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# Environment Malaysia Yearbook 1998



KDN PP 6010/7/99



**ENSEARCH**

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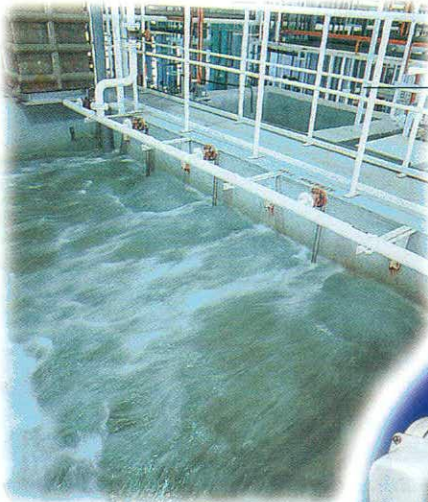
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**WWE Industries Sdn Bhd**  
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The company is currently dormant. The intended principal activity is the provision of engineering services connected with water and waste water treatment

**Selisek Industries Sdn Bhd**  
Provision facilities connected with the fabrication and installation of water and waste water treatment and environmental engineering

**WWE Technologies Sdn Bhd**  
The company is currently dormant. The intended principal activity is the provision of engineering services connected with water and waste water treatment

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# ENVIRONMENT MALAYSIA YEARBOOK 1998

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## Foreword

This publication of ENVIRONMENT MALAYSIA YEARBOOK 1998 is a follow up of the successful issue of the Yearbook of 1996. The 1996 Yearbook has been widely circulated and it has served as an important source of reference on information related to environmental activities in Malaysia to many members and environmental professionals alike in industries, businesses, government and non-government organisations, both from within Malaysia and from abroad.

The listing and profiles of eighty strong institutional members published in the Yearbook represents a significant cross-section of the environmental consultants, contractors, suppliers and major local and multinational corporations who have been in the forefronts in setting examples of better environmental management and protection. Complementing this, is the directory of over 600 individual members of ENSEARCH and CETEC categorised in the following areas of specialisation: environmental engineering, sciences, management, planning and economics. In addition, the Yearbook provides an update to the environmental laws, regulations and guidelines, a listing of environment related government departments, agencies, institutions and NGOs. This information will continue to be most valuable to potential investors and new suppliers coming to Malaysia and to the industries in the country who may be seeking professional assistance in environmental management and pollution control.

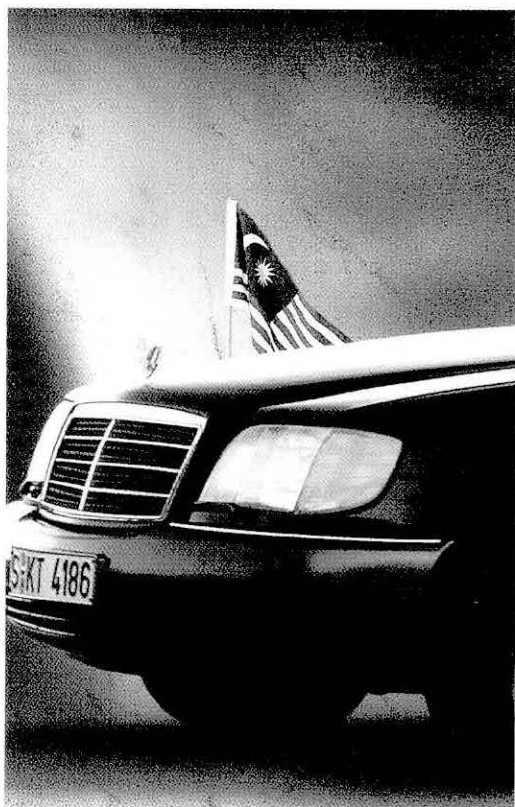
In conjunction with the publication of Yearbook 1998, ENSEARCH is launching its Environmental Information Database, known as Malaysian Environmental Information Network or MEI-NET (see article on pg 29). Employing the current multimedia internet information technology, MEI-NET will be developed into a linkage as well as a database encompassing all the relevant environmental information to meet the needs of environmental professionals in Malaysia in a more efficient way. An important component of MEI-NET will be its directories of local and international environmental experts as well as companies providing environmental technologies and services. With our members' assistance and active participation in MEI-NET, this issue of the Yearbook will likely be the last "hard-copy" version and we will be among the first few organisations directly accessible through the internet.

The Publication Committee would like to thank the Honourable Minister of Science, Technology and the Environment, YB Datuk Law Hieng Ding and the Director General of the Environment, Puan Hajah Rosnani Ibarahim for their kind messages. We are grateful for the support rendered by the Ministry of Science, Technology and the Environment, in particular, the Department of Environment to the publication of this Yearbook.

The Committee gratefully acknowledges the generous support of the various organisations and companies who have contributed to the advertisements. We would like to thank the officials of the relevant Government departments and other organisations who have assisted in providing the information compiled in this Yearbook.

The messages of the President of ENSEARCH and the Chairman of CETEC highlighting the role of both organisations are much appreciated. Special thanks to ENSEARCH Secretariat for compiling all the information and to Ms. Rosalind Khoo for her dedicated effort in preparing the layout and the type-settings. Last but not least, I wish to thank all members of the Yearbook Committee and all others who have assisted in one way or another in the production of the Yearbook.

Dr. S. L. Tong  
Editor



“STATESMEN,  
AMBASSADORS,  
DIPLOMATS, PRINCES. SOME  
DAYS, IT'S LIKE THE UNITED  
NATIONS.”

*They would come in their expensive cars and chauffeur-driven limousines. Some to enjoy the fine Asian cuisine. Others, the classic 1920's ambience. Yet, there are those who come to see. And to be seen. But whatever the reason, these days, anybody who is anybody is meeting up with somebody at Spices.*

Spices



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## *Message from the Minister of Science, Technology and the Environment*



I am pleased to write a message in the Environment Malaysia Yearbook 1998 which is jointly produced by Environmental Management and Research Association of Malaysia (ENSEARCH) and Centre of Environmental Technologies (CETEC).

I wish to take this opportunity to congratulate ENSEARCH and CETEC for taking the initiative to publish this important publication which would provide valuable information to decision makers, industrialists and the public who are involved in the environmental field. This yearbook will be a useful complement to the Annual Environmental Quality Report published by the Department of Environment. I hope that the editors of this yearbook will continue to increase the contents over the years and at the same time other organisations and institutes will contribute articles or materials for the yearbook so that it will be an increasingly valuable reference source on environmental matters.

A stylized, handwritten signature in black ink, consisting of a long horizontal line that curves upwards and then loops back to the right.

DATUK LAW HIENG DING

## *Message from the Director General of Environment, Malaysia*



I would like to congratulate ENSEARCH and CETEC for taking the initiative to produce the Environment Malaysia Yearbook 1998.

The yearbook will be a useful tool which can be an asset in the upgrading of the professionalism in the environmental management and will complement the efforts of Department of Environment (DOE) in this regard.

ENSEARCH and CETEC are among the most active environmental organisations within the country. The memberships of these two organisations combined, represent a wide cross-section of individuals and institutions, covering those in both the private as well as public sectors.

In addition, this effort has also resulted in a comprehensive environmental source book. In this regard, I understand that ENSEARCH has embarked on an ambitious program of establishing the Malaysian Environmental Information Network (MEI-NET). I am also told that, a write-up on this subject is included in this yearbook. This is an ambitious program and requires the support of all concern both in the public and private sectors.

The DOE looks forward to continue working closely with ENSEARCH & CETEC in these matters as it has always done in the past.

A handwritten signature in black ink, reading 'Roznani Ibarahim'. The signature is written in a cursive style and is underlined.

HAJAH ROSNANI IBARAHIM

## *Message from the President of ENSEARCH*



On behalf of ENSEARCH, I have much pleasure to write a message for the Environment Malaysia Yearbook 1998. This edition of the yearbook is being published with the collaboration of Centre for Environmental Technologies (CETEC).

This yearbook, in addition to the normal environmental information contained in the previous yearbook includes a section on the Malaysian Environmental Information Network (MEI-NET). This is a logical extension of the yearbook and I am sure that when fully developed, MEI-NET will become a very useful tool for the environmental professionals in the industry, academia and government agencies. This requires the full support and co-operation of all members, environmental professionals, agencies and organisations in the country. I look forward to your support and co-operation in this regard.

I trust this yearbook would be of assistance to all of you. Should there be any short comings, I shall be pleased if you could give us your feedback so that we could improve the quality of the yearbook over the years.

Finally, I wish to thank the Yearbook Committee, the Secretariat and all others who have assisted in the production of the Yearbook 1998.

A handwritten signature in black ink, appearing to read 'K. Kumarasivam', with a horizontal line underneath.

IR. K. KUMARASIVAM

## *Message from the Chairman of CETEC*



With Malaysia's rapid economic development over the past few years it is important that environmental concerns are equally addressed to ensure a balanced and sustainable growth for Malaysia. Information thus becomes a highly useful tool for associated planning and decision-making, especially environment-related information.

The Environment Malaysia Yearbook 1998 presents such information on a broad coverage to the multi-stakeholders in the public and private sector who are becoming more aware of environmental issues and the need for related information to address them.

CETEC is thus proud to associate once again with ENSEARCH in the joint production of the Environment Malaysia Yearbook 1998. I appreciate and congratulate the publication team for producing this handy directory and hope that users would contribute information and feedback to make the next Yearbook even more comprehensive.

*S.K.T. Yong*

TAN SRI DATUK AMAR STEPHEN K.T. YONG

***ASSOCIATION/  
ORGANISATION  
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- ***ENSEARCH***
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*Waste Water Recycle System*

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2. Pure Water Treatment System (R.O/Demineralizer/Water Softener).
3. Portable Drinking Water System.
4. Chemicals and Water Treatment Products.

*Pure Water Treatment System*



*Industrial Waste Water Treatment System*

### TYPICAL PROJECTS

#### Industrial Waste Water Treatment System

- Kohoku Electronics (M) Sdn bhd
- Kayaba (M) Sdn Bhd
- Perusahaan Otomobil National Bhd

#### Industrial Waste Water Recycling System

- Mitsui Hightec (M) Sdn Bhd
- Malaysian Electroplating Technology Sdn Bhd

# ENSEARCH

## ENVIRONMENTAL MANAGEMENT & RESEARCH ASSOCIATION OF MALAYSIA

### What is ENSEARCH?

**ENSEARCH**, formed in 1984, is a non-profit making professional organisation of all those who are interested in the field of environmental research and management, and is recognised by the Malaysian Government Agencies. ENSEARCH is also well accepted by the private sector and leading institutions and individuals in Malaysia, as an organisation capable of providing leadership in environmental management, research and development.

### ENSEARCH Vision

The **ENSEARCH** Vision is:-

- To develop a national capacity in environmental protection and management
- To participate in national environmental and development policies

### Mission Statement

"**ENSEARCH** shall provide leadership in environmental management, research and development and shall play a pivotal role in integrating the efforts of the community and the public and private sectors towards achieving the national goals of sustainable development."

With this Mission Statement, ENSEARCH is moving into a new phase, where in, it is going to be proactive. By having such a strategy it is hoped that ENSEARCH is able to achieve its stated Vision and fulfil its Mission.

### ENSEARCH Objectives

In order to achieve the stated Vision and fulfil its Mission, it is imperative to have a set of specific objectives as goal setters. These objectives are briefly stated below:-

- 1) To constitute itself as a national body of all interested parties in the field of environmental research and management.
- 2) To constitute to the development of the means to protect and enhance the quality of the environment.
- 3) To promote the exchange and dissemination of information on all aspects of environmental management and technology, more particularly, to encourage communication and facilitate understanding among scientists, engineers, administrators and all others actively engaged in environmental research and management.
- 4) To establish and develop mechanisms to prevent the occurrence of potential environmental problems and to identify ways and means of resolving environmental problems or to mitigate the effects of such problems.
- 5) To mobilise professional opinion as an input to decision making by the relevant government authorities at federal and state levels.

- 6) To promote the publications of **ENSEARCH** activities, suitable scientific and technical contributions from the members, and any work that furthers the aims of the association.
- 7) To organise management, technical and scientific meetings including exhibitions.
- 8) To organise, promote and develop environmental related training and awareness programmes.
- 9) To promote the practical application of research findings in respect of process engineering, pollution control technology, utilization.
- 10) To co-operate with other national or international organisations in similar or related fields and to function on the Malaysian national body in relation to international bodies having broadly similar objectives.

### ENSEARCH STRATEGIES

To achieve **ENSEARCH** Vision, Mission and the Objectives, as stated earlier, a set of carefully thought out strategies are needed. These strategies are briefly reported below.

#### Strategies to develop ENSEARCH's national capacity

**ENSEARCH**'s desired national capacity is a key factor in its Vision Statement, and the following strategies are the means through which ENSEARCH would develop its national capacity to protect and enhance the environment.

- **ENSEARCH** as an organisation shall identify all the issues involved in the national environmental and development policy. It would then disseminate this knowledge to its members through education and training programmes.
- **ENSEARCH** shall develop its expertise in the relevant scientific, technological, and organisational fields.
- **ENSEARCH** shall promote and encourage the relevant R&D activities in the public and private sectors. It shall work closely with industry and academia to identify environmental problems and issues.
- **ENSEARCH** shall collect and collate all necessary and relevant information and data, and establish an effective and up-to-date database, which would be of use to the Government, the private sector, and other interested parties, whether local or foreign.
- **ENSEARCH** shall establish effective linkages by networking and regularly communicating with international bodies in the areas of environmental management and research. Examples of such bodies would be IAWQ; INEM; The Pacific Consortium for Hazardous Waste; UNIDO; UNEP etc.

- **ENSEARCH** shall actively establish its capacity to act as a conduit for state-of-the-art technologies related to the environment.

### **Strategies to achieve leadership in environmental management research and development**

A critical success factor in **ENSEARCH**'s Mission is the organisation's ability to achieve a leadership status in environmental management, research and development. The following are strategies that **ENSEARCH** shall follow to establish its leadership role to enable it to achieve its Mission.

- To identify key environmental issues.
- To establish linkages with parties/bodies who would be able to contribute towards its Vision and Mission.
- To establish itself as an advisory body to the government on environmental issues.
- To promote the establishment of accreditation body(ies).
- To promote and enhance environmental ethics and practices.
- To promote environmental consciousness and commitment in the lifestyle of the Malaysian society.
- To cultivate an environmentally conscious and knowledgeable society.
- To harness economic and technical expertise and to facilitate the application of innovative and practical solutions to environmental issues.
- To promote technological and management development through research and development.
- To establish itself as an implementing agency of the Government in environmental issues.
- To establish itself as a co-ordinating body for integrating the efforts and activities of the Government, industry and the community in environmental issues.
- To promote and facilitate human resource development in environmental technology and management expertise through training programmes.
- To establish a code of ethics for environmental professionals.

### **ENSEARCH PROGRAMMES**

A series of carefully thought out programmes to enable the successful implementation of the identified strategies mentioned earlier have been worked out as indicated below.

- Education and training and human resource development.
- Accreditation/registration.
- Environmental studies and project studies.
- Linkages/networking (local and international)
- Research & development
- Publications
- Initiating demonstration projects
- Establishing Expert Groups who would provide advisory services, and prepare position papers, etc.
- Awareness promotion programmes of the environment and of technological developments. Such programmes may be targeted for the public and for schools.
- Conferences/seminars/workshops/exhibitions
- Technology assessment and promotion (pro-active search by ENSEARCH as well as on request by suppliers or users)
- Establishing good environmental practices
- Awards and sponsorship programmes
- Development of Serendah site
- Setting up an effective and comprehensive database, and connecting it to the internet.

To give a general idea about what is involved in these programmes, three areas are highlighted below.

### **Training Programmes**

This is one of the critical programmes **ENSEARCH** is already doing and it is also planning to do additional programmes as follows:

- **ENSEARCH** shall set-up training programmes whereby it can issue certificates and diplomas after conducting training courses and examinations.
- **ENSEARCH** shall develop joint education programmes with Universities as well as other educational institutions for certain courses. Such courses need to be identified.
- **ENSEARCH** shall develop joint training programmes with SIRIM, the Department of Sewerage Services, INTAN, DOE, DOSH, CETEC as well as professional bodies, both local and international.
- **ENSEARCH** shall develop in-house training programmes with companies in the private sector.
- **ENSEARCH** shall eventually establish an "**ENSEARCH** Training Institute"
- **ENSEARCH** shall as soon as possible obtain accreditation from the relevant authorities or bodies as a Human Resource training organisation. This entitles the participants of **ENSEARCH**'s training programmes to obtain a rebate from the authorities on the cost of participating in such programmes.
- **ENSEARCH** shall implement a series of "Awareness Programmes" on environmental management and research, to universities, schools, industries, and the public, and on the role of **ENSEARCH** in such issues. **ENSEARCH** may also consider working through the media.

### **Publications**

**ENSEARCH** is currently publishing the bimonthly Newsletter; quarterly Journal and the annual Environment Malaysia Yearbook regularly. Newsletter caters for a wider readership and carries features such as Editorial, Focus, Updates, Information, Publications and membership.

The Journal, on the other hand, is aiming at a professional and scientific readership and therefore contains original papers, reviews, reports and other technical papers. The Yearbook, on the other hand, contains the relevant information concerning the members of the organisation. It is a useful guide for the individual and institutional memberships. It also provides a comprehensive compilation of date and information related to environmental policies, laws regulations, standards and practices in Malaysia. Thus a host of valuable information is available in the yearbook. In addition, **ENSEARCH** also publishes a wide variety of other publications such as proceedings of the workshops/seminars/conferences, handbooks, manuals etc. Thus publication is an important area of **ENSEARCH**'s activities.

### **Expert Group Registration**

One of the programmes **ENSEARCH** has recently launched to achieve its Vision & Mission, is the establishment and registration of Expert Groups, to provide advisory and consulting services, among other things. The objective is to promote Malaysian expertise in the environmental area, both locally and overseas.

A total of 22 specific areas of expertise have been identified. Members of **ENSEARCH** are being registered under these groups. Once the registration is completed, it is possible for **ENSEARCH** secretariat to identify sufficient number of experts with short notice to serve under one or more of the 22 specific areas.

## Organisation Chart

In order to implement the ambitious programmes enlisted in the fore-going sections, the ENSEARCH organisation and structure shall be strengthened and professionalised.

The reorganisation of the proposed plan shall be gradual for practical reasons, but it has to be in place within the next 36 months.

## Our Major Need

Our major need is to have a sound financial base. In the past, our major financial support came from well meaning individuals and a few corporations. We are now launching a rather ambitious programme; the goal set for the next 10 years is quite high and it is not so easy to achieve; yet it is within our reach, provided there are no financial constraints in carrying out the extensive work plans.

In other words, if we get good financial backing, we can not only achieve all what we have planned, but we are also able to take up additional tasks to protect and preserve our environmental heritage. So, we are asking that all environmentally committed corporations, multinationals, local, regional and foreign institutions, and foundations, UN agencies, and most of all individuals to support us financially. The next section provides the details of how you can get involved in strengthening the financial position of **ENSEARCH**.

## What You Can Do For ENSEARCH

**ENSEARCH**'s current and future programmes are briefly reported in the fore-going. Now the question is what you can do to support **ENSEARCH** to achieve its Vision and Mission. Our proposal is as follows:-

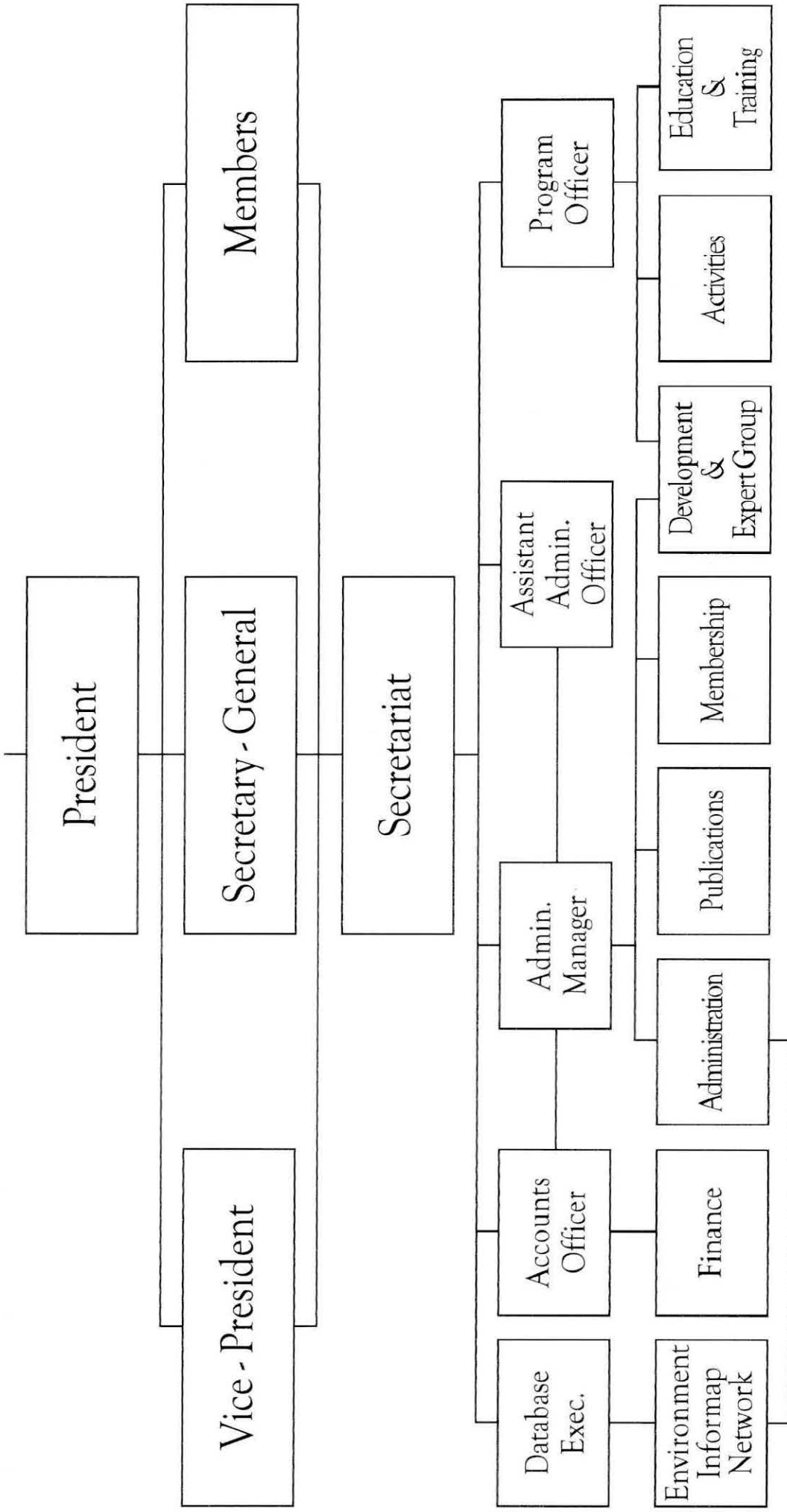
- If you are not a member of **ENSEARCH**, please become an Individual or Institution member (Form A is attached as a pull-out sheet). Please fill and return it to us as soon as possible.
- Commit a small part of your time and effort for a definite period to be involved in the activities of **ENSEARCH** (serve as a member of one or more committees of **ENSEARCH**). Enlist your support by filling the attached Form B and returning it to us.
- Pay up your annual subscription promptly and in addition, think about making special contributions.
- Provide advertisements for our publications.
- Underwrite the cost of our publications. At least underwrite the production cost of **ENSEARCH** Newsletter (RM12,000.00 per year for six issues) and Journal (RM60,000.00 for four issues per year).
- Support us with participation in the training courses, seminars and conferences that are organised by **ENSEARCH**.
- Above everything else, be a committed environmental lover.

## Conclusions

In order to fulfil the Vision and Mission, **ENSEARCH** is embarking on an ambitious programme of activities. What we are hoping to achieve is within our reach provided, we get the support of **ENSEARCH** members and others (both private and public sectors) who love to see the Malaysian environment sustained and protected so that we can pass on to our children, what we have inherited. Let us strive together to protect and preserve our heritage of tropical Malaysia.

# ORGANISATION CHART

## **ENSEARCH**



# ENSEARCH COUNCIL 1997/1998



**PRESIDENT**  
Ir. K. Kumarasivam



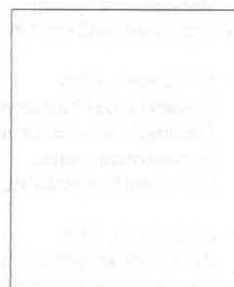
**VICE-PRESIDENT**  
Dr. Tong Soo Loong



**VICE-PRESIDENT**  
Mr. Tan Ging Tuang



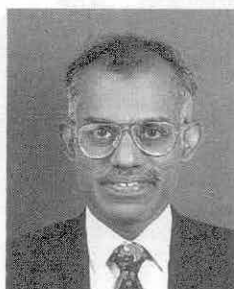
**SECRETARY-GENERAL**  
Mr. Loo Koi Sang



**HON.-TREASURER**  
Ms Marina Yong



**COUNCIL MEMBER**  
Mr. Thiaga Rajoo



**COUNCIL MEMBER**  
Ir. R.M. Subbiah



**COUNCIL MEMBER**  
Mr. Peter Y.C. Ho



**COUNCIL MEMBER**  
Dr. Ma Ah Ngan

## **COUNCIL MEMBERS:**

En. Mohd Abdullah Mohaidin

En. Ahmad Baharin b Abdul Rahman

Mr. James Kulleh Ajan

## **CO-OPTED COUNCIL MEMBERS:**

Mr. A. Maheswaran

Ms Kathy Lee

Ms Jenny Tan Suat Eam

Mr Lee Seng Chai

## **COMMITTEES FOR THE YEAR 1997-98**

### **Activities Committee**

**Chairman:** En. Ahmad Baharin b Abdul Rahman

### **Publication Committee**

**Chairman:** Dr. Tong Soo Loong

### **Education & Training Committee**

**Chairman:** Mr. Thiaga Rajoo

### **Research & Development Committee**

**Chairman:** Ir. K. Kumarasivam

## ENSEARCH ACTIVITIES FOR 1996 & 1997

- 9-11 January, 1996  
INTAN, Bukit Kiara Kuala Lumpur  
Training Course on Environmental Management System  
Organised by ENSEARCH
- 10-12 April, 1996  
Golden Hope Plantations, Kuala Lumpur  
Training Course on Environmental Management System  
Organised by ENSEARCH
- 22-24 April, 1996  
INTAN, Bukit Kiara, Kuala Lumpur  
Training Course on Environmental Management System  
Organised by INTAN & ENSEARCH
- 24-26 April, 1996  
Bukit Kiara, Kuala Lumpur  
Workshop on Hazardous Household Waste  
Organised by ENSEARCH, INTAN, MPPJ and DANCED
- 5 June, 1996  
Tropicana Golf & Country Club  
12th Annual General Meeting
- 27 July, 1996  
Park Royal, Kuala Lumpur  
Seminar on Environmental Data Management & Decision Support Systems  
Organised by Canadian High Commission and ENSEARCH
- 5 July, 1996  
Bukit Kiara Equestrian & Country Resort, Petaling Jaya  
Seminar on Advanced Technologies in Waste Water Treatment  
Organised by ENSEARCH and AL Technologies Sdn Bhd
- 13 July, 1996  
NPC Hotel, Petaling Jaya  
Seminar on Coping with Imminent Changes - ISO 14000  
Organised by NPC, SIRIM, ENSEARCH and Hong Kong Productivity Council
- 18-19 September, 1996  
Bukit Kiara Equestrian & Country Resort  
Training Course on Environmental Management System ISO 14000 and Agrobased Industries  
Organised by ENSEARCH
- 30 September, 1996  
Crown Princess Hotel  
Workshop on Environmental Quality (Amendment) Act 1996  
Organised by Department of Environment, Malaysia and ENSEARCH
- 4-8 November, 1997  
Ming Court, Kuala Lumpur  
The Pacific Basin Conference on Hazardous Waste  
Organised by Pacific Basin Conference and ENSEARCH
- 13-15 November, 1996  
Golden Hope Plantations, Kuala Lumpur  
Training Course on Environmental Management System ISO 14000  
Organised by ENSEARCH
- 18-19 November, 1996  
Tropicana Golf & Country Club  
Training Course on Environmental Management System ISO 14000  
Organised by ENSEARCH
- 26 November, 1996  
Shangri-La, Kuala Lumpur  
Hibiscus Award
- 2-5 December, 1996  
Ming Court, Kuala Lumpur  
Environmental Management System ISO 14000 Lead Auditor Program  
Organised by Oxbridge Consulting & ENSEARCH
- 24-17 February, 1997  
Ming Court, Kuala Lumpur  
Environmental Management System ISO 14000 Lead Auditor Program  
Organised by Oxbridge Consulting & ENSEARCH
- 25 March, 1997  
Hotel Sifotel Palm Resort & Golf, Johor  
Workshop on Environmental Quality (Amendment) Act 1996  
Organised by Department of Environment, Malaysia and ENSEARCH
- 6 May, 1997  
RRIM, Training Centre, Kuala Lumpur  
Seminar on Environmental Management System  
Organised by RRIM and ENSEARCH
- 14 May, 1997  
Crystal Crown Hotel, Petaling Jaya  
13th Annual General Meeting
- 19 May, 1997  
UPM Serdang  
Seminar on Environmental Management System  
Organised by UPM and ENSEARCH
- 23-26 June, 1997  
Crown Princess, Kuala Lumpur & Penang  
Environmental Management System ISO 14000 Lead Auditor Program  
Organised by ENSEARCH and Oxbridge Consulting
- 24-26 June, 1997  
Tropicana Golf & Country Club  
Training Course on Environmental Management System  
Organised by ENSEARCH
- 25-29 August, 1997  
Concorde Hotel, Kuala Lumpur  
Environmental Auditing Course (EARA Certified)  
Organised by QAS Australia and ENSEARCH
- 26 August, 1997  
Kuching, Sarawak  
Workshop on Environmental Quality (Amendment) Act 1996  
Organised by Department of Environment, Malaysia & ENSEARCH
- 27 August, 1997  
Kota Kinabalu, Sabah  
Workshop on Environmental Quality (Amendment) Act 1996  
Organised by Department of Environment, Malaysia & ENSEARCH
- 6-7 October, 1997  
Pan Pacific Glemarie, Shah Alam  
Workshop on Innovative Environmental Technology 1997  
Organised by Australian High Commission & ENSEARCH
- 21 October, 1997  
Shangri-La Hotel, Penang  
Langkawi Award
- 18 November, 1997  
ENSEARCH Resource Centre  
Seminar on Pollution Prevention/Cleaner Production  
Organised by ENSEARCH
- 19 November, 1997  
ENSEARCH Resource Centre  
Tea-talk on Cleaner Production  
Organised by ENSEARCH
- 3-5 December, 1997  
ENSEARCH Resource Centre  
Workshop on Industrial Waste Management  
Organised by ENSEARCH
- 4 December, 1997  
The Pan Pacific Resort Glemarie, Shah Alam  
Hibiscus Award
- 30 December, 1997  
Pan Pacific Resort Glemarie, Shah Alam  
Seminar Pemuliharaan Sumber Bekalan Air Negeri Selangor  
Organised by DOE, Selangor & ENSEARCH



**CENTRE FOR  
ENVIRONMENTAL  
TECHNOLOGIES**

**BOARD OF DIRECTORS**



*Seated ( Left to Right)*

Y Bhg Tan Sri Datuk Dr. Augustine Ong Soon Hock, Y Bhg Tan Sri Datuk Amar Stephen K.T. Yong ( Chairman ), Ir. K. Kumarasivam, Y Bhg Tan Sri Dato' Ir. Shahrizaila bin Abdullah

*Standing ( Left to Right)*

Ir. Goh Kiam Seng (Executive Director), Prof. Dr. Mohd Nordin Hj. Hasan, Mr. Chen Yew Seong, Mr. Peter Ho Yueh Chuen

*Not in photo*

Ir. Dr Ma Ah Ngan, Mr. Appadurai Maheswaran, Ir. Tan Ging Tuang

**C**ETEC is an independent, non-governmental and non-profit research and development centre. It was incorporated in October 1992.

