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# CHAPTER 7 ENVIRONMENTAL PLANNING AND DEVELOPMENT



# ENVIRONMENTAL PLANNING AND DEVELOPMENT

## Introduction

The strategy adopted by the Department to achieve the objectives of sound development and minimal environmental degradation places emphasis on preventive approach to environmental management rather than on curative measures.

This is to be achieved through:

- a) the application of environmental impact assessment in planning;
- b) the development of specific guidelines for various activities to minimise adverse environmental impacts;
- c) the incorporation of environmental considerations into development planning.

The preventive strategy complements the existing programme of pollution control through the enforcement of the Environmental Quality Act, 1974 and legislations made under it as well as other legislations for pollution control within the responsibilities of other agencies.

## Environmental Impact Assessment (EIA)

Environmental impact assessment or EIA is a mandatory requirement under section 34A of the Environmental Quality (Amendment) Act, 1985. The section provides powers to the Minister to prescribe any activity which is likely to have significant impacts on the environment as prescribed activity. In line with the provisions, the Environmental Quality (Prescribed Activity) (Environmental Impact Assessment) Order, 1987 was gazetted on 5 November, 1987. The Order is enforced on 1 April 1988.

### Administration of EIA

The Department of Environment is the main agency administering the EIA requirements in the country. The Department's role in the administration of the procedure include:

- a) Providing information and advice to project initiators, consultants, project approving and supervising agencies as well as the public;
- b) Providing necessary guidelines to project initiators and assessors for carrying out EIA studies;
- c) Co-ordinating the review of EIA reports and

providing recommendations to project approving authorities and project initiators; and

- d) Providing training on EIA on its own and in collaboration with other training institutions, government agencies and private organisations.

In relation to the above, a **Handbook of Environmental Impact Assessment Guidelines** was prepared and was launched by the Honourable Minister on 30 November, 1987. The Handbook contain guidelines and other essential information for the undertaking of EIA studies and the preparation of EIA reports. In the same period, staff of the Department undertook or participated in nine training seminars and workshops, a description of which is given in Chapter 9.

Work completed during the year in preparation for the implementation of the EIA Order included the compilation of a list of experts who will sit as Review Panel members for the review of EIA reports, list of reference materials on EIA, update of sources and type of environmental information, and list of consultants capable of undertaking EIA studies. Work is continuing on the preparation of information pertaining to environmentally sensitive areas.

New activities initiated in the year included the preparation of an EIA training syllabus, compilation of information relating to cost and length of time taken for EIA studies, and the preparation of audio-visual aids and case-study material for training on EIA.

### Projects Subjected to Environmental Assessment

During the year, 16 environmental assessment reports were received by the Department and these were reviewed. The number and category of projects received is shown in Table 7.1. Although the EIA Order, 1987 was yet to be legally enforced, the requirement for EIA was made on an informal basis through administrative arrangements with project initiators and project approving authorities.

Detailed assessment reports were completed for four major projects in the country. These were for a land reclamation project for an industrial estate in Penang, a liquified petroleum gas terminal in Selangor, the gas utilization project for Peninsular Malaysia, and a waste disposal facility for radioactive wastes in Perak. Three ad-hoc review panels were formed to review the reports received while one of the report was reviewed by an internal review committee.

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## **Environmental Input for Development Planning**

In order to find effective solutions to tackle the environmental problems in the country, an integrated approach necessitating the incorporation of environmental dimensions in planning has to be adopted. Towards this end the Department of Environment has taken steps to promote this concept for projects and plans that are being planned by various agencies. In addition to responding to requests on projects and plans reviewed submitted by various agencies and providing the necessary recommendations, the Department has participated by providing data and information for the preparation of reports related to the projects in question. Besides, the Department also assisted in the preparation of specific chapters or reports on the environmental implications of the plans or projects proposed. A total of 35 projects were handled by the Department in the year, compared to 18 the previous year (Table 7.2).

### *Regional and Urban Planning and Development*

The Town and Country Planning Act, 1976 provides for the planning, regulation and control of development and use of land and buildings within local authority areas. The Department of Town and Country Planning in conjunction with local authorities has been actively involved in the carrying out of structure and development plan studies in the country. Such studies also require that environmental factors be taken into consideration. The Department provided more than 75 man-months of officer input to assist in the preparation of environmental reports for various government agencies involved in regional and urban planning and development. Of this total, 50 man-months represented government counterpart input for the Klang Valley Environmental Improvement Study undertaken with Asian Development Bank assistance. The 10 regional or urban plans in which the Department participated are shown in Table 7.2.

### *Natural Resources Planning and Development*

The Department reviewed and provided inputs to eleven projects related to resource planning and development in the period of 1987. Projects included those related to forestry, wildlife conservation, mining of minerals, agriculture, aquaculture and sand mining. A list of which is indicated in Table 7.2. Meanwhile work continued within the Department on the compilation of information on "environ-

mentally sensitive areas". A draft list was completed by the end of 1987. The year also saw an increase in interest towards holistic planning and sustainable use of resources. Environmental concerns are increasingly being taken into account in natural resource planning and development projects as seen by the increase in number of agencies referring such cases to the Department.

### *Infrastructure Planning and Development*

Eight projects were referred to the Department in 1987 compared to four the previous year. Of this number, four were related to sewerage development for the townships of Seremban, Port Dickson, Kuantan, and Muar. Two other projects were related to the proposal to develop comprehensive plans for the development of pig farming areas in the states of Selangor and Negri Sembilan. The above plans are for the control of pig farming, and integrated waste and waste water pollution control.

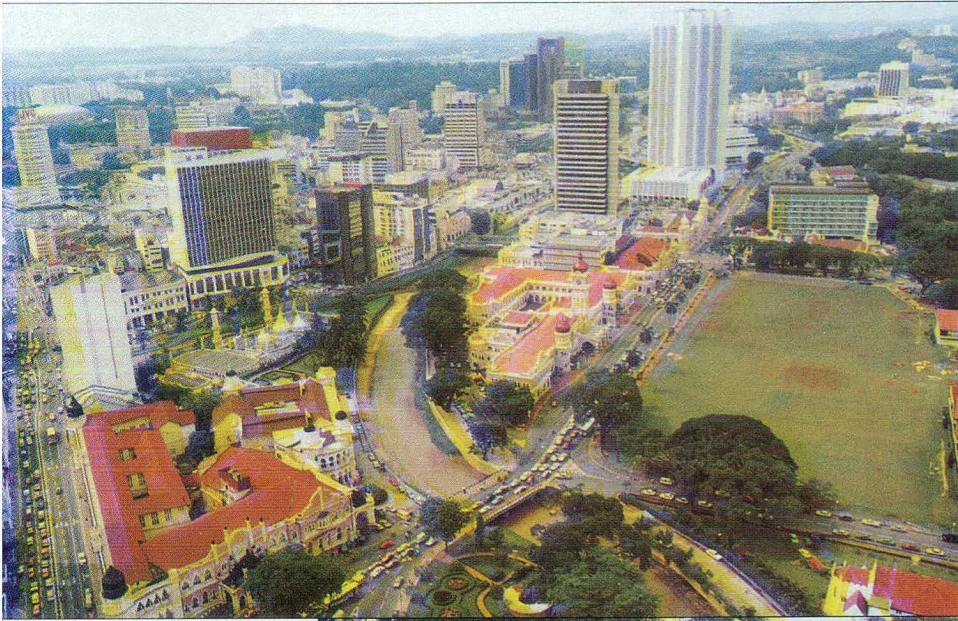
### *Industrial Planning and Development*

Six proposals to set up industrial plants on industrial estates were referred to the Department and reviewed. Within this category was a proposal to expand an existing thermal power station in Johor. Awareness on the need for proper siting of industrial areas and industries compatible with surrounding land uses, has increased due to past experiences where environmental problems have arisen due to poor planning.

### *Klang Valley Environmental Improvement Project*

The Klang Valley Environmental Improvement Project (KVEIP) which began in August 1986 was completed on schedule in April, 1987. The project which was financed by a grant provided by the Asian Development Bank and local inputs from the government was aimed at the establishment of a framework to undertake regional environmental improvement and management of the Klang Valley which comprises the Federal Territory of Kuala Lumpur and the four districts of Hulu Langat, Petaling, Gombak, and Klang in Selangor. The study covered aspects of water quality, air quality, solid waste, watershed and natural resources management; studies on squatters and other underserved areas as well as legislative, institutional economic and financial arrangements for environmental management. The study identified several projects for follow-up and some of the priority projects identified are shown in Table 7.3.

## PLANNING AND DEVELOPMENT



*Development and ...*

*Conservation ...*



*... can go hand in hand to benefit society*



*Conservation of water resources for future demand*

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## Project Evaluation

### *Presiting Evaluation*

Presiting evaluation of proposed development projects is one of the preventive approach to environmental management. Applications for proposed development projects are submitted to the Department for assessment to ensure that the siting of the project is compatible with the surrounding land use, and that environmentally sensitive areas including residential areas, schools, water catchment areas, forest reserve, national park etc. are adequately protected to avoid any adverse environmental impacts arising due to the development activities. Presiting evaluation also ensures that the potential project operator has taken appropriate measures to control and abate pollution from the planning stage of the project.

As a normal procedure, all presiting evaluation applications are investigated and assessed by the regional office of the Department and only problematic cases are referred to the Headquarters for final decision. All rubber and palm oil mill applications are referred to Headquarters together with site assessment report from the regional office in view of the licencing requirements for both of these two industries. Based on the site evaluation report, appropriate comments on site suitability as well as environmental control requirements are submitted to project planning authorities at the state level prior to a final decision being made on the application.

Figure 7.1 shows the number of applications processed for presiting evaluation by the Department of Environment (Headquarters) over a three year period from 1985 to 1987. In 1987, a total of 1436 applications for presiting evaluation were received by the Department, of which 50 per cent of the application came from the state of Perak, 11 per cent from Johore, 6 per cent from Pahang and 33 per cent from the other states in Malaysia (Figure 7.2).

Of the projects processed, the most number of applications were for poultry and livestock farming, setting up service stations and agricultural activities (Figure 7.3). However, these activities do not give rise to serious environmental problems except for commercial pig farming. Figure 7.4 indicates the number of application for rubber and palm oil mills over a three year period from 1985 to 1987.

### *Written Permission*

Written permission is a prerequisite for the construction of a facility that is likely to result in the discharge or emis-

sion of pollutants into the environment. Written permission in the form of a written approval from the Director General is to ensure that adequate control measures are incorporated into a project that is being planned. This requirement also enables the Department to compile a comprehensive data base for inventory purposes and hence, a more effective monitoring of compliance under the Regulations. Written permission, currently, is mainly directed towards pollution of water and air.

#### (i) Water Pollution Aspect

A written permission needs to be obtained by a person intending to carry out any of the following works:

- (a) Construction of a structure that will be a new source of effluent discharge;
- (b) Installation of an effluent treatment facility; and
- (c) Modification of an existing source of effluent that will result in a change of its effluent quality or quantity.

Assessment of the number of applications received by the Department in 1987 showed a reduction of approximately 28 per cent from that of 1986 (Figure 7.5). The reduction could be attributed to the economic slowdown faced by the industrial sector during the year. Out of 70 cases processed under the Presiting Evaluation in 1987, (Figure 7.1) a total of 25 cases were identified as potential sources of water pollution and were referred for written permission. Of these, 17 sources were for natural rubber and palm oil processing. The applications for written permission for construction of effluent discharge facilities by state is shown in Figure 7.6.

#### (ii) Air Pollution Aspect

Apart from setting air emission standards for industrial sources, the Department also regulates fuel combustion activity in the control of air pollution. Under the Environmental Quality (Clean Air) Regulations, 1978, any erection, installation, resiting or alteration of fuel burning equipment requires prior approval from the Director General of Environment. Fuel burning equipment and facilities used for heating or generating of power e.g. boiler, furnace, kiln, engine generators etc., rated to consume 15 kg or more of liquid or gaseous fuel/hr, or 30 kg or more solid fuel/hr are required to comply with this Regulations. As for incinerators, this Regulations applies irrespective of

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the size or capacity. The provision also covers erection or alteration of any chimney except those serving private residences. This is a preventive strategy taken to enable the Department to screen the impact of every installation on the air quality at the planning stage. Therefore appropriate control measures can be taken and incorporated in advance.

In 1987, the total number of applications received for approval for the whole of Malaysia was 272 (Figure 7.7). Referring to Figure 7.7, only 36 per cent of these applications were referred to the Regional Office and the others to the Headquarters. This is due to the fact that the regional offices are only responsible in processing application of fuel burning equipment with liquid fuel consumption less than 7000 lb/hr. Applications including incinerators, generators and fuel burning equipment using solid fuel are referred to Headquarters for processing. Of the total applications, 55 per cent were from the States of Selangor, Pulau Pinang and Johor. Applications from the State of Selangor alone made up 29 per cent of the total received. More than 80 per cent of application received from the State of Pahang, Perak and Terengganu were referred to the Headquarters for processing. This is because industries in those states consisted mostly of wood-based industry and palm oil mills. These two types of industries, use solid fuel burning equipment.

The number of applications received by the Headquarters for installation of fuel burning equipment increased over the three year period 1985-1987 (Figure 7.8). The increase in the number of applications received between the year 1985 to 1986 was by 42 per cent, and 12 per cent from the year 1986 to 1987. It is anticipated that the increasing trend will continue for the following year but the percentage of increment might be smaller.

### *Environmental Technology Assessment*

As part of its supporting function, the Control Technology Unit has the task to identify activities that do not have adequate resources to treat their pollution problems and to provide and facilitate funding support for research and development efforts in obtaining practical and viable treatment systems.

The Unit is also responsible for collecting, compiling and disseminating current and appropriate waste control technology.

The Department, in collaboration with the Forest Research Institute, Kepong, have agreed to undertake a project on the development of an anti-pollution wood waste burner system. The output will be several sets of

technical drawing of improved wood waste burners and better solid waste management that could be used by timber based industries. The project is awaiting financial support from United Nations Development Programme (UNDP).

Information on treatment technology for various industries were collected including rice mills, pulp and paper factories, wood-based industries and electroplating industries.

The Department also served on the National Technical Committee on evaluation of sewerage treatment systems implemented in Malaysia. The Committee had the task to evaluate and approve all types and make of sewerage system to be used in Malaysia.

## **New Programme Development**

### *Toxic and Hazardous Wastes*

A feasibility study on the treatment and disposal of toxic and hazardous wastes in Malaysia conducted by a team of United States of America (U.S.A) consultants in cooperation with the Department of Environment, was completed up to the Draft Final Report stage as of December, 1987. The US\$400,000 study was funded by a grant from the U.S. Trade Development Programme.

The result of the study shows that approximately 380,000 cubic metres of toxic and hazardous wastes were being generated annually. The wastes came from industrial, commercial and research activities. For many industries the waste included untreated wastewater. In addition an estimated 600,000 containers of various sizes were disposed off annually. Summaries of the types and sources of wastes are given in Figures 7.9 and 7.10.

The waste quantity increased by about 73 per cent over the total volume generated in 1985 (Figure 7.11). Much of the additional volume came from industries located in the state of Kelantan and Terengganu, hospital, automotive service stations/workshops, shipyards and contaminated land, previously not accounted for during the 1985 survey.

Based on the 1992 projected quantities of waste estimated to be generated, the study had proposed: 2 incinerator with a capacity to destroy about 13,500 cubic metres per year of incinerable wastes; a physical chemical system consisting of oxidation/reduction reactors, pH adjustment units, precipitation and separation units to treat about 50,000 cubic metres per year of inorganic liquid and secure landfills to cater for about 200,000 cubic metres

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of landfillable wastes per year.

The study further recommended based on the types, quantities and locations of waste generators, the facilities be set-up in either of the two (2) possible options :

Option 1

- \* A centralised treatment and disposal facility in Selangor consisting of an incineration plant, a physical-chemical treatment system, a stabilization plant and a secure landfill to cater for all wastes in Peninsular Malaysia.

Option 2

- \* A regional treatment and disposal facility in Selangor consisting of an incineration plant, a physical-chemical treatment system, a stabilization plant and a secure landfill.
- \* Secure landfills in Penang and Terengganu including stabilization facilities.
- \* The facility in Selangor provides for all of the incinerable and liquid inorganic wastes in Peninsular Malaysia. The landfills in Selangor, Penang and Terengganu cater for landfillable wastes in those and neighbouring states.

In the effort to find suitable sites for the establishment of secure landfills, 15 sites in Selangor and one site in Pulau Pinang were investigated. However, most of the sites were found environmentally unsuitable except for a site each in Selangor and Pulau Pinang. Detailed environmental, geological and hydrogeological studies will be conducted on those sites to confirm their suitability.

Revision of the draft proposed regulations to control the generation, storage, treatment, transportation and disposal of toxic and hazardous wastes were made in the year. With technical assistance provided under the French government bilateral programme, the regulations were further reviewed to take into consideration the use of an electronic data processing (EDP) system for the tracking of wastes from the point of its generation, to treatment, storage, transportation and final disposal.

### *Water Quality Criteria and Standards*

The Department of Environment with the assistance of the Institute of Advanced Studies of the University of Malaya

completed the first phase of the study for the formulation of water quality criteria and standards for Malaysia, in January 1987. The study initiated in 1984 took about two years to complete. During the study period, four sets of project reports were published and submitted for review and approval by the Technical and Steering Committee for the study. The reports comprised of an Inception, Progress, Draft Final and Final Reports.

The study developed a set of water quality criteria, and proposed a set of Interim National Water Quality Standards. The study also identified research needs in the areas of criteria and standards and planning management; improved information on environmental health; aquatic life; livestock and crop; monitoring and environmental analysis.

The recommendations of the first phase study was submitted to the 33rd meeting of the Environmental Quality Council for its adoption and acceptance in March 1987. The overall status of the development of the study since the date of commissioning is as indicated in Table 7.4.

The proposed Interim National Water Quality Standards for Malaysia comprises of six classes of standards set based essentially on the saprobic system of water quality classification coupled with other important criteria necessary to sustain its designated uses. The proposed Interim National Water Quality Standards for Malaysia and the classification system are given in Appendices 7.1 and 7.2.

In the light of the recommendations of the first phase, the Department of Environment has also initiated the preparation of terms of reference for second phase study. Three study areas of priority have been identified for commissioning vis-a-vis the development of water quality assurance programme for environmental water quality monitoring, classification of rivers according to various beneficial uses, and review of effluent standards to complement the Interim National Water Quality Standards.

The general purpose of the study is to elucidate in more detail aspects of water quality monitoring, planning and management in the development of water quality criteria and standards for the country.

### *Motor Vehicle Noise Regulations*

Efforts towards finalising the proposed motor vehicle noise regulations continued in 1987. Upon receiving approval from the Attorney General's Office, the regulations known as the Environmental Quality (Motor Vehicle Noise) Regulations, 1987 were gazetted and brought into force

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on the 16 July, 1987.

The Regulations primarily prescribed the maximum permissible sound levels permitted for different categories of motor vehicles. The levels are determined according to specified sound level tests. Those motor vehicles assembled or manufactured before the 1 January, 1970 and those that are used for the racing purposes in the designated racing circuits or in approved racing events are however exempted from the requirements of the Regulations.

#### *Noise Control Regulations and Guidelines for Industrial, Commercial, Community and Airport Activities*

For a period of about six weeks in November and December, 1987, the earlier programmes for the control of noise from industries, commercial, community and airport activities were reviewed.

The review was assisted by a consultant from the WHO/PEPAS under its technical assistance programme for Malaysia. Several working papers were developed that include proposals for various guidelines and regulatory requirements for the control of noise emission from industrial, commercial, community and airport sources. Among the papers are:

- \* A paper on the relationship between land-use planning and environmental noise control.
- \* A paper on the control of environmental noise from domestic premises.
- \* A paper on the control of noise from individual machine.
- \* A paper on the control of noise from construction, maintenance and demolition activities.
- \* A paper on the control of noise from airport operations.

#### *Toxic and Hazardous Chemicals*

The gathering of information initiated in late 1986 to develop a Malaysian Inventory of Chemical, and Chemical Substances was discontinued in 1987. A lot of effort was needed to implement some other programmes of much higher priority.

A preliminary assessment was however carried out on the information collected. It was noted that a variety of chemicals were being used, imported and manufactured in the country in which some were highly toxic and hazardous in nature. Industrial chemicals were frequently transported in bulk over long distances through sensitive areas such as the densely populated zones, wetlands, rearing areas, water supply schemes etc. Inevitably too, some of the existing chemical industries are located in the immediate vicinity of residential areas. In such situations, if major incidents involving hazardous chemicals were to occur, the damage could be very severe.

The Department of Environment has no prescribed responsibilities for response to hazardous chemical incidents but the matter was of much concern to the Department. The reason being simply, a major incident could result in a serious environmental pollution problem. It is also a known fact that the country has yet to establish a comprehensive plan to effectively response to any major chemical incident.

