(i) Control of Motor Vehicular Emissions

(ii) Control of Tanker Cleaning Activities

(iii) Air Quality Monitoring and the Haze Episode

(iv) Joint Malaysia-Singapore Hydraulic and Water Quality Study for the Straits of Johor

At the invitation of the Minister of Science, Technology and the Environment, Malaysia, H.E. Mr. Mah Bow Tan, the Minister for Communications and Minister for the Environment of Singapore, made an official visit to Malaysia from November 21–26, 1994. Both Ministers discussed environmental matters of mutual concern and were briefed on the progress of the MSJCE. The Singapore delegation visited the Mulu National Park in Sarawak. In conjunction with the visit, the 9th Annual MOSTE-ENV Friendly Games were also held in Kuala Lumpur.

Malaysia-Thailand

The Second Malaysia-Thailand Senior Officials Meeting on Co-operation in Science, Technology and the Environment was held in Chiengmai on December 15–17, 1994. The meeting reviewed the progress of programmes and activities of the First Meeting and decided on follow-up action in the areas of biotechnology; advanced material; microelectronic; remote sensing; testing, evaluation and laboratory works in mechanical, electrical and electronic engineering; and environmental management.

The Malaysian delegation headed by Mr. Iskandar Astar, Deputy Secretary General I, Ministry of Science, Technology and the Environment included senior officials from relevant agencies such as SIRIM, MIMOS, MACRES, DOE, MARDI and local universities.

Malaysia-Vietnam

The First Meeting of the Malaysia-Vietnam Joint Committee on Scientific, Technology and Environmental Co-operation was held in Hanoi, Vietnam, on April 26–28, 1994. Under the framework of the Agreement on Scientific, Technology and Environmental Co-operation signed in December 1993 between the Government of Malaysia and the Socialist Republic of Vietnam, various areas of co-operation were identified, namely:

- Fisheries and Marine Resources
- Microelectronic and Information Technology
- Education in Science and Technology
- Environmental Management
- Remote Sensing and Related Technologies
- Standardisation, Certification, Methodology and Quality Control

The delegation from Vietnam was led by H.E. Prof. Ke Qui An, Vice Minister, Ministry of Science, Technology and Environment, Vietnam, whilst the Malaysian delegation was led by Dato' Jimin Idris, Deputy Secretary General I, Ministry of Science, Technology and the Environment, Malaysia (retired on June 1, 1994).

OTHER BILATERAL CO-OPERATION

In 1994, the Department also played host to official visitors from countries other than those mentioned above and these included Japan, Australia, Indonesia, Lao-PDR, New Zealand, South Africa, Sri Lanka, Canada, Holland, Hong Kong and Taiwan. The primary purpose of such visits was to exchange information and experience on environmental management and to obtain general information about the functions of the Department and other environmental organisations in Malaysia.

The subjects that were most commonly discussed pertained to EIA, Industrial Waste Management, Air and Water Quality Monitoring, Environmental Laws and Guidelines.

REGIONAL CO-OPERATION

ASEAN Senior Officials on the Environment (ASOEN)

The Fifth Meeting of the ASEAN Senior Officials on the Environment (ASOEN) was convened in Bandar Seri Begawan, Brunei Darussalam on April 20–22, 1994. The meeting was attended by officials from Brunei Darussalam, Indonesia, Malaysia, Philippines, Singapore and Thailand. Officials from the ASEAN Secretariat were also in attendance.

The meeting reviewed the reports of its six Working Groups as well as the status of its co-operative environmental programme with its dialogue partners. The meeting also appointed the chairmanship of the Working Groups as follows:

(i) *ASEAN Working Group on Environmental Information, Public Awareness and Education*
Brunei Darussalam

(ii) *ASEAN Working Group on ASEAN Seas and Marine Environment*
Indonesia

The Fifth Meeting of the ASEAN Working Group on Environmental Economics (AWGEE) held at the DOE, Kuala Lumpur on December 5–6, 1994

(iii) *ASEAN Working Group on Environmental Economics*
Malaysia

(iv) *ASEAN Working Group on Nature Conservation*
Philippines

(v) *ASEAN Working Group on Environmental Management*
Singapore

(vi) *ASEAN Working Group on Transboundary Pollution*
Thailand

ASEAN Ministerial Meeting on the Environment (AMME)

The Sixth ASEAN Ministerial Meeting on the Environment (AMME) was held in Bandar Seri Begawan, Brunei Darussalam on April 25-26, 1994. It was preceded by the 5th Meeting of the ASEAN Senior Officials on the Environment (ASOEN) from April 20-22, 1994, and by a preparatory Senior Officials Meeting (SOM) on April 23, 1994.