The main objectives of CETEC are as follows:

- to undertake independent and objective environmental research;
- to develop and provide environmental technology services for both the public and private sector;
- to promote public understanding of important environmental issues through education, training and information services;
- to provide advisory and technical services on national environmental issues to the government and the private sectors; and
- to organise and conduct symposia, conferences and train personnel from both public and private sectors in environmental management and research

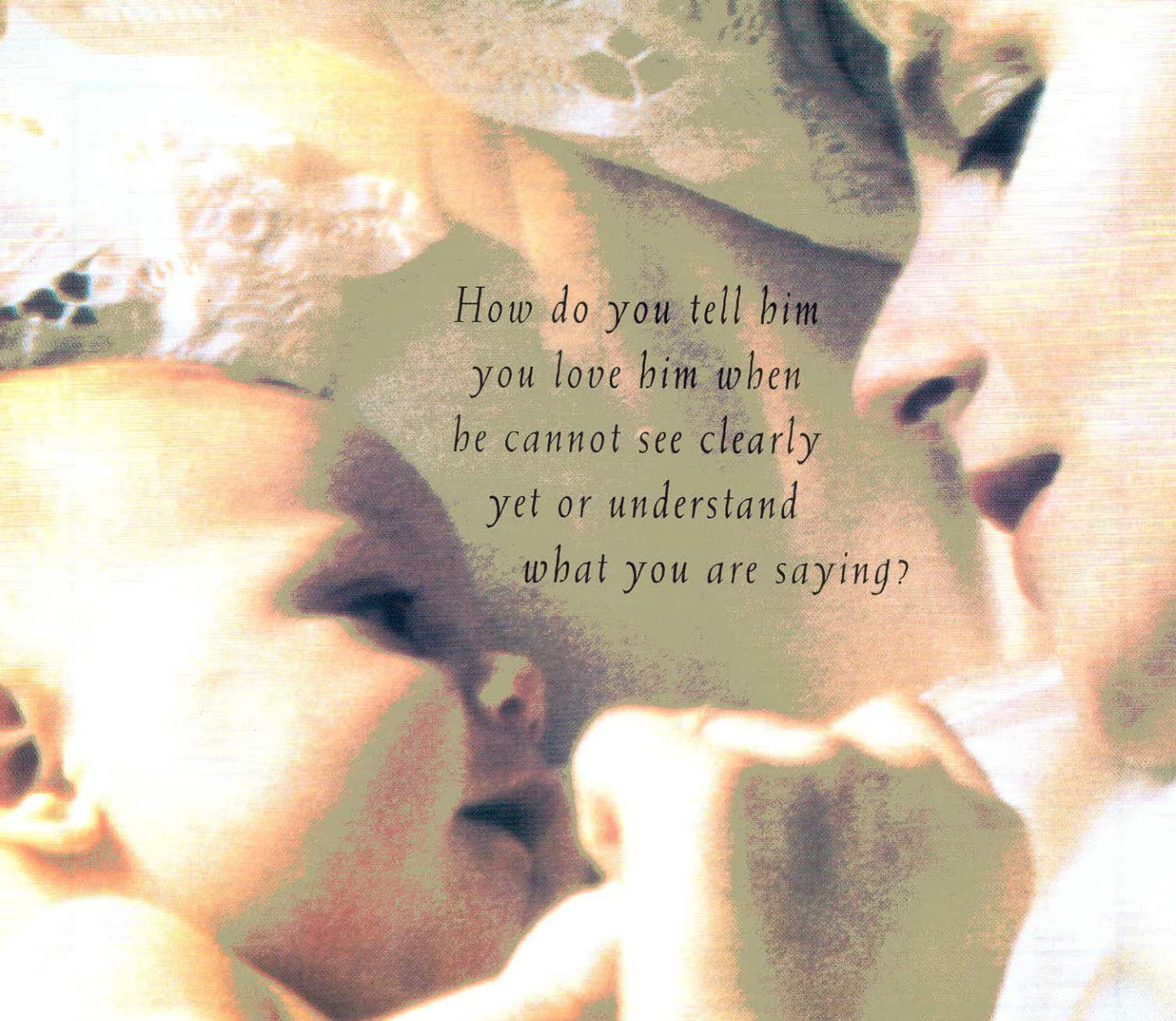
The Centre was initiated by Environmental Management and Research Association ( ENSEARCH ).

The Centre is registered as a company limited by guarantee and not having a share capital. It is subscribed by a membership comprising both corporate and individual members. Currently, there are 11 corporate members and 36 individual members.

<b>BOARD OF DIRECTORS</b>	<b>STAFF MEMBERS OF CETEC</b>
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<b>SCIENTIFIC AND TECHNICAL PANEL</b>			
The following are members of the Scientific and Technical Panel of CETEC:			
Member	Area of Expertise	Designation	Organisation
1. Ir. Dr. Ma Ah Ngan	Agricultural Waste	Head, Engineering & Technological Unit	PORIM
2. Mr. Teoh Cheng Hai	Agricultural Waste	Director, Research & Development	Golden Hope Plantations
3. Dr. Zaid Isa	Agricultural Waste	Senior Research Officer	RRIM
4. Mr. David Yap	Air Quality & Pollution Control	Director	Air Pollution Engineering
5. En. Azman Zainal Abidin	Air Quality & Pollution Control	Lecturer	UPM
6. Dr. Low Kum Sang	Air Quality & Pollution Control	Lecturer	IPT, UM
7. Dr. Lim Poh Eng	Water Quality & Pollution Control	Lecturer	USM


<b>Members</b>	<b>Area of Expertise</b>	<b>Designation</b>	<b>Organisation</b>
8. Dr. Tong Soo Loong	Water Quality & Pollution Control	Manager Water Quality	ASMA Sdn Bhd
9. Prof. Eckenfelder	Water Quality & Pollution Control	Senior Technical Director	Eckenfelder Inc.
10. Prof. M B Pescod	Water Quality & Pollution Control	Head, Civil Engineering Dept.	University of Newcastle UT
11. Mr. Yeoh Bee Ghin	Water Quality & Pollution Control	General Manager, Environment & Energy Technology Centre	SIRIM
12. Pn Norhayati Mustapha	Environmental Administration	Senior Analyst	ISIS
13. Mr. Wong Kong Nam	Petroleum Sector	Managing Director	Concrete Engineering
14. Datuk Dr. Salleh Md Nor	Forestry	Executive Chairman	TropBio Research S/B
15. Dr. Nather Khan	Wetlands	Executive Director	Ecotone Management S/B
16. Ir. Wong See Foong	Protection of Ozone Layer	Director	MEP Engineering Sdn Bhd
17. Dr. Foo Say Moo	Petroleum Sector	Head, Materials & Environment Group, Research Division	Petronas
18. Mr. A Maheswaran	Environmental Administration	Environmental Consultant	
19. Ir. G T Tan	Petroleum Sector	Corporate Coordinator	Shell Malaysia
20. Mr. Patrick Tan	Environmental Administration	Principal Assistant Director	DOE



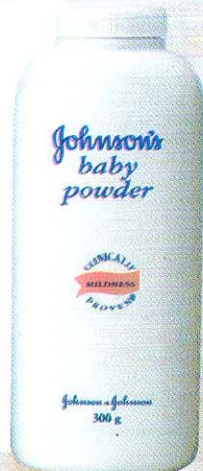
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you love him when  
he cannot see clearly  
yet or understand  
what you are saying?*

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***INTERNATIONAL NETWORK /  
AFFILIATIONS***

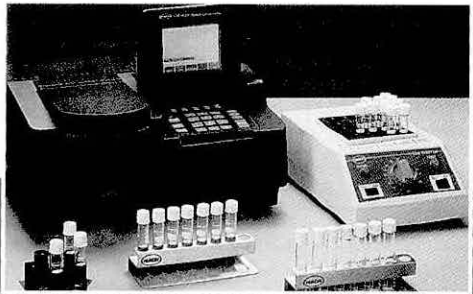


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## **IAWQ**

### **International Association on Water Quality**

1 Queen Anne's Gate  
London SW1H 9BT  
England  
Tel: 44-71-222-3848  
Fax: 44-71-233-1197

The IAWQ Statutes require that National Membership shall be limited to one properly constituted, non-profit, national organisation representative of professionals in water pollution control. The purpose of National Membership is to ensure that all the interests in any nation can be represented on the Governing Board. In any particular nation, if there is more than one organisation concerned with water pollution control and they all meet the requirements of the Governing Board of IAWQ, then they must form a single national organisation or committee for the purpose of National Membership.

Most existing National Members operate their membership through a National Committee. All National Members have voting rights on the Governing Board through their accredited representatives.

In terms of duties, all National Committees are required to promote the goals and objectives of IAWQ and, more specifically:

- To appoint accredited representative(s) for membership of the Governing Board. The minimum number is one, the maximum three. Each National Committee may choose the number of representatives it wants and pay the appropriate fee.
- Through its representative(s) on the Governing Board, to participate effectively in the activities and affairs of the Association and to undertake such assignments as may be required by the Governing Board.

## **PBCHWR**

### **Pacific Basin Consortium for Hazardous Waste Research**

c/o Environment and Policy Institute  
East-West Center, 1777 East-West Road  
Honolulu, Hawaii 96848, USA  
Tel: (808) 9447555  
Fax: (808) 94407970

The Pacific Basin Consortium of Hazardous Waste Research (PBCHWR) was formed in 1986 and comprise a group of institutions that investigate methods of dealing with hazardous waste. The Consortium is not a government-to-government programme but is an assembly of research institutions.

The PBCHWR promotes research on treatment methods for hazardous waste and the exchange of hazardous waste handling information. The PBCHWR maintains a network of more than 100 institutions involved with hazardous waste research and management and acts as a referral service, as well as a primary source of information on hazardous waste issues.

## **ENSIC**

### **Environmental Sanitation Information Center Asian Institute of Technology**

P O Box 2754  
Bangkok 10501  
Thailand  
Tel: 5290100/13 ext. 2870  
Telex: 84276 TH

The Environmental Sanitation Information Center (ENSIC) was founded in 1978 at the Asian Institute of Technology, an international institute situated in Bangkok. It is an information center on rural water supply and sanitation. It was setup jointly by the Institute's Environmental Engineering Division and the Library and Regional Documentation Center. ENSIC receives financial support from IDRC, CIDA, the Australian government, and AIT as well as fees from membership subscriptions and services. ENSIC publications include Environmental Sanitation Reviews, Environmental Sanitation Abstracts and the ENFO Newsletter.

The objectives of the centre are:

- to collect, repackage and disseminate information;
- to make this knowledge and technology available - at affordable prices;
- to bring usable information to rural users.

## **INEM**

### **The International Network for Environment Bahnhofstrasse 36**

D-22880 Wedel (Holstein)  
Germany  
Tel: (49) 4103-84019  
Fax: (49) 4103-13699

The International Network for Environment (INEM) is the world federation of non-profit business organisations for environmental management and sustainable development. INEM's goals are to minimise the environmental impacts of industrial operations and to help business and industry reconcile the imperatives of development and the environment. INEM draws on the concrete experiences of its members to show how to implement pro-active environmental policies that are compatible with market success. INEM promotes a holistic approach to solving environmental problems by integration of environmental management principles into all aspects of business culture, operations and methods. INEM places a special emphasis on small-and medium-sized enterprises (SMEs) and industries in developing countries and countries of the former command economies.

INEM presently has members and affiliates in 19 countries on four continents: Argentina, Austria, Brazil, Canada, China, Denmark, France, Germany, Ireland, Israel, Japan, Malaysia, the Netherlands, the Philippines, Slovenia, South Africa, Sweden, Switzerland, and Zimbabwe. Half-a-dozen associations, most of them in the Asia-Pacific region, are expected to join INEM in 1993.

## **WEF**

### **Water Environment Federation**

601 Wythe Street  
Alexandria, VA 22314-1994 USA  
Tel: (703) 684-2452  
Fax: (703) 684-2492  
WEF online at <http://www.wef.org>

### **Improving Water Quality Since 1928**

The Water Environment Federation (WEF) is an international not-for-profit educational and technical organisation of 41,000 water quality experts. WEF members include environmental, civil, and chemical engineers, biologists, chemists, government officials, treatment plant managers and operators, laboratory technicians, college professors, researchers, students, and equipment manufacturers and distributors. WEF's mission is to preserve and enhance the global water environment.

The Federation was founded in Chicago, Illinois, USA, in 1928, through a grant from the Chemical Foundation, as the Federation of Sewage Works Associations. The organisation's original purpose was to publish the *Sewage Works Journal* for those in wastewater treatment. Today, WEF materials and services meet a wide spectrum of water quality needs.

For nearly 70 years, WEF has guided technological developments in water quality and provided its members and the public with the latest information on wastewater treatment and water quality protection. Federation representatives testify before government bodies, and they review and comment on environmental regulations and legislation. The Federation also provides expertise on issues ranging from nonpoint source pollution and hazardous waste to biosolids recycling and groundwater contamination. No other group can match the depth of knowledge represented by WEF members.

## **COSTAM**

### **The Confederation of Scientific Technological Association of Malaysia**

c/o Spastic Children's Centre  
14 Lorong Utara A  
P.O. Box 48  
46700 Petaling Jaya  
Tel: 03-7550296/7582393  
Fax: 03-7567511

The Confederation of Scientific Technological Associations in Malaysia or COSTAM is the national umbrella organisation of scientific and technological associations in Malaysia. It was inaugurated on June 20, 1980 and registered under the Societies Act 1966 on December 8, 1983.

As a confederation of twenty-seven scientific and technological associations in Malaysia, COSTAM has the following objectives:

- To bring together the resources of member associations for the advancement of science and technology, to facilitate the cooperation between and provide a common forum for member associations, to promote effective utilisation of science and technology for human welfare and national development, in a manner consonant with the conservation of nature and natural resources, to increase public understanding and appreciation of science and technology for human progress, to consolidate, formulate and declare the opinion of scientists and technologies on issues of national importance, to encourage and maintain relations between Malaysia and international scientific and technological bodies.

The major activities of COSTAM are:

- Organising scientific and technology conference, seminars and workshops on issues of national and international interest, promoting public understanding and appreciation of science and technology, publishing a popular science and technology magazine entitled "Science and Technology Malaysia" or STM, organising the Annual COSTAM Public Lecture which is usually delivered by a prominent person in the government/scientific community.

## **EMBASSIES**

ENSEARCH collaborates with the Canadian, Australian, American and German embassies and attends dialogue sessions and exchange views with their visiting dignitaries, businessmen, etc.

## **(US-AEP)**

### **THE UNITED STATES - ASIA ENVIRONMENTAL PARTNERSHIP**

The US-AEP Office of Technology Cooperation in Kuala Lumpur is working closely with ENSEARCH to disseminate environmental information, technology and policies available from the United States.

## **SIRIM**

### **STANDARD INSTITUTE AND RESEARCH INSTITUTE MALAYSIA**

ENSEARCH sits on the SIRIM sub-committee for NSC 1, 2, 3, 4, 5, 6.

***MALAYSIAN  
ENVIRONMENTAL  
INFORMATION  
NETWORK  
(MEI-NET)***



# ALAM SEKITAR MALAYSIA SDN BHD

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*“Toward a cleaner environment”*

Our Vision:

*“To be a world-class business in environmental monitoring and assessment”*

P.O.Box 7880,  
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Selangor Darul Ehsan,  
MALAYSIA.

WEBSITE : <http://www.enviromalaysia.com.my>  
Email : [kulasma@po.jaring.my](mailto:kulasma@po.jaring.my)

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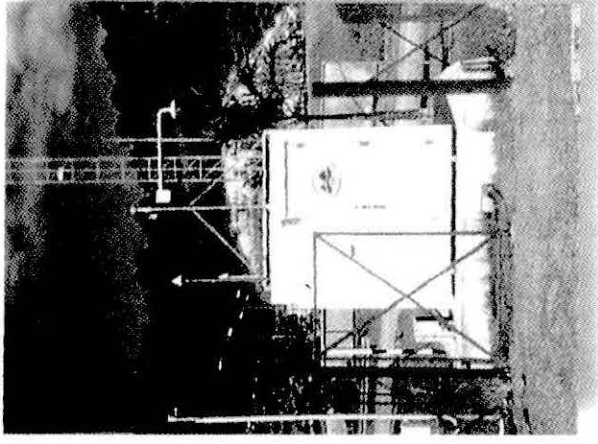
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- ◆ Water Quality :  
018-823 2088, Email : [sitong@enviromalaysia.com.my](mailto:sitong@enviromalaysia.com.my)
- ◆ Environmental Research, Development & Consultancy :  
018-821 1261, Email : [martin@enviromalaysia.com.my](mailto:martin@enviromalaysia.com.my)
- ◆ Air Quality :  
012-208 9541, Email : [craig@enviromalaysia.com.my](mailto:craig@enviromalaysia.com.my)
- ◆ Environmental Information Technology :  
013-361 2257, Email : [jasni@enviromalaysia.com.my](mailto:jasni@enviromalaysia.com.my)
- ◆ Business Development :  
019-322 7404, Email : [zainej@enviromalaysia.com.my](mailto:zainej@enviromalaysia.com.my)

# MALAYSIAN ENVIRONMENTAL INFORMATION NETWORK (MEI-NET)

## INTRODUCTION

One of the two vision statements of ENSEARCH is, "To develop a national capacity in environmental protection and management." To achieve that vision it has been identified by ENSEARCH that an Environmental Information database for the country needs to be developed. Sometime in October 1997, the President of ENSEARCH, Ir. K. Kumarasivam, formed a project team to develop such a database.

Initially, the database to be developed was known as the ENSEARCH Environmental Information database. However, it was decided later that a more appropriate name for the database is the Malaysian Environmental Information Network, or MEI-NET. This is done in recognition of the national scope of the environmental information in the database and the collaborative information networking required to populate the database.

## DATABASE OBJECTIVES

The following are the objectives of the database

- To establish a comprehensive database of information related to environmental issues that can be used to assist the government, the private sector and anyone carrying out work related to environmental protection and management in Malaysia.
- The database should also be available to educate the public on environmental issues and to increase the awareness on the need to protect and manage the environment.
- The database can also be used by educational institutions for their environmental education related programs.

## PROPOSED CONTENT OF THE DATABASE

The following are the proposed contents of the database:

- A dictionary of environmental terms and technologies.
- A list of environmental issues and topics.
- A list of environmental-related legislations, guidelines and regulations.
- A list of environment-related international treaties.
- A list of EIA reports and other case studies on environmental projects.
- A directory of available local and international expertise on environmental sciences.
- A directory of local and international environment-related companies.
- A list of authoritative environment-related technical papers and articles.
- A list of news clippings and magazine articles related to the environment.

- A list of authoritative environment-related Internet-sourced information.

*The Internet contains an abundant source of environment-related information. This information can be downloaded and organised in the database for ease of reference with links to the Internet for the latest version of the document.*

## INFORMATION MANAGEMENT

The multi-disciplinary and diversified information related to the environmental issues, topics and technologies must be properly managed and structured before they can be useful. It is not enough just to be able to link the information using only hyper-text links as is the normal practice in the World-Wide-Web. The information must be organised into hierarchical and relational structure for easy understanding.

More importantly, we must be able to bring into focus any issue or topic and the database system should be able to dynamically organise all related issues and topics around the chosen issue or topic. This allows the user to have a *multicentric view* of the information in the database.

ENSEARCH has adopted the *InfoMap* system

(<http://www.digiweb.com/~infomap>) for the mapping of information in the database. In addition to the ability to fulfil the above requirements the system also possesses unique features to enable a user to gain insights into the information in the database. The system has been developed locally by Ir. Aw Kong Koy and has been adopted by a group of US experts in knowledge management for their knowledge management projects.

## POPULATING THE DATABASE

The success of this database project depends on the willingness of government, non-government organisations, private sector and individuals to contribute environment-related information to the database. Thus, a collaborative network of information providers need to be developed.

The Institute of Strategic and International Studies (ISIS) Malaysia has developed a Meta-database on environment-related information and data in government and statutory bodies with funding from the UNDP. Since the objectives of MEI-NET is in line with ISIS objectives in setting-up the Meta-database ISIS is discussing with ENSEARCH on the possibility of contributing the Meta-database into MEI-NET.

## RESOURCES

Basically, there are 3 resources required for this project. They are:

### **Resource Persons**

Specialist resource persons knowledgeable in the various environmental sectors and technical disciplines are required to define the structure and type of information to be compiled into the database. They are also required to review and edit the database. Thus, ENSEARCH is seeking volunteers from among its members and from the academic community to fulfil this role.

Recognition is given to the resource persons in MEI-NET in the form of editorship of the information-map in a specific environmental sector. The CVs of the resource persons will also be included in MEI-NET and properly mapped in the database. Potential resource persons are requested to contact the ENSEARCH secretariat for further details.

**Information resources**

MEI-NET can be populated with two types of information - public domain and copyrighted. Public domain information can be easily sourced from the Internet. Copyrighted information can be included in MEI-NET through collaborative network partnership. Thus, ENSEARCH is seeking collaborative network partners from among its corporate members and from any government, non-government organisations and private sector, for a potentially synergistic relationship through MEI-NET.

Recognition is given to the collaborative network partners in MEI-NET in the form of owners or compilers of the pertinent information-maps. Information on the network partners will also be included in MEI-NET and properly mapped in the database. Potential collaborative network partners are requested to contact the ENSEARCH secretariat for further details.

**Financial resources**

Full-time database executives are required to do the tedious task of mapping the information in MEI-NET, according to the instructions given by the resource persons. Financial resources need to be found to hire the executives and also to provide the necessary IT infrastructure for the project. Thus, ENSEARCH is seeking financial sponsors and donations from among its members and from any government, non-government organisations and private sector.

Recognition will be given to the financial sponsors in MEI-NET in the form of acknowledgement of the sponsors in the information-map in a particular sector chosen by the sponsor. Information on the sponsors and donors will also be included in MEI-NET and properly mapped in the database. Potential sponsors and donors are requested to contact the ENSEARCH secretariat for further details.

**CURRENT STATUS**

A full-time database executive has been recruited to work on the project in April 1998. She replaces the Canadian intern who work on the project initially for 4 months.

About 1000 letters describing the database project and inviting support and registration of interest have been sent to:

- (i) Members (Individuals & Corporate)
- (ii) Embassies
- (iii) Several companies from the FMM Directory

A Steering Committee has been set-up to over-see the implementation of the project.

***ENVIRONMENTAL  
PROFESSIONAL  
REGISTER OF MALAYSIA  
(EPRM)***

**• OBJECTIVES &  
REGISTRY INFORMATION**

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# ENVIRONMENTAL PROFESSIONALS REGISTER OF MALAYSIA (EPRM)

## FORMATION OF ENVIRONMENTAL PROFESSIONALS REGISTER OF MALAYSIA

The Environmental Professionals Registrar of Malaysia (EPRM) is the first and only environmental professional body in Malaysia. It was established in mid-1995 with the strong support from all participating professional bodies in the environmental field and it was officially launched on 31 July 1995 by YB Datuk Abu Bakar Daud, Deputy Minister of Science, Technology and the Environment. EPRM is governed by the Environmental Professionals Registry Committee whose membership constitute of representative form the major professional bodies involved in environmental activities in Malaysia. Currently, ENSEARCH serves as the Secretariat and provides the necessary administration and secretariat support. The EPRM certifies environmental professional in 4 major fields Environmental Impact Assessment ; Environmental Management System ; Environmental Auditing and Environmental Technology. The EPRM is developed and administered by the Environmental Management & Research Association of Malaysia (ENSEARCH). The EPRM membership acknowledges your thorough understanding and experience of major environmental issues & practices.

## OBJECTIVES :

The objectives of the EPRM :

- To establish a register of qualified environmental professionals in Malaysia
- To certify environmental professionals who are members of the Environmental Professionals Register of Malaysia
- To promote professional, responsible and high quality environmental services for clients seeking advice, consultation, assistance and environmental-related guidance on projects, matters and issues
- To encourage continuing education and learning of the best practices and techniques in the environmental field in order to deliver high quality services to clients
- To foster communications, cooperation, exchange of information and professional engaged in providing consultation, advice and guidance to clients on environmental matters
- To publicise the existence of the EPRM and to conduct other public relations activities to educate other public relations activities to educate members and public on environmental-related matters and issues of the concern to the organisation.

## ENVIRONMENTAL PROFESSIONALS REGISTRY COMMITTEE

The registry committee is the governing body of the Register. It is managed by Office Bearers who have to abide to a set of Rules and Procedures in carrying out their duties. The following are the Office Bearers :

**Chairman :** Ir. K. Kumarasivam (ENSEARCH)

**Registrar :** Janitha Nadarajah (ENSEARCH)

**Members :** Association of Consulting Engineers Malaysia (ACEM)

Association of Environmental Consultants and Contractors of Malaysia (AECCOM)

Bar Council (BC)

Balai Ikhtisas Malaysia (BIM)

Centre for Environmental Technologies (CETEC)

Chartered Institute of Building (CIOB)

Environmental Management & Research Association of Malaysia (ENSEARCH)

Institute of Engineers, Malaysia (IEM)

Institute of Geology (IGM)

Institute of Surveyors, Malaysia (ISM)

Malaysian Bureau of Consultants (MABCON)

Malaysian Institute of Architects (PAM)

Malaysian Institute of Chemists (IKM)

Malaysian Water Association (MWA)

World Wild Fund for Nature (WWF)

Palm Oil Research Institute Malaysia (PORIM)

Standards and Industrial Research Institute of Malaysia (SIRIM)

Confederation of Scientific and Technological Associations in Malaysia (COSTAM)

## BENEFITS OF EPRM MEMBERSHIP

Being registered under EPRM says to your clients, employer and colleagues that you have the ability in solving environment problems. If you are an employer encourage your employees to become EPRM members, it helps to bolster their professional self esteem and improve productivity, also enhances the company's reputation. As an added benefit, ENSEARCH publishes a list of the EPRM members in the Environment Yearbook directory published by ENSEARCH. Being listed in this yearbook will provide you the opportunity to network with others and increase your visibility among peers.

## **EPRM APPLICATION PROCESS**

The EPRM application and assessment are rigorous. You begin by completing a comprehensive application form, which will be assessed by the Registrar of EPRM committee. The assessment report will then be reviewed by the EPRM sub-committee and the submitted to the EPRM Registry Committee for approval. As an applicant you must meet all the eligibility requirements, in addition to documenting your professional experience and development. You may register under one or more of the following 4 major fields :

- *Environmental Impact Assessment (EIA)*  
Registered EIA consultant with DOE or those with approved EIA training and sufficient experience in this field
- *Environmental Management System (EMS)*  
Passed an approved EMS training course or those with sufficient experience in this field
- *Environmental Auditing (EA)*  
Passed an internationally accredited Environmental Auditor Program/Training Course : such as IRCA, EARA, QSA etc

- *Environmental Technology*  
Degree/Post graduate degree followed by adequate experience in the specific area of expertise related to environment

## **EPRM MEMBERSHIP**

There are two categories of members as follows :

- **Individual Membership**  
Membership is applicable to all 4 fields. Requires a nominal processing fee of RM50.00 for each field applied and an annual subscription of RM50.00
- **Institutional Membership**  
Membership is applicable for all 4 fields. Requires a nominal processing fee of RM50.00 for each field applied and an annual subscription of RM300.00

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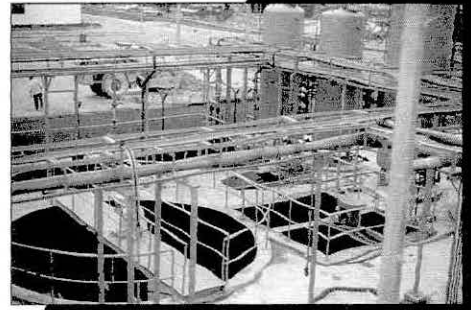
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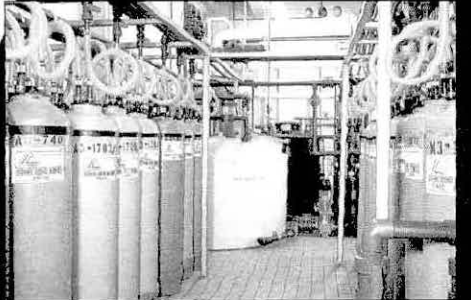
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***ENVIRONMENTAL MARKET***  
***AND***  
***STATE OF ENVIRONMENT***  
***OF MALAYSIA***

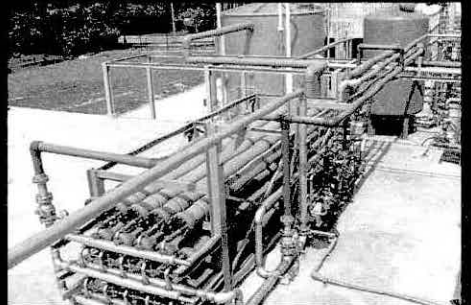
# ENVIRONMENT FRIENDLY SOLUTIONS



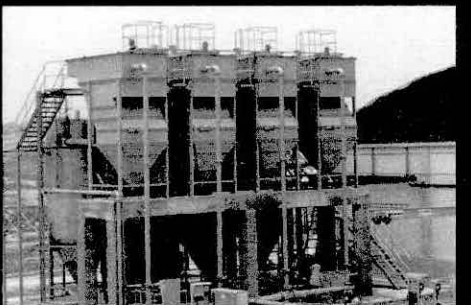
Multi Waste Treatment and Recovery System



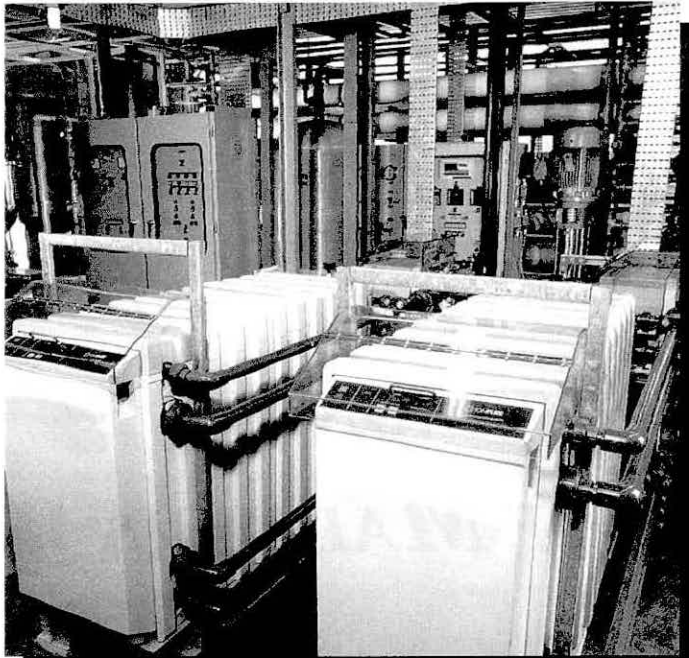
Deionised Water Supply



Industrial Water Treatment System



Dynasand Continuous Filtration System



Ultrapure Water Treatment System

## SYSTEMS FOR

- ULTRAPURE WATER
- PHARMACEUTICAL WATER
- POTABLE WATER
- DESALINATION
- EFFLUENT TREATMENT
- SEWAGE TREATMENT
- WATER RECYCLING
- UV DISINFECTION
- PUMPS
- CARTRIDGE FILTERS & PERMEATORS

## PRODUCTS & SERVICES INCLUDING

- ION EXCHANGE RESINS
- INSTRUMENTATION & CONTROLS
- AERATOR
- WATER TREATMENT CHEMICALS
- DEIONISED WATER SUPPLY
- OIL SPILL DISPERSANTS
- ANALYSIS



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# ENVIRONMENTAL MARKET AND STATE OF ENVIRONMENT OF MALAYSIA

## ECONOMIC DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT

The strong GDP growth rate of 8% over the past few years indicates that the Malaysian economy in the medium- and long-term appears to be relatively bright. The inflation rate was at an enviable level of 3.4% to 3.6%. The manufacturing and construction sectors have been the leaders of growth while the

growth of the agricultural sector was slower. The key economic data for 1995 to 1997 are given in Table 1.