The Department therefore, in early 1987 initiated a programme to develop a framework for a national hazardous chemical incident contingency plan. In this connection, the Department had seek a technical assistance from the Canadian Government in the preparation of the initial groundwork for the plan. Some of the elements to be included in the plan were:

- (i) The roles and responsibilities of government agencies and industry;
- (ii) Planning and development of emergency response capabilities of government agencies and industry;
- (iii) Training of personnel involve in hazardous chemical incidents; and
- (iv) Establishment of a national centralised information system for hazardous chemicals.

## TOXIC AND HAZARDOUS WASTE



*Improper dumping of asbestos waste*



*Storage of toxic and hazardous wastes at factory premises*

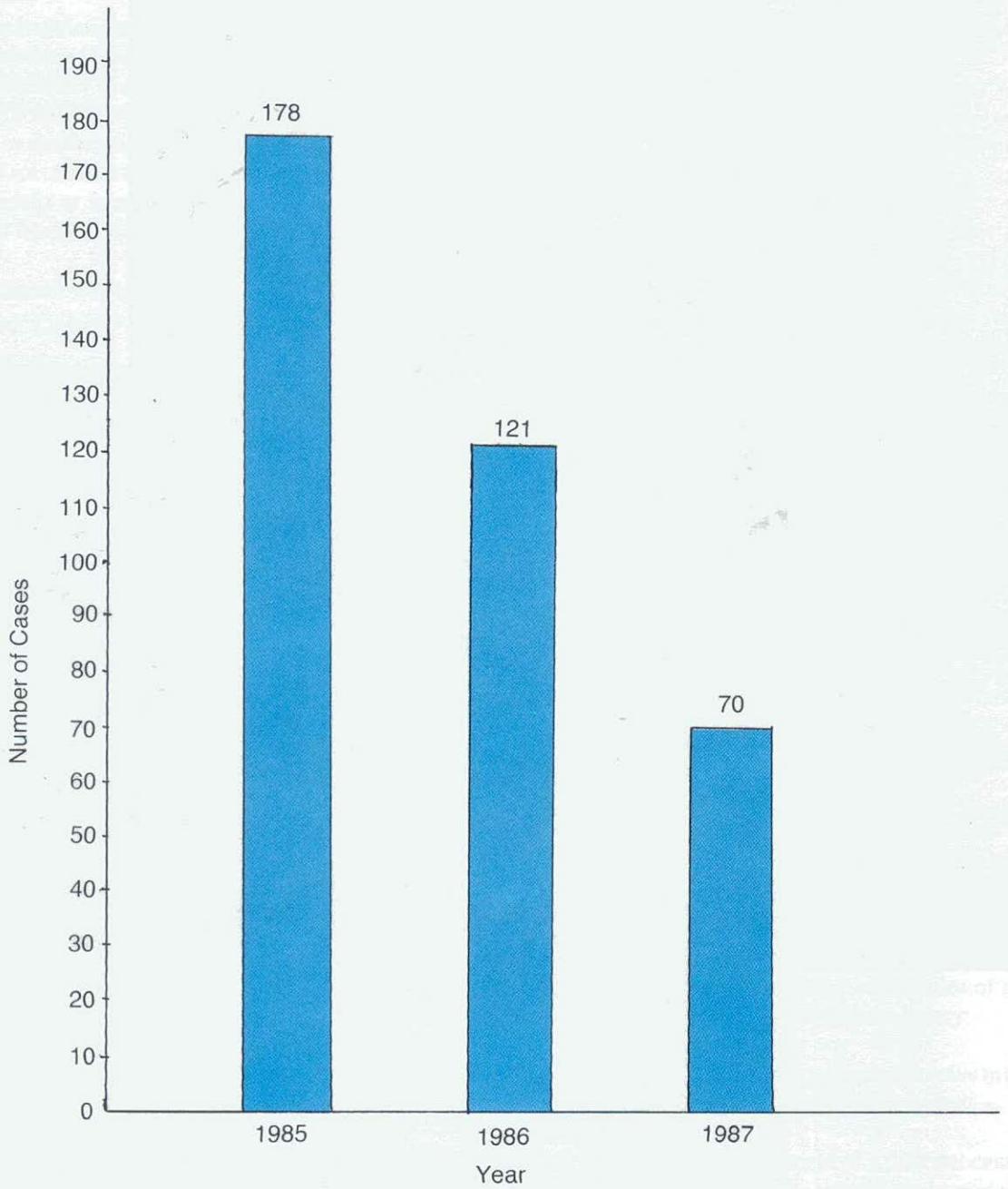


Figure 7.1. Malaysia, Department of Environment (Headquarters): Presiting Evaluation of Industrial Projects, 1985 – 1987.

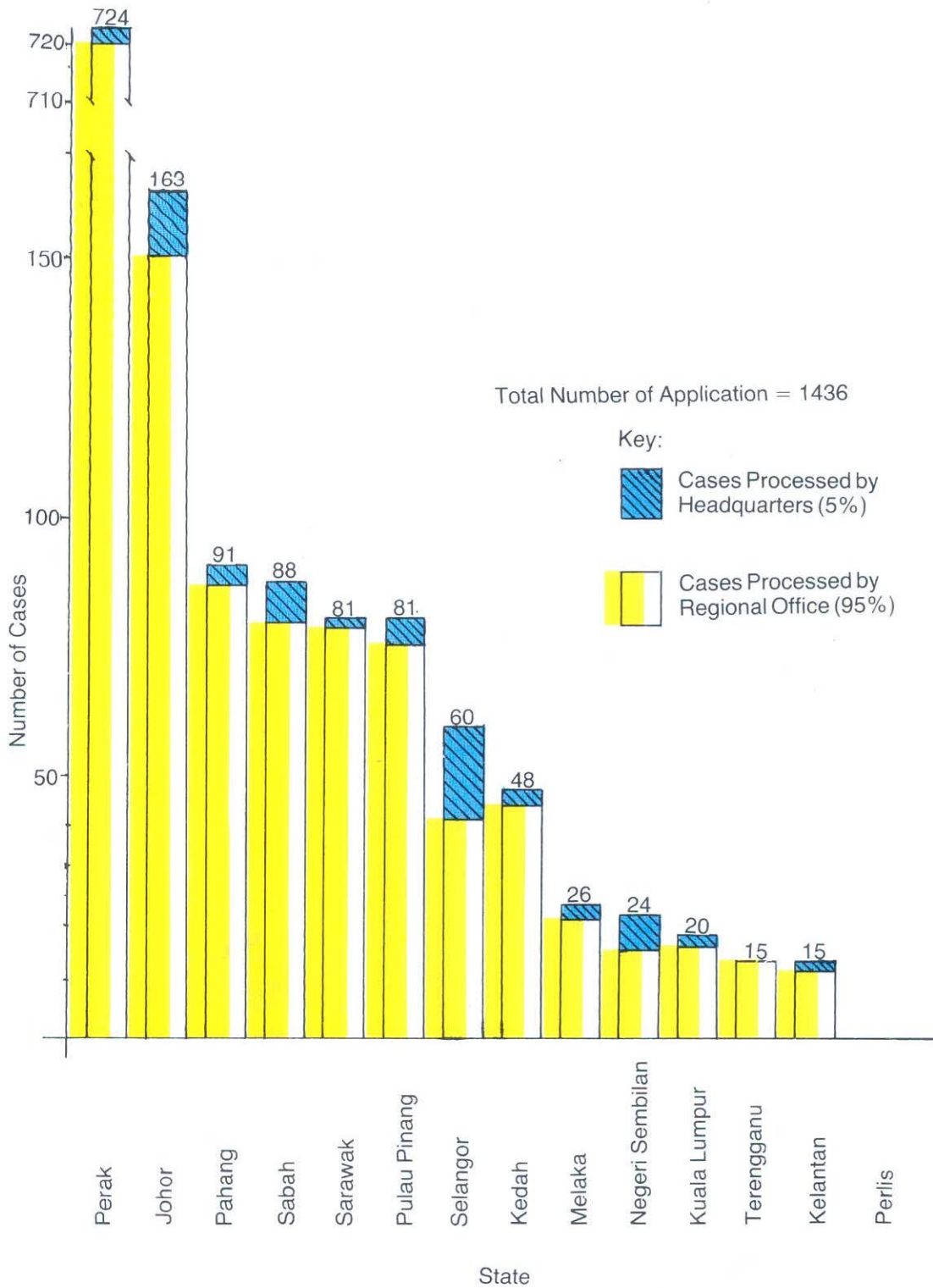


Figure 7.2. Malaysia, Department of Environment: Application for Presiting Evaluation of Development Projects by State, 1987.

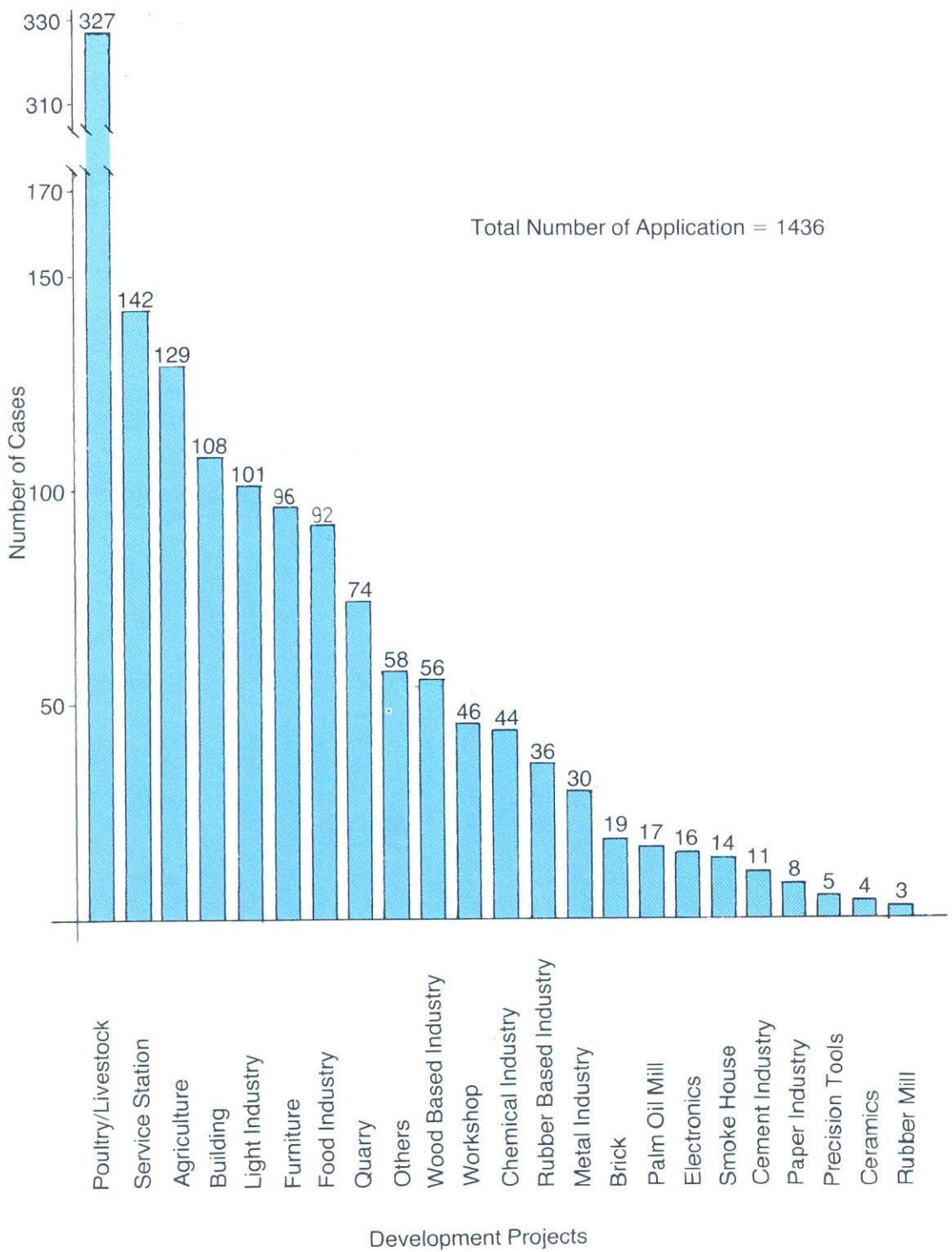


Figure 7.3. Malaysia, Department of Environment: Application for Presiting Evaluation by Type of Development Project, 1987.

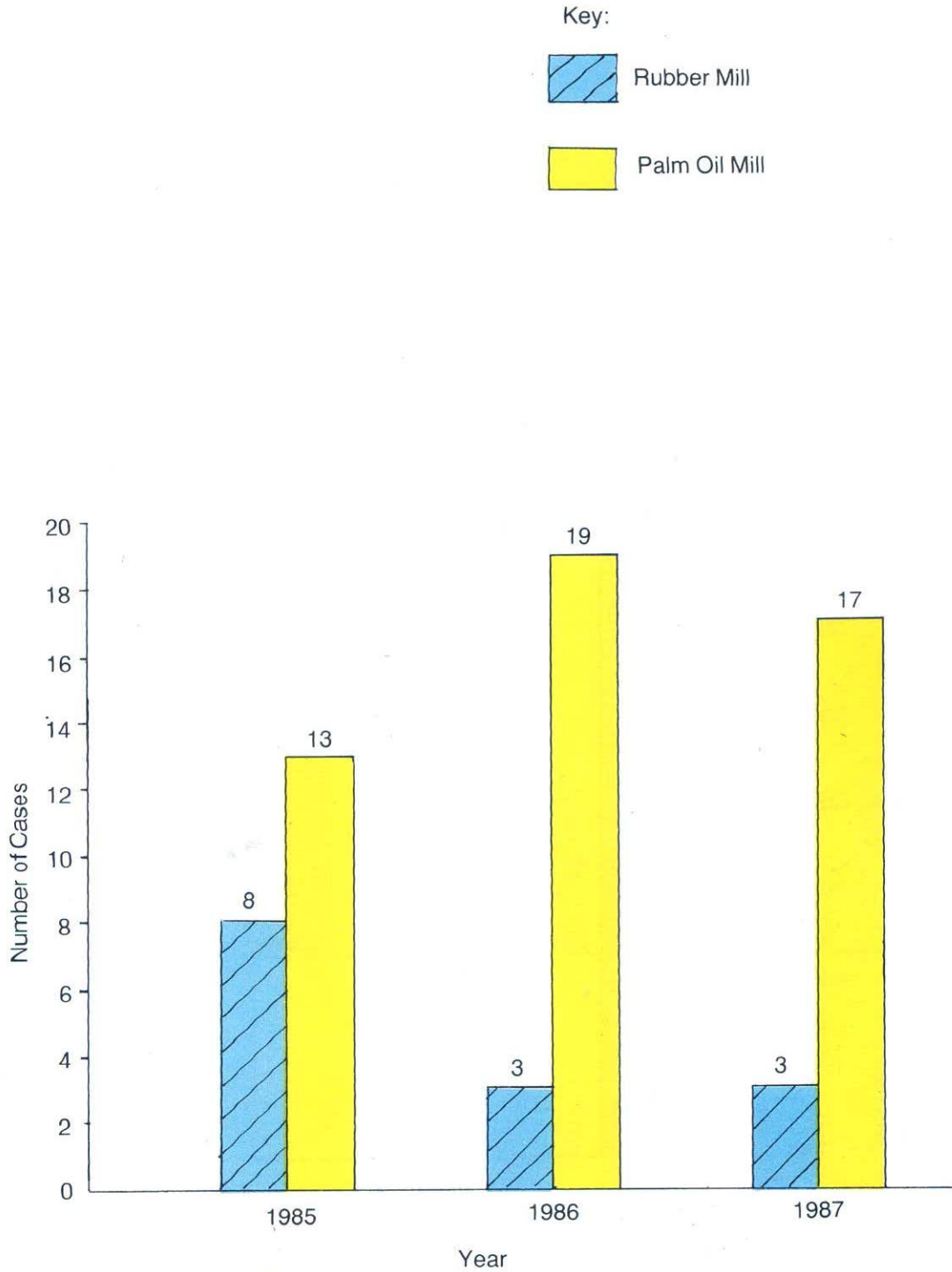


Figure 7.4. Malaysia, Department of Environment (Headquarters): Application for Presiting Evaluation of Prescribed Premises for Rubber and Palm Oil Mills, 1985 – 1987.

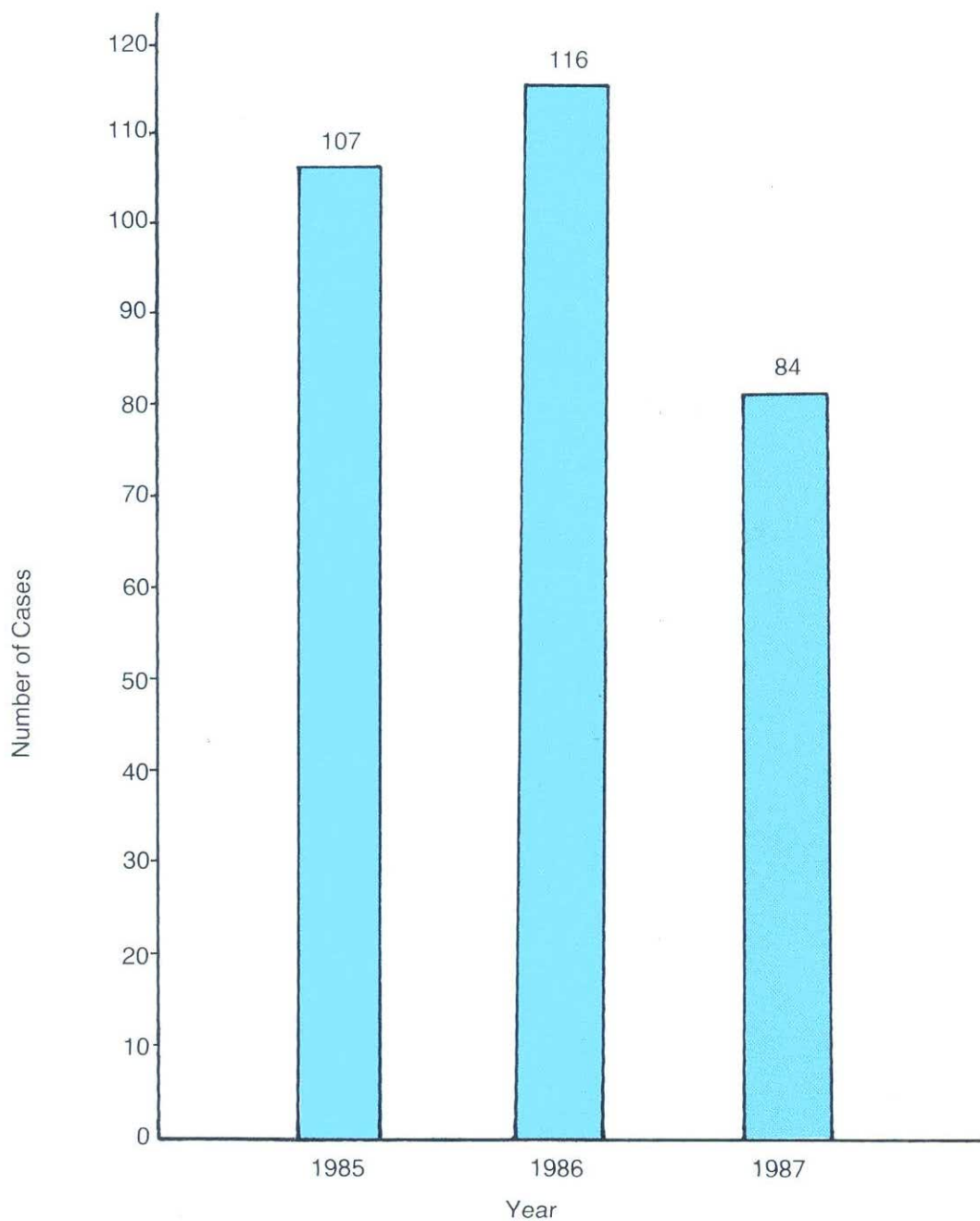


Figure 7.5. Malaysia, Department of Environment: Application of Written Permission for Construction of Effluent Discharge Facilities, 1985 – 1987.