The meeting was attended by the Minister of Development of Brunei Darussalam, the State Minister for the Environment of the Republic of Indonesia, the Minister of Science, Technology and the Environment of Malaysia, the Secretary of the Department of Environment and Natural Resources of the Republic of the Philippines, the Minister for Communications and Minister for the Environment of Singapore, and the Deputy Minister of Science, Technology and Environment of Thailand. The Deputy Secretary-General of ASEAN Secretariat also attended the meeting.

The meeting was chaired by H.E Pengiran Dato' Seri Paduka Dr. Hj. Ismail bin Pengiran Hj. Damit, Minister of Development of Brunei Darussalam.

The Ministers adopted the Bandar Seri Begawan Resolution on Environment and Development which spelt out ASEAN's commitment on sustainable development as follows:

(i) *adoption of the ASEAN Strategic Plan of Action on the Environment (1994-1998);*

(ii) *declaration of 1995 as ASEAN Environment Year to highlight ASEAN environmental issues and co-operative programmes, broaden the participatory process as well as to stimulate regional ASEAN activities on the environment;*

(iii) *implementation of measures needed to attain harmonised environmental quality standards for ambient air and water quality by the year 2010; and*

(iv) *strengthening of co-operation among ASEAN member countries to ensure the effective implementation of the decisions of the Second Conference of the Parties to the Basel Convention.*

ASEAN-US

The Project Steering Committee Meeting of the ASEAN Environmental Improvement Project (ASEAN-EIP) was held on October 20, 1994, in Jakarta, Indonesia. The meeting was chaired by the Chairman of ASOEN, Mr. Benjamin C. Bagadion and attended by the representatives from the other member countries, the ASEAN-Secretariat and the EIP Country Programme Co-ordinator.

The purpose of the meeting was to review project activities, discuss and approve the proposed workplan, as well as to determine procedural, project support and administrative matters.

Informal ASEAN Ministerial Meeting on the Environment

Malaysia hosted the Inaugural Informal ASEAN Ministerial Meeting on the Environment in Kuching, Sarawak on October 21, 1994, in conjunction with the Malaysia Environment Week 1994. The meeting was attended by Ministers and Senior Officials from ASEAN member countries. Representatives from Lao-PDR and Vietnam were also present as observers.

Informal ASEAN Ministerial Meeting on the Environment on October 21, 1994 in Kuching, Sarawak

The Ministers exchanged views on a wide range of regional and international issues. In addition, the meeting also discussed and agreed on the activities for the 1995 ASEAN Environment Year; update on development of the Montreal Protocol and Basel Convention; co-operation in management of national resources and the haze episode in the region.

MULTILATERAL CO-OPERATION

Montreal Protocol

As the national focal point for co-ordinating, monitoring and implementing all Montreal Protocol activities, the Department actively participated in the following meetings organised by the Montreal Protocol Secretariat:

(i) *12th Meeting of EXCOM of Montreal Protocol* in Montreal, March 28–30, 1994;

(ii) *10th Open-Ended Working Group on the Montreal Protocol* in Kenya, July 5–8, 1994;

(iii) *13th Meeting of EXCOM of the Multilateral Fund in Montreal*, July 25–27, 1994;

(iv) *14th Meeting of EXCOM of the Multilateral Fund* in Kenya, September 29–October 1, 1994;

(v) *Preparatory Meeting for Sixth Meeting of the Parties to the Montreal Protocol* in Kenya, October 3–5, 1994; and

(vi) *Sixth Meeting of the Parties to the Montreal Protocol* in Kenya, October 6–7, 1994.

Basel Convention

In 1994, Malaysia participated in the following meetings organised by the Secretariat of the Basel Convention:

(i) *2nd Meeting of the Conference of the Parties to the Basel Convention* in Geneva, March 21–25, 1994;

(ii) *Meeting of Ad-Hoc Working Group of Legal and Technical Experts on Liability and Compensation (Basel Convention)* in Geneva, October 10–14, 1994; and

(iii) *Second Session of the Open-Ended Ad Hoc Committee for the Implementation of the Basel Convention* in Geneva, December 12–16, 1994.