As Malaysia leap-frogs into being an industrialised nation by the year 2020, the rapid urbanisation and industrial activities will increasingly have an impact on the environment that must serve both as the source of raw materials for development and also as a "sink" for pollutants. The

**Table 1: Malaysia - Key Data and Forecasts**

AREA (Square kilometres)						
Malaysia	Peninsular Malaysia		Sarawak		Sabah	
329,758	131,598		124,449		73,711	
<b>POPULATION</b>	1995 million		1996 <sup>1</sup> million		1997 <sup>2</sup> million	
Malaysia	20,689		21,169		21,666	
<b>NATIONAL PRODUCT:</b>	RM million	% growth	RM million	% growth	RM million	% growth
Gross National Product in constant 1978 prices	113,595	9.3	123,252	8.5	132,917	7.8
Consumption expenditure :						
Public	17,568	7.3	17,705	0.8	17,634	-0.4
Private	56,288	9.4	60,037	6.7	63,398	5.6
Gross fixed capital formation :						
Public	16,269	8.4	19,044	17.1	19,815	4.0
Private	39,446	25.4	42,420	7.5	48,233	13.7
Exports of goods and non-factor services	128,837	17.6	133,894	3.9	143,365	7.1
Imports of goods and non-factor services	138,398	21.2	142,982	3.3	151,868	6.2
Gross National Savings (at current prices)	75,881	17.2	91,406	20.5	108,841	19.1
Per capital GNP (at current prices, RM)	10,058	11.2	11,118	10.5	12,171	9.5
<b>DOMESTIC PRODUCT :</b>	RM million GDP	% growth	RM million GDP	% growth	RM million GDP	% growth
Gross Domestic Product in constant 1978 prices	-	9.5	-	8.2	-	8.0
Agriculture, livestock, forestry and fishing	13.5	1.1	12.7	1.6	11.9	1.4
Manufacturing	33.1	14.5	34.5	12.8	36.0	12.5
Mining and quarrying	7.5	9.0	7.1	3.1	6.6	0.9
Construction	4.5	17.3	4.5	9.0	4.5	8.8
Services	44.3	9.4	44.6	8.9	44.9	8.7
<b>BALANCE OF PAYMENTS :</b>	RM million		RM million		RM million	
Current Account	-18,690		-14,771		-11,497	
Merchandise balance (f.o.b.)	233		4,643		10,008	
Services balance	-19,041		-19,423		-21,555	
Transfers	118		9		50	
Long-term capital account	16,181		12,402		-	
Basic balance	-2,509		-2,369		-	
Overall balance	-4,403		1,230		-	

... cont'd

**Table 1: Malaysia - Key Data and Forecasts** (continued)

	1995		1996 <sup>1</sup>		1997 <sup>2</sup>	
	RM million	% growth	RM million	% growth	RM million	% growth
<b>EXTERNAL TRADE :</b>						
Total Exports (f.o.b.)	184,486	20.2	192,606	4.1	210,650	9.4
Rubber	4,038	38.0	3,669	-9.1	3,023	-17.6
Crude petroleum	6,701	2.3	6,862	2.4	5,959	-13.2
Tin	545	8.5	548	0.5	525	-4.1
Palm oil (crude & processed)	10,399	22.7	8,177	-21.4	9,000	10.1
Sawlogs and sawn timber	6,103	-11.2	5,317	-12.9	5,710	7.4
Manufacturers	147,507	22.9	156,068	5.8	173,235	11.0
Total Imports (c.i.f.)	194,344	24.6	197,806	1.8	210,990	6.7
Balance of Trade	-9,358		-5,200		-340	
<b>PRODUCTION OF PRIMARY COMMODITIES:</b>						
	Volume	% growth	Volume	% growth	Volume	% growth
Production:-						
Rubber ('000 tonnes)	1,089	-1.1	1,070	-1.7	1,010	-5.6
Crude petroleum ('000 barrels/ day) <sup>3</sup>	705.4	6.9	706.0	0.1	691.0	-2.1
Tin ('000 tonnes)	6.4	-0.9	6.3	-1.6	6.2	-1.6
Palm oil ('000 tonnes)	7,810	8.2	8,040	-2.9	8,200	2.0
Sawlogs ('000 cu. metres)	31,600	-11.4	31,000	-1.9	30,000	-3.2
<b>INFLATION</b>						
	Index	% growth	Index	% growth	Index	% growth
Consumer Price Index (1990=100)	103.5	3.4	107.2	3.6	110.9	3.5
	1994		1995 <sup>1</sup>		1996 <sup>2</sup>	
<b>LABOUR :</b>						
	Thousand	% growth	Thousand	% growth	Thousand	% growth
Labour Force	8,140.0	3.9	8,398.2	3.2	8,663.2	3.2
Employment :-						
Total	7,915.4	4.1	8,180.8	3.4	8,442.6	3.2
Agriculture	1,428.7	-3.3	1,375.9	-3.7	1,344.6	-2.3
Manufacturing	2,051.6	8.4	2,209.0	7.7	2,325.3	5.3
Government	872.2	0.5	876.6	0.5	880.9	0.5
Unemployment rate <sup>4</sup> (percentage of labour force)	2.8		2.6		2.5	

<sup>1</sup>Estimate.<sup>3</sup>1996 growth is based on 366 days.<sup>2</sup>Forecast.<sup>4</sup>Based on estimates by EPU.

government, industry, NGOs, and consumers have to act collectively to ensure that development takes place in a sustainable manner. The utilisation of the natural resources has to be well planned. Cleaner production programmes, which include the adoption of pollution prevention and cleaner technology approaches, less polluting raw materials and processes, recycling, and waste minimisation technologies, will become increasingly important. Meanwhile, "end-of-pipe" solutions will continue to be the first line of defence for some, when all else fails.

#### ENVIRONMENT MARKET

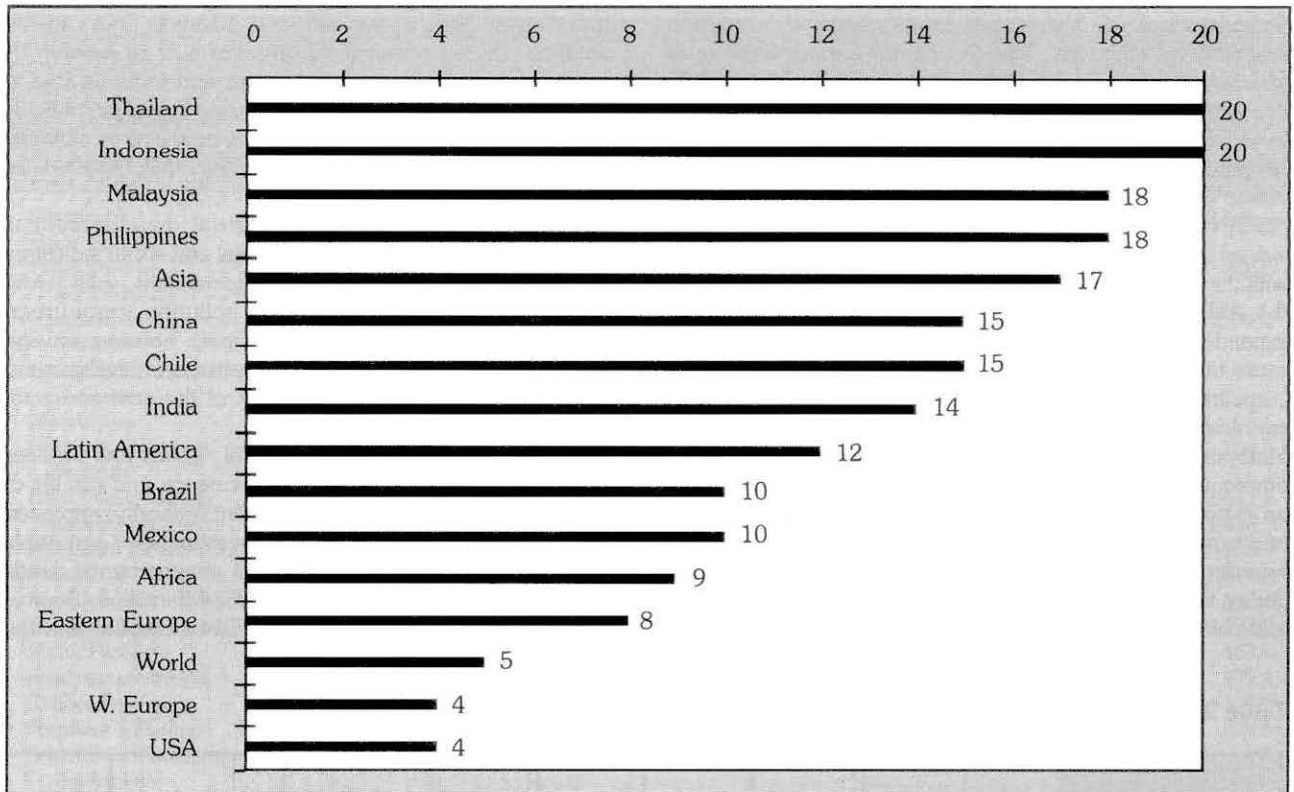
The developing countries produce only 3% of the world environmental market. They possess an infant environmental industry, dispose of low EI/GDP ratio (less than 1%), and environmental enforcement is weak because of other priorities. However, their environmental market is expected to grow at

higher rates, 12% per year on average, and even higher in selected Asian markets (Fig. 1). Malaysia is forecasted to have a 18% growth between 1995-2000.

The Malaysian environmental market is estimated at a value of US\$200 - 400 million (Tomorrow, 1995, Vol. V, No. 3). Although this is a growing market, it is relatively small compared to the other Asian countries. Japan spends US\$55 billion on environmental investment which is equivalent to 80% of the Asian market. The estimated investment in China is about US\$3.5 billion; in South Korea and Taiwan it is about US\$1.5 billion each and in Thailand the market is above US\$600 million. The total Asian market makes up only 18% of the world market which is estimated to be about US\$350 billion (Figure 2).

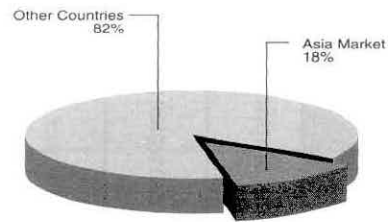
The environmental indicators for ASEAN (Unofficial release, Office of UNEP-EAP/AP) are given in Table 2. These figures give a broad overview of the growing consumption of

**Figure 1: Environmental Market expansion in "new century markets" 1995-2000 (%/y)**



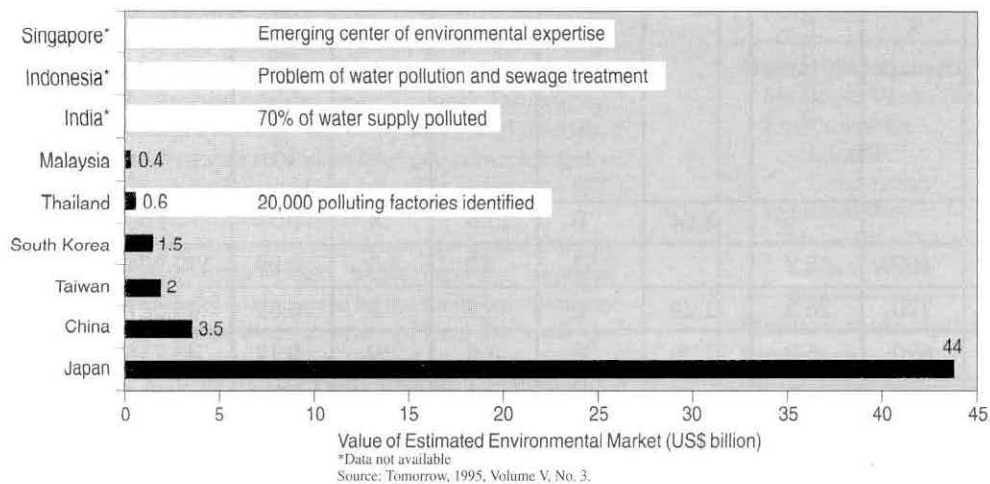
Source: Environmental Business International Inc., San Diego, 1996.

**Figure 2: Environmental Market**



WORLD MARKET = US\$ 350 billion

**ASIA MARKET**



energy and natural resources which indirectly give an indication of the demands made on the biosystems that sustain life. Singapore has the highest per capita energy consumption followed by Malaysia. The per capita annual freshwater withdrawal is highest for Malaysia, followed by Thailand. In the case of internal renewable water resource per capita, Indonesia has the highest figure, followed by Malaysia. Singapore and Indonesia experienced no change in forested areas; Vietnam experienced an increase; while the remaining ASEAN countries had a reduction in the forested areas. There was an insignificant increase in the agricultural areas in ASEAN with the exception of Singapore which experienced a drop. All the ASEAN countries, particularly Vietnam and Thailand, expanded the irarable land with irrigation. Throughout ASEAN, more land was allocated as national protected areas. The contribution to global emissions varied among ASEAN countries, and was closely related to their energy consumption. Malaysia has more than 20 years of experience in the area of environmental management, both as an importer as well as an exporter of environmental pollution control technologies and expertise. In its early years of development, the economy was dependent on agro-based industries and mining of tin. Today, tin is no longer an important commodity but the rubber and palm oil industries continue to contribute to the country's

economy. Being a leader in the world production of these agro-based products means that this sector accounted for approximately 90% of the industrial pollution from organic pollutants. The agro-based industry was able to develop its own technology and treatment systems and today is able to reduce the BOD levels from tens of thousand parts per millions (ppm) to less than 50 ppm. Malaysia is now able to share its expertise in this area with other countries that have similar problems from their agro-activities.

The rapid urban and industrial development is accompanied by a host of environmental and social indicators such as toxic and hazardous wastes generation, solid waste management, air, water and noise pollution, rural-urban migration, labour shortage, utilities supply, housing, sewage treatment, traffic congestion and infrastructure development. These areas make up the main bulk of the environmental investment.

The demand for environmental goods and services can be inferred from economic performance and the list of MIDA (Malaysian Industrial Development Authority) approved projects and the proposed capital investment by industries (Table 3). The 1994 market value of environmental goods and services was estimated at about US\$430 million (Source: Environmental Markets Asia: 1995, ERM Malaysia) and the major sectors are given in Table 4.

**Table 2: ASEAN Environmental Indicators**

ASEAN	Energy consumption/capita (kg of oil equivalent)	Annual freshwater withdrawal per capita (cu m.)	Internal renewable water resources/capita (1000 cu m/yr)	Annual increase/decrease in Forested areas (%)	Annual increase/decrease in Agricultural areas (%)	Nationally protected areas (%)	Irrigated land (as % of arable land area)	Share of global emissions (greenhouse index/10 mil. people)	Roundwood removals ('000 cu m) 1991	Production of Fuelwood ('000 metric tons of coal equivalent)
Brunei	-	-	-	-3.64	0	13.5	14	0.74	295	26
Indonesia	279	100	45.2	-	0.52	10	3.5	0.09	172,984	46,998
Malaysia	1,070	770	26.3	-1.24	0	4.5	7	0.39	49,327	2,906
Philippines	218	690	5.2	-1.76	0.38	1.9	19	0.12	38,738	11,187
Singapore	6,180	80	0.2	0	-16	4.4	-	0.4	-	0
Thailand	438	600	2	-1.08	2.28	10.8	20	0.27	37,940	11,469
Vietnam	-	90	5.6	3.2	0.38	2.7	28	0.1	29,525	8,049

Source: Unofficial release from Office of UNEP-EAP/AP, 1994.

**Table 3: Malaysia: Projects Approved by Industry, 1995 and 1996**

Industry	Number		Potential Employment		Proposed Called-up (RM Million)		Loan (RM Million)		Total Proposed Capital Investment (RM Million)	
	1995	1996	1995	1996	1995	1996	1995	1996	1995	1996
Electrical & Electronic Products	215	194	37,865	39,821	4,010.4	811.7	9,051.5	2,340.1	13,061.9	3,151.8
Paper, printing & Publishing	29	21	4,168	1,824	1,598.2	164.2	2,586.6	182.4	4,184.8	346.6
Chemicals & Chemical Products	55	82	2,640	4,040	1,018.3	265.4	2,323.9	1,634.7	3,342.2	2,900.1
Non-Metallic Mineral Products	35	87	2,809	8,526	637.3	988.9	2,700.7	3,056.6	3,338.0	4,045.5
Natural Gas	1	-	402	-	2,137.0	-	-	-	2,137.0	-
Petroleum Refineries/ Products	5	4	395	374	272.3	262.1	1,303.3	446.1	1,575.6	708.2
Basic Metal products	39	37	3,015	4,233	463.1	958.0	731.7	2,483.0	1,194.8	3,441.0
Transport Equipment	46	59	4,067	5,442	387.7	431.5	795.7	983.2	1,183.4	1,414.7
Fabricated Metal products	60	50	5,231	5,256	436.5	146.0	535.1	410.8	971.6	556.8
Wood & Wood Products	51	78	7,452	2,800	225.0	581.7	597.6	1,292.5	822.6	1,874.2
Machinery Manufacturing	60	36	5,020	3,184	312.7	106.9	264.3	205.7	577.0	312.6
Textiles & Textil Products	38	38	3,807	4,640	132.8	217.2	346.7	417.7	479.5	634.9
Plastic Products	52	76	3,906	4,604	124.4	166.6	257.7	261.0	382.1	427.6
Food manufacturing	30	37	2,620	2,616	117.7	176.4	258.5	323.0	376.2	499.4
Rubber Products	14	35	1,984	2,963	178.3	91.6	62.8	79.6	241.1	171.2
Furniture & Fixtures	30	45	3,924	8,001	56.7	91.1	98.6	146.5	155.3	237.6
Scientific & Measuring Equipment	6	2	1,305	69	11.5	4.0	50.1	0.6	61.6	4.6
Beverages & Tobacco	3	2	212	6	9.9	4.5	19.1	2.3	29.0	6.8
Leather & Leather Products	2	3	2365	559	7.0	26.4	14.8	39.3	21.8	65.7
Miscellaneous	11	12	834	649	48.1	29.9	74.0	39.9	122.1	69.8
<b>Total</b>	<b>782</b>	<b>898</b>	<b>91,891</b>	<b>117,607</b>	<b>12,184.9</b>	<b>6,524.1</b>	<b>22,072.7</b>	<b>14,345.0</b>	<b>34,257.6</b>	<b>20,869.1</b>

Note:- \*Provisional Figures as at January, 1997. Source: MIDA

Based on market estimates, the companies and personnel involved in supplying pollution control technology and services and environmental management expertise, e.g. EIA consultancy, development of management systems are as given in Table 5.

## STATE OF ENVIRONMENT OF MALAYSIA

### WATER QUALITY

Based on DOE Environmental Quality Report 1996 findings, the water quality of most of the river systems in the country suffered from very high levels of suspended solids resulting from earthworks and land-clearing activities (Figure 3). Some of the rivers continued to deteriorate due to the high ammoniacal nitrogen content from livestock farming and domestic discharged sewage. The combined use of prescribed premises control regulations and polluter-pay principle together with locally developed technology helped to reduce the BOD levels from the agro-based industries.

Among the manufacturing sector, the metal finishing and electroplating, rubber-based, textile, food and beverage, and cement industries continued to be the main water polluters (see Figure 4). Most of these sources are from the small- and medium-scale industries which do not have any form of treatment for their discharges. Those who do have treatment systems face operation and maintenance problems and often the systems do not work efficiently.

### AIR QUALITY

The wood-based industries and quarries were the main sources of air pollution (Figure 4). In the urban areas, the air quality

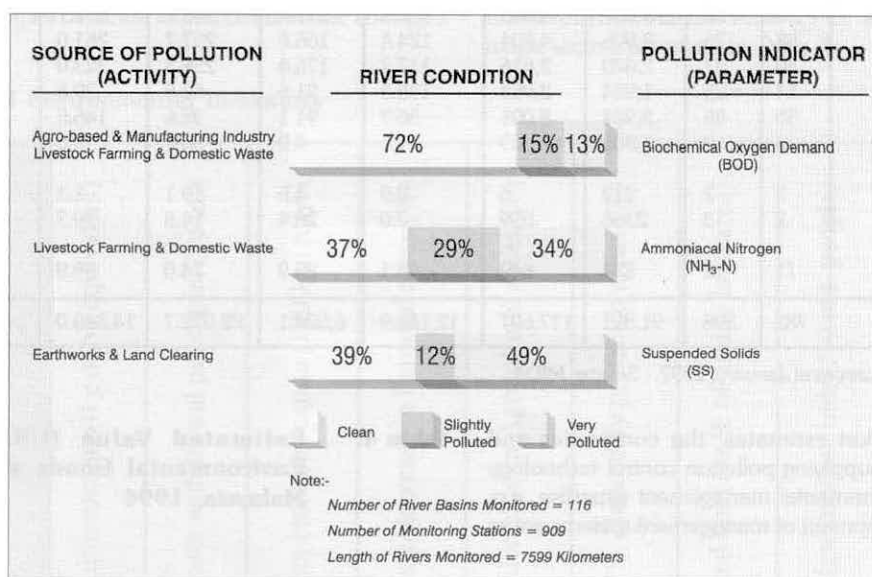
**Table 4: Estimated Value (US\$ million) of Environmental Goods and Services in Malaysia, 1994**

Sector	US\$ million
<b>Wastewater Treatment</b>	
Drainage	28.2
Municipal Sewage	64.0
<b>Waste Management</b>	
Municipal Waste Services	69.0
Equipment for	
- Landfill	86.2
- Incineration	4.4
Industrial Waste	
Hazardous Waste	30.7
Clinical Waste	2.9
<b>Monitoring/Analytical Equipment</b>	28.7
<b>Environmental Services</b>	
Environmental Monitoring	1.6
Laboratory Services	20.7
EIAs	7.7
Others	34.5

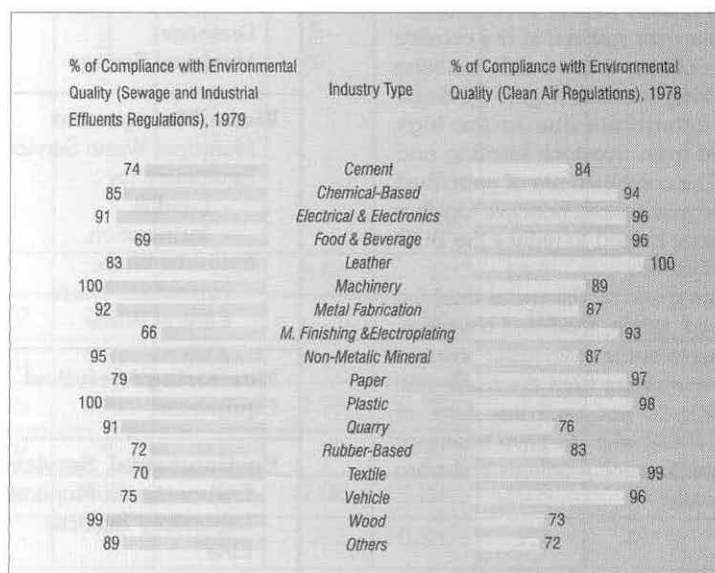
**Table 5: Suppliers of Environmental Pollution Control Technology and Management Services in Malaysia, 1996.**

Specialisation	Contractor	Consultant	Equipment Supplier
Industrial Effluent	40	100	50
Sewage	50	100	
Solid Waste	50	50	-
Air Pollution Control/Noise Abatement	15	10	20
EIA	-	57 - Firms 200 - Individuals	-
SAMM* Accredited Laboratories		= 109	

Key: SAMM = Malaysian Laboratory Accreditation Scheme (Skim Akreditasi Makmal Malaysia)  
Source: Unofficial market estimates

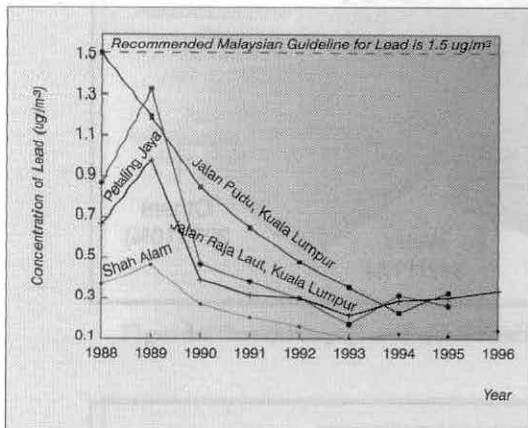


**Figure 3: Status of River Water Quality Based on Activity, 1996.**

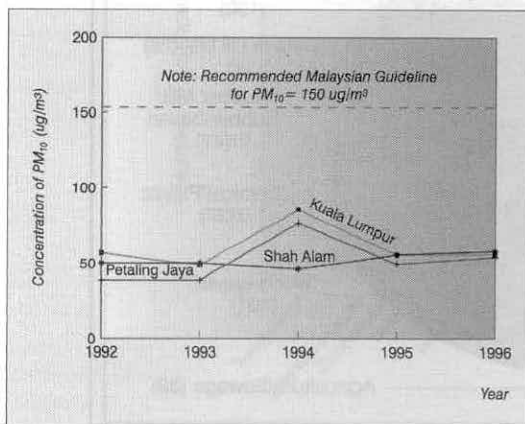


**Figure 4: Compliance Status of Manufacturing Industries, 1996.**

varied depending on the local activities and surrounding topography. The level of lead in the air has decreased mainly due to the reduction of lead in petrol (to unleaded petrol) (Figure 5). SO<sub>x</sub> and NO<sub>x</sub> levels peaked with traffic congestion along busy roads. The Total Suspended Particulates (TSP) level remained high in congested areas (Figure 6). The country was in a shroud of haze, particularly under the influence of transboundary pollutants, for a period of nearly four months in 1996.



**Figure 5: Kuala Lumpur and Selangor: Annual Average Concentration of Lead, 1988-1996.**



**Figure 6: Average Concentration of Total Suspended Particulates (TSP), 1989-1996.**

#### PUBLIC COMPLAINTS

What the public perceives to be pollution may differ somewhat from the actual levels of pollution measured. This may be due to a number of factors such as proximity to source; level of awareness etc. The public complained most about air pollution (Figure 7). Non-industrial sources, construction activities and wood-based industries were the main sources of complaints (Figure 8). Again non-industrial sources were perceived as the main contributor to water pollution, followed by palm oil mills and mining activities (Figure 9).

#### SCHEDULED WASTES

The control and management of scheduled wastes specified in the Environmental Quality (Scheduled Wastes) Regulations were enacted in 1989 under the Environmental Quality Act. Under these Regulations, scheduled wastes are as identified in a list covering 107 categories of wastes.

The first Waste Management Centre (WMC) has been undertaken by a Malaysian-Danish consortium which is building and operating an integrated scheduled waste treatment

and disposal facility located at Bukit Nanas, Negeri Sembilan. This consortium has exclusive rights for 15 years. The WMC has started to collect wastes from industries since August 1996. The facilities are designed to cope with all categories of hazardous wastes except radioactive, explosive and clinical wastes. The project comprises the main treatment facilities and transfer stations which will eventually include:

- An incineration line with a capacity of between 20,000 and 30,000 tonnes annually;
- A physical-chemical treatment line with a capacity of 10,000 to 50,000 tonnes;
- A solidification line of 100,000 to 150,000 tonnes; and
- A controlled landfill for at least 15 year's use.

#### DANISH TECHNOLOGY

This waste management system is based on the Danish technology whereby:

- Industrial wastes will be transported from their sources to transfer stations strategically located in various parts of the country.
- At the transfer stations (which have receiving and storage areas) the wastes will be sorted, weighed and graded into categories.
- The wastes will be stored into containers and transferred to the WMC.
- At the WMC, the wastes will be sampled and tested before undergoing treatment.
- Inorganic wastes will be treated at the physical-chemical plant.
- Organic wastes will be destroyed in an incinerator at temperatures above 1200°C.
- Non-toxic residues from both the physical-chemical plant and the incinerator are either sent directly to a controlled landfill or are further stabilised before disposal.

The Company formed to undertake this project, Kualiti Alam Sdn Bhd, will also be responsible for the collection and transport services from the sites of waste generators to the facilities at WMC.