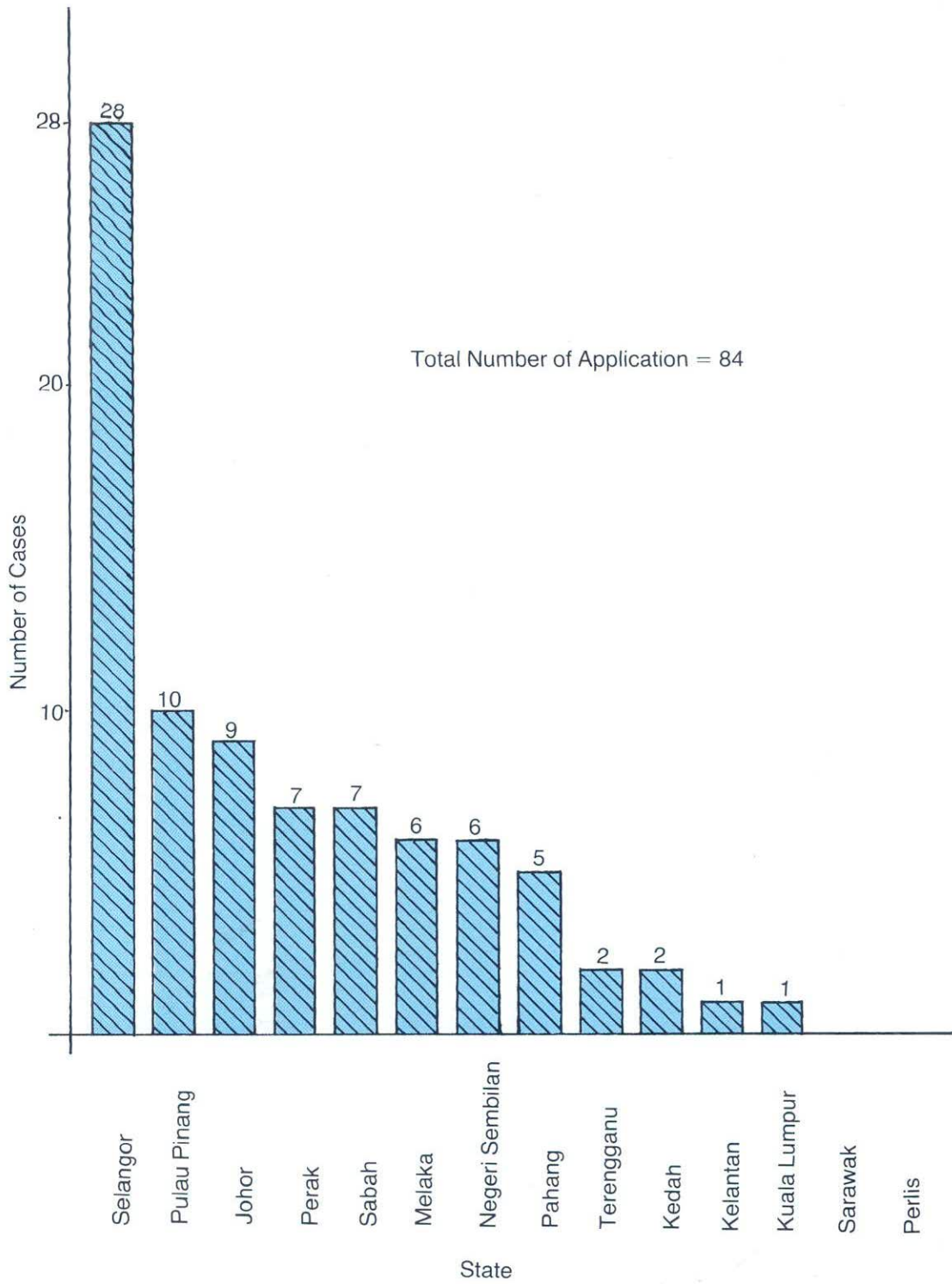


Figure 7.6. Malaysia, Department of Environment: Written Permission for Construction of Effluent Discharge Facilities by State, 1987.

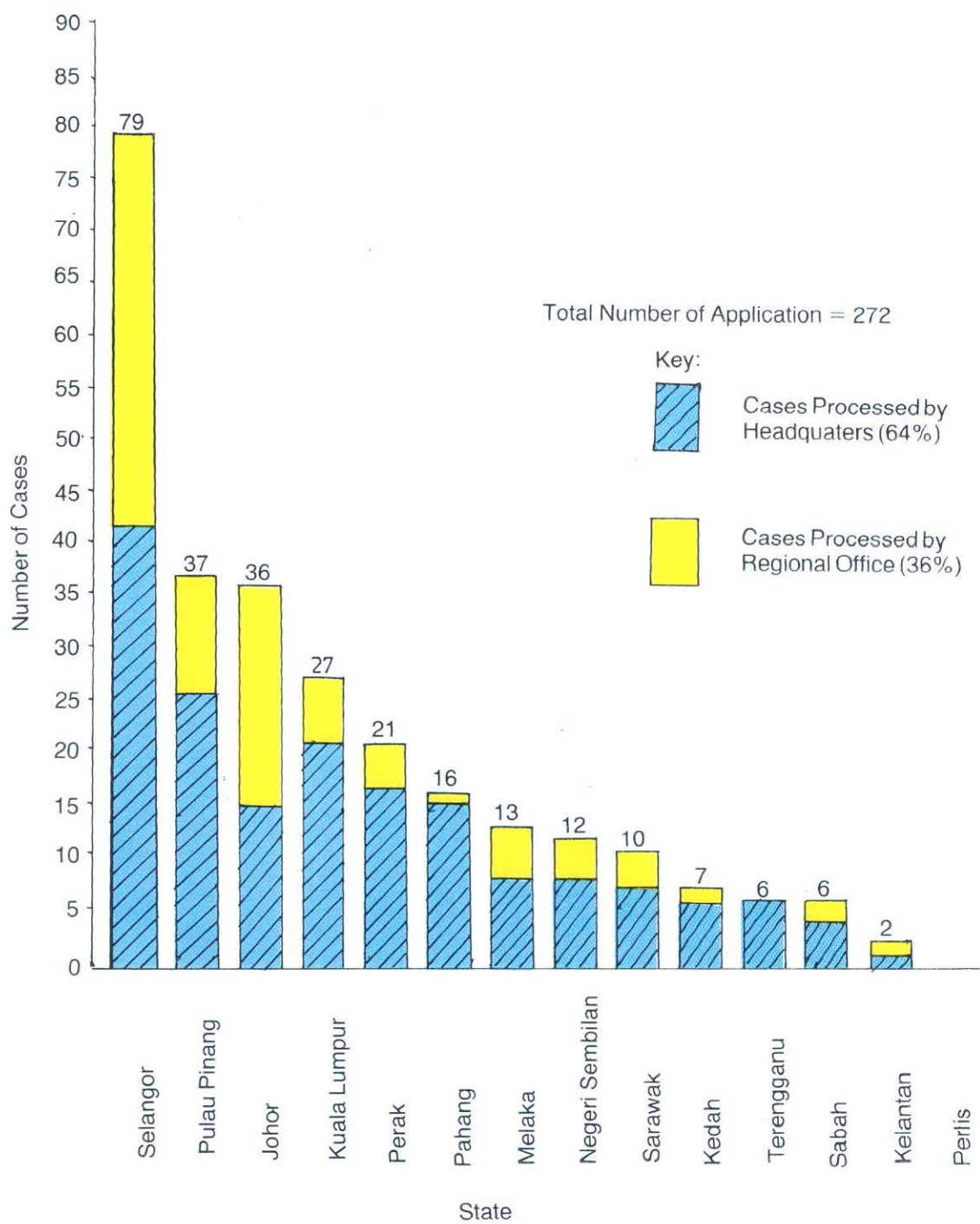


Figure 7.7. Malaysia, Department of Environment: Application for Installation of Fuel Burning Equipment by State, 1987.

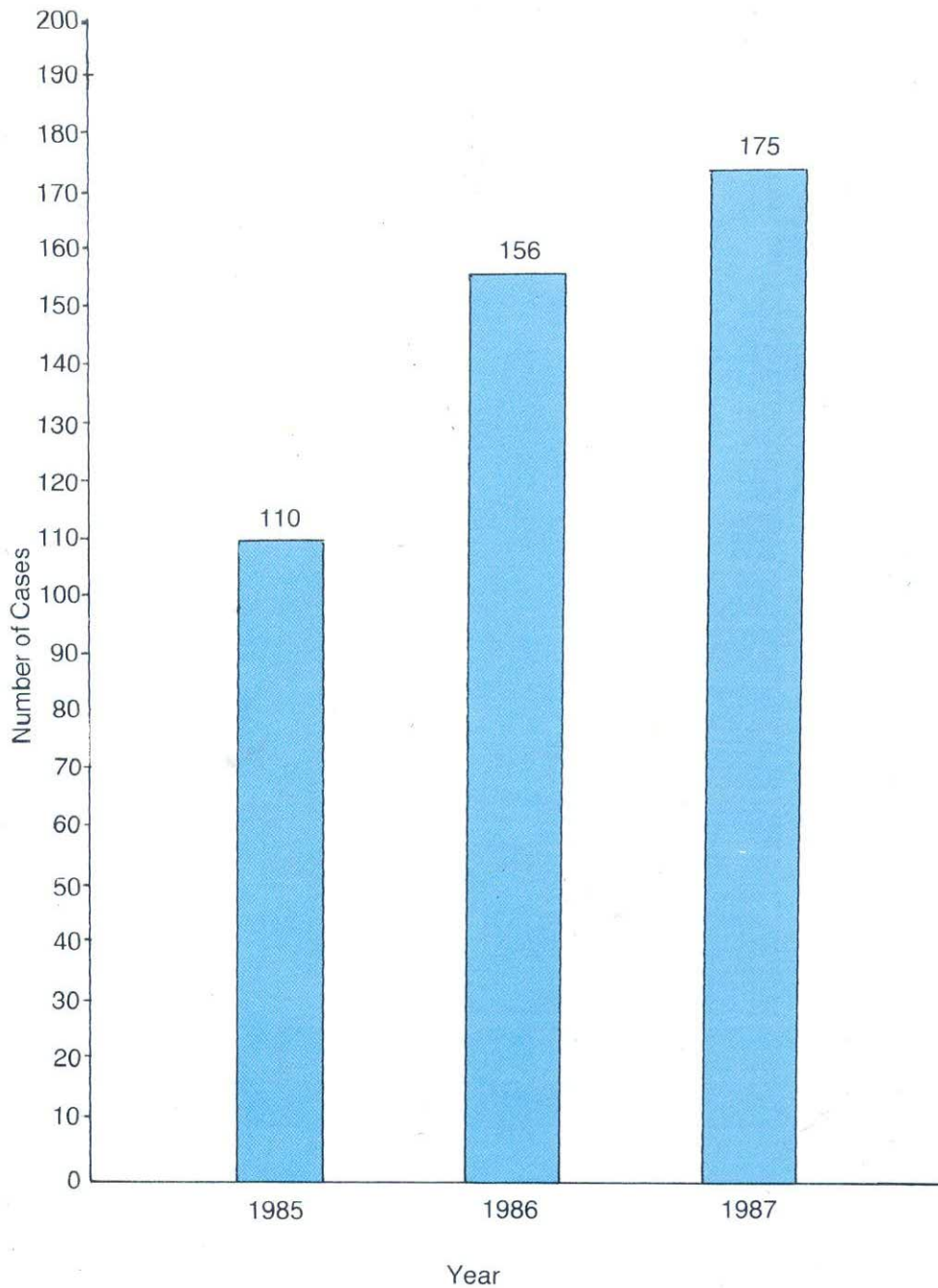


Figure 7.8. Malaysia, Department of Environment (Headquarters): Application for Installation of Fuel Burning Equipment, 1985 – 1987.

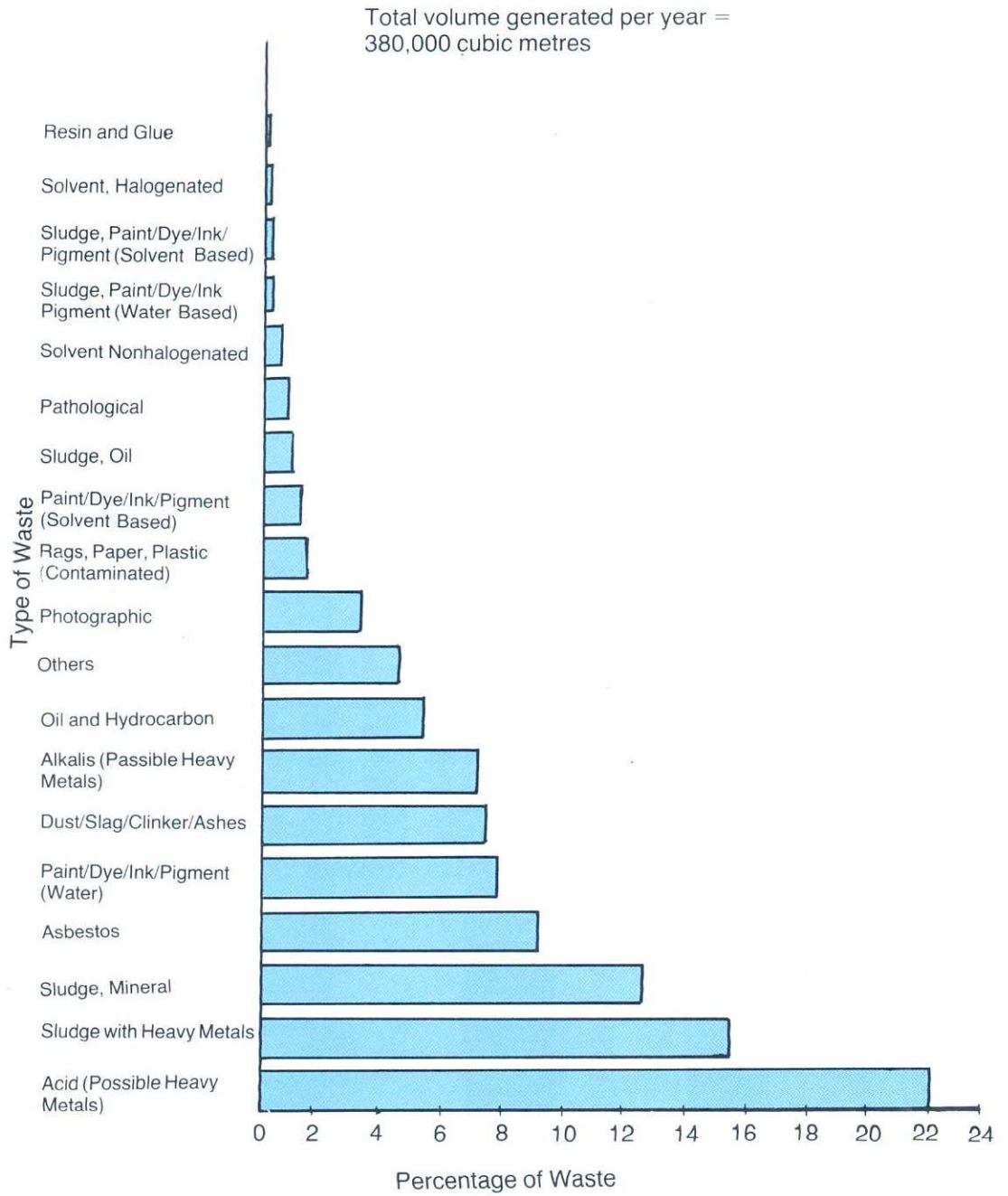


Figure 7.9. Malaysia: Distribution of Waste by Type, 1987.

Total volume generated per year =  
380,000 cubic metres

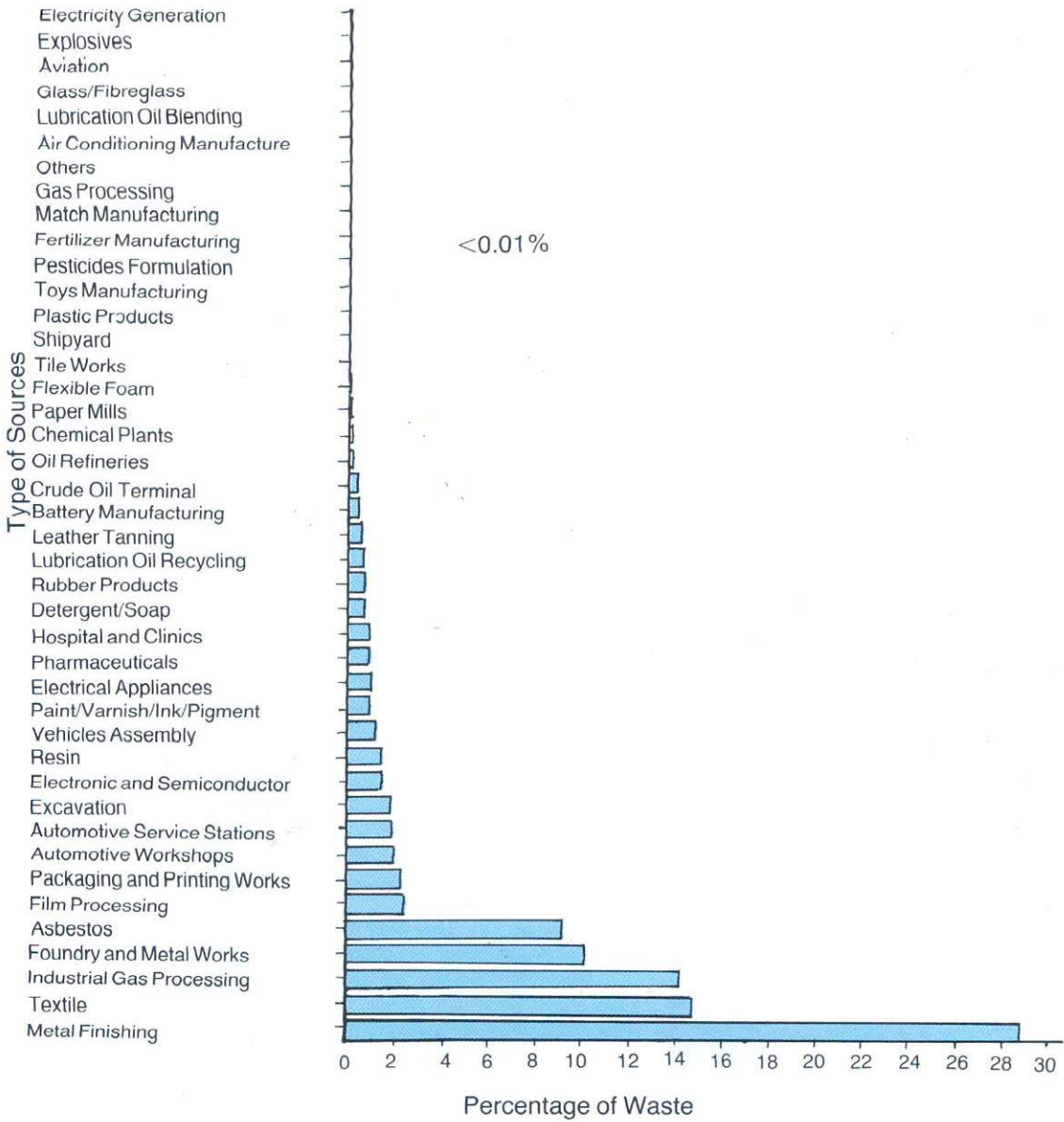


Figure 7.10. Malaysia: Distribution of Waste by Source, 1987.

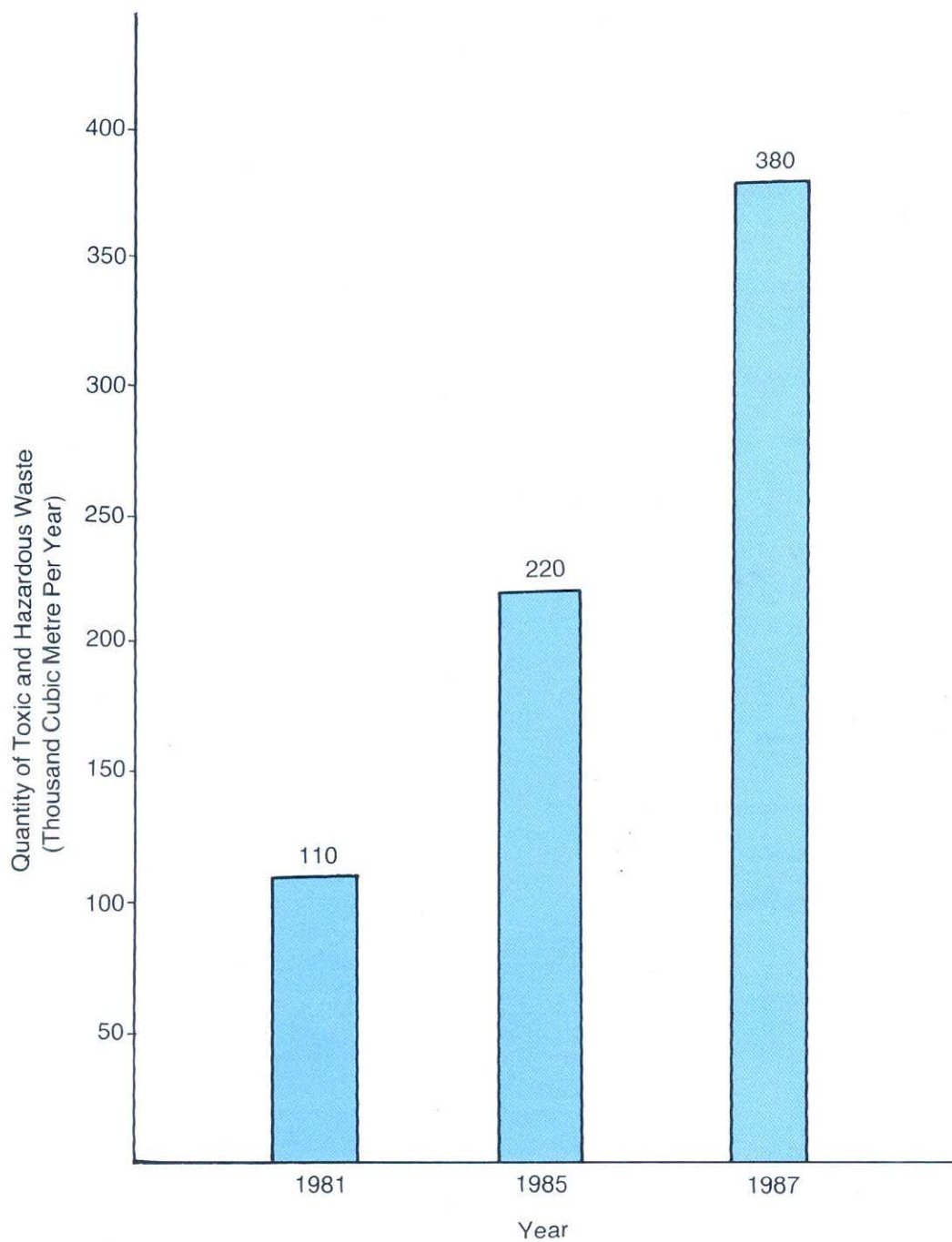


Figure 7.11. Malaysia: Quantity of Toxic and Hazardous Waste Generated in 1981, 1985 and 1987.