INTERNATIONAL CO-OPERATION

United Nations Environment Programme (UNEP)

As the focal point of UNEP in Malaysia, the Department of Environment actively participated in the following activities of UNEP:

(a) *Regional Workshop on Responses to Climate Change and Sea-Level Rise in Southeast Asia*, Bangkok, Thailand, January 31–February 2, 1994;

(b) *Informal Advisory Group Meeting of UNEP's Ozone Action Programme*, Paris, February 1–2, 1994;

(c) *ESCAP/UNEP Expert Workshop on the Prevention of Illegal Traffic in Hazardous Waste*, Yokohama, Japan, March 1–4, 1994;

(d) *3rd Preparatory Planning Meeting for the Refrigeration Workshop*, Jakarta, March 3–4, 1994;

(e) *Second Meeting of Task Force on Strengthening the Legal Basis of the Amended London Guidelines*, Geneva, March 8–10, 1994;

(f) *Informal Consultation on Code of Ethics on International Trade in Chemicals*, Geneva, April 7–8, 1994;

(g) *Regional Workshop on Refrigeration and Air Conditioning Training Programme*, Jakarta, April 11–15, 1994;

(h) *Fourth Session of the Ad-Hoc Working Group of Experts on the Implementation of the Amended London Guidelines*, Geneva, April 11–15, 1994;

(i) *UNEP/COBSEA Regional Meeting on Control of Land-Based Sources of Pollution*, Singapore, April 28–29, 1994;

(j) *Meeting on Montreal Guidelines for the Protection of Marine Environment from Land-Based Sources of Pollution*, Montreal, June 6–10, 1994;

(k) *Visit of H.E. Ms. Elizabeth Dowdeswell (Under Secretary-General, United Nations/Executive Director UNEP)* to Malaysia, June 14–15, 1994;

(l) *International Conference on Straits of Melaka*, Kuala Lumpur, June 14–15, 1994;

Visit of H. E. Ms. Elizabeth Dowdeswell, Under Secretary General UN/ Executive Director UNEP, to the DOE on June 14, 1994

(m) *Consultative Workshop on Pollution Risk Management in Straits of Melaka*, Kuala Lumpur, June 16, 1994;

(n) *Fifth Meeting of Experts on the East Asian Seas Action Plan*, Singapore, July 25–26, 1994;

(o) *The ODSONET/SEAP 1994 Workshop*, Hanoi, August 22–27, 1994;

(p) *COBSEA: 2nd Regional Meeting on Land-Based Sources of Pollution in the East Asian Seas*, Singapore, September 1–2, 1994;

(q) *International CFC and Halon Alternatives Conference*, Kenya, September 24–26, 1994;

(r) *Meeting to Determine Joint Capacity Building Activities for Chemical Management between Officials of DOE and UNEP/IRPTC*, Kuala Lumpur, October 13, 1994;

(s) *International CFC and Halon Alternative Conference*, Washington, October 24–26, 1994;

(t) *Eleventh Meeting of the COBSEA on the East Asian Seas Action Plan*, Bangkok, October 27–29, 1994;

(u) *Regional Workshop for Countries in Asia with Rapidly Advancing Economies on Institutional Capacity for Industrial Compliance and Enforcement Response*, Beijing, China, November 13–19, 1994;

(v) *Consultative Meeting to Consider Major Issues Related to the Development of a Legally Binding Instrument for the Application of PIC*, Geneva, December 1–2, 1994;

(w) *Advisory Group Meeting on UNEP's APELL Programme*, Paris, December 5–7, 1994;

(x) *Senior Experts Consultative Meeting on UNEP's Toxic Chemicals and Chemical Waste Management Activities*, Nairobi, Kenya, December 13–15, 1994.

Figure 8.1 illustrates the attendance of DOE in environmental assignments overseas throughout the year 1994.

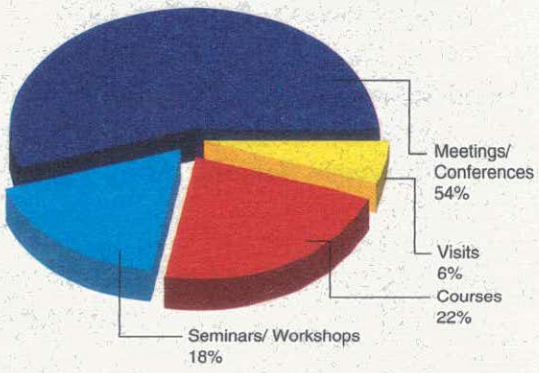


Figure 8.1 Department of Environment: Attendance in Environmental Assignments Overseas

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