#### NOTIFICATION OF WASTE GENERATION

The number of waste generators that complied with the mandatory notification requirement of the Scheduled Wastes Regulations increased from 1061 in 1995 to 2252 in 1996. The DOE estimated the total amount of wastes handled to be about 331,000 metric tonnes in 1996. The types and quantities of wastes generated in 1996 are given in Figure 10.

A total of 165 written permission/licences were issued by DOE in 1996 for the setting up of scheduled waste treatment and disposal facilities and for the transportation of the wastes. This number doubled that of 1994 (see Figure 11).

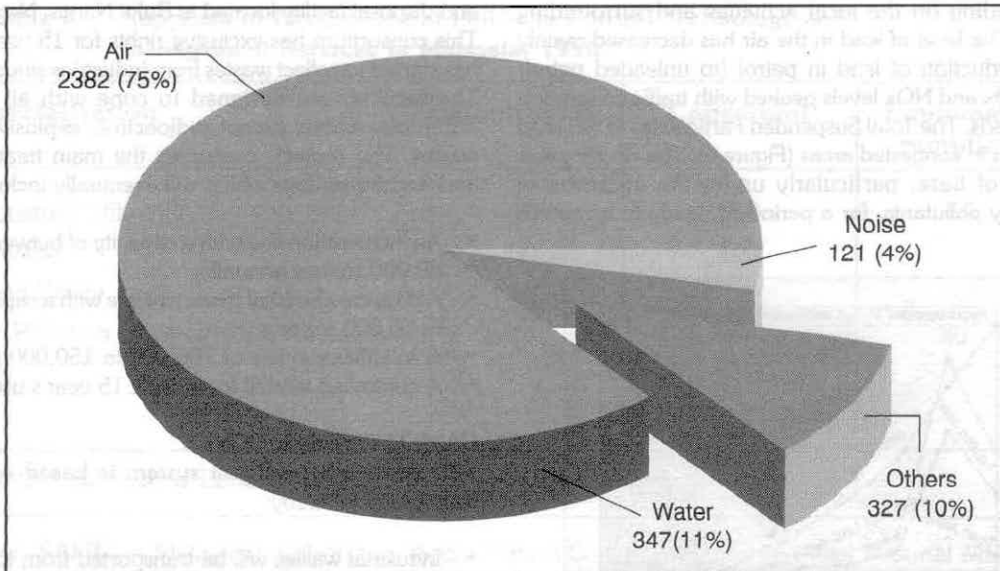
#### POLLUTION ABATEMENT

##### PROSECUTION

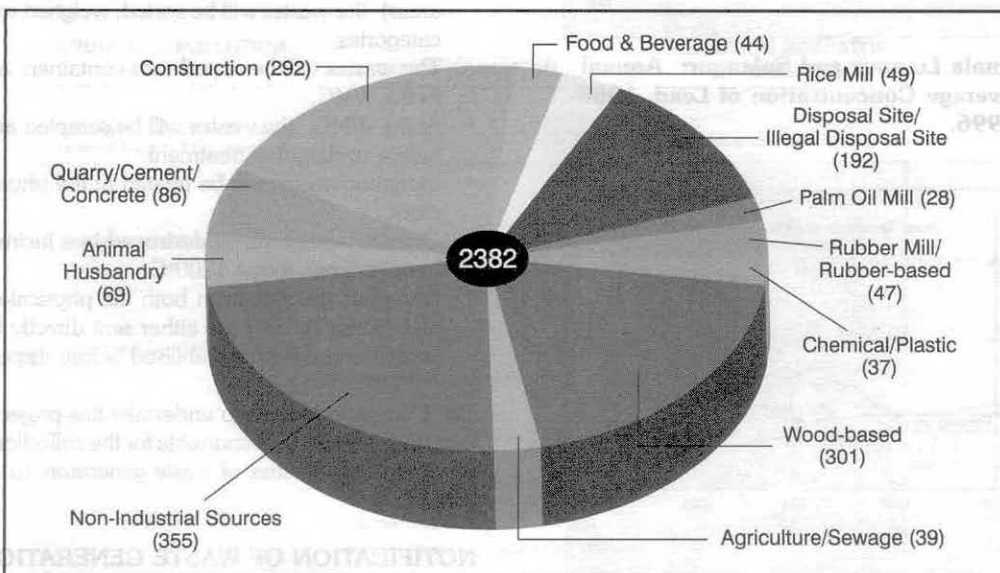
The highest number of court cases filed was in 1996 (Figure 12). 60% of the offences committed involved the discharge of effluents exceeding the stipulated standards given in EQA 1974. The fines collected for the year 1996 amounted to RM1,183,000 which was an increase of 132% over 1995.

##### COMPOUNDS

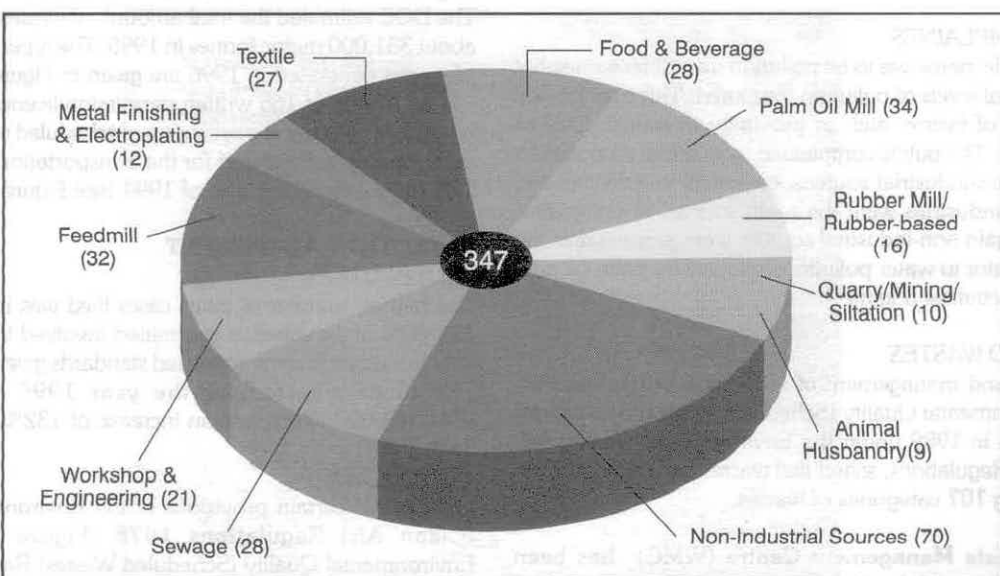
Violation of certain provisions of the Environmental Quality (Clean Air) Regulations 1978 (Figure 13) and the Environmental Quality (Scheduled Wastes) Regulations 1989 (Figure 14) may be compoundable. A total of 2,092



**Figure 7 : Malaysia: Nature of Complaints Received by the Department of Environment, 1996**



**Figure 8 : Malaysia: Sources of Air Pollution Complaints, 1996**



**Figure 9 : Malaysia: Sources of Water Pollution Complaints, 1996**

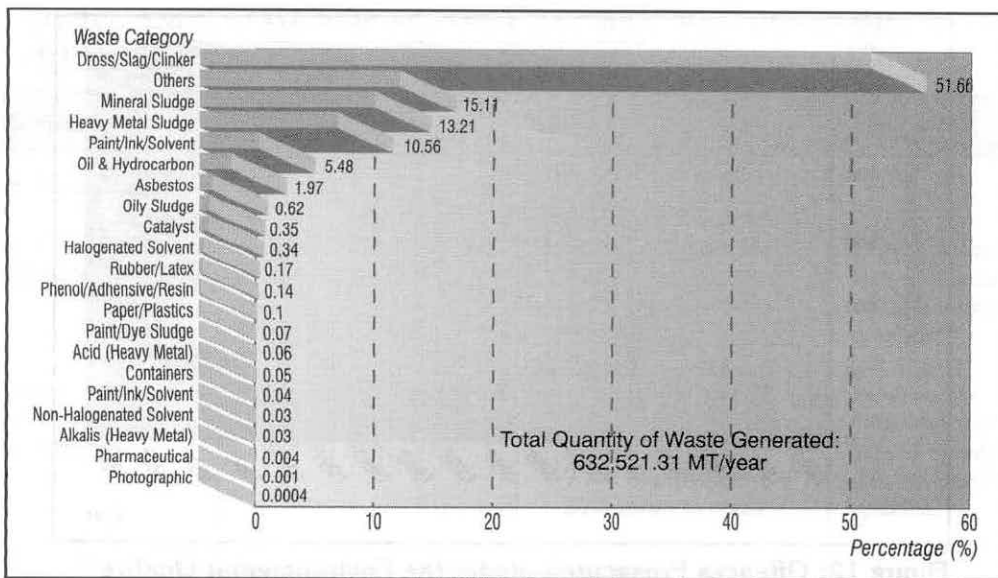


Figure 10: Quantity of Scheduled Wastes Generated by Waste Category, 1996.

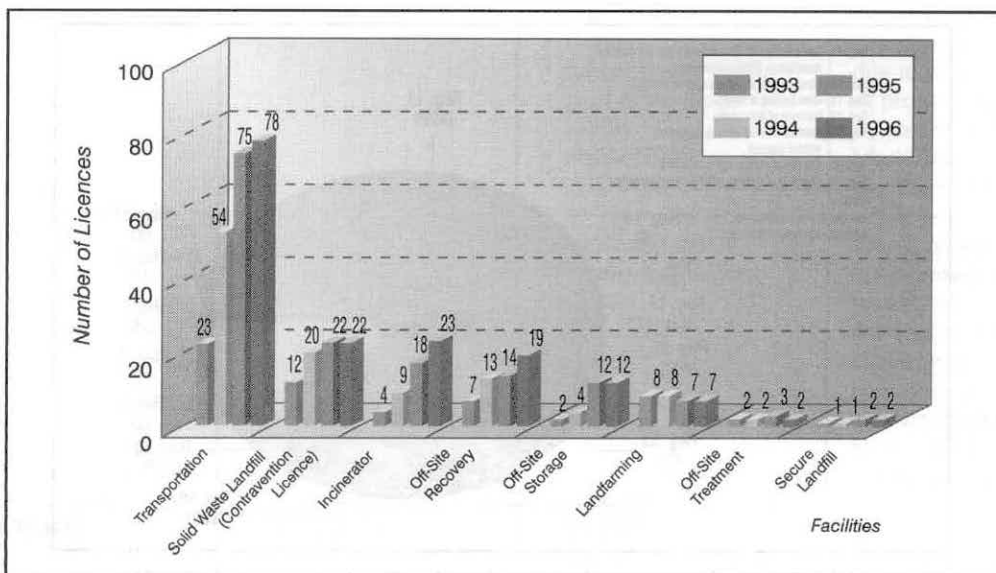


Figure 11: Licences for Scheduled Wastes Treatment and Disposal Facilities and Transportation as issued by the Department of Environment, 1993-1996

compounds were issued in 1996, which was a 10% decrease from the previous year. Of this total, 71% of the compounds were issued under the Clear Air Regulations while the remaining offences involved the handling of scheduled wastes.

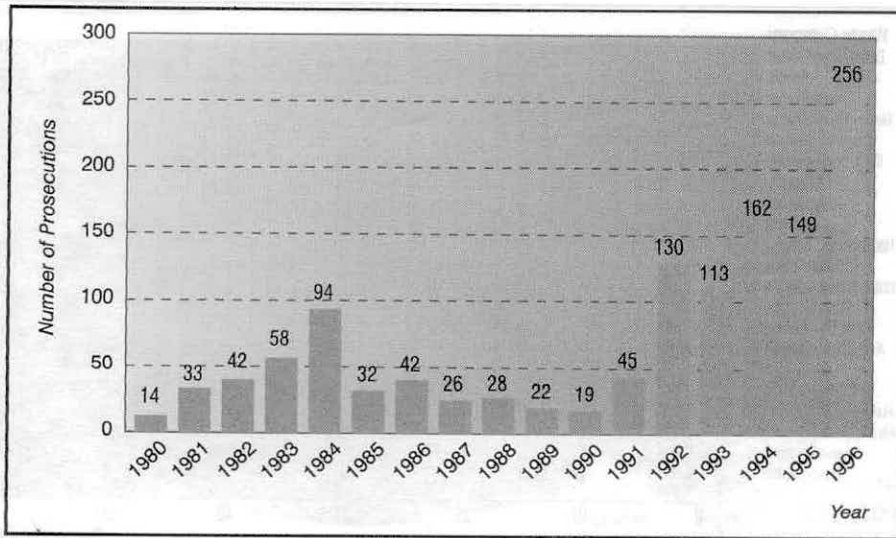
#### CONTRAVENTION LICENCE

Contravention licences are issued to industries who are unable to obtain appropriate treatment technology suitable for treating effluent to meet stipulated standards; in the process of relocating; upgrading their effluent treatment plants; and in the process of constructing/installing pollution control equipment. In 1996, 38 contravention licences were approved for those industries for the reasons cited. A total of 15 applications were rejected primarily due to the lack of information given together with the submission, and other reasons.

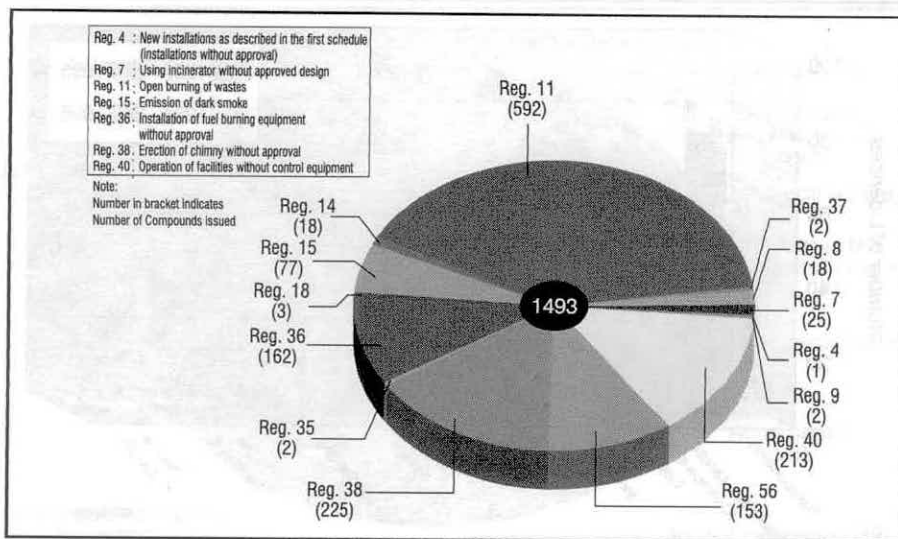
#### COMPLIANCE STATUS

Table 6 summarises the compliance status of the agro-based, manufacturing and motor vehicles sectors to the various regulations made under the Environmental Quality Act 1974. The environmental performance of the agro-based industries have improved considerably over the past 10 years. Today, Malaysians are providing environmental management consultancy services to other countries that face similar pollution problems. Although the number of clean rivers increased from 38 (33%) in 1994 to 42 (36%) in 1996, the river water quality, in general remained poor. The major pollutant was silt due to soil erosion and organic loadings from sewage and animal wastes.

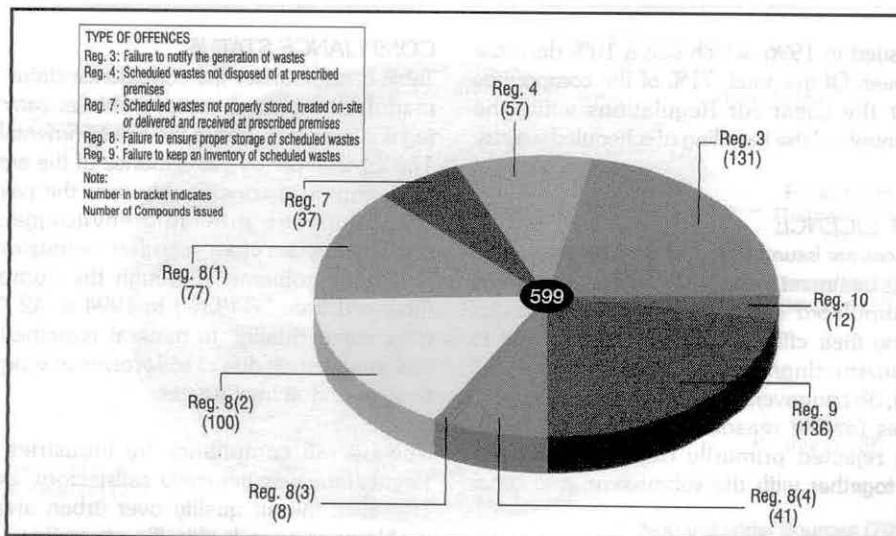
The overall compliance by industries to the Clean Air Regulations was generally satisfactory, except for the SMIs. However, the air quality over urban areas is still a serious problems as a result of traffic congestion.



**Figure 12: Offences Prosecuted (under the Environmental Quality Act, 1974 and Regulations made thereunder) 1980-1996.**



**Figure 13: Cases Compounded (under the Environmental Quality (Clean Air) Regulations 1978) 1996**



**Figure 14: Cases Compounded (under the Environmental Quality (Scheduled Wastes) Regulation 1989) 1996.**

**TABLE 6 : COMPLIANCE STATUS OF AGRO-BASED, MANUFACTURING INDUSTRIES AND MOTOR VEHICLES, 1996**

Industry/Activity	Regulation	Compliance Status	Remarks
<b>Agro-based Prescribed Premises</b> <ul style="list-style-type: none"> <li>Crude Palm Oil Mills (282 licensed mills)</li> </ul>	EQ (PP) (Crude Palm Oil) Reg. 1977	<ul style="list-style-type: none"> <li>78.3% complied to specific regulations</li> <li>3.3% improvement over 1993</li> <li>0% taken to court</li> </ul>	Non-compliance due to lack of maintenance of effluent treatment systems.
<ul style="list-style-type: none"> <li>Raw Natural Rubber processing factories (150 licensed factories)</li> </ul>	EQ (PP) (Raw Natural Rubber) Reg. 1978	<ul style="list-style-type: none"> <li>80.6% complied to specific regulations</li> <li>9.2% improvement</li> <li>20% taken to court</li> </ul>	Non-compliance due to lack of maintenance of effluent treatment systems.
<b>Non-Prescribed Premises</b> All Manufacturing Industries	EQ (Sewage and Industrial Effluents) Reg. 1979	Satisfactory compliance for most industries (Fig.3) with the exception of: <ul style="list-style-type: none"> <li>metal finishing (66%)</li> <li>rubber-based (12%)</li> <li>food &amp; beverage (69%)</li> <li>textile (70%)</li> </ul>	Rubber-based, food & beverage, metal finishing, textile industries encountered compliance problems due to absence or lack of proper wastewater treatment systems. Most SMIs do not have any form of treatment.
All Industries	EQ (Clean Air) Reg. 1978	Compliance rate is generally satisfactory, similar to that of 1995.	Wood, quarry and metal-based industries (mainly steel mills) still encountered problems in operating efficiently and maintaining on-site air pollution control systems.
<b>Scheduled Waste Generators</b>	EQ (Scheduled Wastes) Reg. 1989 (Reg.3)	<ul style="list-style-type: none"> <li>63% (of 2,252 generators) notified DOE</li> </ul>	Increased public awareness of waste management, regulations and enforcement led to improved compliance.
<b>Mobile Sources</b> Motor Vehicle Exhaust Emissions	Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1997	<ul style="list-style-type: none"> <li>84% (of &gt;43,900 vehicles tested) complied</li> </ul>	Lack of vehicle maintenance was the major cause of black smoke emission.
Motor Vehicle Noise	EQ (Motor Vehicle Noise) Reg. 1987	<ul style="list-style-type: none"> <li>39% (of motorcycles tested) complied</li> </ul>	

Key: EQ = Environmental Quality  
 SMIs = Small and Medium-scale Industries

Reg. = Regulations  
 PP = Prescribed Premises

Compiled by Ms. Jenny Tan, (CETEC)

# HUMANS AND ENVIRONMENT

- Our survival, life quality, and economies are totally dependent on the sun and the Earth; the Earth can get along without us, but we can't get along without the Earth (*principle of Earth capital*).
- The Earth does not belong to us; we belong to the Earth (*humility principle*).
- We should try to understand and work with the rest of nature to sustain the ecological integrity, biodiversity, and adaptability of Earth's life-support systems for us and other species (*sustainability principle*).
- When we alter nature to meet our needs or wants, we should choose the method that does the least possible harm to us and other living things (*least-harm principle*).
- Every species has a right to live, or at least to struggle to live, simply because it exists (*rights of species principle*).
- The best way to protect species and individual organisms is to protect the ecosystems in which they live (*principle of ecosystem protection*).
- We should not inflict unnecessary suffering or pain on any animal we raise or hunt for food or use for scientific or other purposes (*principle of humane treatment of animals*).
- We can learn a lot about how nature works, but nature is so incredibly complex and dynamic that such knowledge will always be limited (*principle of complexity*).
- In nature, we can never do just one thing; everything we do created effects that are often unpredictable (*first law of human ecology*).
- Everything is connected to and intermingled with everything else; we are all in this together; we need to understand these connections and discover which connections are most important for sustaining life on earth (*principle of interdependence or connectedness*).
- Most resources are limited and should not be wasted; there is not always more, and it is not all for us (*principle of resource conservation*).
- Living off renewable solar energy and renewable matter resources is a sustainable human lifestyle; using renewable matter resources faster than they are replenished, and living off nonrenewable matter and energy resources, degrade and deplete Earth capital and ultimately constitute an unsustainable lifestyle (*principle of sustainable living*).
- Renewable resources should be used no faster than they are replenished by natural processes (*principle of sustainable yield*).
- Nonrenewable resources should be used no faster than renewable substitutes can be developed (*principle of renewable resource substitution*).
- Increases in population, resource use, or both can eventually overwhelm attempts to control pollution and manage wastes (*environmental-impact principle*).
- Pollution prevention and waste reduction are the best and cheapest ways to work with the Earth. The best way to reduce pollution and waste is to not produce so much (*principle of pollution prevention and waste reduction*).
- Pollution and wastes should not be put into the environment faster than the environment can degrade and recycle them or render them harmless (*principle of optimum pollution*).
- We should change Earth-degrading and Earth-depleting manufacturing processes, products, and businesses into Earth-sustaining ones by using economic incentives and penalties (*principle of economic-ecological sustainability*).
- The market price of a product should include all estimated present and future costs of any pollution, environmental degradation, or other harmful effects connected with it that are passed on to society, the environment, and future generations (*principle of full cost pricing*).
- Anticipating and preventing problems is cheaper and more effective than reacting to and trying to rectify them; an ounce of prevention is worth a pound of cure (*precautionary principle*).
- History shows that the most important changes brought about by human actions come from the bottom up, not from the top down (*individuals matter principle*).
- We should think globally and act locally (*principle of change*).

Source : *Living in the Environment*, G-Tyler Miller, R : Wadsworth 1996

# ***MEMBERSHIP DIRECTORY***

## ***INSTITUTIONAL MEMBERS LISTINGS***

- ***ENSEARCH***
  - ***CETEC***
- ***COMPANY PROFILE***

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68000 Ampang  
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(M/ship No: 0508)

### **Arachem (M) Sdn Bhd**

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(M/ship No: 0746)

### **Arup Jururunding Sdn Bhd**

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Bandar Sri Damansara  
52200 Kuala Lumpur  
Tel: 03-6332223 (6 lines)  
Fax: 03-6332227  
(M/ship No: 0501)

### **ASEAN Bintulu Fertilizer Sdn Bhd**

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P O Box 482, 97008 Bintulu  
Sarawak  
Tel: 086-252300 (12 lines)  
Fax: 086-251043, 251955  
(M/ship No: 0442)

### **BCP Far East Sdn Bhd**

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2 Jalan Sultan Sullaiman  
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Fax: 03-2735295  
(M/ship No: 0584)

### **Bintulu Development Authority**

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### **Bredero Price (Malaysia) Sdn Bhd**

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Tel: 03-5507800  
Fax: 03-5596563, 5597898  
(M/ship No: 0446)

### **Coffey (Malaysia) Sdn Bhd**

50A Jalan USJ 10/1B  
Taipan Triangle  
47600 UEP Subang Jaya  
Tel: 03-7324213  
Fax: 03-7324253  
(M/ship No: 0800)

### **Connel Bros. Co. Ltd.**

23 Jalan PJS 7/21  
Bandar Sunway Technology Park  
46150 Petaling Jaya  
Tel: 03-7330900  
Fax: 03-7338678  
(M/ship No: 0768)

### **Conwaste Disposal Services Sdn Bhd**

P O Box 7088, Jalan Pahat 16/8A  
40702 Shah Alam  
Selangor Darul Ehsan  
Tel: 03-5504008  
Fax: 03-5597416  
(M/ship No: 0245)

### **Det Norske Veritas AS Sdn Bhd**

Level 24, The Weld Tower  
76 Jalan Raja Chulan  
50200 Kuala Lumpur  
Tel: 03-4676900, 2068900  
Fax: 03-4691925  
(M/ship No: 0577)

### **Edtech Associates Sdn Bhd**

No. 123-L, Jalan Macalister  
P O Box 163  
10720 Penang  
Tel: 04-2295986  
Fax: 04-2289410  
(M/ship No: 0564)

### **Engineering and Environmental Consultants Sdn Bhd**

No. 31, Lorong Rahim Kajai 13  
Taman Tun Dr Ismail  
60000 Kuala Lumpur  
Tel: 03-7188705  
Fax: 03-7173164  
(M/ship No: 0440)

**Envirex (M) Sdn Bhd**

No. 38B, 3rd Floor  
Lorong Gelugor, Kawasan 18  
41300 Klang  
Tel: 03-3421844  
Fax: 03-3422387  
(M/ship No: 0556)

**Envirochem Consultants Sdn Bhd**

9th Floor, Wisma Sime Darby  
14 Jalan Raja Laut  
50350 Kuala Lumpur  
Tel: 03-2940941  
Fax: 03-2938773  
(M/ship No: 0594)

**Environmental Resources  
Management (ERM) Malaysia  
Sdn Bhd**

7.01, 7th Floor, Plaza Kelanamas  
19 Lorong Dungun  
50490 Kuala Lumpur  
Tel: 03-9259830  
Fax: 03-9259377  
(M/ship No: 0750)

**EPA Management Sdn Bhd**

P.O. Box 705  
80990 Johor Bahru  
Tel: 07-8611611  
Fax: 07-8611701  
(M/ship No: 0780)

**Esso Production Malaysia  
Incorporated**

Menara Esso  
Off Jalan Kia Peng  
502450 Kuala Lumpur  
Tel: 03-3802000, 2032000  
Fax: 03-3803401, 2033400  
(M/ship No: 0124)

**FPG Oleochemicals Sdn Bhd**

Lot 3831, Kuantan Port Industrial Area  
Tanjung Gelang  
P O Box 26, 26080 Kuantan  
Pahang Darul Makmur  
Tel: 09-5833901/721  
Fax: 09-5833633/190  
(M/ship No: 0478)

**Fraunhofer Asia KL (NRCC)**

Letter Box 203  
Suite 203, 2nd Floor, Menara Merais  
No. 1 Jalan 19/3  
46300 Petaling Jaya  
Tel: 03-7560873, 7541479  
Fax: 03-7544270  
(M/ship No: 0742)

**Fugro Geosciences (M) Sdn Bhd**

No. 15, Jalan PJS 11/14  
Bandar Sunway  
46150 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7341802  
Fax: 03-7341876  
(M/ship No: 0425)

**Geoplus Lining Sdn Bhd**

No. 45, Jalan SS2/30  
47300 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7753669  
Fax: 03-7753901  
(M/ship No: 0485)

**Golden Hope Plantations Bhd**

P.O. Box 11043  
50743 Kuala Lumpur  
Tel: 03-2619022  
Fax: 03-2618221  
(M/ship No: 0805)

**Harris Advance Technology  
(M) Sdn Bhd**

P O Box 12311  
50774 Kuala Lumpur  
Tel: 03-4566011/4566011  
Fax: 03-4579240  
(M/ship No: 0281)

**Hexagon Holdings Bhd**

P.T. 3266 Jalan AM1  
Arab-Malaysian Industrial Estate  
71800 Nilai  
Negeri Sembilan  
Tel: 06-7942000  
Fax: 06-7942019  
(M/ship No: 0662)

**Hitachi Air-Conditioning  
(M) Sdn Bhd**

No. 10, Jalan Kemajuan  
Bangi Industrial Estate  
43650 Bandar Baru Bangi  
Selangor Darul Ehsan  
Tel: 03-8256611  
Fax: 03-8256511  
(M/ship No: 0488)

**Hyder Consulting Sdn Bhd**

20th Floor, Plaza Pengkalan  
3rd Mile, Jalan Ipoh  
51200 Kuala Lumpur  
Tel: 03-4421622  
Fax: 03-4438677  
(M/ship No: 0621)

**ICI (M) Holdings Sdn Bhd**

9th Floor, Wisma Sime Darby  
P.O. Box 10284, Jalan Raja Laut  
50350 Kuala Lumpur  
Tel: 03-2919366  
Fax: 03-2948208  
(M/ship No: 0369)

**Indah Water Konsortium Sdn Bhd**

36th Floor, Empire Tower  
No. 182, Jalan Tun Razak  
50400 Kuala Lumpur  
Tel: 03-2636118  
Fax: 03-2636328  
(M/ship No: 0691)

**Jebsen & Jessen Engineering  
(M) Sdn Bhd**

No. 16, Jalan 51A/225  
P.O. Box 545  
46760 Petaling Jaya  
Tel: 03-7763722  
Fax: 03-7759130  
(M/ship No: 0466)

**KH-Base Sino Technology (M)  
Sdn Bhd**

1010 Jalan Baru  
Taman Bunga Raya  
14000 Bukit Mertajam, Penang  
Tel: 04-3996948/3975219  
Fax: 04-3996945  
(M/ship No: 0710)

**Kemtek Sdn Bhd**

No. 13-17D, Jalan Petaling Utama 7  
7th Mile, Old Klang Road  
46000 Petaling Jaya  
Tel: 03-7948417/19/20/21  
Fax: 03-7948423/22  
(M/ship No: 0449)

**Kota Minerals & Chemicals  
Sdn Bhd**

No. 2 Jalan Tengku Ampuan  
Zabedah 9/A  
P O Box 7618  
40722 Shah Alam  
Tel: 03-5506118  
Fax: 03-5508918  
(M/ship No: 0467)

**KTA Tenaga Sdn Bhd**

Level 5, Uptown 2  
Damansara Uptown  
No. 2, Jalan SS 21/37  
Damansara Utama  
47400 Kuala Lumpur  
Tel: 03-9263333  
Fax: 03-9263322  
(M/ship No: 0386)