Table 7.1

Category and Number of Projects Subjected to  
Environmental Impact Assessment (EIA), 1986-1987

No.	Category of project <sup>1</sup>	Number and type of EIA completed			
		1986		1987	
		P.A	D.A	P.A	D.A
1.	Agriculture	-	-	1	-
2.	Airport	-	-	-	-
3.	Drainage & Irrigation	1	-	-	-
4.	Land Reclamation	1	-	-	1
5.	Fisheries	-	-	-	-
6.	Forestry	-	-	-	-
7.	Housing	-	-	-	-
8.	Industry	-	1	-	1
9.	Infrastructure	2	-	2	-
10.	Ports	-	-	-	-
11.	Mining	1	-	-	-
12.	Petroleum	1	1	2	1
13.	Power Generation	1	-	4	-
14.	Quarries	-	-	1	-
15.	Railways	-	-	-	-
16.	Transportation	-	-	-	-
17.	Resort & Recreation Development	2	-	-	-
18.	Waste Treatment	-	-	2	1
19.	Water Supply	-	-	-	-
Total		9	2	12	4

Key:

P.A - Preliminary Assessment

D.A - Detailed Assessment

<sup>1</sup> Category of projects according to Environmental Quality (Prescribed Activity) (Environmental Impact Assessment) Order, 1987

Table 7.2

Planning and Development Incorporating Environmental Inputs  
 Provided by the Department of Environment, 1986-1987

Type of Plan	Number	
	1986	1987
Water Resource	0	0
Regional / Urban	6	10
Natural Resources (Including Agriculture & Mining)	7	11
Infrastructure (Sewerage, Drainage, Roads, etc)	4	8
Industrial Estate	1	6
Total	18	35

List of projects

Regional/Urban -	Perlis, Pahang, Machang-Tanah Merah-Pasir Putih and Jeli, Bukit Tinggi, Klang Valley, Kota Setar, Petaling, Melaka Tengah, Langkawi, Daerah Kuantan.
Natural Resources -	Tropical Forestry Action Plan, Wildlife-K. Selangor, Forest - Mata Air, Agriculture- Pahang, Mining-Johor and Negri Sembilan, Conservation-Selangor, Sand Mining- Kelantan and Johor, Agriculture-Cameron Highlands, Aquaculture-Perak.
Infrastructure -	Sewerage-Seremban, Port Dickson, Kuantan and Muar, City-Gas distribution, river diversion-Teluk Intan, Pig Farming-Selangor and Negri Sembilan.
Industrial -	Industrial Action Plan Selangor, acid plant-Sabah, power station-Johor, furniture complex-Sabah, industrial area HICOM, industrial and reclamation-Pulau Pinang.

Table 7.3

Klang Valley Environmental Improvement Study:  
Priority Development Projects Proposed by Study.

Project Title	Estimated Costs (\$ million)
1. Water Pollution Control	
1.1 Preparation of Master Plan.	4
1.2 Implementation of interceptor sea-outfall system.	574
2. Solid Waste Management	
2.1 Project preparation for regional disposal plan.	0.3
2.2 Implementation of regional disposal plan.	80
3. Watershed Management	
3.1 Re-grassing of barren urban development lands.	40
3.2 Preparation of comprehensive watershed management plan for soil erosion control.	1
4. Air Quality Management	
4.1 Improved monitoring and data collection system and model studies.	3.4
4.2 Implement controls for stationary and mobile sources.	160
5. Institutional Strengthening	
5.1 Assistance for establishment of State Environmental Action Unit in Selangor.	0.38

Table 7.4

Status on the Development of Water Quality Criteria  
and Standards for Malaysia - Phase I

Date	Status
Dec 1984	Contract signing and commencement
Feb 1985	Submission and acceptance of inception report
July 1985	Submission and acceptance of progress report
May 1986	Submission and acceptance of draft final report
July-Dec 1986	Submission and acceptance of final report
Jan 1987	Approval of final report
March 1987	Submission to Environmental Quality Council (EQC) for adoption

## CHAPTER 8 ENVIRONMENTAL EDUCATION AND INFORMATION



# ENVIRONMENTAL EDUCATION AND INFORMATION

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## Introduction

The Department of Environment has been given the mandate to disseminate environmental information and education as provided under Section 3(c) of the Environmental Quality Act, 1974 which reads; "to provide information and education to the public regarding the protection and enhancement of the environment". The objective of the programme is to increase environmental awareness and to inculcate public consciousness of the environment and responsibility towards improving and protecting it. The activity is regarded as important and is a priority of the Department as it is a preventive strategy in environmental management.

## Environmental Education

### *World Environment Day*

The World Environment Day Celebrations was launched on 14 June 1987 at the Central Market Kuala Lumpur and three other states in the country (Table 8.1). In conjunction with the occasion in Kuala Lumpur, an art competition was organised for secondary school children and members of the public. Five teams of Boy Scouts took part in a rafting competition that included environmental observations along the Batu River and the Klang River. The Honourable Minister of Science, Technology and Environment opened the environmental exhibition entitled "Integrated Planning Towards Sustainable Development". He visited the pedestrian Mall at Jalan Hang Kasturi and led a group of participants on an Envirowalk around town.

During this period, the Postal Department franked letters with the slogan "Know Our Environment". Many public and university libraries held book exhibitions on environmental topics (Table 8.2). The Environmental Protection Society (EPSM) opened its community farm in Bang Jaya to the public and conducted a training course during a weekend.

At the state level, Sabah, Kelantan, and Melaka celebrated World Environment Day with a variety of events. Among the events held were exhibitions, competitions and black smoke campaigns.

### *Participation of DOE in Other Exhibitions*

The Department frequently received invitations to exhibitions organised by other agencies or organisations. The exhibits which the Department undertook to display included information about the Department, and posters on a general environment and pollution. By participating in

these exhibitions we were able to reach more target groups and also promoted goodwill with other agencies/organisations. Table 8.3 shows the exhibitions participated by the Department.

### *Talks on The Environment*

The Department of Environment and some related agencies and universities gave talks on the environment to secondary school children under the International Hydrological Programme (IHP). The DOE was the most active agency having delivered 72 lectures to more than 9,760 students (Figure 8.1). The DOE will be looking into the preparation of more audio visuals and improving on the techniques of presentation to make the talks more interesting.

Other groups such as doctors, nurses, university undergraduates, teacher trainees and youth leaders were also been given talks on the environment (Table 8.4).

### *Environmental Film Festival*

A meeting on environmental films was organised by the Goethe Institute and EPSM on 16 November, 1987. The films screened were from among some of the entries to Third European Environmental Film Fest of 1986.

## Information

The growing realisation of providing the public with the tool for making rational choices between developmental priorities and environmental management are essential for a harmonious and sustained development of the nation's resources. As this recognition becomes significant, the Department facilitates the availability, exchange and response to environmental information nationally and internationally. Malaysia is the local focal point for International Information Exchange Systems (INFOTERRA). It was able to fulfil this function through the dissemination of environmental publication, library services, query response through letters and assistance from INFOTERRA.

### *Dissemination of Printed Materials*

In stimulating environmental awareness and the value of information to the public, the Department extended its distribution of environmental publications such as Environmental Quality Annual Report, SEKITAR, pamphlets and posters to 256 specific target groups in 1987 including decision-makers, educational institutions, non-governmental organisations, international bodies and others (Table 8.5).

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### *Query Response*

The response received by the Department indicated the keen interest of the public to seek further information on environmental issues. In 1987, the Department processed 383 queries from various users (Table 8.6). It was noted that the major users of environmental information were students ranging from the lower secondary schools to the university level. These queries were through request of using the library, letters or through the international information exchange service - INFOTERRA. As illustrated in Figure 8.2, it can be seen that the queries for the use of the library service was 48 per cent as compared to other means of communication through letters and INFOTERRA. This meant a quick access of documentation or reference to the user.

### *Reference Materials*

To date, the library has developed its capabilities for providing users with a collection of 10,068 references comprising of books, handbooks, journals, magazines and newspaper cuttings. In order to meet the need for acquiring these available information, a photostat machine was installed in the library. At present, 50 per cent of the references are catalogued using the Universal Decimal Classification System. A collection of working papers from the Department from 1980-1987 have been computerised using the in-house library software program for easy retrieval.

In 1987, the Department answered 4.7 per cent of the queries received from abroad, supplied with substantive information from Malaysia or query referred to other sources. The service has provided information to the formulation and implementation of the following standards and regulations :

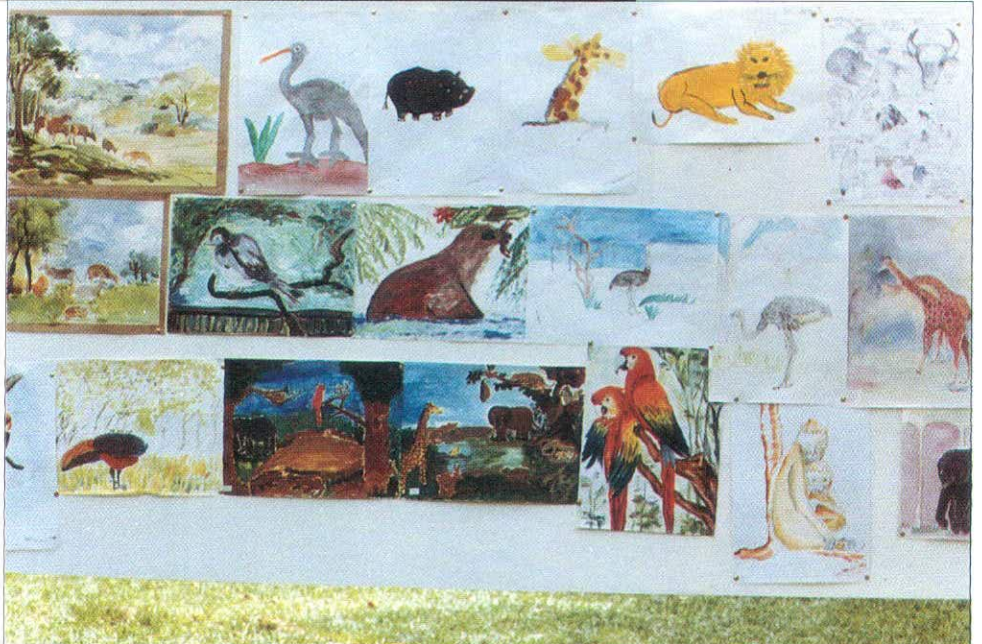
- (i) Interim Water Quality Criteria and Standard
- (ii) Environmental Quality (Motor Vehicle Noise) Regulations, 1987;
- (iii) Environmental Quality (Prescribed Activities) (Environmental Impact Assessment Order, 1987; and
- (iv) Handbook of Environmental Impact Assessment Guidelines.

Ten environmental topics were used to categorise the queries received and this is reflected in Figure 8.3. The major users expressed interest in the general information on environment, followed by air pollution, publication Environmental Quality Act and Regulations, water pollution, environmental impact assessment, and marine. A small number of queries were on the subject of education, noise, and chemical.

## ENVIRONMENTAL EDUCATION



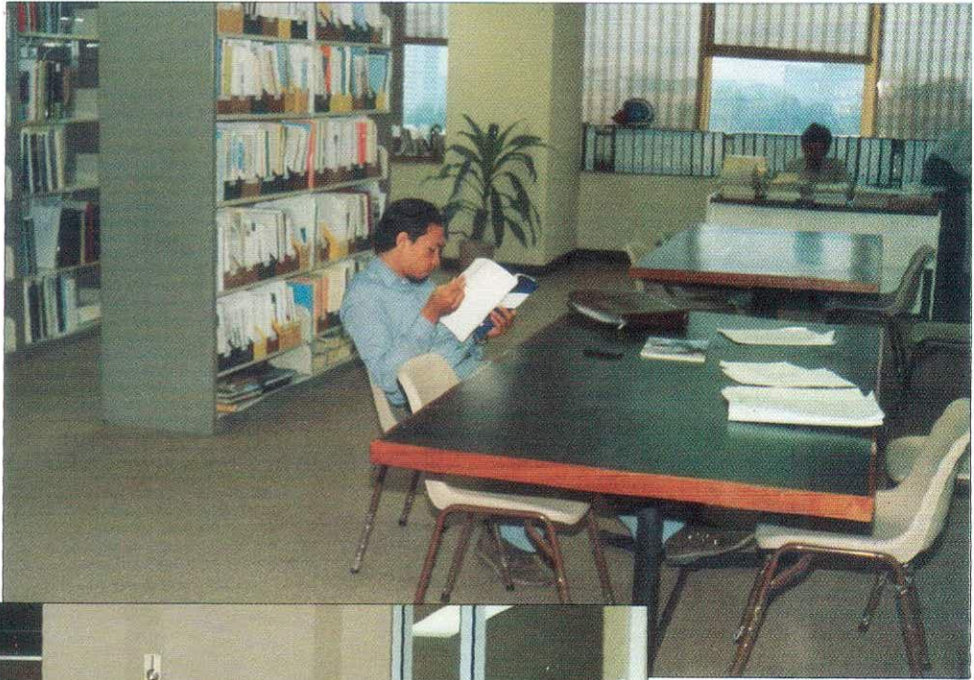
*Environmental talks to schools*



*Children's art work on environment*



*Environmental exhibition*



*Department's Library: Source of environmental information*

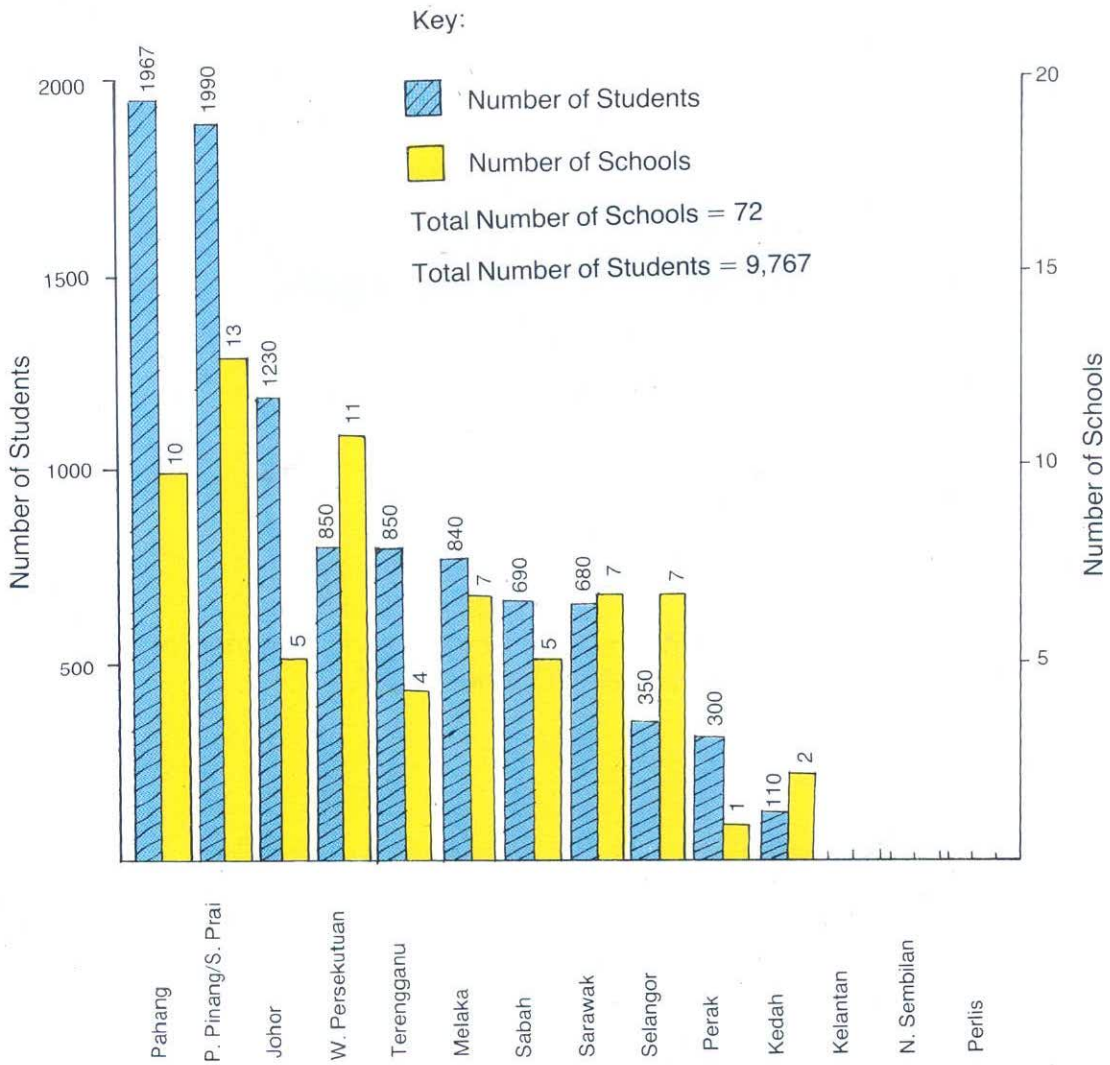


Figure 8.1. Malaysia: Environmental Talks on Hydrology and Environment to Secondary Schools Under International Hydrological Programme, 1987.

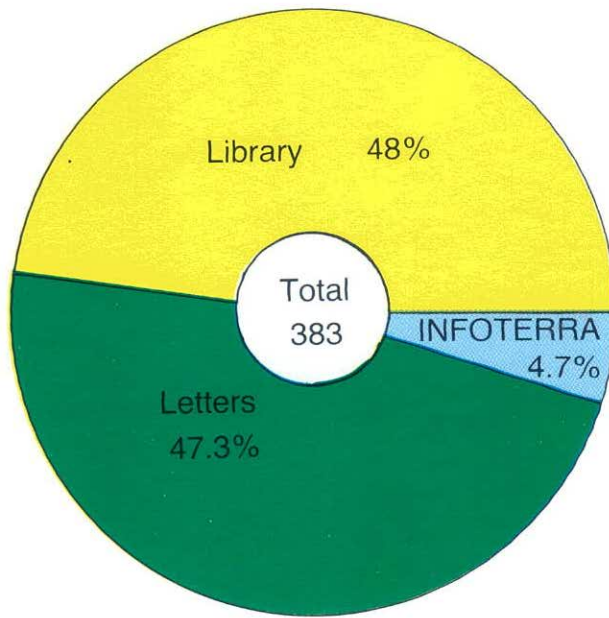


Figure 8.2. Department of Environment: Channels of Information Queries, 1987.

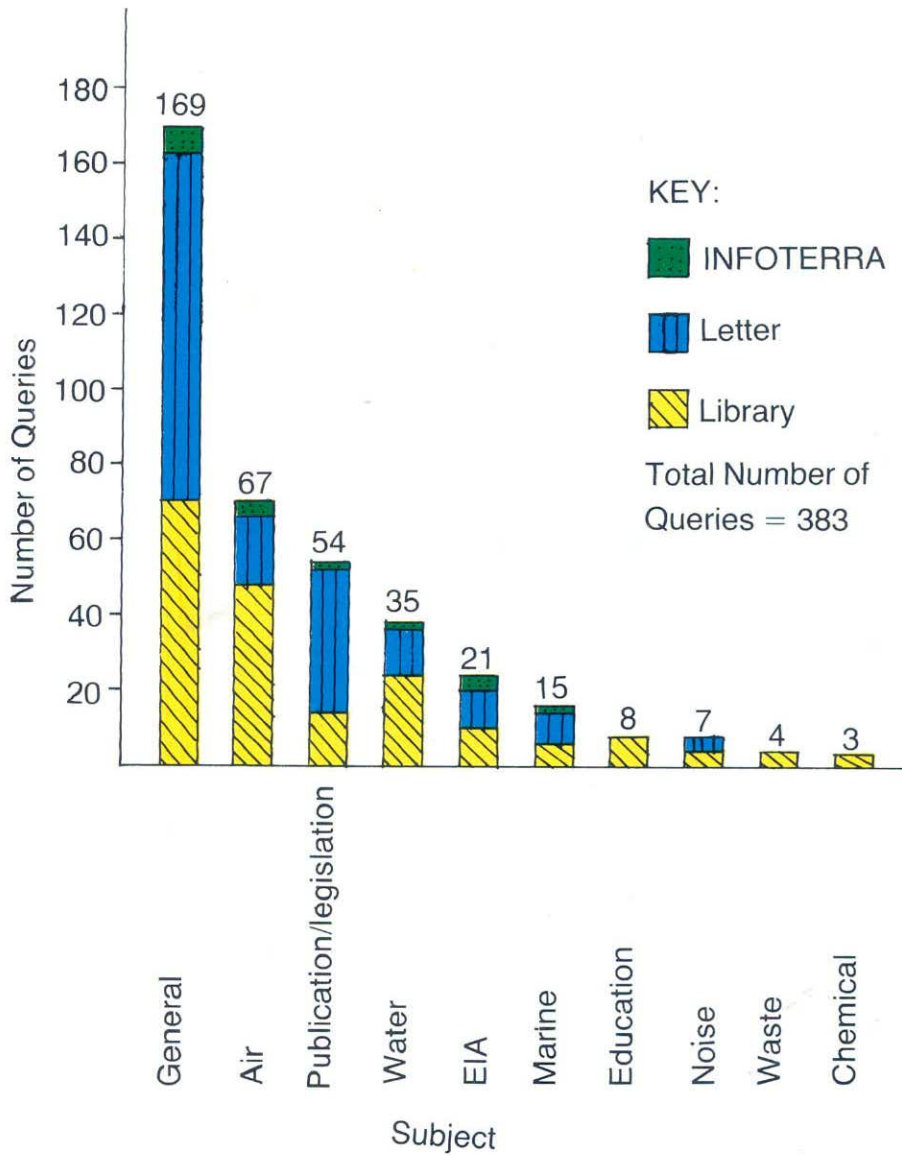


Figure 8.3. Department of Environment: Subject Distribution of Queries, 1987.

Table 8.1

World Environment Day Celebrations  
at Federal and State Levels, 1987

Place	Date
<u>Federal Level</u>	
Central Market Kuala Lumpur	14 June
<u>State Level</u>	
Sabah, Kota Kinabalu Museum	5 June
Kelantan, Kota Bharu	27 August
Melaka, Air Molek	22 September

Table 8.2

Department of Environment: Environmental Book  
Exhibitions in Libraries in Conjunction With  
World Environment Day Celebrations, 1987

No.	Place	Date	Duration (Days)
1.	Tun Abdul Razak Library, ITM, Shah Alam	29 June- 31 July	33
2.	Selangor Public Library	6 - 22 July	17
3.	Benteng Branch Library	18 - 31 July	14
4.	Sabah State Library	22 June- 4 July	13
5.	University Pertanian Malaysia Library	22 June- 4 July	13
6.	University Teknologi Malaysia Library	6-18 July	13
7.	Kelantan Public Library Board	22-30 June	9
8.	Pahang Public Library Board	19-26 June	8
9.	Kedah Public Library Board	14-21 June	8
10.	Perlis Public Library Board	20-25 June	6
11.	Sarawak State Library	15-20 June	6
12.	Penang Public Library	15-18 June	4

Table 8.3

Participation of Department of Environment  
in Other Exhibitions, 1987

Event	Place	Date
Pulau Pinang Science Week	University of Science, Pulau Pinang	5 - 11 January
Geography Expo	The National University of Malaysia, Bangi, Selangor	20 -23 January
Civil Engineering Open Day	University of Technology Malaysia, Kuala Lumpur	28 Feb.- 1 March
Art Exhibition	MIA Gallery, Kuala Lumpur	16 - 19 July
World Maritime Day	Johor Bahru	26 -27 September
Briefing to Members of House of Representative	Wildlife Department Building, Kuala Lumpur	24 November

Table 8.4

Department of Environment: Environmental Talks  
to the Public, 1987

Date	Institution/Organisation	Target Group	Attendance
27 Feb	Master of Public Health, University of Malaya	Doctors	25
14 April- 5 Oct	School of Mass Communication MARA Institute of Technology	Students of Mass Communication	70
16 August	Kuala Lumpur Federal Territory Scouts Council	Scouts	30
19 Sept	Sultan Idris Teacher Training Institute, Tanjung Malim	Teacher trainees, government officials, school children	600
22 Sept	Public Health Institute, Kuala Lumpur	Nurses	30
13 Oct	Language Institute, Lembah Pantai, Kuala Lumpur	Teacher trainees	30

Table 8.5

Department of Environment: Dissemination of Environmental Information \* ,1987

Organisation	Number Distributed
Government	84
Library	47
Educational Institution	44
Overseas	31
Non-Government	29
Individual	21
Total	256

\* Information distributed include Environmental Quality Annual Report, SEKITAR, Pamphlets and Posters

Table 8.6

Department of Environment: Users of Environmental Information, 1987

User	Number of Users
Students	262
Government Officers	50
Private Sectors	30
Overseas Visitors/Consultants	28
Others	13
Total	383

## CHAPTER 9 HUMAN RESOURCE DEVELOPMENT



# HUMAN RESOURCE DEVELOPMENT

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## Introduction

As in the past years and in line with the Department's policy of upgrading the skills of its staff, training programmes in various fields of environmental management were stepped up in 1987. The training can be divided into long-term (more than three months duration) and short-term programmes (less than three months duration).

## Participation at Regional and International Meetings

Exchange of experience and knowledge at the regional and international meetings is part of informal training for manpower development. In 1987, eleven meetings were attended by four senior officers of the Department. Most of the meetings were related to marine environment protection. The detailed list of the meetings are shown in appendix 9.1.

## Long-Term Training

Training courses offered to the Department were mainly those ranging from three months to two years. These included courses abroad and local. Courses included those for Masters and Bachelor degrees, diplomas including post-graduate, advanced and basic diploma, fellowship programmes and several attachment programmes in collaboration with agencies like UNESCO, UNDP, UNEP, ICA, CSC, CDG, and MARC. Most courses were subject specific aimed at improving the skills and expertise of officers.

### Course Attendance

Throughout the year, three officers pursued their Masters/Bachelor's degree and post-graduate diploma studies abroad in U.S.A. and German Democratic Republic. At the local institutions of higher learning including universities and colleges, four officers underwent their respective courses for Bachelor's degree, advanced and basic diplomas. The courses covered various aspects of environmental management including health and engineering. The list of officers attending long-term training courses in 1987 are shown in appendix 9.2.

## Short-Term Training

The Department organised in-house training which included courses and lectures as well as colloquium sessions apart from sending officers to seminars, workshops and conferences both within the country and abroad. A list of these are given in Appendices 9.3, 9.4, 9.5 and 9.6.

Attendance at short-term training programmes abroad was made possible mainly through foreign sponsorship. The Japan International Co-operation Agency (JICA) together with other Japanese Agencies such as Asian Productivity Organisation (APO), Japan Foundation for Ship Building Advancement and a number of Japanese Universities turned out to be the main sponsoring agency expending an estimated M\$140,800 to sponsor officers of the Department of Environment to attend overseas training programmes in Japan. This is followed by The United Nations Environment Programme (UNEP) with an estimated expenditure of M\$53,920 for several programmes.

### Training Courses

The Department in 1987 was represented at several local training courses organised by both government, semi-government and private agencies. During the year, 50 officers attended 30 short term training courses within the country in various fields of environmental management including personnel management (Table 9.1). The Department also took advantage of the training programmes organised and sponsored by agencies under the aegis of the United Nations Organization and other International Bodies. In 1987, 16 officers of the Department attended 14 short-term training courses overseas (Table 9.2).

### Workshops

The Department in 1987 was represented in nine workshops organised locally and nine workshops overseas. A total of 28 officers were involved in this programme where 17 officers attended workshops organised locally and 11 officers attended workshops organised overseas (Tables 9.1 and 9.2).

### Conferences and Seminars

In order to upgrade knowledge and to expose officers especially to new issues related to environmental management, the Department took advantage of the several invitations received to send officers to participate in the conferences and seminars both locally and abroad. In 1987, 42 officers attended 21 local conferences and seminars and 13 officers attended 11 conferences and seminars overseas (Tables 9.1 and 9.2).

Figures 9.1 and 9.2 show the distribution of major environment-related topics of training programmes attended both locally and overseas. It can be seen that in 1987, the overseas programmes mainly focussed on water

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pollution, science and technology, management and the environment in general. Locally, they also formed the main subjects of training programmes with the addition of personnel management.

### *In-House Training*

1987 saw an increase in the number of in-house training programmes organised solely by the Department or in conjunction with other agencies. Details of those training programmes which were attended by a total of 158 officers are shown in Tables 9.3 and 9.4.

### *Guest Lectures*

To fulfil the training needs of the Department, especially in specialised areas, guest lecturers were invited to give lectures in their field of expertise. In 1987 the following nine lectures were presented:

- (i) Noise Monitoring System - by Mr. Hans Maersk Moller, Bruel & Kjaer, Denmark (24 February 1987).
- (ii) Air Quality Monitoring - by Mr. Kimoto, Kimoto Electric Japan (13 March 1987).
- (iii) Presentation of the Finding on the Project for Environment Improvement of the Klang Valley - By Mr. H. Fennerty, Engineering Service Incorporation, California (20 April 1987).
- (iv) Identification of Low Flow River Condition in Hydrological Works - by Mr. Zainal Abidin and other officers from Drainage & Irrigation Department (6 May 1987).
- (v) Environmental Management in India - by Dr. R. Subramaniam, School of Environmental Sciences, Jawaharlal Nehru University, New Delhi (11 June 1987).
- (vi) Compressed Air/Oxidation System - by Mr. Petrillo and Mr. Shultz, POLCON ITALY (23 October 1987).
- (vii) Toxic & Hazardous Waste Management - by

Consultants from France and Australia (29 October 1987).

(viii) Oil Pollution Control - by Henrick Schaudman, Gadelius Sdn. Bhd. (18 November 1987).

(ix) Hydrometric System and Water Quality/Water Resources Data Collection and Interpretation - by Dr. Peter D. Walsh (10 December 1987).

The Department also participated in presenting lectures at environment-related training programmes organised by other agencies. In 1987, twelve lectures presented were related to Environmental Impact Assessment (EIA) in order to increase public awareness especially project initiators on the EIA requirements in Malaysia. The details of the lectures presented are shown in Table 9.5.

### *Weekly Colloquium*

Apart from talks and lectures, the Technical Training Unit also organised a total of 37 colloquium sessions presented by officers who had attended training courses or workshops outside the Department. The areas covered during the year were as follows :-

- . Marine
- . Pollution
- . Environment
- . Science and Technology
- . Water
- . Management
- . Personnel Development
- . Law
- . Health
- . Air
- . Waste
- . Economy
- . Ecosystem
- . Land
- . Information

The colloquium sessions were made open to other agencies and interested parties including universities and the private sector.

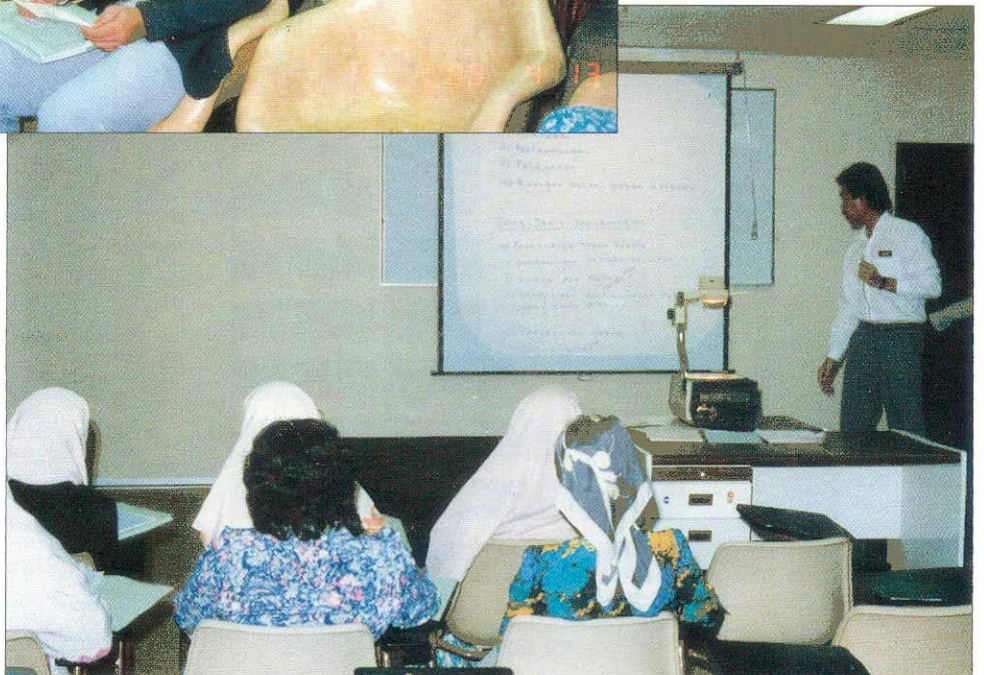
## HUMAN RESOURCE DEVELOPMENT

*Seminar: Urban Environment*



*Workshop: Industrial and  
Community Noise Control*

*In-house training  
and weekly  
colloquium*



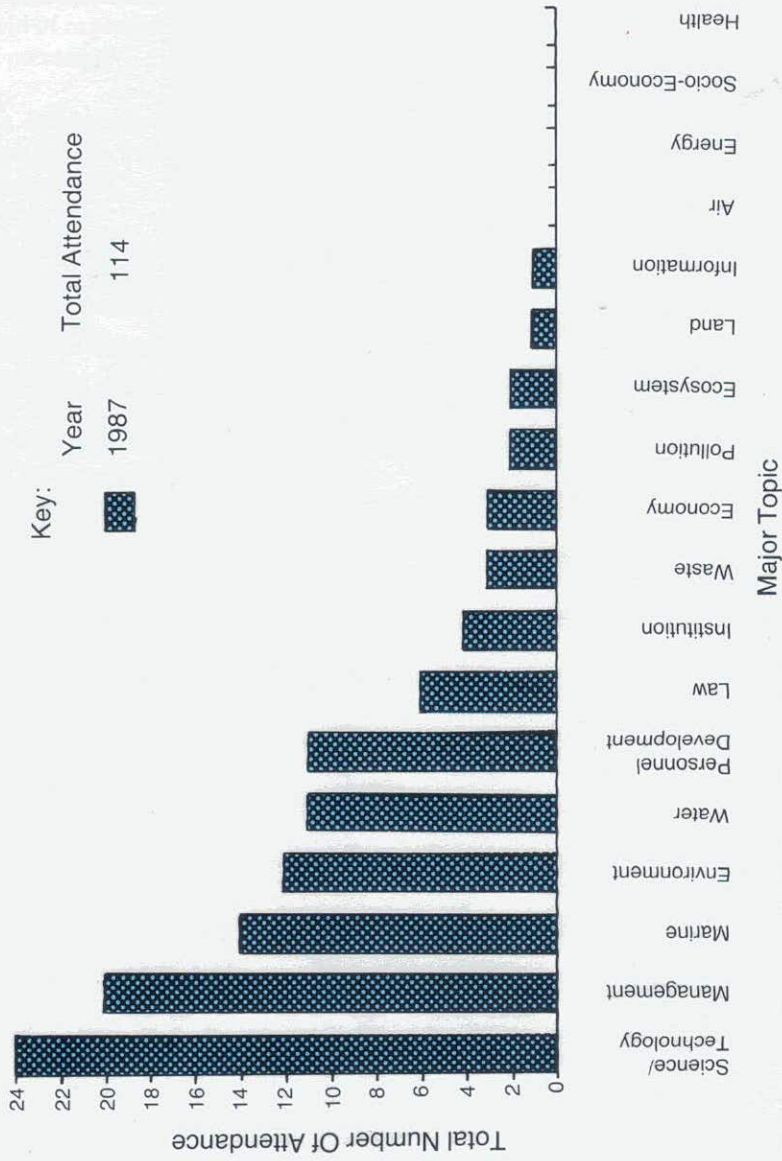


Figure 9.1. Malaysia: The Number of Attendance by the Department of Environment Staff at Training Programmes Organised by Local Agencies by Major Topic, 1987.

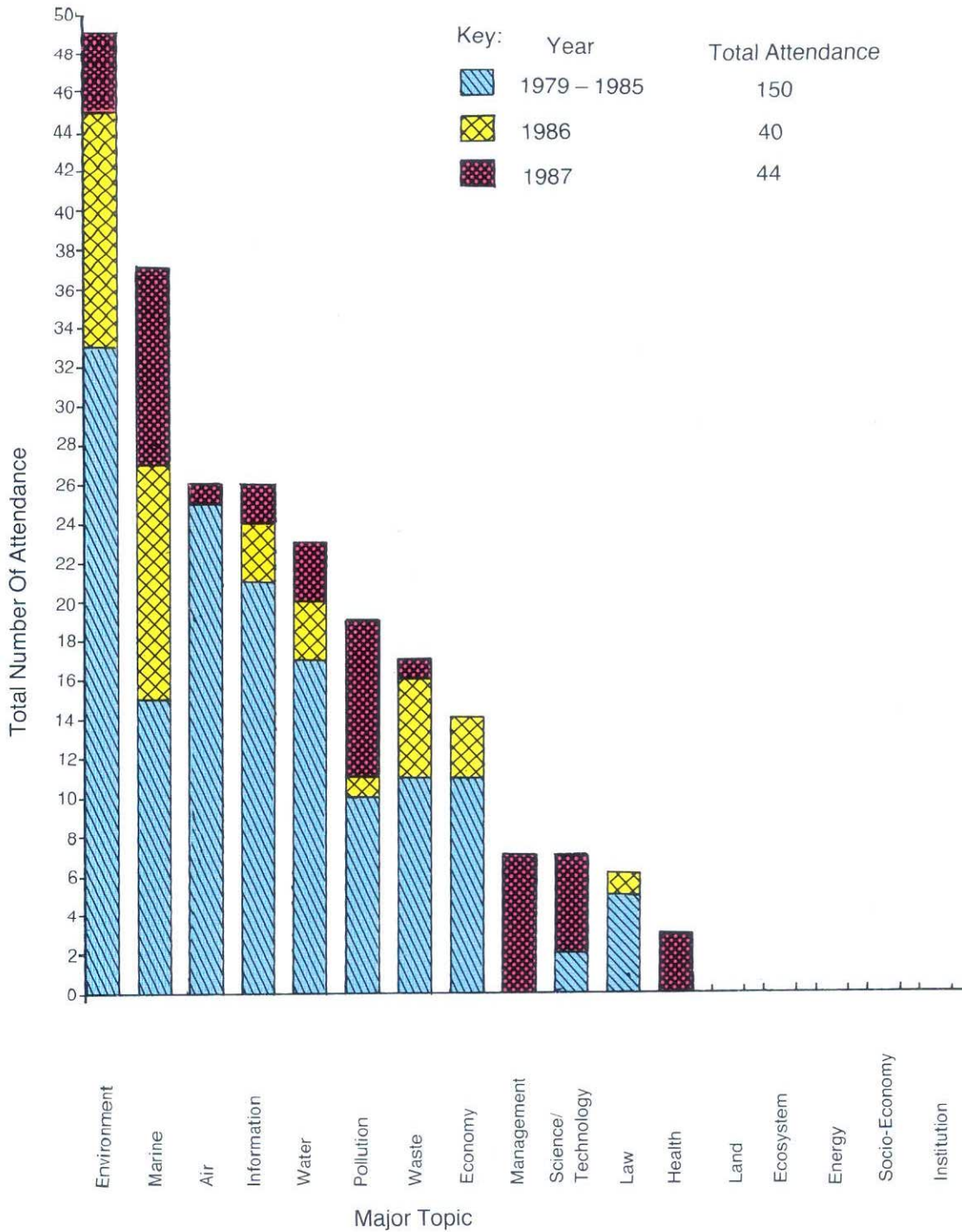


Figure 9.2. Malaysia: The Number of Attendance by the Department of Environment Staff at Training Programmes Overseas by Major Topic, 1979-1987.