**Kualiti Alam Sdn Bhd**

17th Floor, Menara Dua  
Faber Towers, Taman Desa  
Off Jalan Kelang Lama  
58100 Kuala Lumpur  
Tel: 03-7809199  
Fax: 03-7801811  
(M/ship No: 0514)

**Lagenda Mesra Sdn Bhd**

1339 Jalan Mengkuang Berapit  
14000 Bukit Mertajam  
Tel: 04-3999354, 5397941  
Fax: 04-3988513  
(M/ship No: 0778)

**Linatex Rubber Products Sdn Bhd**

6 1/2 Mile, Jalan Ipoh  
68100 Batu Caves  
Tel: 03-6217888  
Fax: 03-6202171  
(M/ship No: 0527)

**M-SMM Electronics Sdn Bhd**

Lot 7-9, Jalan Ragun 15/17  
40000 Shah Alam  
Tel: 03-5598140  
Fax: 03-5598110  
(M/ship No: 0409)

**MAB Environmental Consultants Sdn Bhd**

Suite 501, 5th Floor  
Loke Yew Building  
Jalan Mahkamah Persekutuan  
50050 Kuala Lumpur  
Tel: 03-2978688, 2982262  
Fax: 03-2933293, 2977288  
(M/ship No: 0578)

**Majlis Perbandaran Petaling Jaya**

Jalan Yong Shook Lin  
46675 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7563544  
Fax: 03-7581494  
(M/ship No: 0313)

**Malaysian Environmental Services Sdn Bhd**

Room 415, Wisma Daimai  
Taman Sentosa, 80150 Johor Bahru  
Johor Darul Takzim  
Tel: 07-3349057  
Fax: 07-3330512  
(M/ship No: 0511)

**Malaysian Oxygen Berhad**

No. 13, Jalan 222  
46100 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7554233  
Fax: 03-7585170  
(M/ship No: 0355)

**MEMC Electronics Materials Sdn Bhd**

No. 1, Jalan SS8/2  
Sungei Way Free Trade Zone  
47300 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7773277  
Fax: 03-7745246  
(M/ship No: 0268)

**Merck (M) Sdn Bhd**

No. 74, Jalan Universiti  
46200 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7587022  
Fax: 03-7570459  
(M/ship No: 0569)

**MHES Sdn Bhd**

Wisma MHES  
No. 61, Jalan SS25/2  
Taman Bukit Mas  
47301 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7037117  
Fax: 03-7033425  
(M/ship No: 0273)

**Minconsult Sdn Bhd**

No. 14, Jalan 20/16A  
Paramount Garden  
46300 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7765233  
Fax: 03-7769676  
(M/ship No: 0011)

**Motorola (M) Sdn Bhd**

Sungei Way Free Trade Zone  
P O Box 1001, Jalan Semangat  
46960 Petaling Jaya  
Tel: 03-7731133 ext. 4333  
Fax: 03-7731045  
(M/ship No: 0367)

**Motorola Malaysia Sdn Bhd (Penang)**

Phase 3, Free Trade Zone  
11700 Bayan Lepas  
Penang  
Tel: 04-8504107, 6451867  
Fax: 03-6438716  
(M/ship: 0791)

**NEC Semiconductors (M) Sdn Bhd**

Teluk Panglima Garang  
FTZ, 9 1/2 Miles, Jalan Banting  
P.O. Box 121  
42507 Kuala Langat  
Selangor Darul Ehsan  
Tel: 03-3526023  
Fax: 03-3526294  
(M/ship No: 0513)

**Nippon Electric Glass (M) Sdn Bhd**

Lot 1-7, Lion Industrial Park  
Pesiaran Jubli Perak  
PO Box 7216  
40706 Shah Alam  
Selangor Darul Ehsan  
Tel: 03-5410855  
Fax: 03-5110881  
(M/ship No: 0543)

**Ocned Water Technology Sdn Bhd**

23-7, 6th Floor  
Subang Business Centre  
Jalan USJ 9/5Q  
UEP Subang Jaya  
47620 Petaling Jaya  
Tel: 03-7242826  
Fax: 03-7242820  
(M/ship No: 0788)

**Organo (Asia) Sdn Bhd**

Lot 49, Jalan Bagan Terap 26/11  
Seksyen 26  
Kaw. Perindustrian Hicom  
40000 Shah Alam  
Tel: 03-5116666  
Fax: 03-5116707/8  
(M/ship No: 0809)

**Perbadanan Pembekalan****Letrik Sarawak (SESCO)**

Peti Surat 149  
93700 Kuching  
Sarawak  
Tel: 082-441188  
Fax: 082-444433  
(M/ship No: 0484)

**PETRONAS**

Level 44, Tower 1  
PETRONAS Twin Towers  
Kuala Lumpur City Centre  
50088 Kuala Lumpur  
Tel: 03-2065500  
Fax : 03-2073194  
(M/ship No: 0363)

**Polyscientific Enterprise Sdn Bhd**

272 Taman Asean  
Batu 3 1/2  
Jalan Malim  
75250 Melaka  
Tel: 06-3350690  
Fax: 06-3351631  
(M/ship No: 0704)

**PORIM**

P O Box 10620  
50720 Kuala Lumpur  
Tel: 03-8259155  
Fax: 03-8259446  
(M/ship No: 0174)

**Ranhill Bersekutu Sdn Bhd**

Wisma Ranhill  
No. 2-12, Jalan Setiawangsa 10  
Taman Setiawangsa  
54300 Kuala Lumpur  
Tel: 03-4522026  
Fax: 03-4566880, 4515037  
(M/ship No: 0376)

**Sarawak Shell Berhad**

c/o TAS/3  
Locked Bag No. 1  
98009 Miri, Sarawak  
Tel: 085-452179  
Fax: 085-452030  
(M/ship No: 0394)

**SEGHERS** better technology  
or Water N.V.

Malaysia Representative Office:  
T035, 3rd Floor, Sungei Wang Plaza  
Jalan Sultan Ismail  
55100 Kuala Lumpur  
Tel: 03-6513424  
Fax: 03-6513424  
(M/ship No: 0833)

**Sepakat Setia Perunding (Sdn.) Bhd**

Wisma SSP, Level 8-18  
No. 1 Jalan SR 8/3  
Serdang Raya Seksyen 8  
43300 Seri Kembangan  
Tel: 03-9433366  
Fax: 03-9432691  
(M/ship No: 0476)

**SHELL Companies of Malaysia  
Sdn Bhd**

Bangunan Shell  
Off Jalan Semantan  
Damansara Heights  
P O Box 11027  
50732 Kuala Lumpur  
Tel: 03-2559144  
Fax: 03-2512957  
(M/ship No: 0269)

**Sika Kimia Sdn Bhd**

Lot 689 Nilai Industrial Estate  
71800 Nilai  
Negeri Sembilan  
Tel: 06-7991762  
Fax: 06-7991980  
(M/ship No: 0747)

**SMHB Sdn Bhd**

No. 38 Jalan 1/76  
Desa Pandan  
55100 Kuala Lumpur  
Tel: 03-9839766  
Fax: 03-9839648  
(M/ship No: 0392)

**Sterling Fluid Systems (M) Sdn Bhd**

Lot 778, S/L 4  
Jalan Subang 4  
Sungai Penaga Industrial Park  
47500 Petaling Jaya  
Tel: 03-7389468-71  
Fax: 03-7389472  
(M/ship No: 0825)

**Tioxide (Malaysia) Sdn Bhd**

Kawasan Industri Teluk Kalung  
P O Box 29  
24007 Kemaman  
Terengganu  
Tel: 09-8631688  
Fax: 09-8631988  
(M/ship No: 0379)

**Tiram Kimia Sdn Bhd**

1st Floor, Bangunan BNH  
P O Box 11027, Jalan Semantan  
50732 Kuala Lumpur  
Tel: 03-2548260, 2548611  
Fax: 03-2540607  
(M/ship No: 0614)

**TNRB**

3rd Floor  
Engineering Building  
Uniten, Jalan Serdang  
43009 Kajang  
Tel: 03-8263677  
Fax: 03-8263561  
(M/ship No: 0445)

**UMW Industries Sdn Bhd**

Jalan Utas (15/7)  
P O Box 7052  
40915 Shah Alam  
Selangor Darul Ehsan  
Tel: 03-5591201  
Fax: 03-5509681  
(M/ship No: 0433)

**Westfalia Separator (SEA) Pte Ltd**

No. 87 Defu Lane 10  
The Exalibur #05-00  
Singapore  
Tel: (65)-2836834  
Fax: (65)-2832349  
(M/ship No: 0622)

**Woodward-Clyde (Malaysia)  
Sdn Bhd**

2nd Floor, 9 Medan Setia  
Plaza Damansara  
Bukit Damansara  
50490 Kuala Lumpur  
Tel: 03-2541322  
Fax: 03-2541078  
(M/ship No: 0686)

# CETEC

## LIST OF CORPORATE MEMBERS

### **Det Norske Veritas AS Sdn Bhd**

Level 24, The Weld Tower  
76 Jalan Raja Chulan  
50200 Kuala Lumpur  
Tel: 03-4676900  
Fax: 03-4691925  
(M/ship No: 0047)

### **Environmental Science & Research (ESR) Ltd**

P O Box 12-444  
Wellington  
New Zealand  
Tel: 644-4990540  
Fax: 644-4990541  
(M/ship No: 0043)

### **Majlis Bandaraya Ipoh**

Dewan Bandaraya Greentown  
Peti Surat 1009  
30820 Ipoh  
Perak Darul Ridzuan  
Tel: 05-2413631  
Fax: 05-2417396  
(M/ship No: 0031)

### **MEMC Electronics Materials Sdn Bhd**

No. 1, Jalan SS 8/2  
Sungei Way Free Trade Zone  
47300 Petaling Jaya  
Tel: 03-7773277  
Fax: 03-7745246  
(M/ship No: 0016)

### **PS Konsultant**

1st Floor, Jalan Keretapi  
P O Box 2728  
93754 Kuching  
Sarawak  
Tel: 082-244876  
Fax: 082-259678  
(M/ship No: 0015)

### **Trade Research Associates Sdn Bhd**

07-B1, Vistana Condo  
Jalan Taiping  
Kuala Lumpur  
(M/ship No: 0049)

### **Universiti Sains Malaysia**

Chancellory  
Universiti Sains Malaysia  
11800 Penang  
Tel: 04-6577888  
Fax: 04-6574854  
(M/ship No: 0030)

### **Yomart Environmental Systems (M) Sdn Bhd**

4936 Jalan Siram  
Desa Siram  
12100 Butterworth  
Panang  
Tel: 604-3312945  
Fax: 604-3319678  
(M/ship No: 0025)

### **Zaid Ibrahim & Co.**

12th Floor, Menara Bank Pembangunan  
Jalan Sultan Ismail  
50250 Kuala Lumpur  
Tel: 03-2926688  
Fax: 03-2981632  
(M/ship No: 0029)



# Alam Sekitar Malaysia Sdn. Bhd. (265586-W)

P.O. Box 7880, 40730 Shah Alam, Selangor Darul Ehsan  
 Tel: 603-2946500/012-2383511 (General Enquiry) Fax: 603-2946511  
 E-mail: info@enviromalaysia.com.my

## KEY PERSONNEL

### BOARD OF DIRECTORS

- Tuan Haji Zaid bin Haji Abdullah,  
Chairman (Malaysia)
- Puan Hajjah Zaidah Binti Mohd Salleh (Malaysia)
- Mr. Monty Lee Davis (Canada)
- Mr. Donald Gilbert Colley (Canada)
- Dato' Kok Wee Kiat (Malaysia)
- Dato' Dr. A. Bakar bin Jaafar,  
Managing Director (Malaysia)

## ASSOCIATES / BRANCHES

- Shah Alam (HQ)
- Shah Alam, Kuantan, Prai, Batu Pahat, Miri (Field Office)

## DATE ESTABLISHED

28 May 1993

## GENERAL DESCRIPTION

ASMA is a joint venture initiative between Progressive Impact Corporation Sdn. Bhd. of Malaysia (75%) and BOVAR Inc. of Canada (25%). Since its inception in May 1993, ASMA has been committed to providing world-class cost-effective solutions aimed at addressing the specific environmental needs and requirements of clients and customers. In April 1995, the Government of Malaysia, via the Department of Environment, under MOSTE, awarded ASMA a twenty-year privatisation concession to install, operate and maintain a network of 50 Continuous Air Quality Monitoring (CAQM) stations and 10 Continuous Water Quality Monitoring (CWQM) stations throughout Malaysia. In addition, ASMA was also mandated to take over the manual air and water quality monitoring operations of the DOE, besides managing an Environmental Data Centre (EDC), designed to provide reliable and regular data on the status of air and water quality to the DOE and other interested parties like environmental consultants, contractors and corporations. Over the years, ASMA has steadily grown in size and in scope, and is now strategically placed to provide environmental services, covering a wide range of subjects and sectors.

## PERSONNEL

A total of 60 staff members, comprising 50 professional staff from diverse disciplines, and 10 administrative staff. Key staff include the following:

- Dato' Dr. A. Bakar bin Jaafar, Managing Director
- Dr. Tong Soo Loong, Senior Manager, Water Quality (H/p: 018-8232088)
- Mr. Craig Snider, Manager, Air Quality (H/P: 012-2089641)
- Dr. Martin Abraham, Manager, Environmental Research, Development & Consultancy (H/P: 018-8211261)
- Mr. Md. Jasni Bakhtar, Manager, Enviro-Information Technology (H/P: 013-3612257)
- Mr. Joseph Brigan, Training Coordinator
- Mrs. Sue Chang Siew, Accounts Manager
- Ms Zainey Zanudin, Business Development Executive (H/P: 019-3227404)
- Mrs. Norlinda Mohd Zawawi, Environmental Auditor & Consultant (H/P: 017-8734576)

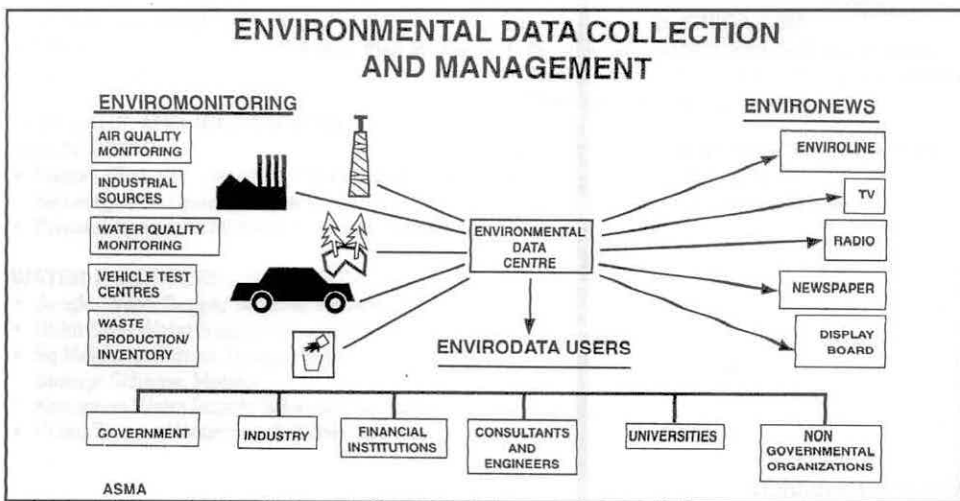
## MAIN ACTIVITIES

Specialised environmental services provided by ASMA include, inter alia, the following:

- Air Quality Monitoring
- Water Quality Monitoring
- Emission, Effluent and Waste Monitoring & Management
- Enviro-Planning & Policy
- Enviro-Assessment & Audit
- Enviro-Performance Evaluation
- Enviro-Project Implementation
- Enviro-Monitoring & Reporting
- Enviro-Information Products
- Baseline Data for EIAs
- State of the Environment Reports
- ISO 14000 & Related Environmental Standards
- Environmental Compliance & Conformance
- Special Studies
- Enviro-Research & Development
- Enviro-Commercialisation

## TYPICAL PROJECTS/PRODUCTS

- Installing, operating and maintaining continuous and manual air quality monitoring stations.
- Installing, operating and maintaining continuous and manual water quality monitoring stations.
- Collecting, validating, storing, managing and disseminating environmental data.
- Training and implementing Environmental Management Systems (EMS), ISO 14000 and related environmental standards.
- Establishing emission, effluent and waste monitoring and management systems.
- Undertaking special studies like Integrating Environmental Considerations Into Economic Decision-Making (UNESCAP), Strategy for a Donors Meeting to Address Haze-Related Issues and Initiatives in Malaysia (UNDP), and Engagement of the Private Sector in Sustainable Developments Activities in Malaysia (UNDP).





## Amoco Chemical (Malaysia) Sdn. Bhd.

Lot 116, Gebeng Industrial Estate, P.O. Box 11, Balok, 26080 Kuantan  
Pahang Darul Makmur  
Tel: 609-5833100 Fax: 609-5833082

### KEY PERSONNEL

#### PRINCIPAL

Amoco Corporation  
200 East Randolph Drive  
Chicago, Illinois 60601  
U.S.A.

#### MANAGING DIRECTOR/ PLANT MANAGER

Jimmie A. Bufkin  
Lot 116, Gebeng Industrial Estate  
P.O. Box 11, Balok  
26080 Kuantan  
Pagang Darul Makmur  
Tel: 09-5833100  
Fax: 0905833082

#### SHE MANAGER

Abd. Rahman Bahari  
Lot 116, Gebeng Industrial Estate  
P.O. Box 11, Balok  
26080 Kuantan  
Pahang Darul Makmur  
Tel: 09-5833100  
Fax: 09-5833082

### GENERAL DESCRIPTION

The single unit RM1.2 billion plant located on 60 hectares in the Gebeng Industrial Park, Kuantan, Pahang, is Amoco's largest wholly-owned facility in Asia, producing purified terephthalic acid (PTA) for both the export and domestic market.

Commercial production at the plant, which has a built-up area of 30 hectares and an annual capacity of 500,000 metric tons, began in 1996. At start-up, the plant will have approximately 500 local employees.

The plant marks Amoco's first significant investment in Malaysia, and it is set to play a major role in the company's continued leadership in the PTA world market.

Amoco's hallmark has always been high scientific, technical and technological expertise, coupled with great financial and business acumen, and business integrity.

More importantly, however, its people provide Amoco's real sustainable competitive edge. Amoco Malaysia employees are offered training and career advancement prospects as well as company-wide and worldwide assignment opportunities.

Using proprietary technology developed by its scientists, Amoco pioneered large-scale production of PTA for the manufacture of polyester for the textile, food packaging and film materials industries.

The same sophisticated technology will be used by Amoco Malaysia in the state-of-the-art plant in Kuantan.

Relying on innovative technology created through constant research and development, Amoco Malaysia sees itself continuing the corporation's worldwide credo of meeting customers' demands and fulfilling their exacting requirements.

Wherever it operates, Amoco takes an active role to build a healthy relationship with the local community. In Kuantan, plans are underway for meaningful educational and social programmes to bring true benefit for the people around it.

Caring for the community also means caring for the environment in which both Amoco and the people live. For Amoco Malaysia, this means integrating into its daily functions, systems and methods to ensure its operations are harmonious with nature, and has the least possible impact on the ecological balance in the area.



## Angkasa-GHD Engineers Sdn. Bhd.

No. 49, Jalan USJ 10/1A, UEP Subang Jaya, 47600 Petaling Jaya, Selangor Darul Ehsan  
Tel: 603-7328899 Fax: 603-7328833.

### KEY PERSONNEL

#### DIRECTORS

Khor Chai Huat, BE(Hons), ME,  
PEng, MIEM, CEng, MICE,  
MIWEM, MACEM  
Lee Sek Chong, BE, MIEM, PEng.

### ASSOCIATE COMPANY

Gutteridge Haskins & Davey Pty. Ltd.

### DATE ESTABLISHED

1978

### GENERAL DESCRIPTION

Angkasa-GHD Engineers Sdn Bhd was established in 1978 and is registered with the Board of Engineers, Malaysia to practice as Consulting Engineers. The firm is also registered with the Ministry of Finance, Department of Environment and various other government and quasi-government agencies. The firm was founded by Dato' Muhammad Yusof Hindon in 1978.

The firm is fully supported by Gutteridge Haskins & Davey Pty Ltd (GHD) Group who are leaders in the field of water supply, water resources engineering, sewerage and environmental engineering. GHD was established over 60 years ago in Australia and is a multi-disciplined independent consultant practice with a staff of over 700.

### PERSONNEL

Total : 39, Engineers - 19.

### FIELDS OF EXPERTISE

Environmental Impact Assessment, Environmental Action Plan and Monitoring, Planning and Design, Industrial Wastewater and Sewage Treatment, Water Supply, Water Resources, Drainage and Flood Mitigation.

### SERVICES

The firm is committed in providing best services for the client ranging from preliminary studies through design and construction phases to the provision of full management, operation and maintenance services. Where appropriate, the firm enters into joint-venture agreements with consultants from other professions to provide clients with comprehensive expertise. The firm also undertakes Turnkey Contracts and Privatisation Schemes.

The firm offers a wide range of services including project evaluation, construction management, technical investigations, economic and financial studies, feasibility studies, contract documentation, detailed design, cost estimation, supervision of construction and commissioning on site.

### FIELDS OF SPECIALISATION

- environmental planning, studies and design
- sewerage and wastewater engineering
- water resources investigation, planning and study
- drainage and irrigation schemes
- water supply schemes
- urban and rural infrastructure and land development
- recreation and leisure facilities
- geotechnical engineering
- dam engineering and dam safety assessment
- industrial and office building
- electrical and mechanical services

### TYPICAL PROJECTS

EIA, ENVIRONMENTAL PLANNING AND DESIGN:-

- EIA for Paka Power Station, Terengganu.
- EIA for Bukit Tinggi International Club, Selangor.
- EIA for 10th Mile Cheras Mixed Development.
- Action Plan for the Environmental Management of the Sama World Theme Park.
- Monitoring of the Proposed Action Plan for the Sama World Theme Park.

SEWERAGE AND WASTEWATER ENGINEERING:-

- Master Plan and Feasibility Study for Melaka Sewerage and Drainage System.
- Privatisation of the National Sewerage System.

WATER RESOURCES ENGINEERING:-

- Jengka Water Supply Scheme, Pahang.
- Bukit Sagu Water Supply Scheme, Pahang.
- Sg Melaka to Durian Tunggal Reservoir Pumped Storage Scheme, Melaka.
- Kemaman Water Supply Scheme, Terengganu.
- Pulau Tioman Water Supply Scheme, Pahang.

URBAN AND RURAL INFRASTRUCTURE DEVELOPMENT:-

- Ipoh 10 Storey Office cum Bank, Perak.
- Terengganu Tengah Township Development, Terengganu.

FLOOD PLAIN MANAGEMENT, LAND DRAINAGE AND IRRIGATION:-

- Mentakab Flood Mitigation Scheme, Pahang.
- Master Plan and Feasibility Study for Melaka Sewerage and Drainage System.

RECREATIONAL AND LEISURE FACILITIES:-

- Ipoh Swimming Centre, Perak.
- Ipoh Wave and Leisure Pool, Perak.

# Arachem

## KEY PERSONNEL

Larry Lee, Technical Director  
Amy Yew, General Manager  
Ching Paw Yoon, Senior Manager  
Steven Wang, Sales Manager -  
Engineering Division

## OVERSEAS PRINCIPALS

### ENVIRONMENTAL

HACH, USA  
ISCO, USA  
IDEXX, USA  
NASCO, USA  
DATALINK, France  
SWAN, Switzerland  
CHEMTRONICS, USA

### ENGINEERING

LIGHTNIN, USA  
SWECO, USA

## DATE ESTABLISHED

3 October 1990

## **Arachem (M) Sdn. Bhd.** (127181-D)

No. 85A, Jalan SS 21/60, Damansara Utama, 47400 Petaling Jaya, Selangor Darul Ehsan.  
Tel: 603-7196668 Fax: 603-7196673

## **GENERAL DESCRIPTION**

ARACHEM (M) SDN. BHD. has been engaged in the scientific and engineering market for the past 7 years with emphasis on marketing, sales consultancy and installations of only the most proven and advanced systems, equipment and services for water and water related industries.

<u>Product</u>	<u>Country</u>	<u>Areas of application</u>
HACH	USA	Water and wastewater monitoring equipment for physical / chemical and biological parameters. <ul style="list-style-type: none"><li>• Covers portable meters for in-situ testing.</li><li>• Process analyser for monitoring and controlling purposes.</li></ul>
DATALINK	France	On-line Analysers (ammonia, Cod etc)
SWAN	Switzerland	On-line & portable Analysers (pH, Cl, Conductivity, Sodium Dissolved Oxygen)
NASCO	USA	Whirl-Pak Bag and Sampling Products. <ul style="list-style-type: none"><li>• Used for all tests required for quality control, product content and legal compliance.</li></ul>
IDEXX	USA	USEPA approved P/A & MPN method for detecting bacteria in water. <ul style="list-style-type: none"><li>• Coliform, E-Coli.</li></ul>
ISCO	USA	Wastewater Samplers and Flowmeters.
SWECO	USA	Vibration Sieve.
LIGHTNIN	USA	Mixers, Agitators and Aerators for fluid mixing.
CHEMTRONICS	USA	Trace Metal Analyzers

**ARACHEM** is the sole agent for all the products currently marketed. Collectively, we are experienced and well exposed to the major industries with the necessary know-how, skills and resources. Our products are widely used by both the government agencies such as **Jabatan Bekalan Air, all privatised water treatment plants and Department of Environmental** and also MNI's chemical and food processing plants.

We stress very much on our best service to customers and relentlessly pursue our commitment to our customers in line with their expectation of quality, cost and performance as the basis of our competitive success. The company also has the resources within its own and affiliated/related companies to organise necessary support mechanism when the need arises.

## Arup Jururunding Sdn. Bhd.

No. 25-29, Jalan Ara SD 7/3B, Bandar Sri Damansara, 52220 Kuala Lumpur  
 Tel: 603-6332223 (6 lines) Fax: 603-6332227  
 Geotech - Tel: 603-6334822 Fax: 603-6334821  
 M&E - Tel: 603-6323430 Fax: 603-6323431

### KEY PERSONNEL

#### DIRECTORS

Ng Khai Loy, BE (Hons), FIEM, FICE, PEng., MACEM  
 Col (R) Murad bin Hj Jaafar, BE, ME, MIEM, PEng., MACEM  
 Tang Kam Kok, BE, FIEM, FICE, FI.Struct.E, PEng., MACEM  
 Yap Kok Ming, BE(Hons), MIEM, MICE, MIE Aust, PEng, MACEM  
 Tong Veng Wye, BSc(Hons) Eng, MSc Sust Sys, MIEM, PEng, MACEM  
 Wan Anuar Endut, BE, MSc (Struct) Eng, MIEM, PEng, MACEM

### ASSOCIATE COMPANIES

Ove Arup & Partners, London  
 Ove Arup & Partners, Australia  
 Ove Arup & Partners Hong Kong Ltd  
 Ove Arup dan Rakan-Rakan, Sabah  
 Ove Arup dan Rakan-Rakan, Brunei  
 Ove Arup & Partners, Singapore  
 Ove Arup & Partners, USA  
 Ove Arup & Partners, Japan  
 Ove Arup & Partners, Philippines  
 Ove Arup & Partners Int'l, Indonesia

### INTERNATIONAL EXPERIENCE

United Kingdom  
 Australia  
 Hong Kong  
 Singapore  
 Brunei

### BRANCH OFFICE

Arup Jururunding Sdn Bhd  
 Unit 58-6-1, 6th Floor  
 Wisma Fortune Heights  
 Jalan Cantonment  
 10250 Penang  
 Tel: 04-2278908  
 Fax: 04-2297352

### DATE ESTABLISHED

1964

### GENERAL DESCRIPTION

The firm formerly known as Ove Arup dan Rakan-Rakan, was first established in Kuala Lumpur in February 1964. In 1983, the firm was incorporated into a private limited company and was re-named as Arup Jururunding Sdn Bhd. The firm is closely associated with other Ove Arup offices in U.K., Australia, Hong Kong, Sabah, Brunei, Singapore, Philippines, Japan and U.S.A.

The firm has the engineering skills and organisation necessary for the complete design of a wide range of projects, and has provided consultancy services to clients in the fields of Structural, Civil, Geotechnical, Traffic, Industrial and Environmental Engineering.

### PERSONNEL

Total 244. Civil & Structural Engineers - 83; Technicians and Draughtsmen - 39; CAD Operators - 56; M&E Engineers - 16 and Administration and Clerical - 50.

### SERVICES

Complete services from preliminary stage through feasibility studies, investigation, analysis, detail design, contract documentation, invitation for and evaluation of tenders, construction supervision and contract administration of projects.

### FIELDS OF SPECIALISATION

Building structures. Industrial Engineering. Highways and Bridges. Infrastructure work for housing, township and resort development. Traffic planning for commercial complexes and housing development. Geotechnical appraisal and foundation design. Environmental Engineering.

### TYPICAL PROJECTS

#### BUILDING STRUCTURES

- KOMTAR Development in Penang.
- Putra World Trade Centre, Kuala Lumpur.
- Pan Pacific Hotel, Kuala Lumpur.
- Desa Angkasa Condo, Kuala Lumpur.
- New Felda Corporate HQ, Kuala Lumpur.
- Sri Sayang Apartments, Penang.
- Menara Sungei Way, Subang.
- Sunway College, Subang.
- Menara IMC, Kuala Lumpur.
- Menara Esso, Kuala Lumpur.
- Weld Tower, Kuala Lumpur.
- New Office Complex for Kementerian Kerja Raya, Kuala Lumpur.
- Northam City Dev. Penang.
- Silverton Apartments, Penang.
- Highlands Hotel, Genting Highlands.
- Residential Staff Centre 5, Genting Highlands.

#### HIGHWAYS AND BRIDGES

- Lebuhraya Damansara-Puchong, Package 1 Section 1, KL.
- Middle Ring Road 2 (Batu Caves Bypass), KL.
- Kajang Traffic Dispersal Ring Road, Selangor.
- Subang-Balakong Link, Selangor.
- Jerangau-Jabor Highway, Terengganu.
- Accelerated Rural Roads, Package A13, Perak.
- Access Road to Felcra Tembeling Tengah, Jerantut, Pahang.
- Batang Kali to Genting Highlands Road.
- Improvement to Existing Road at Genting Highlands.
- Bridge over Sg. Jejawi, Penang.
- Leboh Pasar Bridge, Kuala Lumpur.

#### INFRASTRUCTURE

- Kuala Lumpur City Centre Dev, KL - Main infra, Car & Truck Tunnel and Park.
- Bandar Sri Menjalara and Taman Bukit Maluri Dev. Kuala Lumpur.
- Awana Kijal Beach Resort, Terengganu.