Table 9.1

Malaysia: Local Training Programmes Attended  
by Officers of the Department of  
Environment. Number by Type, 1987

Type	Number of Programmes	Number of Participants
In-Service Technical Training	8	158
Short-Term Courses	30	50
Long-Term Courses	1	1
Degree/Diploma Courses	4	4
Workshop	9	17
Conference/Seminar	21	42
Total	73	272

Table 9.2

Malaysia: Overseas Training Programmes Attended  
by Officers of the Department of  
Environment. Number by Type, 1987

Type	Number of Programmes	Number of Participants
Short-Term Courses	14	16
Long-Term Courses	1	1
Degree/Diploma Courses	2	3
Workshop	9	11
Conference/Seminar/ Convention/Symposium/ Congress	11	13
Total	37	44

Table 9.3

Malaysia: In-House Training Programmes Organised  
by the Department of Environment, 1987

Name	Major Topic	Date/Place
1. Training Workshop on Numerical Modelling for Contingency Planning	Enforcement	18-19 February, 1987 Department of Environment, Kuala Lumpur
2. Course on Environmental Monitoring	Environment	22-23 November, 1987 Department of Environment, Kuala Lumpur
3. Course on Environmental Impact Assessment 1/87	Environment	25-26 November, 1987 Department of Environment, Kuala Lumpur

Table 9.4

Malaysia: Training Programmes Jointly Organised  
by the Department of Environment, 1987

Name	Major Topic	Counterpart Agency	Date/Place
1. Course on Environment Impact Assessment	Environment	INTAN	2 - 7 March, 1987, INTAN Kuala Lumpur
2. Course on Law and Court Procedures	Law	MRPC	15 - 27 June, 1987, Universiti Malaya, Kuala Lumpur
3. Training Workshop on Environmental Analysis and Impact Evaluation	Environment	INTAN/ADB	10 - 17 August, 1987 INTAN, Kuala Lumpur
4. Second Training Course on Industrial Wastewater Monitoring	Enforcement	UPM/MOH	16 - 21 November, 1987 UPM, Serdang, Selangor
5. Training Course on Operation and Maintenance of Wastewater Treatment Plants	Enforcement	MOH/UPM/WHO	23 - 28 November, 1987 UPM, Serdang, Selangor

Abbreviation:

- ADB - Asian Development Bank
- INTAN - National Institute for Public Administration
- MOH - Ministry of Health
- MRPC - Malaysian Royal Police College
- UPM - Universiti Pertanian Malaysia
- WHO - World Health Organisation

Table 9.5

List of Lectures on EIA Presented by Department of Environment Officers  
at Training Programmes Organised by Other Agencies, 1987

Course Title	Date	Organiser
1. Training course on EIA	02-07 March	DOE/INTAN
2. Workshop on EIA for National Electricity Board Officers	08-10 March	MIM/LLN
3. Infrastructure Project Planning and Management Courses	06-07 July	INTAN
4. Training workshop on Environmental Analysis and Impact Evaluation	10-17 August	DOE/INTAN/ADB
5. Training Workshop on EIA Methodology (Private/ Public)	07-11 Sept	DOE/CETDEM
6. Workshop on EIA of Land Development Activities	08-10 Oct	MOLRD
7. Diploma in Management Science Courses	14 October	INTAN
8. EIA Seminar for Senior Officers of the Department of Forestry	20 November	FD
9. Training Course on EIA for DOE Staff	25-26 Nov	DOE
10. Seminar on Town and Country Planning And the Environment	01 December	DTCP
11. Briefing on EIA to DID Senior Officers	09 December	DID

Abbreviation:

ADB	- Asian Development Bank
CETDEM	- Centre for Environment Technology and Development
DOE	- Department of Environment
FD	- Department of Forestry
INTAN	- National Institute for Public Administration
DTCP	- Department of Town and Country Planning
LLN	- National Electricity Board
MIM	- Malaysian Institute of Management
MOLRD	- Ministry of Land and Regional Development
DID	- Drainage and Irrigation Department

## CHAPTER 10 INTERNATIONAL AND REGIONAL AFFAIRS



# INTERNATIONAL AND REGIONAL AFFAIRS

## INTERNATIONAL

### United Nations Environment Programme (UNEP)

As the focal point of UNEP in Malaysia, the Department of Environment was involved in the following programmes :

- (i) Preparation of document on "Environmental Perspectives to the Year 2000 and Beyond".
- (ii) Preparation of report on "Convention on Ozone Layer".
- (iii) Participation in the "Exchange of Information on Potentially Harmful Chemicals" through the International Programme on Chemical Safety (IPCS).
- (iv) Monitoring the progress on preparation of guidelines on "Environmentally Sound Management of Hazardous Waste" by the Ad Hoc Working Group of Experts on Environmentally Sound Management of Hazardous Waste.

### INFOTERRA

INFOTERRA - the UNEP designed environmental information network allowed the exchange of substantial information within and between nation. Up to 1987, there are 133 participating countries in the network. The Department of Environment serves as the National Focal Point, co-ordinating the INFOTERRA activities in Malaysia. To date, the country has registered five sources in the International Directory of Sources of Environmental Information which is published bi-annually by UNEP to assist users in providing environmental information. The sources are, Department of Wildlife and National Parks, Institute of Medical Research, Forest Research Institute, Palm Oil Research Institute, and Department of Environment.

### *International Register of Potentially Toxic Chemicals (IRPTC)*

The Department continued to be the National Correspondent for the International Register of Potentially Toxic Chemicals, an information system under the United Nations Environment Programme which is specifically concerned with the dissemination of information on chemicals.

Apart from maintaining close contact with those involved in the control of chemicals in the country, the

National Correspondent is also involved in query-response service for information on chemical, and the establishment of the National Register of Potentially Toxic Chemical (NRPTC).

The information gathering for the National Register of Potentially Toxic Chemicals (NRPTC) which was established in 1984 was continued in 1987. The NRPTC working list of 28 chemicals was extended to 49 ( Appendix 10.1). The NRPTC aims at gathering national data on chemicals used in this country. The type of information gathered follows the IRPTC file and is detailed in Appendix 10.2.

The Department also continued to be the National Authority for the implementation of the London Guidelines for the Exchange of Information on Chemicals in the International Trade. The guidelines which was previously called the Notification Scheme for Banned and Severely Restricted Chemicals was adopted by the Governing Council of UNEP at its Twelfth Session in 1984. IRPTC acts as its secretariat.

A committee set-up in 1986 continues to assist the National Authority in the implementation of the guidelines.

In 1987, the Department received notification of control actions from 9 countries on about 68 chemicals mainly pesticides and industrial chemicals. Notifications of import of chemicals restricted in the country of origin were also received by the Department. Appendix 10.3 details the notifications of control actions received from other national authorities up to 1987.

### International Maritime Organisation (IMO)

The focal point for the IMO in Malaysia is the Ministry of Transport. The Department of Environment's contribution in IMO activities was related to marine pollution. Involvement of the Department in IMO-sponsored activities in 1987 included participation in the following meetings:

- (i) 17th Session of Sub-Committee Meeting on Bulk-Chemicals, London, 18-22 May, 1987.
- (ii) Meeting on Support to Maritime Sector : ASEAN Sub-Project on ASEAN Data-Bank on Pollution From Ships, Bangkok, 22-24 September, 1987.

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## World Health Organisation (WHO)

### *International Programme for Chemical Safety (IPCS)*

IPCS which was established in May, 1977 following the resolution of the World Health Organisation at its Thirtieth World Health Assembly entitled "Evaluation of the Effects of Chemicals on Health", is a collaborative activity between UNDP, ILO and WHO. One principal objective of IPCS is directed towards the study of the impacts to human health of chemicals and their safe use.

The Department of Environment was designated the Malaysian IPCS Focal Point in late 1986. References to IPCS publications can be made through the Department.

## REGIONAL CO-OPERATION

### ASEAN Experts Group on Environment (AEGE)

An Experts Group on the Environment, consisting of representatives from the ASEAN countries, was established under the ASEAN Committee on Science and Technology as a forum for dealing with the environmental matters of the region. Malaysia was the Interim Co-ordinator for AEGE for two years beginning in April, 1985 and ended by April, 1987. The Department of Environment as the Interim Co-ordinator of AEGE was involved in the following activities/projects:

- (i) Production of ASEAN Environment Newsletter, Vol. 8, January- March, 1987;
- (ii) The 10th Meeting of ASEAN Expert Group on Environment, Bangkok, 24-26 April, 1987;
- (iii) The 3rd ASEAN Senior Official Meeting, Jakarta, 26-28 October, 1987;
- (iv) The 3rd ASEAN Environment Ministerial Meeting, Jakarta, 29-30 October, 1987;
- (v) Anti-Pollution Technology : Malaysia has a project on Development of an Anti-Pollution Wood Waste Burner System;
- (vi) Technology Transfer in the Treatment of Palm Oil and Rubber Effluents; and
- (vii) Development of Co-operative Action Plan for Oil Pollution Combat (South China Sea).

## Co-ordinating Body on the Seas of East Asia (COBSEA)

The Co-ordinating Body on the Seas of East Asia (COBSEA) was established to co-operate on activities related to the marine environment among members of ASEAN countries. The Body, which has its general objectives on assessment of the state of the marine environment and the protection, management, and use of marine resources, drew up an East Asian Seas Action Plan which is a scientific programme involving research, prevention and control of marine pollution and monitoring in the regional seas surrounding the ASEAN region. The Department of Environment is the focal point to co-ordinate the implementation of COBSEA activities for Malaysia. Table 10.1 lists the priority projects identified for implementation by the lead countries and their progress status.

Malaysia participated in all the projects identified for implementation and had taken the lead in implementing two of the projects namely Project EAS 12: Co-operative Research on Oil and Oil Dispersant Toxicity in East Asian Seas Region, and Project EAS 19: The Development of Management Plans for Endangered Coastal and Marine Living Resources in East Asian Region. Malaysia's contribution to the Trust Fund which is made up by contributions from ASEAN member countries and funding support from UNEP, since 1982 till 1987 amounted to US\$108,800.00.

To monitor, co-ordinate and review all the projects under the Action Plan, seven meetings and workshops were held in 1987.

### *Benefits*

As far as Malaysia is concerned participation in the COBSEA programme has brought some changes either directly or indirectly in various policies, programmes, plans, and legislation relating to the marine environment such as :

- \* the incorporation of marine dimension in the national environmental policy objectives in the Fifth Malaysia Plan, 1986-1990;
- \* the incorporation of provision relating to the protection and preservation of the marine environment in the Exclusive Economic Zone Act of 1985;
- \* the harmonization of all marine environment related laws, particularly for the control of pollution from ships, offshore exploration and exploita-

tion, land-based sources, and other activities on the continental shelf;

\* the strengthening of marine pollution research and monitoring committees under the National Council for Scientific Research and Development; and

\* increased inter-agency co-ordination in matters relating to the marine environment.

### ASEAN Co-operative Programmes on Marine Science

An ASEAN Working Group on Marine Science was established for joint promotion, collaboration and co-ordination in marine science activities among member countries. Three on-going major co-operative programmes in marine science have been established with its dialogue partners namely, Australia, Canada, and the United States of America. The co-operative programmes are :

- (i) ASEAN-Australia Co-operative Programme on Marine Science, 1984-1989.  
Project I : Tides and Tidal Phenomena.  
Project II : Living Coastal Resources.
- (ii) ASEAN-Canada Co-operative Programme on Marine Science : Development and Management of Living Resources, 1985-1988.
- (iii) ASEAN-US Co-operative Programme on Marine Science: Coastal Resource Management Project, 1985-1989.

The Department of Environment was designated as the secretariat of the National Working Group on Marine Science that is responsible for co-ordination and implementation of the programmes in Malaysia. The lead agencies for the above programmes are as follows :

<u>Programme</u>	<u>Lead Agency</u>
(i) ASEAN-Australia	
(a) Tides and Tidal Phenomena	Royal Malaysian Navy
(b) Living Coastal Resources	University of Malaya
(ii) ASEAN-Canada	Department of Environment

(iii) ASEAN-USAID Department of Fisheries

#### ASEAN-Australia

- (i) Project I : Tides and Tidal Phenomena. The purpose of this project is to develop the regional co-operative studies involving the observation and research in tides and tidal phenomena that will serve the need of the member countries in coastal development. Four tide gauge stations were set up in Malaysia at Pulau Lakei, Sarawak, Sandakan, Labuan, and Pulau Layang-Layang in Sabah. The data collection was initiated since June 1987.
- (ii) Project II : Living Coastal Resources. The purpose of this project is to develop scientific and technical expertise within the ASEAN region particularly in coastal ecosystem, so as to ensure the development of effective and long term coastal zone management policies.

The Living Coastal Resources project consists of three components, namely, Benthic Communities, Coral Reef, and Mangrove Ecosystem. Coral Reef and Mangrove surveys were initiated in 1987.

#### ASEAN-Canada

The objective of this programme is to optimise the management and development of living marine resources within the jurisdiction of ASEAN countries including the Exclusive Economic Zone (EEZ) and to upgrade ASEAN capabilities through regional co-operation in manpower development, exchange of expertise and dissemination of information.

Five major activities were identified, namely, post-graduate training, ASEAN study tour to Canada, regional workshop, and practical attachment of ASEAN scientists and technicians in Canada. Up to 1987, four of the five component activities had taken place. The practical attachment component will be implemented in 1988.

#### ASEAN-USAID

The programme, which is to assist the ASEAN Nations in increasing their existing capabilities to develop their renewable resources on a sustainable basis, consists of two components:

- (i) Component I : Resource Assessment and Planning; and
- (ii) Component II : Training and Information Dissemination.

South Johor has been selected as the study area for Component I. In 1987, a Coastal Profile of South Johor was successfully completed. Other activities include preparatory meeting of several training courses in resource and coastal zone management to support the successful implementation of the project.

### *Benefits*

The co-operative programmes have benefited directly and indirectly to Malaysia through:

- \* enhanced development of human resources, particularly in the marine related science, largely through training at various levels from the conduct of training workshops, seminars, study tour to post-graduate studies, including regular and rapid exchange of information through publications, seminars and workshops; and
- \* increased technical assistance through the provisions of advisory and consultancy services.

### **The Tripartite Technical Experts Group on the Safety of Navigation in the Straits of Malacca and Singapore (TTEG)/Revolving Fund Committee (RFC)**

The TTEG which comprises technical experts from the three coastal states of Indonesia, Malaysia and Singapore, has the task to ensure safety to navigation in the Straits of Malacca. In association with the TTEG, a revolving fund managed by a Revolving Fund Committee was set up to enable the three Governments to jointly or independently take immediate remedial action against oil pollution cause by ships in the Straits of Malacca and Singapore.

In 1987, two meetings of RFC were held in Malaysia :

- (i) The Seventh Meeting of RFC, 16-17 February 1987 was held in Kota Kinabalu, Sabah. This meeting received a report on Standard Operating Procedure for Joint Oil Spill Combat in the Straits of Malacca and Singapore, which was prepared by the Technical Committee.

- (ii) The Eighth Meeting of RFC, 21-22 July, 1987 was held in Kuching, Sarawak. The meeting reviewed the Tiered Area Response Capability Systems by the Oil Industries, to assist the Government in combating oil spill.

### **Economic and Social Commission for Asia and the Pacific (ESCAP)**

The Department contributed comments and information for the following ESCAP sponsored activities :

- (i) Preparation of a working paper on "Technical Co-operation between Malaysia and other Developing Countries" for the Experts Group Meeting on Technical Co-operation among Developing Countries in the field of Water Resources, Bangkok, 1-4 August, 1987. In this meeting Malaysia was represented by the Department of Drainage and Irrigation.
- (ii) Preparation of a working paper on "Transnational Corporations and Environmental Management in Malaysia" prepared by Dr. Lin Lean Lim, consultant to the ESCAP/ UNCTC Joint Unit on Transnational Corporations.
- (iii) Preparation of the report on the State of the Environment for Asia and the Pacific.

### **World Health Organisation/West Pacific Regional Centre for the Promotion of Environmental Planning and Applied Studies (WHO/PEPAS)**

The consultancy services provided by WHO/PEPAS to the Department in 1987 were as follows :

- (i) Short Course on Operation and Maintenance of Wastewater Treatment Plants.
- (ii) Management of Toxic Chemical in Malaysia.
- (iii) Noise Abatement and Control.

### **BILATERAL CO-OPERATION AND ASSISTANCE**

The Department of Environment received technical assistance from foreign countries under the various bilateral co-operation and assistance programmes. The technical assistances received include the following :

## Japan (JICA)

Despatch of Short-Term Expert to the Department of Environment for development of an environmental training centre, 16 January, 1987 - 13 April, 1987.

## Canada (CIDA)

Malaysia Pre-Feasibility Study for Pollution Control of Petrochemicals :

Part I : Oil Spill Pollution Control.

Part II : Hazardous Chemicals Pollution Control;  
Bennett Environmental Consultants

Limited, September, 1987.

## United States of America

Feasibility Study on Treatment and Disposal of Toxic and Hazardous Waste in Malaysia, 28 April, 1987 - 18 January, 1988.

## France

Development of a Central Electronic Data Processing System for the Management of Toxic and Hazardous Waste in Malaysia, 11 September, 1987 - 31 December, 1988.

## BILATERAL AND INTERNATIONAL CO-OPERATIVE PROGRAMMES



*CIDA Industrial Development Programme: Computerised Database for Oil Spill Combat*

*Asean-Canada Development and Management of Living Marine Resources: Project Feasibility Study Mission (Phase II)*



Table 10.1

Malaysia: Status of Activities Implemented Under  
the Co-ordinating Body on the Seas of East  
Asian Programmes, 1987

Activity	Status	Malaysia's Responsibility
1. EAS 12 : Co-operative Research on Oil and Oil Dispersant Toxicity in the East Asian Seas Region.	has terminated in December, 1987	Lead Country. Implementing Agency: Fisheries Research Institute, Penang.
2. EAS 13 : Study of Coral Resources and The Effects of Pollutants and Other Destructive Factors on Coral Communities and Related Fisheries in the East Asian Seas Region.	has terminated in October, 1987	Participating Country. Implementing Agency : (1) University Pertanian Malaysia (UPM). (2) Fisheries Department.
3. EAS 14: Study of The Maritime Meteorological Phenomena and Oceanographic Features of the East Asian Seas Region.	on going and expected to complete in December, 1988	Participating Country. Implementing Agency : (1) Meteorological Services Department. (2) UPM. (3) Universiti Teknologi Malaysia (UTM).
4. EAS 15: Survey and Monitoring of Oil Pollution and Development of National Co-ordinating Mechanisms for the Management and Establishment of Regional Data Exchange System.	has terminated in October, 1987	Participating Country. Implementing Agency : (1) Department of Environment. (2) Fisheries Department.
5. EAS 16: Assessment of Concentration Levels and Trends of Non-Oil Pollutants and Their Effects of the Marine Environment in the East Asian Region.	on-going and expected to complete in December, 1988	Participating Country. Implementing Agency : (1) Fisheries Research Institute Penang. (2) Chemistry Department.
6. EAS 17: Implementation of A Technical and Scientific Support Programme for Oil Spill Contingency Planning.	has terminated in October, 1987	Participating Country. Implementing Agency : (1) Department of Environment. (2) Marine Department.
7. EAS 19: Development of Management Plans for Endangered Coastal and Marine Living Resources - Training Phase.	on-going and expected to terminate in December 1989	Lead Country. Implementing Agency : (1) Fisheries Department
8. EAS 21: Assessment of land-based, urban, industrial and agricultural sources of pollution, their environmental impact and development of recommendations for possible control measures.	on-going and expected to terminate in December 1988.	Participating Country. Implementing Agency : (1) Department of Environment.

## APPENDICES



## Appendix 7.1

Department of Environment: Interim Water Quality  
Standards for Malaysia

PARAMETERS	(units)	CLASSES <sup>1</sup>					
		I	IIA	IIB	III	IV	V
Ammoniacal Nitrogen	mg/L	0.1	0.3	0.3	0.9	2.7	>2.7
BOD	mg/L	1	3	3	6	12	>12
COD	mg/L	10	25	25	50	100	>100
DO	mg/L	7	5-7	5-7	3-5	< 3	< 1
pH	mg/L	6.5-8.5	6-9	6-9	5-9	5-9	-
Colour	TCU	15	150	150	-	-	-
Elect. Cond. #	umhos/cm	1000	1000	-	-	6000	-
Floatables		N	N	N	-	-	-
Odour		N	N	N	-	-	-
Salinity #	o/oo	0.5	1	-	-	2	-
Taste		N	N	N	-	-	-
Total Dissolved Solids #	mg/L	500	1000	-	-	4000	-
Total Suspended Solids	mg/L	25	50	50	150	300	>300
Temperature	C	-	Normal ± 2	-	Normal ± 2	-	-
Turbidity	NTU	5	50	50	-	-	-
F. Colif. ##	Counts/ 100mL	10	100	400	5000 (20000)a	5000 (20000)a	-
Tot. Colif.	Counts/ 100 mL	100	5000	5000	50000	50000	>50000

Key

N = No visible floatable materials/debris,  
or No objectionable odour,  
or No objectionable taste.

# = Related parameters, only one recommended for use

## = Geometric mean

a = Maximum not to be exceeded

- = Not yet defined

1 = For definition of classes see Appendix 7.2

PARAMETERS	(units)	CLASSES						
		I	IIA/IIB	III @	IV	V		
Al	mg/L	↑	-	-(0.06)	0.5	↑		
As	mg/L		0.05	0.04(0.05)	0.1			
Ba	mg/L		1	-	-			
Cd	mg/L		0.01	0.01# (0.001)	0.01			
Cr(VI)	mg/L		0.05	1.4 (0.05)	0.1			
Cr(III)	mg/L		-	2.5	-			
Cu	mg/L		1	-	0.2			
Hardness	mg/L		250	-	-			
Ca	mg/L		-	-	-			
Mg	mg/L		-	-	-			
Na	mg/L		-	-	3 SAR			
K	mg/L		-	-	-			
Fe	mg/L		N A T U R A L	0.3	1		1(leaf) 5(others)	L E V E L S
Pb	mg/L			0.05	0.02# (0.01)		5	
Mn	mg/L		0.1	0.1	0.2			
Hg	mg/L		0.001	0.004 (0.0001)	0.002			
Ni	mg/L	L	0.05	0.9#	0.2	A B O V E		
Se	mg/L	E	0.01	0.25(0.04)	0.02			
Ag	mg/L	V	0.05	0.0002	-			
Sn	mg/L	E	-	0.004	-			
U	mg/L	L	-	-	-			
Zn	mg/L	S	5	0.4#	2	IV		
B	mg/L		1	-(3.4)	0.8			
Cl	mg/L		200	-	80			
Cl	mg/L		-	-(0.02)	-			
CN2	mg/L		0.02	0.06(0.02)	-			
F	mg/L		1.5	10	1			
NO2	mg/L		0.4	0.4 (0.03)	-			
NO3	mg/L		7	-	5			
P	mg/L		0.2	0.1	-			
Si	mg/L		50	-	-			
SO	mg/L		250	-	-			
S	mg/L		0.05	-(0.001)	-			
CO2	mg/L		-	-	-			
Gross-α	Bq/L		0.1	-	-			
Gross-β	Bq/L		1	-	-			
Ra-226	Bq/L		<0.1	-	-			
Sr-90	Bq/L	↓	<1	-	-	↓		

## Key

# = At hardness 50 mg/L CaCO<sub>3</sub>

@ = Maximum (unbracketed) and 24-hr average (bracketed) concentration

- = Not yet defined

PARAMETERS (units)	CLASSES				
	I	IIA/IIB	III @	IV	V
CCE ug/L		500	-	-	-
MBAS/BAS ug/L	N	500	5000 (200)	-	-
O&G (mineral) ug/L	A	40;N	N	-	-
O&G (emulsified edible) ug/L	T	7000;N	N	-	-
PCB ug/L	L	0.1	6 (0.05)	-	-
Phenol ug/L	E V	10	-	-	-
Aldrin/ Dieldrin ug/L	E L	0.02	0.2 (0.01)	-	-
BHC ug/L	S	2	9 (0.1)	-	-
Chlordane ug/L		0.08	2 (0.02)	-	-
t-DDT ug/L	O	0.1	1 (0.01)	-	-
Endosulfan ug/L	R	10	-	-	-
Heptachlor/ Epoxide ug/L	- A	0.05	0.9(0.06)	-	-
Lindane ug/L	B S	2	3 (0.4)	-	-
2,4-D ug/L	E	70	450	-	-
2,4,5-T ug/L	N	10	160	-	-
2,4,5-TP ug/L	T	4	850	-	-
Paraquat ug/L		10	1800	-	-

Key

- N = Free from visible film, sheen, discoloration and deposits  
 @ = Maximum (unbracketed) and 24-hr average (bracketed) concentration  
 - = Not yet defined

### **Water Quality Classification for Malaysia**

**Class I** represents water bodies of excellent quality. Standards are set for the conservation of natural environment in its undisturbed state. Water bodies such as those in the national park areas, fountain-heads, and in high land and uninhabited areas come under this category where strictly no discharge of any kind is permitted. Water bodies in this category meet the most stringent requirements for human health and aquatic life protection.

**Class IIA** represents water bodies of good quality. Most existing raw water supply sources come under this category. In practice, no body-contact activity is allowed in these waters for the prevention of transmission of probable human pathogens. There is a need to introduce another class for water bodies not used for water supply but of similar quality which may be referred to as for Class IIB. The determination of Class IIB standards is based on criteria for recreational use and protection of sensitive aquatic species.

**Class III** is defined with the primary objective of protecting common and moderately tolerant aquatic species of economic value. Water under this classification may be used for water supply with extensive/advanced treatment. This class of water is also defined to suit livestock drinking needs.

**Class IV** defines water quality required for major agricultural irrigation activities which may not cover minor applications to sensitive crops.

**Class V** represents other waters which do not meet any of the above uses.

APPENDIX 9.1

DEPARTMENT OF ENVIRONMENT: LIST OF OFFICERS ATTENDING REGIONAL AND INTERNATIONAL MEETINGS, 1987

<u>NAME</u>	<u>TITLE OF MEETING</u>	<u>VENUE</u>	<u>DATE</u>	<u>ORGANISER</u>
TAN MENG LENG	17TH SESSION OF SUB-COMMITTEE MEETING ON BULK CHEMICALS	LONDON	18-22/5/87	IMO
GOH KIAM SENG	THE 10TH MEETING OF ASEAN EXPERT GROUP ON ENVIRONMENT	BANGKOK	24-26/4/87	AEGE
GOH KIAM SENG	THE 3RD ASEAN SENIOR OFFICIAL MEETING	JAKARTA	26-28/10/87	AEGE
GOH KIAM SENG	THE 3RD MEETING OF ENVIRONMENT MINISTERIAL MEETING	JAKARTA	29-30/10/87	AEGE
GOH KIAM SENG, DR. ABU BAKAR JAAFAR, GHAZALI MOHD NOOR	THE SEVENTH MEETING OF REVOLVING FUND COMMITTEE	KOTA KINABALU	16-17/2/87	TTEG/RFC
GOH KIAM SENG, DR. ABU BAKAR JAAFAR, GHAZALI MOHD NOOR	THE EIGHTH MEETING OF REVOLVING FUND COMMITTEE	KUCHING	21-22/7/87	TTEG/RFC
DR. ABU BAKAR JAAFAR	THE SIXTH MEETING OF THE CO-ORDINATING BODY ON THE SEAS OF EAST ASIA (COBSEA)	BANGKOK	27-29/4/87	COBSEA
DR. ABU BAKAR JAAFAR	FINAL GROUP MEETING OF UNEP PROJECT EAS 12: COOPERATIVE RESEARCH ON OIL AND OIL DISPERSANT TOXICITY TESTING IN EAST ASIAN SEAS REGION	K.LUMPUR	10-12/1/87	COBSEA
DR. ABU BAKAR JAAFAR, TAN MENG LENG	MEETING OF EXPERTS ON CONTROL OF OIL POLLUTION IN THE EAST OF ASIAN SEAS REGION	BALI	19-23/10/87	COBSEA
DR. ABU BAKAR JAAFAR	SECOND MEETING OF EXPERTS ON THE EAST OF ASIAN SEAS ACTION PLAN	BANGKOK	30/11-4/12/87	COBSEA

APPENDIX 9.2

LIST OF OFFICERS ATTENDING LONG-TERM  
COURSES FOR MANPOWER DEVELOPMENT, 1987

<u>NAME</u>	<u>TITLE OF COURSES</u>	<u>VENUE</u>	<u>DATE</u>	<u>SPONSORS/ ORGANISERS</u>
IBRAHIM SHAFIE	BACHELOR OF SCIENCE/MASTERS OF SCIENCE (ENVIRONMENTAL HEALTH)	U.S.A.	1.7.1987 - DEC 1990	PSD
NOORBERI YUSOF	BACHELOR OF SCIENCE/MASTERS OF SCIENCE	U.S.A	2.1.1987 - JUNE 1990	PSD
MOHAMAD JAAFAR	INTERNATIONAL POST-GRADUATE COURSE IN ECOLOGICAL APPROACHES TO RESOURCES DEVELOPMENT, LAND MANAGEMENT AND IMPACT ASSESSMENT IN DEVELOPING COUNTRIES	GERMAN	5.10.1987 - 20.7.1988	UNESCO/UNEP
AZMI SOFAH	BACHELOR OF SCIENCE (ENVIRONMENT)	UPM	15.7.1987 - MAY 1989	PSD
ZAINAL ABIDIN ABDULLAH	ADVANCED DIPLOMA (MECHANICAL ENGINEERING)	ITM	2.1.1987 - MAY 1989	PSD
NOR AZMAN ROSLI	ADVANCED DIPLOMA (CIVIL ENGINEERING)	ITM	2.7.1987 - DEC 1989	PSD
YM TENGKU BAKRY	POST GRADUATE DIPLOMA (MANAGEMENT SCIENCE)	INTAN, KL	16.3.1987 - 14.2.1988	PSD

LIST OF LOCAL TRAINING COURSES ATTENDED BY THE  
DEPARTMENT OF ENVIRONMENT OFFICERS, 1987

<u>NAME</u>	<u>TITLE OF TRAINING COURSE</u>	<u>VENUE</u>	<u>DATE</u>	<u>SPONSOR/ ORGANISER</u>
ABD. HAPIZ BIN HJ. ABD. SAMAD	COURSE ON QUALITY CONTROL CIRCLE FACILITATOR	K. KINABALLU	10-23/3/87	SINAR
AB. RAHMAN AWANG	FRENCH LANGUAGE COURSE	INTAN, K.L.	4/3-30/11/87	INTAN
ABDUL RAHMAN JAAL	COURSE ON MANAGEMENT OF VOTE BOOK	INTAN, SG. PETANI SIRIM	26-28/1/87	INTAN
ABD. RAHMAN SHUKOR	NOISE MEASUREMENT ON MOTOR VEHICLES AND OTHER EXHAUST SYSTEM	SIRIM	10/12/87	SIRIM
ABD. RAZAK AHMAD	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	P. JAYA	23-26/2/87	ENSEARCH
AHMAD IBRAHIM	TRAINING COURSE ON PRINCIPLE OF COASTAL RESOURCES MANAGEMENT	JOHOR BAHRU	10-21/8/87	ASEAN USAID
ABDUL WAHAB ALI	MORALE DEVELOPMENT COURSE	PUPUK, KEMAMAN SIRIM	3-12/10/87	INTAN
AMINUDDIN ISHAK	NOISE MEASUREMENT ON MOTOR VEHICLES AND OTHER EXHAUST SYSTEM	SIRIM	10/12/87	SIRIM
AZHAR ZAINAL ABIDIN	COURSE ON CONTROL AND STOCK VERIFICATION	INTAN, SG. PETANI	9-11/3/87	INTAN
CHE ANI HASHIM	COURSE ON ALLOCATION CONTROL A & B	INTAN, SG. PETANI	5-6/4/87	INTAN
CHE ANI HASHIM	COURSE ON MUSHROOM CULTIVATION	BUMBUNG LIMA	18/6/87	JAB. PERTANIAN
CHE ASMAM IBRAHIM	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	P. JAYA	23-26/2/87	ENSEARCH
CHE ASMAM IBRAHIM	COURSE ON DEVELOPMENT OF AGRO-BASED INDUSTRY	INTAN, K.L.	21/9-21/11/87	INTAN
CHE MAHMUD ISMAIL	COURSE ON PLANNING OF PIG FARMING AND POLLUTION CONTROL	SBG. PERAI	29/9/87	MPSP
CHE MAHMUD ISMAIL	COURSE ON LAND ADMINISTRATION	NIBONG TEBAL	31/11/87	PEJ. TANAH SGB. PRAI
DALILAH DALI	COURSE ON APPLICATION OF RADIOISOTOPE IN HYDROLOGY	UKM	29/6-1/7/87	UKM
HIABSAH ISMAIL	COURSE ON CONTROL AND STOCK VERIFICATION	INTAN, SG. PETANI	23-25/3/87	INTAN
IBRAHIM MAJID	ENGLISH LANGUAGE COURSE	INTAN, K.L.	7/7-19/9/87	INTAN
IZUDDIN ABD. GHANI	NOISE MEASUREMENT ON MOTOR VEHICLES AND OTHER EXHAUST SYSTEM	SIRIM	10/12/87	SIRIM
JOHARI BAKAR	COURSE ON PROTECTION SAFETY NO. 55/87 FOR ADMINISTRATION OFFICER	JPM	29/9-1/10/87	JPM
LEE HENG KENG	INTRODUCTION COURSE ON NEW GOVERNMENT POLICIES	INTAN, K.L.	15-20/6/87	INTAN
MAHADI NORDIN	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	P. JAYA	23-26/2/87	ENSEARCH
MAZIAH ALI	COURSE ON CORRESPONDENCE AND FILING SYSTEM	INTAN, K.L.	21-23/4/87	INTAN
MAZIAH ALI	COURSE ON MANAGEMENT OF VOTE BOOK	INTAN, W. TIMUR	17-19/10/87	INTAN

<u>NAME</u>	<u>TITLE OF TRAINING COURSE</u>	<u>VENUE</u>	<u>DATE</u>	<u>SPONSOR/ ORGANISER</u>
MOHD. ISHAK THANI	COURSE ON TRAINING METHODOLOGY	INTAN,K.L	29/6-1/7/87	INTAN
MOHD. ISHAK THANI	COURSE ON PROJECT PLANNING AND MANAGEMENT	INTAN,K.L	2/3-25/4/87	INTAN
MOHD NADZRI JAMALUDDIN	COURSE ON PURCHASING AND STORE MANAGEMENT	INTAN,K.L	15-27/6/87	INTAN
MOHD NADZRI JAMALUDDIN	CERTIFICATE COURSE ON MANAGEMENT PROCUREMENT AND SUPPLY	INTAN,K.L	27/7-24/10/87	INTAN
MOHD.NAHAR OTHMAN	INTRODUCTION COURSE TO COMPUTER	INTAN, SG.PETANI P.JAYA	18-24/12/87	INTAN.
MOHD RAZIB SANI	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	ENSEARCH	23-26/2/87	ENSEARCH
MUHAMMAD SABERI HAMID	COURSE ON MANAGEMENT THEORY AND PRACTICES	INTAN, W.TIMUR	7-19/2/87	INTAN
MUHAMMAD SUHAIMI ISMAIL	COURSE ON OFFICE ADMINISTRATION	INTAN, W.TIMUR	4-23/7/87	INTAN
NIK LUKMANULHAKIN B.NIK ABD. MAJID	MORALE DEVELOPMENT COURSE	PUPUK, KEMAMAN	21/2-2/3/87	PEJ.SETIAUSAHA KRUJ.TERENGGANU
NORAIZAH NGAH	COURSE ON STORE MANAGEMENT	INTAN, W.TIMUR INTAN,K.L	20-25/6/87	INTAN
NORAZIAN HAMID	ENGLISH LANGUAGE COURSE	UKM	6/10-19/12/87	INTAN
NORHASIMAH	COURSE ON APPLICATION OF RADIOISOTOPE IN HYDROLOGY	UKM	29/6-1/7/87	UKM
NORHISHAH MD NOR	BASIC COURSE ON MANAGEMENT OF DEPARTMENT'S ACCOUNT	INTAN,K.L	15-26/6/87	INTAN
NORIZAN ABU BAKAR	ENGLISH LANGUAGE COURSE	INTAN,K.L	3/2-18/4/87	INTAN
NORZIHAN ABD. SAMAD	INTRODUCTION COURSE TO COMPUTER	INTAN, SG.PETANI P.JAYA	18-24/12/87	INTAN
NUR ALI ZA	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	INTAN,K.L	23-26/2/87	ENSEARCH
ROBIAH TALIP	BASIC FINANCE	INTAN,K.L	11-16/4/87	INTAN
ROSHADAH HASHIM	COURSE ON APPLICATION OF RADIOISOTOPE IN HYDROLOGY	UKM	29/6-1/7/87	UKM
SUHAIMI YAHAYA	COURSE FOR OFFICE BOYS	INTAN, W.TIMUR INTAN,K.L	11-16/7/87	INTAN
TENGGU BAKRY SHAH	DIPLOMA IN MANAGEMENT SCIENCE	INTAN,K.L	16/3/87-14/2/88	INTAN
WAN RAMLAH WAN IBRAHIM	FOREIGN LANGUAGE COURSE	INTAN,K.L	4/3-30/11/87	INTAN
ZAINUDDIN ABD. AZIZ	COURSE ON PLANNING OF PIG FARMING AND POLLUTION CONTROL	SBG.PRAI	29/9/87	MFSP
ZAINULDIN YAAKOB	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	P.JAYA	23-26/2/87	ENSEARCH
ZALILAH NOR DIN	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	P.JAYA	23-26/2/87	ENSEARCH
ZAMFI JUSOH	TRAINING PROGRAMME FOR WASTEWATER TREATMENT PLANT OPERATORS	P.JAYA	23-26/2/87	ENSEARCH
ZULKIFLI DIN	INTRODUCTION COURSE TO COMPUTER	INTAN, SG. PETANI	13-18/6/87	INTAN

APPENDIX 9.4

LIST OF OVERSEAS TRAINING COURSES ATTENDED BY THE DEPARTMENT  
OF ENVIRONMENT OFFICERS, 1987

<u>NAME</u>	<u>TITLE OF TRAINING COURSE</u>	<u>VENUE</u>	<u>DATE</u>	<u>SPONSOR/ ORGANISER</u>
AHMAD KAMARUL NAJUIB	TRAINING COURSE ON STATISTICAL HYDROLOGY	BANDUNG	22/8-29/87	ASEAN USAID
AMINUDDIN ISHAK	ENVIRONMENTAL ENGINEERING AIR POLLUTION CONTROL	TOKYO	5/2-18/3/87	JICA/JAP.COL.PLAN
CHOONG MEI CHUN	COURSE 759: POLLUTION ASPECTS OF ENVIRONMENTAL HEALTH	LONDON	4-16/10/87	BRITISH COUNCIL
GHAZALI MOHD.NOOR	FAMILIARISATION AND TRAINING COURSE ON LAND AND SEA EQUIPMENT	SINGAPORE	16-20/3/87	TARC
HALIMAH HASSAN	INDUSTRIAL POLLUTION CONTROL PRACTICE	KITAKYUSHU	15/9-21/12/87	JAP.COL.PLAN
ISHAK THANI	TRAINING COURSE ON INDUSTRIAL POLLUTION CONTROL	TOKYO	1-19/6/87	APO
IZUDDIN ABD.GHANI	TRAINING COURSE ON INDUSTRIAL POLLUTION CONTROL	TOKYO	1-19/6/87	APO
JALALUDDIN ISMAIL	IPCS/AUSTRALIA SHORT COURSE ON CHEMICAL SAFETY AND PUBLIC HEALTH	SYDNEY	18-28/5/87	DOH(AUSTRALIA)
JAMALUDDIN MAHMUD	UNESCO REGIONAL TRAINING COURSE ON REDUCTION OF HYDROLOGICAL DATA USING MICRO-COMPUTERS	MANILA	24/11-12/12/87	UNESCO
LILY HOR	FRIENDSHIP PROGRAMME FOR THE 21ST. CENTURY 1987	JAPAN	21/6-21/7/87	JAPAN GOVT.
MAKETAB MOHAMAD	TRAINING COURSE ON SOIL EROSION AND WATER YIELD	LAGUNA	8/6-17/6/87	UNESCO
MAKETAB MOHAMAD	UNESCO REGIONAL TRAINING COURSE ON REDUCTION OF HYDROLOGICAL DATA USING MICRO-COMPUTERS	MANILA	24/11-12/12/87	UNESCO
MOHAMAD JAAFAR	INTERNATIONAL POST-GRADUATE COURSE IN ECOLOGICAL APPROACHES TO RESOURCES DEVELOPMENT, LAND MANAGEMENT AND IMPACT RESOURCES	GERMAN DEMOC. REP.	10/87-7/88	UNESCO
NORRIAHAN NASIR	TRAINING COURSE ON APPLICATION OF MICRO-COMPUTERS FOR PROCESSING SCIENTIFIC AND TECHNICAL INFORMATION	MOSCOW	17-20/11/87	UNEP
PATRICK TAN	COURSE ON ENVIRONMENTAL ADMINISTRATION	JAPAN	19/1-12/3/87	JICA/JAP.COL.PLAN
RUSLAN MOHAMAD	REGIONAL IN SERVICE TRAINING ON RESEARCH IN ENVIRONMENTAL IMPACT ANALYSIS	JAKARTA	16/11-14/12/87	SEAMEO BIOTROP
SANJISI SULAIMAN	TRAINING SCHEMES ON PATROLLING AND FINGER PRINTING TECHNIQUES	JAKARTA	28/9-10/10/87	IMO/ASEAN-UNDP
ZULKIFLI ABD RAHMAN	TRAINING PROGRAMME ON ENVIRONMENTAL ASSESSMENT AND MANAGEMENT ASPECTS OF AIR AND WATER POLLUTION FOR INDUSTRY	BELGIUM	3/8-11/9/87	UNIDO