- Oxidation Pond, Taman Bukit Maluri, Kuala Lumpur.
- Kerteh Main Drain, Terengganu.
- Gas Processing Plants 5&6, Terengganu - Earthworks & Drainage.

#### INDUSTRIAL ENGINEERING

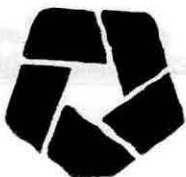
- Wide-Bodied Aircraft Hanger Foundation & Taxiway Apron.
- Aircraft Hangars for Hercules C130.
- Peninsular Gas Utilisation Project Stage II, System 2, Gas Processing Plant, Kerteh, Terengganu.
- Feasibility study of offshore concrete gravity-based substructure.
- Hitachi Factories, Bangi, Selangor.
- Pharmaceutical Facility, Bangi, Selangor.
- Subang Industrial Estate, Selangor.
- Nan Sin Factory, Penang.
- Follow Me Factory, Penang.

#### GEOTECHNICS

- Slope stabilisation works at Genting Highlands.
- 40m 2 tier anchored caisson walls and caisson foundation for the New Highlands Hotel, Genting Highlands.
- Bored piles, micropiles and caisson foundations over pinnacled cavernous limestone for Plaza Potential, Kuala Lumpur.
- Bored piles, diaphragm wall and caisson foundation for 24m deep basement work at Pacific Bank HQ, Kuala Lumpur.
- Independent Assessment for slopes at Bukit Tinggi Resorts, Pahang.

#### ENVIRONMENTAL

- EIA for Awana Kijal Beach Resort, Terengganu.
- Environmental Appraisal for part of Middle Ring Road II (Batu Caves Bypass) Kuala Lumpur.
- Coastal Villages Environmental Improvement Project, Sabah & Sarawak.



## ASEAN Bintulu Fertilizer Sdn. Bhd.

18km Tanjung Kidurong, PO Box 482, 97008 Bintulu, Sarawak  
Tel : 086-252300 (12 lines) Fax : 086-251043/251955 Telex MA 73212 ABFBTU

### KEY PERSONNEL

#### DIRECTORS

Tuan Hj Syed Mohamed Syed  
Jaffar,  
Managing Director/CEO

#### SENIOR MANAGERS

Kamarudin Zakaria,  
General Manager  
(Plant Division)  
V. K. Parashar,  
Operations Department  
Antonio H.C.R.,  
General Affairs & Quality  
Assurance Department  
Patrick Tong Bing,  
Finance Department  
Lau Nai Tuang,  
Engineering Services  
Department

### GENERAL DESCRIPTION

ASEAN BINTULU FERTILIZER SDN BHD (ABF) is the second ASEAN Industrial Project. It consists of the following grassroots facilities:

- Ammonia Process Unit
- Urea Process Unit
- Granulation Process Unit
- Urea Storage and Shiploading Facilities
- Ammonia Storage and Shiploading Facilities

ABF was first mooted in 1976 by the ASEAN Heads of Government in Bali, Indonesia. The project was declared viable in 1978 by a meeting of the ASEAN Economic Ministers in Kuala Lumpur. Subsequently, ABF was incorporated in 1980. The main contract was awarded to Kobe Steel Ltd of Japan in 1982. The commercial production of ammonia and urea commenced in October 1985. With this, the plant earned the title of being the largest single train urea granulation plant in the world.

### Development

The original design capacity of the plant was 1050 MTPD ammonia and 1725 MTPD urea. To improve the company's performance, the plant was expanded to the current 1320 MTPD ammonia and 1860 MTPD urea.

### Marketing

Annual production of ammonia and urea is about 440 000 MT and 600 000 MT respectively. The bulk of the ammonia is used internally for urea production. The excess ammonia, 68 000 MT per year, is exported mainly to ASEAN nations. Urea is exported to both ASEAN and non-ASEAN nations with Malaysia and Australia being the major customers.

### ISO 9002 Quality Stamp

In April 1992, ABF embarked on the implementation of a quality assurance system, which led to its successful accreditation under the ISO 9002 quality management system on the 23rd July 1993, making ABF the first of PETRONAS' operating units to be awarded the ISO certification.

### Environmental Management

In the area of Environmental Management, ABF has made it an obligation and the responsibility of every staff member to exercise responsible care and to take all reasonable precautions to mitigate any adverse impact on the environment from its business operations. An Environmental Care Programme has been put in place since August 1993 to ensure compliance with the current Malaysian Environmental Legislation and Standards. The company strives to achieve continuous improvement in its environmental programmes through:

- Visible management commitment and involvement
- Deployment of the latest available technology
- Implementation of sound environmental practices
- Continuous awareness programme to educate staff on environmental issues
- On-going environmental auditing.

To further improve the company's environmental performance, ABF is in the progress of implementing its environmental management system based on the ISO 14001 Standard.



## Bintulu Development Authority (BDA)

Bangunan BDA, No. 1 Jalan Kidurong, Peti Surat 55, 97007 Bintulu, Sarawak  
Tel: 086-332011 Fax: 086-332255; 086-330099

### KEY PERSONNEL

The Chief Minister of Sarawak,  
Chairman  
State Secretary, Sarawak,  
Deputy Chairman

### MEMBERS - FEDERAL GOVERNMENT

Director-General, Implementation  
Coordination Unit, PM's Dept.  
Secretary, Foreign Investment  
Committee, EPU, PM's Dept.  
Secretary, Housing Loan Division,  
Malaysian Treasury

### SARAWAK STATE GOVERNMENT

State Financial Secretary  
Permanent Secretary, Ministry of  
Resource Planning  
Director, Public Works Department  
Director of Development  
Resident, Bintulu Division

### KEY MANAGEMENT STAFF

Sylvester Ajah Subah,  
General Manager  
Peter Lim Choo Kwo,  
Deputy General Manager  
Haji Mohidden Hj. Ishak,  
Asst. General Manager  
(Development)  
Puan Rodziah Hj. Morshidi,  
Asst. General Manager  
(Corporate Finance & Admin.)  
Shukarmin Hj. Chasemon,  
Asst. General Manager  
(Environment, Public Relations and  
Tourism)

### ASSOCIATE & SUBSIDIARY COMPANIES

Shell Timur Sdn. Bhd. (5% share)  
Kemena Industries Sdn. Bhd. (45%  
share)  
BDA Properties Sdn. Bhd.  
(Wholly-owned by BDA)  
BDA-Kidurong Development Sdn.  
Bhd. (42% share)  
Kidurong Properties Sdn. Bhd. (55%  
share)  
Bintulu Retailers Sdn. Bhd. (Wholly-  
owned by BDA)  
Similajau Adventure Tours Sdn. Bhd.  
(60% share)  
Bintulu Sembawang Sdn. Bhd. (60%  
share)  
Bintulu Container Services Sdn. Bhd.  
(60% share)  
Bandar Sinar Sdn. Bhd. (35% share)  
Custodev Sdn. Bhd. (28% share)

### DATE ESTABLISHED

8 July, 1978

Member of ENSEARCH

### GENERAL DESCRIPTION

Bintulu Development Authority (BDA) was established under Bintulu Development Authority Ordinance, 1978. It is a statutory agency responsible for municipal services, town planning and various development activities in Bintulu, i.e. the area gazetted as BDA's designated area.

BDA is a one-stop agency for approving applications for development projects and building plans. It is an autonomous body managed by a Board of Management with the Honourable the Chief Minister of Sarawak as its Chairman. BDA undertakes a wide range of development activities, e.g. construction of low-cost housing, development of industrial estate, construction of roads, drains and sewerage system, recreational facilities and commercial buildings.

### PERSONNEL

Total staff: 698. Managerial & Professional - 32; Civil Engineers - 8; Technician s- 30; Draughtsmen - 16 and Administrative/support staff - 612.

### BDA ACTIVITIES

Since its inception in 1978, the BDA has been engaged in development activities in Bintulu and these are as follows:

- Coordination of development activities
- Landscaping and beautification projects
- Local Authority functions
- Social & sports projects
- Industrial estate development
- Commercial buildings development
- Housing (including low cost) development
- Business venture through its subsidiary and associated companies

### PAST PROJECTS

Some of the projects carried out by the BDA are as follows:-

- Development of three industrial estates
  - Bintulu Light Industrial Estate
  - Kidurong Light Industrial Estate
  - Kemena Industrial Estate (timber-based)
- Other development projects
  - Civic Centre
  - Divisional Mosque
  - 18-hole Golf Course
  - Wildlife Park (Tumbina)
  - Pasar Utama & Pasar Tamu (markets)
  - Outdoor Stadium
  - Swimming Pool
  - Resettlement Scheme
  - Low Cost Housing Scheme
  - Infrastructural Works
  - Coastal Protection Works

### SUMMARY

As a development and municipal authority, BDA plays important roles to turn Bintulu into a city where industries and heavy industries can co-exist within attractive, conducive and healthy physical environment.



## **Bredero Price (Malaysia) Sdn. Bhd.**

16MS Kuantan/Kemaman Road, (Pelabuhan Kuantan),  
P O Box 172, 25720 Kuantan, Pahang Darul Makmur  
Tel: 609-5833131 ( 5 Lines) Fax: 609-5833336

### **KEY PERSONNEL**

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Dato Kadar Shah Sulaiman Ninam  
Shah, Director  
W.J. Brown, Director  
Rashid Nordin, General Manager  
Zulkifli Idham, HSE Officer

### **DATE ESTABLISHED**

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1981

### **GENERAL DESCRIPTION**

Bredero Price is an international pipe coating company serving the oil and gas pipeline market, having been in the industry for more than 4 decades now, with 26 coating plants currently spread out all over the world.

Within the Group of Companies, we have the knowledge, expertise and production capacity to cope with various oil & gas pipe coating requirements for gas flow improvement, internal and external pipe surface corrosion protections, thermal insulation, buoyancy control and various other requirements.

Bredero Price (M) Sdn. Bhd. (BPM) is one of the leading plants, established in Kuantan since 1981, providing pipe coating services for Malaysia and various other countries offshore and onshore pipelines.

BPM is a joint venture company with 51% shares owned by Dato Kadar Shah Sulaiman Ninam Shah and 49% held by Bredero Price Holdings BV.

### **PERSONNEL**

5 expats & 310 local employees under direct BPM's payroll plus 140 contract workers.

# BW Perunding Sdn. Bhd.

Water Resources and Civil Engineering Consultants

Head Office: No. 7B & 7C, Jalan Kampong Attap, 50460 Kuala Lumpur

Tel: 603-2744418 (3 lines) Fax: 603-2744318

## KEY PERSONNEL

### DIRECTORS

Haji Abdul Manaf Ishak

(Managing Director)

MSc (Water Resources Tech), BSc

(Civil), MIWEM, MIEM, PEng, MIE

(Aust.), MACEM

Chik Hisham Mohd Hashim, MSc

(Water Eng.), BSc. (Civil), MIEM,

PEng.

Mah Huey Fong, BEng (Civil),

MIWEM, MIEM, PEng, MIE (Aust),

MACEM

K. Packianathan, BSc(Elect), MIEM,

MIE (Aust), MIEE, PEng (S'pore),

PEng (M), CEng.

## ASSOCIATE COMPANIES

Montgomery Watson Group,

Pasadena, USA.

## DATE ESTABLISHED

1976

## GENERAL DESCRIPTION

The Firm was founded in 1976 as Bumi Watson (M) Sdn Bhd and the name change was effected in 1985 to reflect the Malaysian character and 100% Bumiputra shareholding. The Firm has wide experience in all aspects of water resources development, water supply engineering and environmental pollution control, public health engineering and infrastructure development. The Head Office is fully equipped with modern OA equipment including word-processing and computer facilities as well as CAD workstations.

## PERSONNEL

Total Staff : 62; Civil Engineers - 17; Mechanical Engineer - 2; Electrical Engineer - 1; Chemical Engineer - 1; Structural Engineers - 3; Hydrogeologist - 1; Geologists - 2; Accountant - 1; Technicians - 12; Draughtsmen - 12; Administration, Clerical & Supportive Staff - 10.

## SERVICES

Technical Investigations, Master Plan and Feasibility Studies as well as EIA reports, Preliminary Engineering & Detailed Design, Contract Documentation with Specifications, Tender Evaluation, Project Management, Construction Supervision and Works commissioning.

## FIELDS OF SPECIALISATION

Hydrological & Geotechnical Studies, Water Treatment Works, Dams, Pumping Stations, Pipelines, Reservoirs, Non-Revenue Water Control, Sewerage & Sewage Treatment Works, Drainage & Flood Mitigation, Industrial Waste Treatment & Disposal, Solid Waste Management and Roads & Bridges.

## TYPICAL PROJECTS

### WATER SUPPLY SYSTEMS

- Sungei Siput Water Supply, Perak.
- Dent Peninsula Water Supply, Sabah.
- Bukit Kuda Water Transfer, Labuan.
- Damak Water Supply, Pahang.
- Maran Water Supply, Pahang.
- Malaysia Rural Water Supply Scheme - a turnkey project for 29 schemes in Sabah & Sarawak at cost of \$320 million.
- Manong Water Supply, Perak.
- Temerloh-Mentakab Water Supply Scheme, Pahang.
- Joint Water Supply Pipeline to Genting Kelang Area, Kuala Lumpur.
- Johor Tenggara Water Supply, Johor
- Subang Jaya New Trunk Mains, Selangor.
- Sg. Terip Water Supply, Phase II, Seremban, N.S.
- Labuan Reticulation & Leakage Study.
- Johor Bahru (JB) District Reticulation and Leakage Study.
- Johor Bahru District Leakage Control Project.
- Segamat & Kota Tinggi Districts Leakage Control Project.
- Rural Water Supply Schemes for Johor.
- Pipr Replacement Program for Johor.
- Sg. Chabang Tiram Water Transfer, Johor.
- Sook Water Supply Scheme, Sabah.
- Pulau Perhentian Water Supply, Terengganu.
- Feasibility Study for Water Supply to Pulau Tuba, Langkawi.
- Water Supply Scheme for Lukut Area, Port Dickson District.
- Sindumin Water Supply Scheme, Sabah.
- Seri Iskandar Water Supply, Perak.
- Ulu Yam Water Supply, Selangor.
- Negri Sembilan Water Supply Privatisation.
- Projek Bekalan Air Kuala Rompin (Persiaran Pantai).
- Bina/Pasang - Loji/Kolam Takungan dan Paip Utama Tg. Malim.
- Membaikpulih dan Menaikkan taraf Loji air Padang Rengas, Kuala Kangsar, Perak.
- Projek Loji Pembersihan Air Sg. Terip, Fasa III.

- Greater Ipoh Water Supply, Phase III.
- Bintulu Region Water Supply - Options Study.
- Projek Bekalan Air Setiu, Peringkat 2.

### SEWERAGE SYSTEMS

- Bandar Baru Bangi Sewerage Feasibility Study and Detailed Design, Selangor.
- Johor Bahru Sewerage & Drainage Master Plan Study.
- Ipoh Town Central Business Area Sewerage.
- HICOM Industrial Area Infrastructure Scheme, Section A, Shah Alam.
- Johor Bahru General Hospital Water & Sewerage Improvements Project.
- Water Supply & Sewerage for Taman Shamelin Perkasa Development, Cheras, Kuala Lumpur.
- Hospital Besar Pulau Pinang Sewerage, Water & Sanitary Improvements.
- Seri Iskandar Sewerage Master Plan, Perak.
- Greentown Extension Area Sewerage, Ipoh.
- Hulu Langat District Sewerage & Sludge Management Strategy Study.

### OTHERS

- Ipoh Greentown Bus and Taxi Terminal.
- 12 RC Bridges in Selangor.
- Pengkalan Industrial Complex Roads and Drainage, Ipoh.
- Sungei Batu Retention Pond and Gombak Diversion for Kuala Lumpur Flood Mitigation Scheme.
- Inventorisation of Assets for JBA Negeri Sembilan.
- Roads and Drainage for Menglembu Industrial Estate, Phase II, Ipoh.
- Bridge in Jalan Sultan Azlan Shah, Ipoh.
- EIA Report for proposed Landfill Sites in Papan, Kinta and Krubong, Melaka.
- Controlled Solid Waste Sanitary Landfill Project in Krubong, Melaka.
- Jalan Masuk Kg. Pong, Hulu Perak.
- Privatisation Study for the Solid Waste Management of the whole of Malaysia.
- Seri Iskandar Drainage Master Plan, Perak.
- Malaysian Groundwater Monitoring Network.

### KEY PERSONNEL

CEO  
Ir. Leong Yew Weng

DIRECTORS  
Oh Siew Nam  
Ong Ie Cheong  
Chua Say Sin  
Lem Cheng Hoe  
Michael Oh Aik Teong  
Ir. Leong Yew Weng

SENIOR EXECUTIVES  
Lum Swee Kuan  
Simon Lee Kee Chew  
Francis Quah Chuan Hoe  
Ir. Khor Mee Kuan  
Ir. Yong Su Keong

### DATE ESTABLISHED

1986

Subsidiary of the Kuok Brothers,  
Perlis Plantations Berhad Group



1997  
Special  
Recognition

### GENERAL DESCRIPTION

CWM, a subsidiary of the Kuok Brothers and Perlis Plantation Group of companies is established to provide an integrated environmental engineering service for industries in Malaysia. Started off with only the operations of the heavy metals recovery facility, CWM has since diversified into providing comprehensive environmental services to a wide range of industries. CWM has also expanded into utilities and infrastructure development and is currently undertaking several water privatisation projects in Selangor. CWM's contribution to the environment has earned it the Enterprise 50 Special Recognition Award in 1997. To date, CWM is a Grade 7 registered contractor with the Construction Industry Development Board of Malaysia (CIDB) capable of undertaking civil and structural, building, mechanical and electrical engineering projects.

### FIELDS OF SPECIALISATION

#### • Water Treatment

With a strong commitment to protect the quality of freshwater and marine ecosystems, both municipalities and industries engage CWM to produce water for drinking and manufacturing processes. CWM's reference projects cover the construction of reverse osmosis desalination plants for hotels and resorts, reverse osmosis brackish plants for industries, deionised water plants and raw water treatment plants for industries.

The heavy burden on CWM to provide clean water supply for the bulk of the residents in Selangor comes from its involvement in the Selangor Water Privatisation Projects. CWM is responsible for the construction of treatment plants, pumping plants and the distribution of water supply which are being developed under the Sungai Selangor Water Supply Scheme. Upon completion in the year 2000, an additional 950 MLD of water will be supplied to the Klang Valley.

#### • Waste Water Treatment

CWM designs and constructs waste water treatment plants for various types of industries including food & beverage, latex-dipped, ink, paint, pulp & paper, edible oil, heavy metals and chemicals.

#### • Sewerage Treatment

Registered with the authorities, CWM has the resources and technical know-how to construct sewage treatment plants, sewerage network and pump stations and sludge lagoons.

#### • Solid Waste Management / Sanitary Landfill

CWM is a leader in providing solid waste collection and disposal services in Malaysia. It has a group of companies that manage such services in Perlis, Kedah, Penang, the Klang Valley and Johor. CWM is also a consortium member in the privatised landfill in Air Itam Forest Reserve, Puchong, Selangor.

#### • Waste-to-Energy Management

CWM co-owns a fluidised incinerator that recovers oil and burns oily sludge waste to generate electricity. It is strategically located in Pasir Gudang, Johor to provide solutions to the shipping industry in minimising marine pollution in the open seas.

#### • Scheduled Wastes Recycling

CWM owns and operates a heavy metal recycling plant in Shah Alam, Selangor. Approved by the Department of Environment, the plant uses ion exchange, evaporation and electrolysis technology and has been operational since 1993, serving the semiconductor and metal finishing industries.

#### • Infrastructure Development

CWM designs and builds a variety of industrial facilities including chemical plants, pumping and bulking plants, storage tanks and warehouses. Registered with the Construction Industry Development Board of Malaysia, CWM has been accorded Grade 7 which allows it to manage construction projects of any size and value.



## Coffey (Malaysia) Sdn. Bhd. (159623-X)

No. 50A, Jalan USJ 10/1B, Taipan Traingle, 47600 UEP Subang Jaya  
Tel: 603-7324513 Fax: 603-7324253



### KEY PERSONNEL

**MALAYSIA**  
Sukumar Pathmanandavel (Regional Manager)  
Brett Stephens (Manager)  
Esther Koay  
Eddie Ng

**OVERSEAS**  
Professor Harry Poulos (Sydney)  
Dr Len Drury (Sydney)  
Garth Powell (Brisbane)  
Tim Marshall (Melbourne)  
Chris Langton (Perth)  
David King (Philippines)

### COFFEY OFFICES

**AUSTRALIA**  
Sydney  
Melbourne  
Brisbane  
Perth  
Adelaide

**SE ASIA**  
Manila (Philippines)  
Jakarta (Indonesia)  
Hanoi (Vietnam)

**JOINT VENTURES**  
Johannesburg (South Africa)  
San Francisco (USA)

### DATE ESTABLISHED

1987 - Coffey (M) Sdn Bhd  
1959 - Coffey Geosciences Pty. Ltd.

### GENERAL DESCRIPTION

Coffey is a diverse mix engineers, scientists and managers specialising in earth sciences and their application to land management, including conservation and rehabilitation. Coffey has in Malaysia over the past decade undertaken projects comprising skills in geotechnical engineering, environmental engineering, landfill assessment, geo-environmental engineering, geophysics, geology, hydrogeology and foundation engineering.

Coffey's work in urban development is similarly diverse, including hazard and terrain mapping ahead of development for earthquake, landslides or Karst ground, materials investigation and testing, complex foundation design for dams, roads and buildings, cleanup of contaminated sites, air and water quality studies, landfill engineering, management of recreational and wetlands and the identification and testing of natural construction material resources. Coffey has also undertaken project identification and design studies as well as the contract management of complex projects on behalf of clients.

Coffey has worked successfully in over 45 countries. These include all states of Australia, The Pacific, Southeast Asia, Indian Sub-Continent, Africa, USA and Central America.

### SERVICES

#### ENVIRONMENTAL ENGINEERING

- Site Appraisals
- Environmental Site Assessment and Remediation
- Air Pollution Studies
- Natural Hazard Studies
- EIAs and Environmental management Plans
- Environmental Monitoring
- Quantitative Risk Assessment
- Emergency Response Plan
- Environmental Audits

#### GEOTECHNICAL ENGINEERING

- Surface and subsurface exploration
- Offshore exploration
- Groundwater exploration
- Foundation Analysis and Design
- Pavement and Rail Track Systems
- Excavations and stability
- Dam and Water Storage Structures
- Marine and Offshore Foundations
- Computer Applications
- Professional Services

#### MINING AND MINERAL PROCESSING

- Rock mechanics and stability studies
- Mine drainage and water control
- Subsidence Engineering
- Tailings dam design
- Waste disposal and leachate control

#### ENGINEERING GEOLOGY AND HYDROGEOLOGY

- Groundwater Exploration and Development
- Dewatering, Drainage and Groundwater control
- Selection and assessment of rockfill and earth borrow materials
- Land stability surveys
- Geologic hazards in land use planning
- Hydrogeological and Geochemical Modeling

#### CONSTRUCTION CONTROL AND MONITORING

- Construction Control
- Monitoring Construction
- Quality Control
- Post-Construction Consultation

### TYPICAL PROJECTS

#### ENVIRONMENTAL ENGINEERING

- Oil Refinery - Environmental Site Assessment Phase 1
- Oil Refinery - Environmental Site Assessment Phase 2
- River - Environmental Site Assessment Phase 2
- Oil Refinery - Groundwater Investigation Phase 2
- Putrajaya Hospital and Health Clinic - Environmental Management Plan
- Citiport Development - Environmental impact Assessment
- Larkin Landfill - Landfill Closure Plan

#### GEOTECHNICAL ENGINEERING

- Putrajaya Interchange and Link Road - Geotechnical Services
- Malaysia-Singapore Second Crossing - Slip Remediation
- KLAS Airport Maintenance Hangar Complex - Geotechnical Investigation and Assessment
- Bukit Lanjan Mixed Development Project - Geological and Geotechnical Assessment
- Sungai Buloh Development Project - Geological and Geotechnical Assessment
- Billion Court Development - geotechnical investigation and assessment, design advice for foundations and retaining structures
- ICI Asia Films Expansion - geotechnical Investigation
- The Mines Integrated Resort City - Geotechnical Investigation
- Teluk Intan District Hospital - pile group analysis
- Plaza Perangas - geotechnical Investigation
- Proposed Bridge over Sungai Limbang - Embankment stability and settlement assessment
- Sama World Destination Resort - Geotechnical Services
- Lot 10 Commercial Development - Geotechnical Assessment



## Connell Bros Company Ltd (993013-A)

No. 23, Jalan PJS 7/21, Bandar Sunway Technology Park, 46150 Petaling Jaya, Selangor  
Tel: 603-7330900 Fax: 603-7338678

### KEY PERSONNEL

Frank M. Brown, President, Connell Bros. Co.  
C.C. Chiang, General Manager  
Connell Bros. Co.

### GENERAL DESCRIPTION

Connell Bros. Co., a division of the Wilbur-Ellis Company, and its subsidiaries, share a strong position today as a result of a basic business belief that our responsibility is to our customers and suppliers and to the integrity of our contracts. We provide what we promise.

As with all successful companies, profitability is essential, for without it there is no company. We believe that profitability comes when we are responsive to our customers, suppliers and employees and the communities and countries in which we live and operate.

Founded in 1895, Connell Bros. has grown from a small export brokerage/trading company to a large, integrated marketing and distribution organization and is an integral part of the Wilbur-Ellis group of companies. Connell Bros. has prospered for over 90 years in changing business conditions in America and the Pacific Rim.

These accomplishments would not have been possible without the total commitment and dedication of our talented associates and employees throughout the organization. Combining experience and technical knowledge, these men and women have built our businesses by giving customers the service and products with which to meet their needs.

Vitaly important to our corporate strengths are the close relationships we maintain with the manufacturers and suppliers whose products we market. These relationships are inextricably linked to the technical assistance and cooperation we receive from our manufacturers.

As we begin to approach the year 2000, we reaffirm our dedication to sound corporate growth, based on time-honoured principles in the marketplace and on our balance sheet. The creativity and integrity of our business methods will allow our valued employees, suppliers and customers to grow with us.

For almost a century, Connell Bros. has represented both buyers and sellers in the world marketplace. By honouring our commitments, standing behind our transactions and providing professional service, we have developed customer relationships built on the strong foundation of mutual trust and respect. At Connell, we consider our long-standing reputation for integrity to be our most prized asset.

### EXPORT SERVICES

The comprehensive marketing and distribution services provided by our export program allow our suppliers to concentrate on what they do best-product development and manufacturing. Connell takes the risk out of marketing products overseas. We assume responsibility for the financing, credit risk, transportation, documentation, marketing, warehousing and distribution. Because Connell ranks among the largest trading companies in the Pacific Rim, our services are cost effective, ensuring that the products we represent are competitively positioned. Over the years, we have developed close professional ties with Pacific Rim business communities and earned a reputation for quality, reliability and financial stability. Our manufacturing clients can rely on these relationships to help them establish a foothold in the prosperous markets of the Pacific Rim countries.

### VALUE ADDED SERVICES

The export services provided by Connell go far beyond buying and selling. We are prepared to assist manufacturers with a broad range of value-added services, including market research, product orientation and the development and fine tuning of marketing and distribution strategies. Connell's export specialists continually monitor and evaluate the most recent industry developments as well as new trends in the marketplace. Because we are intimately familiar with our manufacturer's products and our customers' needs, we can recognize new market niches and opportunities for product development and placement. Keeping a watchful eye on buying patterns, Connell's local specialists contribute on-the-spot analysis of pricing strategies and distribution tactics which can result in a competitive advantage for the firms we represent. Working in partnership with Connell, manufacturers have immediate access to one of the largest and most cohesive marketing organizations in Asia. Our export specialists in the Pacific Rim combine hands-on technical expertise with practical marketing and distribution skills. Our customers are assured of timely deliveries, stable supplies, product uniformity, technical support uniformity, technical support and after-sales service. The result is excellent product penetration and ongoing customer satisfaction.

### IMPORT SERVICES

Connell is equally committed to helping manufacturers in Pacific Rim and other countries find markets for their products and raw materials in the United States. Connell's world class import team has extensive knowledge of the marketplace as well as in-depth experience in a broad range of industries. This expertise combined with creative thinking allows us to identify new trends and pinpoint emerging opportunities in the U.S. for our manufacturing clients. As one of the oldest and most successful American-based trading companies, we have the experience and the people needed to custom-tailor and implement sophisticated distribution systems for the products we import. Our specialists continually monitor the distribution process, ensuring both manufacturer and buyer of on-time deliveries. On the other side of the transaction, we offer businesses access to innovative, cost-effective products which can allow them to be more competitive and profitable in a tough business environment. With our local presence in the producing countries, we are able to identify the most appropriate supplier and then continually monitor the manufacturing process to ensure that our customers receive uninterrupted supplies of top-quality products and materials.



## Det Norske Veritas AS Sdn. Bhd.

Level 24, The Weld Tower, 76 Jalan Raja Chulan, 50200 Kuala Lumpur  
Tel: 603-4676900 Fax: 603-4691925

### KEY PERSONNEL

Abdul Hak Mohd Amin, Managing Director  
Mohd Fouzi Abdullah, Maritime Manager  
Mohd Jaffis Jaafar, SEQ Manager  
Kjell Are Vassmyr, Risk Manager  
Ramlan Hussain, Laboratory Manager

### MAIN OFFICES

Singapore  
Norway  
United Kingdom  
United States of America

### OTHER REGIONAL OFFICES

Brunei	China
Thailand	Japan
Hong Kong	Taiwan
Indonesia	Korea
Philippines	

### 160 OFFICES WORLDWIDE

Clients include:

- Sarawak Shell Berhad
- Esso Production Malaysia
- Petronas Carigali
- Tenaga Nasional Berhad
- NEI Parsons
- Brown & Root
- MMC Oil and Gas
- Technip Geoproduction
- Brunei Shell Berhad
- Sime Engineering
- Proteck Engineers
- Keminco

### DATE ESTABLISHED

Established in 1864 in Norway  
13 years in Malaysia

### GENERAL DESCRIPTION

DNV Industry Sdn Bhd is a subsidiary of Det Norske Veritas (DNV) with a 51% local Bumiputra partnership. Det Norske Veritas (DNV), established in Norway in 1864 as a Ship Classification Society, now provides an extensive range of services to land-based, offshore and marine industries worldwide. The total staff of DNV exceeds 3500 people, the majority of whom are highly qualified and experienced technical personnel.

The company has a dedicated Environmental and Safety Consultancy Group, based in Kuala Lumpur, with considerable experience of conducting EIA's and other specialist studies to meet Malaysian and other regional requirements.

To support our projects and clients, DNV has fully equipped laboratories (accredited to international standards), for structural strength and material testing, corrosion, metallurgy and chemical testing. Advanced computerised automated equipment for ultrasonic and acoustic emission assessment is also used. In addition, there is a computer facility for engineering analysis and design with FEM software and a data communications network for worldwide access to other DNV offices and to technical databanks.

### PERSONNEL

DNV Industry Sdn Bhd has a staff of 40 including senior executives, environmental engineers, chemical engineers, structural engineers, surveyors, administrative and support staff.

### SERVICES

#### SAFETY, QUALITY AND ENVIRONMENTAL SERVICES

- Safety, Quality and Environmental Management
- Environmental Impact Assessment
- Environmental Audits
- Environmental Monitoring and Pollution Control
- Noise and Vibration Studies
- Risk and Reliability Assessment (HAZOP, QRA)
- Consequence Analysis Assessment
- Safety Analysis Assessment
- Safety Case Preparation
- Training in Safety Management
- Loss Control Advisory Services
- Computational Fluid Dynamics

#### ENGINEERING, TESTING AND RESEARCH SERVICES

- Feasibility and Conceptual Studies
- Engineering Analysis
- Verification and Quality Assurance
- Failure Investigations
- Asset Integrity and Condition Assessment
- Maintenance Management Systems
- Research and Development
- Repair Engineering

#### INSPECTION AND CERTIFICATION SERVICES

- Third Party Certification Services
- Fabrication and Installation Inspection
- In-service Inspection
- Vendor Inspection/Owner Representation
- Material and Component Certification
- Welding Procedure Qualification
- Qualification of Welders
- Certification of Mechanical, Electrical and Instrumentation Equipment
- Accredited Quality Systems Certification (ISO 9000)



## KEY PERSONNEL

### DIRECTORS

Tan Sri Datuk Dr. A. S. H. Ong, PSM,  
DMSM, JSM  
MSc. (Mal), PhD (London),  
C Chem, FRSC, FMIC, FMISA,  
FTWAS, FA Sc.

G.A. Yeoh, PJK

BSc(Mal.), C Chem, MRSC,  
PMIFT, AMSA, AMIC, FAIC

Dr. C.G. Saw, BSc.(Mal.), PhD  
(London) DIC, AMIC

K.S. Quah, BSc.(Mal.), AMIC

### CONSULTANTS/

#### SCIENTIFIC OFFICERS

Dr. B. Saad, MSc(Texas),  
PhD (Wales), AMIC

L.C. Choong, APPM, DTCP. BSc.  
(HBP), MSc. (Planning)

C.C. Lee, BEng (Mal), PEng

L.P. Wong, B Eng, E.W.S. Grad.

Cert, MIE (Aust), CPEng

A.A. Aziz, BSc.(Mal.), AMIC

W.F. Maizahani, DFT

S.C. Yeoh, CQC

C.G. Yeoh, BPharm (Monash)

S.H. Yeoh, LLB (Sheffield), CLP

Dr. S.M. Yeoh, MBBS (Melbourne)

## Edtech Associates Sdn. Bhd.

123, Macalister Road, P.O. Box 163, 10720 Penang, Malaysia

Tel: 604-2295986 Fax: 604-2289410 Email: edtech@tm.net.my

## GENERAL DESCRIPTION

Edtech Associates Sdn. Bhd. was established in 1974 to provide analytical laboratory services to the industry. The company also provides scientific and technological consultancy in environmental management and pollution control as well as industrial safety and health.

The company is registered with the Department of Environment (DOE) Malaysia as an Environment Impact Assessment (EIA) consultant and is a member of the Asia Pacific Institute of Environmental Assessment (APIEA). The company's laboratory is accredited under the SAMM ISO/IEC G 25 international laboratory accreditation scheme. The company is also a member of the International Union of Independent Laboratories (IULI), England.

Besides our own professional staff, the company can also draw upon the expertise of a network of leading scientists and technologists from the universities and research institutes in Malaysia as well as from reputable scientific organisations overseas.

The company's clients include international, regional and governmental organisations, multi-national corporations, leading engineering firms and industrial companies.

**EEC**

## Engineering and Environmental Consultants Sdn. Bhd.

No. 31, Lorong Rahim Kajai 13, Taman Tun Dr Ismail, 60000 Kuala Lumpur

Tel: 603-7188705 (7 lines) Fax: 603-7173164

Telex : EECON MA 37849 E-mail: consult@pop.jaring.my

### KEY PERSONNEL

Abdullah bin Ibrahim, BE, PEng,  
MIEM, MIE (Aust), MACEM  
Henry E Chelvanayagam, BSc (Eng)  
(Hons), MICE, CEng, MIEM,  
MIWEM, PEng, MACEM  
Lim Kim Oum, MICE, CEng, PEng,  
MIEM, MASCE, MACEM  
Choo Seng Kit, BE (Hons) Mal, PEng,  
CEng, MICE, MIEM, MIHT,  
MASCE, MACEM  
Mohd Amin bin Shaari, BE (Hons),  
MIEM, PEng, MACEM  
Tang Tin Seng, BE (Hons), MEng Sc,  
PEng, MICE, MIEM, MIHT, CEng,  
MASCE, MACEM  
Mohammad Azmi bin Ibrahim, BSc  
(Hons), MSc, MIEM, PEng,  
MACEM

### INTERNATIONAL EXPERIENCE

Antigua-West Indies  
Republic of Maldives  
Republic of Cyprus  
Vietnam  
Namibia  
South Africa

### DATE ESTABLISHED

1978

### REGISTRATION

Asian Development Bank  
The World Bank  
Kuwait Fund for Arab Economic  
Development  
Islamic Development Bank

### GENERAL DESCRIPTION

Engineering and Environmental Consultants Sdn Bhd (EEC) was formed in Kuala Lumpur in 1980 out of a small consulting engineering practice founded in 1978 under the name of Jurutera Utama.

The firm currently employs more than 250 staff of which over 100 are professionals. Major fields of engineering covered include civil, structural, mechanical, electrical and environmental. The company has extensive related computer applications capability including CAD facilities and currently maintains in-house Window NT Netware and Novell Netware supported by Power Edge DELL Pentium Pro Server and Sun Sparc Workstations, PC 80486, PC Pentium 90, 133, 166 and Pentium Pro, as well as an extensive software library.

### PERSONNEL

Total 250. Civil and Structural Engineers - 120; Mechanical Engineers - 3; Electrical Engineers - 4; Geotechnical Engineers - 3; Environmental Engineers - 3; Sub-Professionals - 68; Administrative - 50.

### SERVICES

Master Plans. Feasibility studies and preliminary engineering. Site investigations. Detailed designs, tender and supervision of construction of engineering works. Environmental impact studies. Project management.

### FIELDS OF SPECIALISATION

Housing and township development. Urban drainage and sanitation. Transport and traffic. Railways, roads, highways, bridges and interchanges. Airports. High-rise and industrial structures. Environmental engineering. Mechanical and electrical engineering works in buildings and industries. Agriculture development projects. Geotechnical and foundation engineering. Marine engineering. Computer aided design and drafting.

### TYPICAL PROJECTS

#### HIGHWAYS, ROADS AND INTERCHANGES

- Kuala Lumpur Interchanges Project including bridges, highway interchanges and toll plazas. (RM250 million)
- Design and Supervision of roads, bridges and associated works:
  - Kuala Berang Highway (46km)(RM450 million).
  - Butterworth Outer Ring Road (15km)(RM300 million).
  - Bridge over Sg. Perai - 1200m span.
  - Kg. Berchang (Lipis) to Ringlet Highway (20km).
  - B 15 Access Highway to Putrajaya (RM300 million).

#### ENVIRONMENTAL STUDIES

- Over 45 Environmental Impact Studies undertaken and approved including:
  - Kuala Lumpur International Airport, Sepang.
  - Bukit Tasik Serendah Resort.
  - New Johor West Port.
  - Johor Port, Phase 4.
  - Staffed Resort/Golf Course.
  - Development of Sanitary Landfill, Taiping.

#### INFRASTRUCTURE

- All infrastructure planning, designs and supervision for:
  - 607 ha UEP Subang Jaya Township Development, Petaling Jaya of 150,000 population.
  - Kulim Hi-Tech Park (1400 ha).
  - Bukit Lanchong Development (790 ha).

#### URBAN SANITATION AND DRAINAGE

- Masterplan and feasibility studies for sewerage and drainage for:
  - Seremban, Negeri Sembilan, study area of 41 sq.miles. Ultimate population of 370,000.
  - Putrajaya Wastewater Development Population of 350,000 (RM150 million).
- Detailed engineering and supervision for:
  - Seremban Town Flood Mitigation Project.
  - Seremban Sewerage Project.
  - Sg. Keladi Drainage Project.

#### WATER SUPPLY

- Sg. Selangor Water Supply Scheme Stage 1; 3 Nos. x 5 Mgd RC reservoirs; 38 km of pipelines 1,600 mm - 1,100 dia.

- Dungun Water Supply - Phase 2 (RM120 million).

#### TOURISM

- Staffield Golf and Resort Development, Negeri Sembilan.
- Teluk Datai Resort, Pulau Langkawi - 729 ha.
- Machinchang Tourism Study, Langkawi.

#### MECHANICAL AND ELECTRICAL

- Building services for:
  - District Office-Gombak.
  - Kulim Hi-Tech Park (1,400 ha).
  - 20 storey Wisma Mewah, Kuala Lumpur.
  - Pens Hotel, Kangar (11 storey).
- PKDP Cold Room Complex, Port Klang.
- International Islamic University.

#### STRUCTURES

- 27-Storey NLFCS Headquarters Kuala Lumpur.
- 15-Storey Twin UEP Tower, Subang Jaya.
- LPK Commercial/Office Building (20-Storeys).
- Taman Pinji Condominium (26-Storeys).
- 28-Storey IGB Plaza.
- Fajaria Condominium (16-Storeys).

#### AIRPORTS

- New Bintulu Airport, Sarawak. (RM250 million).
- KL International Airport Sepang - Core Facilities (Aprons, taxiways, TTS, BHS, Airside, Roads and Tunnels, AGL, Aircraft Bridges, Drainage and Transit Structures). (RM600 million).

#### PORTS AND MARINE FACILITIES

- Johor Port Phase 4 Development (RM300 million).
- 7 Fishery Ports in Sarawak.
- Rehabilitation of Dry Bulk Terminal, Port Kelang.
- Infrastructure Development for Frigates at TLDM Naval Base, Lumut.
- New Johor West Port - Masterplan and Detailed Design and Supervision for Enabling Works and Dredging and Reclamation.

#### OVERSEAS PROJECT

- Infrastructure planning for Government of Antigua-West Indies.
- Coastal Engineering and Harbour Rehabilitation works for Government of Republic of Maldives.
- Public Health Engineering projects for coastal resorts towns in the Republic of Cyprus.

#### POWER PROJECTS

- 650MW - CAPP Perlis - EIA
- 4 x 100MW CAPP Port Dickson - Preliminary Civil & Structural Engineering Support
- 1) - 1 x 270MW - 400MW - CAPP; Pasir Gudang
- 1 x 270MW - 400MW - CAPP; and A second optional Blocak, Paka
- 2 x 500MW coal fuel power plant Pulau Bunting

- 1) Consultancy terminated due to privatisation

#### SOLID WASTE MANAGEMENT

- Petaling Jaya Solid Waste Management Study
- Solid Waste Privatisation Project - Southern Region) (RM800 million)

### KEY PERSONNEL

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#### DIRECTORS

Lau Lai Keat  
Kok Lai Yin  
Soon Lai Hing

### ASSOCIATES

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Hans Ulmert  
Kenneth Winde

### DATE ESTABLISHED

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1992

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### GENERAL DESCRIPTION

Envirex (M) Sdn. Bhd. began operation to cater to the growing needs of the Malaysian industrial sector to comply to the stringent requirements of the Environmental Quality 1974.

Over the years, as Malaysia increases the pace of industrialisation, enforcement of these regulations has become more widespread. Envirex (M) Sdn. Bhd. specialises in the field of industrial effluent management, control and treatment.

In the company's operations, Envirex draws from the expertise of its principal officers who have a varied experience in environmental projects. This knowledge and experience gathered from working in the local environment is further enhanced by Envirex's association with environmental engineering companies from Sweden, Germany and South Korea.

### SERVICES

- Survey, feasibility studies and report
- Design
- Equipment procurement and construction
- Commissioning
- Turnkey projects
- Operational management and maintenance servicing
- Consultancy

### FIELDS OF SPECIALISATION

- Industrial wastewater treatment
- Close loop wastewater treatment/re-use
- Waste minimisation solutions

### TYPICAL PROJECTS

- Automotive manufacturer
- Food and Beverage
- Palm Oil Refinery/Oleochemicals
- Chemical Industries
- Paint manufacturing
- Electroplating Industries
- Galvanizing Industries
- Textiles Industries
- Pulp and Paper
- Oil and Gas

# Envirochem Consultants Sdn. Bhd.

9th Floor, Wisma Sime Darby, 14 Jalan Raja Laut, 50350 Kuala Lumpur  
Tel: 603-2940941 Fax: 603-2928773

## KEY PERSONNEL

MANAGING DIRECTOR  
Lim Say Chong

DIRECTORS  
Oh Kim Sum  
R.B. Maceachern  
D R Williams

## DATE ESTABLISHED

1979

## ESTABLISHED IN MALAYSIA

1993

## GENERAL DESCRIPTION

Envirochem Consultants Sdn Bhd is an experienced Malaysian environmental consulting company providing engineering advice and project management skills to industry and government throughout Malaysia and the Far East.

## PERSONNEL

ENVIROCHEM's professionals have experience in providing a variety of environmental and plant design services.

## FIELDS OF SPECIALISATION

### PETROLEUM SPILL CLEANUP AND SITE REMEDIATION

ENVIROCHEM's professionals have developed innovative techniques for investigating hydrocarbon contamination at petrol stations, marine terminals, bulk fuel facilities, refineries, and pipelines. Our techniques have been used at more than 4000 sites and are now standard throughout the industry.

### CHEMICAL PLANT SERVICES

A key component of our chemical plant services is the environmental audit process. We identify and provide cost-effective solutions for environmental problems associated with wastewater discharge, air quality, waste disposal and soil and ground water contamination.

### SUPERVISORY CONTROL AND DATA ACQUISITION

ENVIROCHEM's personnel have developed electronic systems to control and monitor processes at remote locations. Our systems collect and evaluate data on a real-time basis and allow immediate control response. We have used these systems for leak detection, risk management, and remediation.

### HYDROGEOLOGICAL INVESTIGATION

ENVIROCHEM provides recognized expertise in all aspects of hydrogeology. We assist our clients in protecting valuable water resources, and facilitate the effective use of available water supplies.

### REGULATORY POLICY DEVELOPMENT

Because ENVIROCHEM's professionals have acquired a reputation for innovative and effective environmental engineering techniques, we actively assist in developing guidelines, regulations, and policies for environmental strategies.

### ENVIRONMENTAL IMPACT AND RISK ASSESSMENT

ENVIROCHEM's environmental impact assessments help our clients to be proactive in dealing with environmental problems. We assess possible health and safety hazards to employees and the public, as well as environmental impacts on air, ground water and soil conditions. Our professionals pioneered the application of risk assessment to environmental management. We routinely perform environmental health and risk assessments for contaminated sites to evaluate future environmental consequences. We recommend risk-based cleanup criteria and develop risk management strategies for our clients.

### PLANT ENGINEERING

ENVIROCHEM provides professionals experienced in plant layout, cost estimating, and multi-disciplinary design for the chemical, oil and gas, and mineral processing industries. Project management services encompass planning, scheduling, contracting, procurement, construction, testing, and commissioning.



# Environmental Resources Management

(M) Sdn. Bhd. (273684-T)

7.01, 7th Floor, Plaza Kelanamas, 19 Lorong Dungun, 50490 Kuala Lumpur  
Tel: 603-9259830 Fax: 603-9259377 E-mail: ermkl@ermkl.po.my

## KEY PERSONNEL

MANAGING DIRECTOR  
Chandran Nair

DIRECTORS  
Dr. Tim Walsh  
David Evans

PRINCIPAL CONSULTANTS  
Nicholas Cordero  
Francis Minah  
Leigh Edwards  
Dr. Christina Phang  
Dr. Almah Awaluddin

## MAIN OFFICES

More than 80 offices worldwide:

- Malaysia
- Hong Kong
- China
- Australia
- United Kingdom
- United States of America
- Europe

## DATE ESTABLISHED

Established in 1971 in UK  
and 1994 in Malaysia

## GENERAL DESCRIPTION

The ERM Group (which includes ERM (M) Sdn. Bhd.) is one of the world's largest independent environmental and safety consultancies with a network of offices extending across Asia, Europe and the Americas. In Asia this includes Malaysia, Singapore, Thailand, Vietnam, Indonesia, China, Hong Kong, Sri Lanka, India and Australia. The Group has served governments and industry, particularly the power, infrastructure, oil and gas and chemical sectors, with specialist advice on all aspects of the environment, including Environmental Impact Assessment (EIA), Monitoring, Auditing, Noise Assessment, Health, Safety and Risk, since 1971 in over 80 countries. In two Times Magazine and Fortune Top 500 Companies surveys, ERM was voted overall **International Environmental Consultant of the Year**.

## PERSONNEL

ERM has over 25 staff in Malaysia, over 250 personnel in the Asia Pacific region and 3000 staff worldwide.

## FIELDS OF SPECIALISATION

- Environmental Impact Assessment (EIA);
- Environmental Monitoring, Auditing and Site Inspections;
- Due Diligence Auditing of facilities prior to acquisition or divestiture;
- Noise Control and Acoustic Design studies;
- Technical studies (air dispersion, oil spill, noise, water quality modelling);
- Review and advice on environmental/safety management systems;
- Quantitative Risk Assessment (onshore & offshore);
- CIMAH Safety Case Preparation;
- Safety Management Systems;
- Hazard and Operability (HAZOP) Studies;
- Emergency Response Planning;
- Compliance Auditing of oil and gas production, processing, storage and distribution facilities and operations;
- Financial Risk Assessment;
- Offshore Safety Case Reports;
- Reliability and Availability Studies;
- Ergonomics Studies; and
- Training of client personnel in environmental/safety management and auditing.

## TYPICAL PROJECTS

- Environmental Impact Assessment studies, including baseline surveys - onshore and offshore oil and gas platforms, onshore petrochemical plants, new highways, rail projects, waste handling facilities, etc.
- Safety and Risk studies, CIMAH assessments.
- Noise studies and surveys - onshore and offshore oil and gas platforms, onshore petrochemical plants, factories, construction activities.
- Environmental audits (Due Diligence, Phase I / II, ISO 14001); and
- Development of Environmental Management Systems (including training of personnel).



## Esso Production Malaysia Incorporated

Menara ESSO, Kuala Lumpur City Centre, 50088 Kuala Lumpur

Tel: 603-3802000 Fax: 603-3803401 Tlx: MA30180 Cable: ESSOPROD, Kuala Lumpur

### KEY PERSONNEL

#### CHAIRMAN

Dato' Philip J. Dingle  
(Also Chief Executive)

#### DIRECTORS

Terry S. McPhail  
(Managing Director)  
Steven C. Spzacake  
(Financial Director)

#### SENIOR EXECUTIVES

Rocky A. Becker  
(Exploration Manager/Natural Gas  
Department Manager)  
Dato' Kamaruddin Mohd Jamal  
(Human Resources Director)  
Puan Sri Junilah Mohd Said  
(General Counsel)  
Lee Chong San  
(Controller)  
Dzulkifli David Abdullah  
(Materials Department Manager)  
Mokhtar Daud  
(T&T Manager)  
Dr. Lee Chee Fook  
(Corporate Affairs Manager)  
Dr Abu Hassan Sulaiman (Marketing  
Director)  
Fatimah Merican  
(Information Systems Manager)  
Zainal Abidin Jalil  
(Engineering Manager)  
Wayne Clark  
(Production Operations Manager)  
Michael K. Nelson  
(Development Projects Manager)

### PRINCIPAL ACTIVITIES

Petroleum and gas exploration and  
production.

### HEADQUARTERS

Exxon Company International,  
Florham Park, New Jersey

#### Branch Offices:

Kompleks Esso, P O Box 1,  
24207 Kemasek, Terengganu.  
Tel: 09-540400 Fax: 09-540744  
Telex: MA 51744  
Production Operations Manager:  
Wayne Clark

### PARENT COMPANY

Exxon Corporation, New York, USA.

### AFFILIATE COMPANIES

Esso Malaysia Berhad,  
Exxon Chemicals (M) Sdn Bhd,  
Esso Borneo Sdn Bhd.

### DATE ESTABLISHED

1965

Member of ENSEARCH

### GENERAL DESCRIPTION

Esso began its operations in Malaysia with the marketing of petroleum products imported from the United States in 1893. Today, the Esso Companies in Malaysia are involved in every phase of the oil and gas industry from exploration and production to manufacturing and marketing of petroleum products in Malaysia.

The Esso companies in Malaysia are:

**Esso Production Malaysia Incorporated (EPMI)** was formed in 1965 to conduct upstream activities i.e. petroleum exploration and production in Malaysia. Today, EPMI is the largest oil producer in Malaysia producing in excess of 300,000 barrels of oil a day. 1990 marked the beginning of the gas era for EPMI when it concluded the Phase II Gas Agreement with PETRONAS to tap the natural gas resources offshore Terengganu. Currently, EPMI has a working interest in 30 platforms in 10 fields offshore Terengganu.

**Esso Malaysia Berhad (EMB)** handles downstream activities in Peninsular Malaysia and manufactures petroleum-based products in its Port Dickson Refinery which came onstream in 1963. Today, the Refinery has a throughput of 88,000 barrels a day. EMB markets its products through 260 service stations and 378 LPG dealers throughout Peninsular Malaysia.

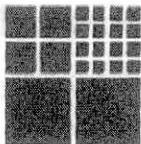
**Esso Borneo Sdn Bhd (EBSB)** was set up in 1969 to market petroleum products in Sabah and Sarawak through a chain of about 91 service stations.

The Esso Companies in Malaysia has achieved its objective of meeting the Government's New Economic Policy targets on workforce ethnic distribution. Esso's workforce of more than 2,500 employees currently comprises 64% Bumiputra, 27% Chinese and 9% Indians and others.

Annually, the Esso Companies in Malaysia contribute about two million ringgit towards community projects in the country.

### PERSONNEL

No. of Employees of EPMI: As of January 1998 = 1,752.



## Fraunhofer Gesellschaft

Asia Representative Office Malaysia  
Letter Box 203, Suite 203, 2nd Floor, Menara Merais,  
No. 1 Jalan 19/3, 46300 Petaling Jaya  
Tel: 603-7560873, 7541479 Fax: 603-7544270

### KEY PERSONNEL

Fraunhofer Gesellschaft Germany  
President  
Prof. Dr.-Ing. Dr. h.c.mult.  
Hans-Juergen Warnecke

Asia Representative Office Malaysia  
Managing Director  
Dipl.-Ing. Peter Nicolaisen

### DATE ESTABLISHED

Fraunhofer Gesellschaft Germany  
1949  
Asia Representative Office Malaysia  
1996

### GENERAL DESCRIPTION

Fraunhofer-Gesellschaft is Germany's leading organisation devoted to the conduct and co-ordination of applied research. It conducts contract research on behalf of the manufacturing and service industries as well as for the public sector. Research commissioned by industrial companies targets rapid and cost-effective technical and organisational solutions up to and including their practical implementation.

Fraunhofer-Gesellschaft was founded in 1949 as a public welfare association. Its members include well-known companies and private patrons who help to shape the association's application-oriented policy. The association takes its name from Joseph von Fraunhofer (1787-1826), the successful Munich researcher, inventor and entrepreneur.

Fraunhofer-Gesellschaft presently operates 47 institutes in Germany, 5 Research and Resource Centers in the US and 3 Representative Offices in Asia. The annual reset budget exceeds 1.1 billion German marks. The Institutes specialise in finely differentiated research fields across a wide scientific and technological spectrum. When systems solutions are called for, several Fraunhofer Institutes collaborate in interdisciplinary fashion.

### PERSONNEL

Around 8,500 people work for the Fraunhofer Gesellschaft, chiefly scientists and engineers.

### SERVICES

Fraunhofer-Gesellschaft collaborates in industrial consortia participating in technology programmes sponsored by the European Union, which serve to increase the competitive capabilities of European enterprise through technological advance. Research commissioned and funded by Federal and Regional Ministries and public authorities consists of strategic research projects, aimed at promoting innovations in key technological fields and spheres of public interest, such as energy, transport and the environment.

The Representative Office in Malaysia serves the customers in Malaysia and neighbouring Asian countries to establish, facilitate and improve the transfer of technology and know-how by means of projects carried out by Fraunhofer Institutes in close partnership with the industry. The office in Kuala Lumpur provides a permanent representation for all Fraunhofer Institutes. The main objective is to support local and other Asian companies and institutions interested in technology transfer, as well as German and multinational companies already active or planning operations in the region.

### FIELDS OF SPECIALISATION

- Environmental Technology
- Energy and Construction Technology
- Health Technology
- Materials Technology, Component Behaviour
- Production Technology
- Information Technology
- Microelectronics, Microsystems Technology
- Sensor, Testing and Measurement Technology
- Process Engineering
- Technical and Economic Studies

### TYPICAL PROJECTS IN THE AREA OF ENVIRONMENTAL R&D

- Information Management System for product recycling
- Recycling soluble plastics using Selective Extraction
- Biofilters on adsorptively active carriers in Exhaust Gas Purification
- Practical tests of a Cocurrent Trickle Bed Reactor for flue gas cleaning
- Influence of aging processes on the leaching of ashes from waste incineration plants
- Development and application of Production Integrated Environmental Technology
- Green Products for information and telecommunication industry
- Economical and ecological optimization for manufacturing processes of PCB
- Conduct Eco-audits, e.g. for transportation and packaging concerns
- Investigation of biological degradation using Respirometric Measurements
- A Toxic Potential Indicator for environmental screening assessments
- Better design for Clean Rooms by design for environment
- Development of Regenerative New Materials for use in industry (e.g. Flax)
- Development of Wood-Gassification technology
- Development and improvement of MDF based on natural fibres (e.g. from oil palms)
- Reprocessing of wastewater from dairies
- Composing of tropical biomass (oil palm) in Malaysia
- Reduction in the heavy metal content of composts produced from the mechanical/biological treatment of residual wastes.



## Fugro-Geosciences (Malaysia) Sdn. Bhd.

No 15, Jalan PJS 11/14, Bandar Sunway, 46150 Petaling Jaya, Selangor  
Tel: 603-7341802 Fax: 603-7341876

### KEY PERSONNEL

S. G. Burtell, Technical Manager

### GROUP COMPANIES ASIA

Geodetic (Malaysia) Sdn Bhd  
Fugro (S) Pte Ltd., Singapore  
PT Soilmaklelan, Jakarta Indonesia  
Bohai McClelland, Tianjin P.R.C.  
Fugro Geodetic, Singapore  
Fugro Hong Kong Ltd  
Material Lab, Hong Kong

### OTHER GROUP COMPANIES

Fugro Engineers B.V. Netherlands  
Ortech B.V. Netherlands  
Fugro Limited., United Kingdom  
McClelland-Suhaimi Ltd, Saudi Arabia  
Fugro Middle East B.V., United Arab Emirates  
Fugro Geosciences, Inc., Houston TX, USA  
Fugro Environmental Inc., Houston TX, USA  
Fugro Southwest, Inc., Houston TX, USA  
Fugro Marine Geosciences, Inc., Houston TX, USA  
Fugro-McClelland West Inc., Ventura, CA, USA  
John E Chance & Associates, Lafayette LA, USA

### DATE ESTABLISHED

1946

### ESTABLISHED IN MALAYSIA

1974

### GENERAL DESCRIPTION

The Fugro Group of companies is a consultancy that specialises in earth and environmental sciences and engineering. With a total staff of over 4,000 people worldwide including geotechnical engineers, environmental scientists, engineering geologists, geophysicists and related professionals, we are able to offer a broad range of professional engineering services. Fugro (M) Sdn Bhd was established in Malaysia in 1974 and is licensed by Petronas to conduct environmental studies, geotechnical investigations and geophysical surveys and positioning services. FGM holds DOE Environmental Impact Assessment Registration No: F 00025.

### PERSONNEL

Fugro's South East Asia Group of companies include approximately 90 people including 5 executives, 5 project managers, 20 geotechnical engineers, 3 engineering geologists, 4 geophysicists, 30 field and laboratory staff and 25 administration and support staff.

### SERVICES

- Marine and Onshore Environmental Services
- Onshore, Nearshore, Offshore Geotechnical Investigations
- Hydrographic, Geophysical and Survey Services
- Dynamic Pile Testing

### FIELDS OF SPECIALISATION

#### MARINE ENVIRONMENTAL SERVICES

Water quality and marine life background studies, sampling, analysis and monitoring programmes including oceanographic studies for marine and coastal construction projects, dredging operations, and oil and gas production installations and transfer facilities.

#### ONSHORE ENVIRONMENTAL SERVICES

Soil and groundwater pre-construction background studies, monitoring and contamination investigations and evaluation for petroleum refining, storage and distribution facilities, chemical plants and waste disposal sites. Additional services include water quality and contamination migration studies.

#### ONSHORE GEOTECHNICAL SERVICES

Soil investigation and geotechnical engineering for industrial, petroleum refining and infrastructure construction sites.

#### NEARSHORE GEOTECHNICAL SERVICES

Coastal and shallow water soil investigation for port and harbour development projects and dredging operations.

#### OFFSHORE GEOTECHNICAL SERVICES

Marine soil investigation and drilling programmes for offshore petroleum production structures and facilities. Integrated geotechnical/geophysical studies.

#### HYDROGRAPHIC, GEOPHYSICAL AND POSITIONING SERVICES

Oceanographic and hydrographic services for port and harbour development and integrated dredge sand exploration programmes. Geophysical site and hazard and route surveys. Positioning and survey services for offshore pipeline, cable and structure installations.

#### DYNAMIC PILE TESTING

Pile installation monitoring and testing for petroleum installations, port, harbour and jetty facilities and infrastructure projects.