APPENDIX 9.5

LIST OF LOCAL SEMINARS, WORKSHOPS AND CONFERENCES ATTENDED  
BY THE DEPARTMENT OF ENVIRONMENT OFFICERS, 1987

<u>NAME</u>	<u>TITLE OF SEMINAR/WORKSHOP/CONFERENCE</u>	<u>VENUE</u>	<u>DATE</u>	<u>SPONSOR/ ORGANISER</u>
Dr ABU BAKAR JAAFAR,	FORUM ON INCORPORATING ISLAMIC VALUES, IMPLEMENTATION, CHALLENGES AND ITS' EFFECT	K.LUMPUR	22/4/87	JBT HASIL DALAM NEGERI
ABD.HAPIZ A. SAMAD	SEMINAR ON PUBLIC ADMINISTRATION	KOTA KINABALU	17/10/87	MARA SABAH
ABD. RAHMAN AWANG	SEMINAR ON WASTEWATER TREATMENT ALTERNATIVES	UPM	9-11/11/87	UPM
ABD. RAZAK SAAD	CONFERENCE ON GLOBAL DEVELOPMENT AND ENVIRONMENTAL CRISIS: HAS MAN A FUTURE?	PENANG	5-9/4/87	SAM
AHMAD IBRAHIM	THIRD SYMPOSIUM OF MALAYSIAN CHEMICAL ENGINEERS	UTM	15-16/6/87	UTM
AINON ZAKIAH	CONFERENCE ON ENV. LEGISLATION - ITS SIGNIFICANCE TO PLANNING AND DEVELOPMENT IN MALAYSIA	K.LUMPUR	24-25/4/87	ENSEARCH
AJIS HAMJAH	INTERNATIONAL CONFERENCE ON PESTICIDES IN TROPICAL AGRICULTURE	K.LUMPUR	23-25/9/87	MARDI/MAPPS
AKBAR SURATMAN	CONFERENCE ON ENV. LEGISLATION - ITS SIGNIFICANCE TO PLANNING AND DEVELOPMENT IN MALAYSIA	K. LUMPUR	24-25/4/87	ENSEARCH
AMINAH ALI	CONFERENCE ON GLOBAL DEVELOPMENT AND ENVIRONMENT CRISIS: HAS MAN A FUTURE?	PENANG	5-9/4/87	SAM
AMINUDDIN ISHAK	SEMINAR ON ENVIRONMENTAL EFFECTS OF LAND BASE TRANSPORT PROVISION/BANGKOK URBAN TRAFFIC STUDY	K.LUMPUR	5/5/87	JKR
AZIZAH ABU BAKAR	WORKSHOP ON MANAGEMENT OF LAW PUBLICATION FOR LIBRARY ASSISTANT	K.LUMPUR	17-19/8/87	PERPUS, NEGARA
AZMI SOFAH	CONFERENCE ON ENV. LEGISLATION - ITS SIGNIFICANCE TO PLANNING AND DEVELOPMENT IN MALAYSIA	K.LUMPUR	24-25/4/87	ENSEARCH
CHOONG MEI CHUN	MALAYSIA-CANADA REMOTE SENSING TECHNOLOGY SEMINAR	K.LUMPUR	23/2/87	CANADIAN HIGH COMMISSION
HALIMAH HASSAN	CONFERENCE ON GLOBAL DEVELOPMENT AND ENVIRONMENT CRISIS: HAS MAN A FUTURE ?	PENANG	5-9/4/87	SAM
HANILI GHAZALI	SEMINAR ON ENVIRONMENTAL EFFECTS OF LAND BASE TRANSPORT PROVISION/BANGKOK URBAN TRAFFIC STUDY	K.LUMPUR	5/5/87	JKR
HANILI GHAZALI	ONE DAY HAND HOLDING SESSION TO THE MARVELS OF PCSAS	K.LUMPUR	24/9/87	DIALOG SYS
HASHIM DAUD	WORKSHOP ON ENVIRONMENTAL ANALYSIS AND IMPACT EVALUATION	INTAN	10-17/8/87	INTAN
HASHIM DAUD	1987 HAZARDOUS WASTE DISPOSAL CONFERENCE	K.LUMPUR	27-28/10/87	INST INTL RESEARCH
HASHIM HARUN	1987 HAZARDOUS WASTE DISPOSAL CONFERENCE	K.LUMPUR	27-28/10/87	INST INTL RESEARCH

<u>NAME</u>	<u>TITLE OF SEMINAR/WORKSHOP/CONFERENCE</u>	<u>VENUE</u>	<u>DATE</u>	<u>ORGANISER</u>
HOR YING HENG	CONFERENCE ON GLOBAL DEVELOPMENT AND ENVIRONMENT	PENANG	5-9/4/87	SAM
ISMAIL ITHNIN	WORKSHOP ON REMOTE SENSING TECHNOLOGY	UTM	21-25/6/87	UTM
IZUDDIN ABD.GHANI	REGIONAL WORKSHOP ON ENVIRONMENTAL NOISE ABATEMENT AND CONTROL	UPM	23-27/11/87	WHO/UNEP
JAMALUDDIN SULLAIMAN	TALK ON WATER FABRICATION	MIDA	20/8/87	MIDA
JOHAN SOHAILI	WORKSHOP ON APPLIED QUATERNARY GEOLOGY AND SHALLOW EXPLORATION METHODS	IBU PEJABAT KAJIBUMI	9-20/11/87	JBT KAJIBUMI
JAMALUDDIN MAHMUD	ONE DAY HAND-HOLDING SESSION TO THE MARVELS OF PCSAS	K.LUMPUR	24/9/87	DIALOG SYS
KAMALAKARAN	SEMINAR ON POLLUTION PREVENTION/PROTECTIVE CONTROL SYSTEMS	K.LUMPUR	8/12/87	PORIM/JETRO
KAMALAKARAN	TALK ON WAFER FABRICATION	MIDA	20/8/87	MIDA
LEE HENG KENG	SEMINAR TOWARDS THE CONSERVATION AND IMPROVEMENT OF THE ENVIRONMENT IN SABAH	KUNDASANG	20-21/1/87	INSTITUT KAJIAN PEMBANGUNAN (IDS)
LEE HENG KENG	SEMINAR 'INVESTMENT IN SABAH'	KOTA KINABALU	1/ /87	MIDA SABAH
MAKETAB MOHAMAD	PAMAP GRAPHICS SEMINAR ON GEOGRAPHIC INFORMATION SYSTEMS	K.LUMPUR	1/9/87	HISCO SDN BHD
MAKETAB MOHAMAD	ANNUAL SEMINAR MARINE SCIENCE ASSOCIATION OF MALAYSIA	UNIVERSITI MALAYA (UM) K.LUMPUR	28-29/3/87	UM
MOHD RASHID WAN CHIK	CONFERENCE ON ENVIRONMENTAL LEGISLATION - ITS SIGNIFICANCE TO PLANNING AND DEVELOPMENT IN MALAYSIA	UNIVERSITI MALAYA (UM) K.LUMPUR	24-25/4/87	ENSEARCH
MOHD. SHUKRI AHMAD MARZUKI	SEMINAR ON POLLUTION PREVENTION/PROTECTIVE CONTROL SYSTEMS	SHANGRI LA	8/1/287	DIALOG SYS
MOHD. ISHAK THANI	DIALOGUE ON PALM OIL INDUSTRIAL WASTEWATER TREATMENT	K.LUMPUR	21/1/87	PORIM/JETRO
MOKHTAR ABD.MAJID	CONFERENCE ON ENVIRONMENTAL LEGISLATION - ITS SIGNIFICANCE TO PLANNING AND DEVELOPMENT IN MALAYSIA	K.LUMPUR	24-25/4/87	ENSEARCH
MOKHTAR ABD MAJID	THIRD SYMPOSIUM OF MALAYSIAN CHEMICAL ENGINEERS	UTM	15-16/6/87	UTM
MUSLINA SULAIMAN	ANNUAL SEMINAR MARINE SCIENCE ASSOCIATION OF MALAYSIA	UNIVERSITI MALAYA (UM) K.LUMPUR	28-29/3/87	UM
MOHD ISHAK THANI	DIALOGUE ON PLAM OIL INDUSTRIAL WASTEWATER TREATMENT	K.LUMPUR	21/1/87	PORIM/JETRO
MOKHTAR ABD.MAJID	CONFERENCE ON ENVIRONMENTAL LEGISLATION - ITS SIGNIFICANCE TO PLANNING AND DEVELOPMENT IN MALAYSIA	K.LUMPUR	24-25/1/87	ENSEARH
MOKHTAR ABD.MAJID	THIRD SYMPOSIUM OF MALAYSIAN CHEMICAL ENGINEERS	UTM	15-16/6/87	UTM
MUSLINA SULAIMAN	WORKSHOP ON TIDE	UTM	9-10/2/87	JBT TEN LAUT

Continued...APPENDIX 9.5

<u>NAME</u>	<u>TITLE OF SEMINAR/WORKSHOP/CONFERENCE</u>	<u>VENUE</u>	<u>DATE</u>	<u>ORGANISER</u>
MUSLINA SULAIMAN	OIL SPILL DISPERSANT WORKSHOP	K.LUMPUR	26/9/87	ENSEARCH
NORLIN JAAFAR	WORKSHOP ON TIDE	UTM	9-10/2/87	JBT TEN LAUT
NORZHAN	CONFERENCE ON GLOBAL DEVELOPMENT AND ENVIRONMENTAL CRISIS: HAS MAN A FUTURE?	PENANG	5-9/4/87	SAM
PAUZIAH HANUM	WORKSHOP ON IMPACT OF OPERATIONS IN NATURAL & PLANTATION FORESTS ON CONSERVATION OF SOIL & WATER RESOURCE	K.LUMPUR	26/9/87	ENSEARCH

LIST OF OVERSEAS SEMINARS, WORKSHOPS AND CONFERENCES  
ATTENDED BY THE DEPARTMENT OF ENVIRONMENT OFFICERS, 1987

NAME	TITLE OF SEMINAR/WORKSHOP/CONFERENCE	VENUE	DATE	ORGANISER/ SPONSOR
A. MAHESWARAN	INTERNATIONAL WORKSHOP ON REGIONAL WATER QUALITY MANAGEMENT 111	BOMBAY	12-16/1/87	ROAP
ABD AZIZ ABD RASOL	REGIONAL SEMINAR ON THE CONTROL OF WASTE DISPOSAL AT SEA	BANGKOK	14-18/12/87	IMO/ISIDA
ABD AZIZ ABD RASOL	4TH INTERNATIONAL SYMPOSIUM ON THE INTERACTION BETWEEN SEDIMENT AND WATER	MELBOURNE	16-20/2/87	IASWS/MALAYSIA
ABU BAKAR JAAFAR, DR.	ASEAN-CANADA WORKSHOP ON POLLUTION AND OTHER ECOLOGICAL FACTORS IN RELATION TO LIVING MARINE RESOURCES	PHUKET	23-26/6/87	ASEAN-CANADA
ABU BAKAR JAAFAR, DR.	THE VIENNA CONVENTION FOR THE PROTECTION OF THE OZONE LAYER: MONTREAL PROTOCOL	MONTREAL	14-16/9/87	UNEP
ABU BAKAR JAAFAR, DR.	SECOND US-JAPAN INTERNATIONAL WORKSHOP ON RISK ASSESSMENT/MANAGEMENT	OSAKA	26-30/10/87	US-JAPAN
ABU HASSAN ISA	BRIEFING SESSION ON ATMOSPHERIC POLLUTION	PARIS	21/9-9/10/87	ACTIM
GODWIN SINGAM	UNEP SYMPOSIUM ON REGIONAL COOPERATION: ENVIRONMENTAL PROTECTION OF MARINE AND COASTAL AREAS IN THE PACIFIC	KOREA	25-26/8/87	IMO
GODWIN SINGAM	BRIEFING SESSION ON ATMOSPHERIC POLLUTION	PARIS	21/9-9/10/87	ACTIM
GOH KIAM SENG	INTERNATIONAL CONGRESS ON ENVIRONMENTAL EDUCATION AND TRAINING	MOSCOW	17-21/8/87	UNEP
HASMAH HARUN	SPECIALISED CONFERENCE ON COSTAL AND ESTUARIAL POLLUTION	FUKUOKA	18-21/10/87	UNEP
HAJAH ROSNANI IBRAHIM	WORKSHOP ON RISK ASSESSMENT OF HAZARDOUS CHEMICALS IN DEVELOPING COUNTRIES	HAWAII	6-24/7/87	EWC
HAJAH ROSNANI IBRAHIM	ASIA PACIFIC SYMPOSIUM ON ENVIRONMENTAL AND OCCUPATIONAL TOXICOLOGY	SINGAPORE	4-7/10/87	IMR/UNIV OF SINGAPORE
JOHAN SOHALI	UK DHSS/IPCS RISK ASSESSMENT SEMINAR	LONDON	30/11-11/12/87	DHSS/IPCS
MEXLIEN ANAK GOMBEK	TRAINING WORKSHOP ON ENVIRONMENTAL MANAGEMENT IN THE IRON AND STEEL INDUSTRY	TOKYO	14-18/12/87	UNEP
MUSLINA SULAIMAN	ASEAN-CANADA WORKSHOP ON POLLUTION AND OTHER ECOLOGICAL FACTORS IN RELATION TO LIVING MARINE RESOURCES	PHUKET	23-26/6/87	ASEAN-CANADA
MOHD SUBKI ABD. HAMID	BRIEFING SESSION ON ATMOSPHERIC POLLUTION	PARIS	21/9-9/10/87	ACTIM
PETER HO YUEH CHUEN	INTERNATIONAL WORKSHOP ON COASTAL WATER MANAGEMENT AND THE BAY OF JAKARTA	JAKARTA	11-14/5/87	IFIAS/UNEP

<u>NAME</u>	<u>TITLE OF SEMINAR/WORKSHOP/CONFERENCE</u>	<u>VENUE</u>	<u>DATE</u>	<u>ORGANISER/ SPONSOR</u>
RAJA ROKIAH RAJA SAIGON	SEMINAR IN TECHNOLOGY FOR DISASTER PREVENTION	TSUKUBA	28/9- 14/12/87	JICA
RUSLI CHE HUSIN	WORKSHOP ON MARINE ENVIRONMENT PROTECTION	TOKYO	8-18/9/87	MAR.SAFE.AGENCY
RUSLI CHE HUSIN	WORKSHOP ON IMPLEMENTATION OF TECHNICAL AND SCIENTIFIC SUPPORT PROGRAMME FOR OIL SPILL CONTINGENCY PLAN	JAKARTA	6-13/8/87	COBSEA/JUNEP
SOO AH KAN	WORKSHOP ON HAZARDOUS WASTE MANAGEMENT, INDUSTRIAL SAFETY IN CHEMICAL INDUSTRY	VIENNA	22-26/6/87	UNIDO
TAN MENG LENG	INTERNATIONAL SYMPOSIUM ON RECEPTION FACILITIES FOR NOXIOUS LIQUID SUBSTANCES	LONDON	13-15/5/87	IMO
TAN MENG LENG	WORKSHOP ON IMPLEMENTATION OF TECHNICAL AND SCIENTIFIC SUPPORT PROGRAMME FOR OIL SPILL CONTINGENCY PLAN	JAKARTA	6-13/8/87	COBSEA/JUNEP

Appendix 10.1

National Register of Potentially Toxic Chemicals  
(NRPTC) Working List, 1987

1. BHC (lindane)
2. 1,1,1 - Trichloroethane
3. 2,4 - D (salt and esters)
4. Ammonia
5. Arsenic Pentoxide
6. Arsenic Trioxide
7. Asbestos
8. Barium Chloride
9. Benomyl
10. Carbofuran
11. Chromic Acid
12. Copper Sulphate
13. DDT
14. Dalapon
15. Decametrin
16. Dieldrin
17. Endosulfan
18. Fenvalerate
19. Formaldehyde
20. Formic Acid
21. Freon
22. Heptachlor
23. Isopropyl Alcohol
24. MCPA
25. Malathion
26. Mancozeb
27. Mercurous Chloride
28. Methanol
29. Methyl Ethyl Ketone
30. Oxalic Acid
31. Permethrin
32. Phenol
33. Phosphoric Acid
34. Nitric Acid
35. Polypropylene Glycol
36. Potassium Hydroxide
37. Ammonium Hydroxide
38. Sodium Cyanide
39. Sodium Dichromate
40. Sodium Pentachlorophenate
41. Sulphuric Acid
42. Tetraethyl Lead
43. Sodium Hydroxide
44. Toluene
45. Trichloro Ethylene
46. Triflurin
47. Vinyl Chloride
48. Xylene
49. Zinc Ammonium Chloride

## Appendix 10.2

### List of File Names for the National Register of Potentially Toxic Chemicals (NRPTC)

1. Identifiers, Physical and Chemical Properties
2. Production/Trade
3. Production Processes
4. Use
5. Pathways into the Environment
6. Concentrations
7. Environment Fate Test
8. Environmental Fate and Pathways into the Environment
9. Chembiokinetics
10. Mammalian Toxicity and Special Toxicity Studies
11. Special Toxicity Studies
12. Effects on Organisms in the Environment
13. Sampling/Preparatory/Analysis
14. Spills
15. Treatment of Poisoning
16. Waste Management
17. Recommendations/Legal Mechanisms

## Appendix 10.3

Notification of Control Actions on Chemicals  
Received by the Department, 1986-1987

Name of Chemical	Country
<u>Agricultural Chemicals</u>	
1,2, dibromo-s-chloroprane	China People's Republic
2,3,4,5 Tetrachlorophenol	Switzerland
2,3,4,6 Tetrachlorophenol	Switzerland
2,3,5,6 Tetrachlorophenol	Switzerland
2,4,5,T	Mexico, Switzerland
2,4,5-Trichlorophenol	United States
Aldrin	Kenya, Chile, United States, Mexico, Switzerland
Aluminium Phosphide	China People's Republic
Arsenic	Switzerland
BHC	China People' Republic
Carbendazim Composition Fungicide	United States
Carbofuran	China People's Republic
Carbophenothion	China People's Republic
Chlordane	Kenya, China People's Republic, Chile, United State, Mexico, Switzerland
Chlordimeform	Kenya, China People's Republic, Mexico
Cynide	China People's Republic
DBCP	Mexico
DDD	Switzerland
DDE	Switzerland
DDT	Kenya, China People's Republic, Chile, Denmark, Switzerland
Demeton	China People's Republic
Diazinon	United States
Dicofol	United States

Name of Chemical	Country
Dieldrin	Kenya, Chile, United States, Mexico, Switzerland
Dinoseb	Colombia, Netherland
Endosulfan	Netherland
Endrin	Kenya, Chile, Switzerland
Ethylene Dibromide (EDB)	Chile, Cyprus
Ethylmercuric Chloride	China People's Republic
Fenoprop	Switzerland
Fluoroacetamide	China People's Republic
Fumiron	China People's Republic
HCH, Hexachlorohexane	Switzerland
Halogenated Biphenyls	Switzerland
Halogenated Naphthalene	Switzerland
Halogenated Terphenyls	Kenya, Chile, United States, Mexico, Switzerland
Heptachlor expoxide	Switzerland
Lindane	Mexico
Mecury	Switzerland
Mecury compounds	Mexico
Methamidophos	China People's Republic
Methoxylor	Switzerland
Methyl Parathion	China People's Republic
Mirex	Mexico
Monocrotophos	China People's Republic
Methoate	China People's Republic
Parathion	China People's Republic
Pentachlorophenol	China People's Republic
Perthane	Switzerland
Phenylmercuric Acetate	China People's Republic
Phorate	China People's Republic
Phosphamidon	China People's Republic

Name of Chemical	Country
Sodium Fluoraceta	Mexico
Strobane (Polychlorinated)	Switzerland
Strychine Sulphate	Mexico
Sulfotep	China People's Republic
Telodrin	Switzerland
Thallium Sulphate	Mexico
Toxaphene	Switzerland, Kenya, Mexico
Trichloronitromethane	China People's Republic
Zinc Phosphide	China People's Republic
<u>Industrial Chemical</u>	
Benzene	Chile
Hexachlorobenzene	Switzerland
Mercury	Switzerland
Pentachlorophenol	Switzerland
Polychlorinated Biphenyls (PCB)	Chile
<u>Consumer Products</u>	
Nonyphenol ethoxylate	Switzerland