## Golden Hope Plantations Berhad

Tingkat 9-16, Menara PNB, 201-A Jalan Tun Razak, 50400 Kuala Lumpur  
Tel: 603-2619022 Fax: 603-2618221 Telex: MA 30844/5 Cable: GOLDPLANT

### KEY PERSONNEL

#### BOARD OF DIRECTORS

Tun Ismail Mohamed Ali  
Zain Azahari Zainal Abidin  
Mohammad bin Abdullah  
Howe Yoon Chong  
Dr Ng Chong Kin  
Datuk Maznah binti Abdul Hamid  
Datuk Abdul Rahman bin Ramli  
Megat Dziauddin bin Megat Mahmud  
Dato' Abd. Wahab bin Maskan  
Washington SyCip

#### GROUP MANAGEMENT

##### COMMITTEE

Datuk Abdul Rahman bin Ramli  
(Group Chief Executive)  
Dato' Abd. Wahab bin Maskan  
(Deputy Group Chief Executive/  
Group Director-Property)  
Megat Dziauddin bin Megat Mahmud  
(Group Director-Finance)  
Dr. Radzuan bin Abdul Rahman  
(Group Director-Plantations)  
Sabri bin Ahmad  
(Group Director-Overseas  
Operations/Marketing)  
Teoh Cheng Hai  
(Director-Quality and  
Environment)  
Mohd. Zulkifli bin Itam  
(Director-Human Resources)  
Puan Norlin binti Abdul Samad  
(Group Secretary)

#### BUSINESS ADDRESS

Golden Hope Plantations Bhd  
13th Fl., Menara PNB  
201-A Jalan Tun Razak  
50400 Kuala Lumpur  
Tel: 03-2619022  
Fax: 03-2618221  
Telex: MA 30844/5

#### Golden Hope Agrotech Consultancy Sdn Bhd

12th Floor, Menara PNB  
201-A Jalan Tun Razak  
50400 Kuala Lumpur  
Tel: 03-2615377, 2615929  
03-2615548  
Fax: 03-2631905

### GENERAL DESCRIPTION

Golden Hope Plantations Berhad has a long history of plantation management that dates back nearly a century ago. Over the years, the Group has ventured beyond plantations and is now one of the leading Malaysian companies listed on the Kuala Lumpur Stock Exchange and the London Stock Exchange.

With over 15,000 shareholders and 23,000 employees, the Golden Hope Group is currently involved in four dynamic business sectors, namely plantations, property development, resource-based manufacturing and overseas operations.

The Group's core competence still remains in the plantations sector, with over 170,000 hectares of oil palm, rubber, cocoa and fruit plantations currently under its ownership and management. The Group produces and processes palm oil, palm kernel, rubber, cocoa and fruits at processing centres in its estates located throughout Malaysia and Kalimantan in Indonesia.

Property development is a major diversification strategy for the Golden Hope Group, which is now a major player in this field through its two principal property companies, the public-listed Negara Properties (M) Berhad and Golden Hope Development Sdn. Bhd. The property division has been and is involved in several large-scale mixed industrial, resident and commercial development projects in Malaysia.

In resource-based manufacturing, the Group drew its strength from the plantations sector to venture into value-added production of palm-based, rubber-based, wood-based and food-based products. Today, its subsidiaries manufacture an array of high quality consumer goods including refined edible oils, tropical fruit juices, spray-dried coconut milk powder, oleochemicals, rubber footwear, medium-density fibreboard, furniture components and household and industrial parquet.

The Group's overseas operations, meanwhile, have seen major investments in the building and operations of edible oils and fats refineries in Vietnam and China. In addition, the Group is also present in Europe and Bangladesh.

In the field of agro-based consultancy, the Golden Hope Group is one of the major players in the field through its subsidiary, Golden Hope Agrotech Consultancy Sdn. Bhd. To date, it has undertaken various agro-based consultancy projects in a number of countries in Asia-Pacific, Africa and South America. Registered in 1969, Golden Hope Agrotech Consultancy provides services in the following fields:

- Plantation Development and Management
- Plantation Advisory Services
- Agronomic Services
- Project Assessment/Evaluation
- Quality and Laboratory Services
- Environmental Impact Assessment in Agricultural Project
- Waste Water Treatment and Utilization
- Training in Plantation Agriculture
- Palm Oil Mill and Rubber Processing Factory

In all of its business operations, the Golden Hope Group is guided by a strong commitment towards the protection and conservation of the environment. It has its own Golden Hope Environmental Policy and is a signatory to the International Chamber of Commerce's Business Charter for Sustainable Development. The Group is recognised internationally in the development and adoption of environmentally friendly practices and was admitted to the United Nations Environment Programme (UNEP) Global 500 Roll of Honour on World Environment Day in June, 1992 in Rio de Janeiro, Brazil. The Global 500 Award, launched in 1987, is to honour outstanding achievements in the protection and improvement of the environment.



## Hexagon Holdings Bhd. (73575-A)

P.T. 3266, Jalan AM 1, Arab-Malaysia Industrial Estate, 71800 Nilai, Negeri Sembilan.  
Tel: 606-7942100 Fax: 606-7942019

### KEY PERSONNEL

Dato' Hamzah B. Zainudin (Chairman)  
Jason Tan Beng Wan (Group MD)

#### Executive Directors

Ir. Ng Choong Hon  
Stephen Low Kwee Beng  
Benny Tan Hock Siang  
Andy Tan Kwang Wah

#### Non-Executive Directors

YB Tuan Haji Mokatar Rudin  
B. Wan Yusof

Dato' Kamarudin B. Jaafar

Kamal B. Mohamadnoor

Charlie Yeo Ban Hun (Deputy MD)

Too Kok Leong

#### Independent Director

Bahrin B. Kasri

### SUBSIDIARIES

Hexagon Tower Sdn Bhd

Polymer Composite Asia Sdn Bhd

PCA Environmental Engineering  
Sdn Bhd

Hexagon Technologies Sdn Bhd

Hexagon Distributors Sdn Bhd

Hexagon Overseas Sdn Bhd

Hexagon Incorporation Sdn Bhd

Hexagon Resources (M) Sdn Bhd

### INTERNATIONAL PRINCIPALS

Dow Chemical Pacific Ltd., Canada  
Schlumberger Industries (Asia-Pacific)  
Pte. Ltd., France

Asahi Yukizai Kogyo Co. Ltd., Japan

Air-Cure Environmental Inc., USA

Agru Alois Gruber GMBH, Austria

Kraftelectronik AB, Sweden

Balcke — Durr AG (BDAG), Germany

Keramchemik GMBH, Germany

Manufactura Cattaneo, S.P.A., Italy

Petrogas Gas System BV, Holland

### BRANCH OFFICES

Penang Tel : 604-2261597

Fax: 604-2260250

Butterworth Tel : 604-5081137

Fax: 604-5081141

Ipoh Tel : 605-5481176

Fax: 605-5481167

Melaka Tel : 606-3353552

Fax: 606-3351369

Johor Bahru Tel : 607-3547718

Fax: 607-3547717

Kerteh Tel : 609-8263566

Fax: 609-8263564

Kuching Tel : 6082-343240

Fax: 6082-343243

Bangkok Tel : 66-2-4204101

(Thailand) Fax: 66-2-4202377

Manila Tel : 63-2-4430923

(Philippines) Fax: 63-2-4430923

### DATE ESTABLISHED

May 1984

### GENERAL DESCRIPTION

A Group dedicated to meet the continually growing and changing demands of the fast-paced industrialisation around the countries of Malaysia, Singapore, Indonesia, Thailand and Philippines with the long-term mission of a truly integrated Asean Company with offices in all Asean countries.

A Group with diversified business activities and subsidiaries dedicated to pursuing her own core business independently, yet synergistically within the Group.

#### Hexagon Tower

- Plant and Process Engineering Services.

#### Polymer Composite Asia

- Manufacturer of Advanced Composite Materials.

#### PCA Environmental

- Licenced Manufacturer of Sewage Treatment Systems and Advanced

#### Hexagon Technologies

- Engineering & Manufacturing of Programmed Control Wet Processing & Cleanroom Environment.

#### Hexagon Distributors

- Industrial Engineering Thermoplastic Materials, Components and other Speciality Materials Supply & Services.

#### Engineering

- Composite Manhole Covers.

#### Hexagon Resources (M)

- Investment Holding Company.

#### Hexagon Overseas

- Investment Holding Company for Asean Region.

#### Hexagon Incorporation

- Investment Holding Company.

Hexagon Group has enjoyed escalating growth since the Company's inception in May 1984 with a paid-up capital of approximately RM20 million and sales approaching RM100 million for the year ended March 1997. With the total employment of close to 500 employees in all offices and subsidiaries, the company is large in human resources and yet trim enough for personal services and attention to details.

### FIELDS OF SPECIALISATION

- Turnkey project implementation of construction of plants, facilitation and process engineering services.
- Design, construction, fabrication, installation and commissioning of industrial packages & equipment for air pollution control, piping, surface protection, tanks & vessels and other engineering services.
- Manufacturing of advanced composite gratings, cable trays, ladders, handrails, stairtreads, structural profiles, composite signages and petrol retailing furniture.
- Maintenance, Replacement and Overhaul (MRO) of plants, equipment, and most other engineering parts and systems.
- Construction and installation of LPG and Natural Gas metering and regulating stations.
- Design, manufacturing and supply of electroplating systems, electrolytic deflash systems, chemical distribution systems, metal recovery systems, Kraft DC rectifiers and cleanroom products and accessories.
- Manufacturing and installation of sewage treatment systems.
- Supply of industrial engineering thermoplastics materials and petroleum retailing equipment.

### PRODUCTS & SERVICES

- Air Pollution Control System
- Plastic/Steel Piping Systems
- Tankage Fabrication
- FRP Underground Storage Tank
- Surface Protection
- Pultruded FRP Products
- Architectural Fibreglass Products
- LPG/NG Metering Station
- Plastic / Steel Fabrication
- Machines & Systems
- Clean Room Environment Systems
- Sewage Treatment Systems
- Engineering Thermoplastic Supplies
- Dispenser Pumps (Schlumberger)
- Corrosion Resistant Plastic Valves (Asahi)
- Thermoplastic Valves, Pipes Fittings (Asahi)
- Pneumatic & Electric Actuators (Asahi)
- PVC/CPVC Valves, Fittings & Accessories (Spears)
- PVC/CPVC Pipes (Harvel)
- Plastic Flow Control Valves (Plast-O-Matic)
- Plastic Vales (Praher)
- PP/PVDF/Hi Purity PVDF Piping (Grubber)
- Semi-Finish Engineering Plastic (Rochling)
- Engineering Thermoplastics Products (Manufactura Cattaneo)
- Tivar PE Liners (Poly Hi Solidur)
- PVC Sheets (Takiron)
- UHMW - PE Sheets, Rods and Wear Strips (Deutsche Holzveredelung)
- Cast Nylon Products (Nylacast)
- Glass Fibre (Thai Vetrotex)
- Vinlyester FRP Resin (Dow)
- Polyester FRP Resin (Revertex)
- Adhesives and Sealants (Loctite)
- Plastic Tubing Fluid Handling Systems (Norton)
- Kraft DC Power Rectifier (Kraftelectronik)
- Cleanroom Products and Accessories (Liberty)

### DISTRIBUTORS OF:

- Plastic Pumps and Filters (Serfilco)
- Process Valves & Actuators (Xomox)
- Electronic Leak Monitoring Systems (Arizona)
- Mechanical Clamps (Team)
- Plastic Lines Piping Product & Accessories (Resistoflex)
- Corrosion Resistant Lining & Coating (Keramchemie)
- Corrosion Resistant Plastic Pipes, Fittings and Flanges (Simona)

# HITACHI

## Hitachi Air Conditioning Products (M) Sdn. Bhd.

(A Member of Hitachi Group of Companies)

No. 10, Jalan Kemajuan, Bangi Industrial Estate, 43650 Bandar Baru Bangi, Selangor Darul Ehsan

Tel: 603-8256611 Fax: 603-8256511

### PARENT COMPANY

Hitachi Ltd. Japan

### KEY PERSONNEL

Hiroyuki Fukuyama,  
Managing Director

### DIRECTORS

Yoshihisa Uneyama  
Nobuhiko Sasamoto  
Tsuneharu Takagi  
Shigeharu Suzuki

### DATE ESTABLISHED

12 August 1989

### PAID-UP CAPITAL

RM42 Million

### LAND AREA

68,000 Sq. Meter

### FACTORY AREA

40,000 Sq. Meter

### PRODUCT RANGE

Room Air Conditioners  
Rotary Compressors  
Scroll Compressors

### PRODUCTION CAPACITY

Room Air Conditioners :  
400,000 per year  
Compressors :  
700,000 per year

### SALES MARKET

Japan, Hong Kong, China,  
Europe, Australia, Malaysia,  
Singapore, Taiwan, Middle East  
and other countries.

### GENERAL DESCRIPTION

Hitachi Air Conditioning Products (M) Sdn Bhd or HAPM began operations in November 1990, drawn by Malaysia's attractive investment climate, well developed infrastructure and industrious people.

Although still in its infancy the company has made a mark in the industry as a premier producer of room air conditioners, rotary and scroll compressors in the Asia Pacific Region. The company is now poised to become Hitachi's business base for air conditioning products in the world market.

HAPM is backed by its parent company, Hitachi Limited in Japan. Like all Hitachi operations worldwide, HAPM boasts of superior technology, sophisticated equipment, precision engineering and a dedicated workforce trained in the finest Hitachi tradition.

### PERSONNEL (as at End of March 1995)

HAPM employs a total staff of 1500 people including 1200 direct employees and 300 indirect employees.

### HITACHI'S LONG HISTORY OF WORKING ON ENVIRONMENTAL ISSUES

Destruction of the ozone layer, global warming, acid rain and shrinking tropical rain forests are some of the major environment issues confronting our planet. Today, everyone needs to make an effort to live in harmony with nature, and to conserve resources and energy, to ease the burden on the environment.

Hitachi's efforts in this area goes back to 1971, when the company established what has since become the Environment Policy Office, to work on air and water solutions to such problems through its extensive development of environment monitoring equipment and pollution prevention systems.

Hitachi has established a Global Environment Charter, a set of environmental protection action guidelines, and has also instituted a company-wide Environmental Action Plan with specific goals and targets. To check the progress of this plan, Hitachi is expanding the system of internal environmental auditing set up in 1978.

At Hitachi, we are working in many ways to help protect the richness and beauty of the planet for future generations.

### HAPM ENVIRONMENTAL ACTIVITIES

- Boundary noise survey and monitoring.
- Indoor and outdoor air pollution control.
- Internal and external environmental audits.
- Industrial waste water treatment.
- Internal water analysis.
- Landscaping project (greening project).
- Products recycling (recyclable material).
- Reduction of industrial waste.
- Rubbish catcher project for drainage system.
- Scheduled wastes management.
- Water recycling.



## ICI (Malaysia) Holdings Sdn. Bhd.

9th Floor, Wisma Sime Darby, Jalan Raja Laut, 50350 Kuala Lumpur  
Tel: 603-2919366 Fax: 603-2948208



### PARENT COMPANY

Imperial Chemical Industries Plc.

### DIRECTORS

Chen Yeng Khan  
Chen Yih-Shen  
Syed Salleh Syed Othman

### SUBSIDIARIES

ICI Paints (Malaysia) Sdn. Bhd.  
National Starch & Chemical  
(M) Sdn. Bhd.  
Unichema (Malaysia) Sdn. Bhd.  
Esterol Sdn. Bhd.

### DATE ESTABLISHED

12 February 1987

### GENERAL DESCRIPTION

A management and investment holding company with subsidiaries engaged in the manufacture and marketing of paints, performance and speciality chemicals, oleochemicals, palm oil based emulsifiers and adhesives.

### PERSONNEL

Total - 831. Management - 252, Skilled - 438, Unskilled - 141.

### FIELDS OF SPECIALISATION

Manufacturing of decorative and refinish paints, packaging/coil and power coatings, adhesives, resins and synthetic polymers, industrial and food starch, fatty acids and glycerine, soap bases, personal care ingredients and food emulsifiers.

### Other Services

- Asia Pacific Regional HQ for ICI Acrylics and ICI group internal audit division.
- Research and Development centre for decorative and refinish products.
- Training centre on application techniques.

## Indah Water Konsortium Sdn. Bhd.

36th Floor, Empire Tower, 182 Jalan Tun Razak, 50400 Kuala Lumpur  
Tel: 603-2636118 Fax: 603-2636128 Homepage: <http://www.iwk.com.my>

### KEY PERSONNEL

**EXECUTIVE CHAIRMAN**  
Dato' Dr. Mohd Aminuddin Rouse

**MANAGING DIRECTOR/CHIEF  
OPERATING OFFICER**  
Jagan Sabapathy

### DATE ESTABLISHED

April 1994

### GENERAL DESCRIPTION

Indah Water Konsortium Sdn Bhd (Indah Water) was granted the concession to provide the 144 Local Authorities in the country with sewerage services in December 1993. As of 1 January 1998, sewerage services is provided to 84 Local Authorities. Currently, a modern and efficient sewerage system that will serve domestic, commercial, industrial and government properties in an economical and environmentally responsible manner is being developed.

A modern and efficient sewerage system is vital for our nation as otherwise our sewage would be channelled straight into our rivers with only inadequate treatment or in extreme cases without any treatment at all. Sewage that is not treated properly is a threat to man and nature. It will pollute our drinking water sources; cause the spread of waterborne diseases like cholera, typhoid and hepatitis A; and create an unhealthy and unhygienic environment for us and our future generations.

Most of the sewerage systems that are being handed over to Indah Water is lacking in a great many ways as previously Local Authorities faced numerous problems such as lack of funds, expertise and technical know-how with regards to sewerage. As such, for the concession period, i.e. 28 years Indah Water will reinvest a major portion of its income to develop and manage the national sewerage system.

### SERVICES

Indah Water provides a number of sewerage services. Over a period of 10 years, Indah Water will invest over RM8.5 billion to provide the following services:

- **Operation and Maintenance of Sewage Treatment Plants**

Indah Water now operates and maintains over 5,400 public sewage treatment plants as compared to 1,800 in the initial privatisation concession agreement. This figure is expected to increase as more sewerage systems are being handed over to Indah Water.

- **Operation and Maintenance of Sewer Pipes**

Currently Indah Water upkeep over 7,421,000 m of existing public sewer pipes that link homes to sewage treatment plants. This figure is also expected to increase in the future. As part of the services of operating and maintaining the sewer pipes, Indah Water has to date, cleared 50,356 public sewer line blockages and repaired 802 collapsed public sewer lines.

- **Scheduled Desludging and Treatment of Sludge**

Desludging of individual septic tanks is an essential service that is carried out on a regular basis as determined by the Director General of Sewerage Services. This service ensures that septic tanks operate efficiently and sewage is treated before the effluent enters our rivers. As of 1 January 1998, Indah Water has desludged a total of 409,781 septic tanks. The septic tank sludge is further treated so that it is environmentally safe. This treated sludge can be used to condition soil or as landfill.

- **Monitoring Effluent**

Effluent from all sewage treatment plants is sampled at regular intervals and tested in modern laboratories to ensure that Indah Water's treatment processes are operating efficiently.

- **Capital Works (New Sewerage Infrastructure Projects)**

In order to ensure that Malaysia has a modern and efficient sewerage system it is necessary to invest in new sewerage infrastructure. Amongst the infrastructure that will be built are new sewage treatment plants, and modern sludge treatment facilities. Currently Indah Water is carrying out capital works projects in Langkawi, Labuan, Port Dickson, Penang and Ipoh.

- **Refurbishment**

Currently more than 5,400 sewage treatment plants that have been handed over are being repaired and upgraded to enhance their efficiency. Refurbishment work involves: tidying up the treatment plant area and improving aesthetics and security; repairing or replacing pumps, electrical wiring, control panels, etc.; providing lighting protection; removing sludge from plants and holding tanks; testing and repairing process equipment; ensuring that the plant meets applicable environmental standards; inspecting and repairing/replacing sewer networks.

- **House Connections**

Indah Water is in the process of upgrading existing individual septic tank services to connected sewerage service in order to provide a better standard of sewerage services to customers. At the end of the day, Indah Water will lay 15,000 km of new sewer pipes to discontinue individual septic tank services and provide connected sewerage services. This is approximately 17 times the length of Malaysia's North-South highway.

### INDAH WATER'S GOAL

As a result of Indah Water's investments, by the year 2025 Indah Water will provide:

- **In 49 of the Larger Local Authorities**

85% of the customers with connected sewerage services and the remaining 15% of the customers with septic tank services.

- **In 95 of the Smaller Local Authorities**

30% of the customers with connected sewerage services and the remaining 70% of the customers with septic tank services.



## **Jebsen & Jessen Engineering (M) Sdn. Bhd.**

Lot 16, Jalan 51A/225, P O Box 545, 46760 Petaling Jaya, Selangor Darul Ehsan  
Tel: 603-7763722 Fax: 603-7759130

### **KEY PERSONNEL**

Andrew Tan,  
Regional Managing Director  
Tai Tiong Tai,  
Commercial Director

### **DATE ESTABLISHED**

1977

### **GENERAL DESCRIPTION**

In 1977, the Jebsen & Jessen Group of Companies South East Asia established Jebsen & Jessen Engineering (JJE) as a wholly owned subsidiary to offer specialised and comprehensive engineering skills to its customers.

In cooperation with world leaders in technology, a highly skilled team of multi-disciplined professionals combined tailored solutions to the customers' specific needs with an efficient after-sales service thereby ensuring customer satisfaction by providing quality, reliability and good value in the products and services delivered.

From a steam turbine to a heat treatment furnace to a petrochemical plant, the groups offer single industrial equipment or a complete process plant from the world's foremost engineering companies and industrial plant manufacturers. One of JJE's principal is Lurgi Umwelt GmbH and Lurgi Bamag GmbH whose activities are:-

- Municipal waste disposal
- Sewage sludge/hazardous waste
- Gas cleaning in Industrial Processes
- Water, waste water and Adsorption Technology

**KEY PERSONNEL**

**DIRECTORS**

**KEMTEK:**  
 Hj. Md. Taib Abd. Rahman,  
 T.C.Dip. 1st Class Reg. Engr.  
 Electrical, Steam & Diesel  
 Chen Yew Seong, BSc., C.Eng,  
 FIEM, AMIC, FInst.E, MIWE.  
 Chartered Engineer & Chemist

**CHEMASIA:**

Chen Yew Seong  
 Lim Aun Whye, B.Comm (Hon)  
 Ooi Hung Hong  
 Ooi Kok Ping, B.Sc.(Hon)  
 Ms P.Y. Chen, Dip.TTC

**TEKNOEMAS:**

Chen Yew Seong  
 Goh Kok Seng, B.Eng(Hon)  
 Steven Lee Kam Cheong

**OVERSEAS PRINCIPALS**

Electrocatalytic Inc.  
 Union, New Jersey  
 NJ, USA

Dewplan (WT) Ltd.  
 17-21 Queens Roads  
 High Wycombe  
 Bucks, HP13 6AO, UK

**Kemtek Sdn. Bhd.**

(Associated with ChemAsia - AquaTech Group)

No. 13-17D, Jalan Petaling Utama 7, Jalan Klang Lama, Batu 7, 46000 Petaling Jaya,  
 Selangor Darul Ehsan

Tel: 603-7948417/19/20/21 Fax: 603-7948423/22

**GENERAL DESCRIPTION**

**Kemtek Sdn Bhd** is a Bumiputra Company formed in 1978 and registered with PUSAKABUMI, Tenaga Nasional Berhad, Kementerian Kewangan, CIDB, Govt. JPP Sewerage, DOE and Petronas. Kemtek specialises in Water, Sewage and Waste Treatment and Environment Protection.

Have executed major contracts for Government agencies, multinationals and industry.

**ASSOCIATED COMPANIES:**

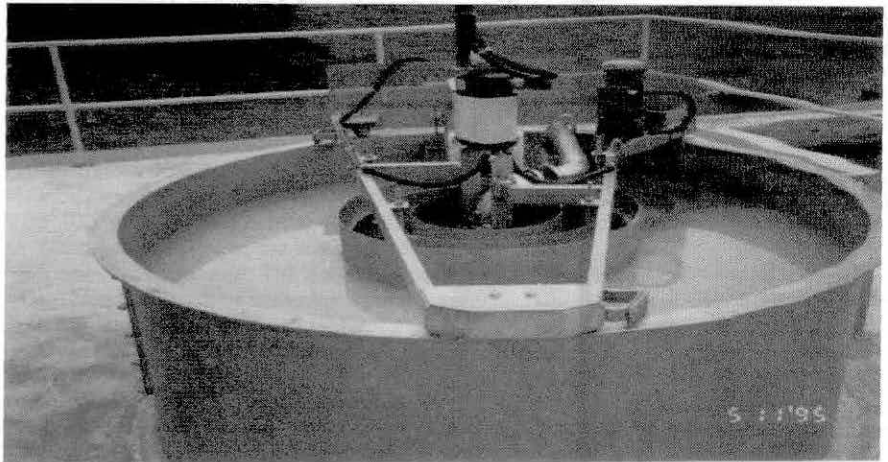
**ChemAsia Industries Sdn Bhd** } Consultants and contractors in water and waste  
**United ChemAsia Sdn Bhd** } treatment projects and suppliers of chemicals and  
**ChemAsia Engineering Sdn Bhd** } equipments

**Teknoemas Sdn Bhd**

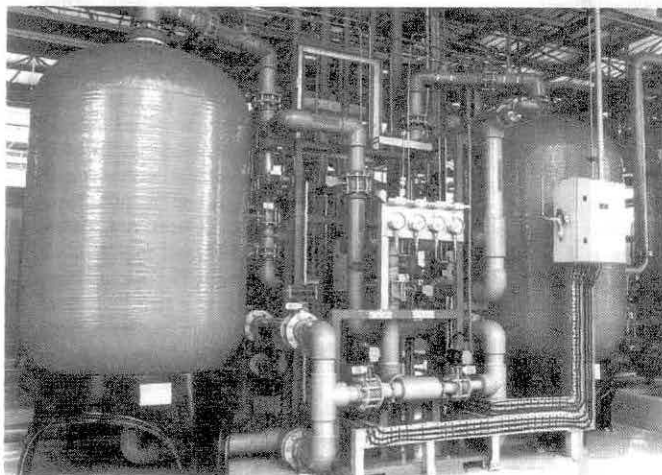
} Construction of turnkey palm oil mills and  
 } refineries in Malaysia and Indonesia

**Aquatech Products and Services Pte Ltd**

} Serve the Singapore/S.E.A. market in water  
 } and waste and swimming pools



KROFTA SUPRACELL Clarifier at Esterol Oleochem Plant



TWIN-BED WATER DEIONISER at ABB-GENTING Power Plant

**LABORATORIES**

SAMM/ISO-G25  
 Accredited.



## **Kota Minerals & Chemicals Sdn. Bhd.** (81755-D)

No. 2, Jalan Tengku Ampuan Zabedah 9/A, 40000 Shah Alam, Selangor Darul Ehsan  
Tel: 603-5506118 Fax: 603-5508918

### **KEY PERSONNEL**

#### **CHAIRMAN**

Dato' Nasaruddin Bin Abd. Jalil  
(Chairman)

#### **MANAGEMENT TEAM**

Mansor Bin Tahir

(Chief Executive Officer)

Abang Abdul Aziz Bin Abang

Mohammed

(Chief Operating Officer)

Ho See Chai

(Technical Service Manager)

Mohd Adri Yunus

(Operations Manager)

Munirah Musir

(Account & Admin. Manager)

Nor Azlam Bin Norbi

(Business Development Manager)

#### **PARENT COMPANY**

Scomi Group of Companies

#### **KMC-SUBSIDIARIES**

Kota Minerals & Chemicals

(Kemaman) Sdn Bhd

Kota Barite Sdn Bhd

#### **DATE OF INCORPORATION/ COMMENCEMENT OF BUSINESS**

27 February 1982/1 May 1987

### **GENERAL DESCRIPTION/SERVICES**

Kota Minerals & Chemicals Sdn Bhd (KMC) is a wholly Malaysian owned company was established in 1982 and is licenced by Petronas to supply drilling fluids (mud and chemicals), production chemicals and professional mud engineering services for the oil and gas industries. KMC is also a supplier of industrial chemicals to non oil and gas industries.

### **OBJECTIVES AND DIRECTIONS**

KMC is committed to developing a Malaysian based company that provides quality drilling fluids and services to the oil and gas industry, maintaining quality and standards that are comparable with other international companies operating in the region.

### **PERSONNEL**

Total personnel approximately 100 including 10 senior management staff, 1 technical consultant, 20 mud engineers, 20 administration and support staff and 49 general operation and logistic operators.

### **INVESTMENT/FACILITIES**

#### **A. KMC - Kemaman Branch in Kemaman Supply Base**

- 4 acre land with 40,000 sq. ft. warehouse cum office
- Fully equipped mud laboratory and bulking facilities including silos, machinery, equipment and vehicles.
- Barite and bentonite grinding plant.
- Comprehensive Mud Laboratory

#### **B. KMC - Labuan Branch in Asian Supply Base**

- 2 acre land with 24,000 sq ft of built area of two warehouse cum office



## KTA Tenaga Sdn. Bhd. (239199-V)

Consulting Engineers-Jurutera Perunding

Level 5 Uptown 2, Damansara Uptown, No. 2 Jalan SS 21/37, Damansara Utama, 47400 Petaling Jaya

Tel: 603-9263333 Fax: 603-9263322 E-mail: ktaten@po.jaring.my

### KEY PERSONNEL

#### CHAIRMAN

Tan Sri Dato' Haji Shahrizaila b. Abdullah, PSM, DSDK, JMN, KMN, BCM, BSK  
BEng (Civil), FIEM, PEng

#### PRESIDENT/CHIEF EXECUTIVE OFFICER

Dato' Lee Yee Cheong, DPMP, KMN  
BE(Hons)(Adelaide), PEng(M), Hon FIEM, PEng(S), FIES, CEng, Hon FIEE(UK), SrMIEEE(US), Hon FIEAust, Hon FIE(Mauritius), MACEM

#### DIRECTORS

Harry Tan Kian Huat, PBM  
BE(Hons)(Malaya), FIEM, FIEAust, MIES, PEng(M), PEng(S), MACEM

A. Rajaratnam, BE(Hons)(Birla), PEng(M), MIEM, MACEM

Chong Chow Pang, BE(Hons)(Adelaide), CEng, PEng(M), MIEM, MIE(Aust), MIMechE(UK), MACEM

Lee Soon Kia, BE(Hons)(Malaya), CEng, PEng(M), MIEM, MIEE(UK), MMIM, MACEM

Mohd Dahalan b Hj Othman, BSc(Hons)(Brighton), PEng(M), MIEM, MACEM

Hamzah b Ismail, Dip (Technical College, KL), CEI, PEng(M), MIEM, AMIMechE, FPWILon, MACEM

Thum Peng Chew, BE(Hons)(Malaya), MEngSc(Malaya), PEng(M), FIEM, MACEM

Leong Wai Tak, BE (Hons)(Malaya), CEng, PEng(M), MIEM, MASHRAE, MCIBSE, MACEM

Muhsin b Mohd Rashid, BE(Hons)(Sheffield), MBA(Ohio), PEng(M), MIEM, MACEM

Cheah Tat Seong, BE(Hons)(Malaya), PEng(M), MIEM, MACEM

Tar Singh, BSc(Hons)(Brighton), PEng(M), MIEM, MACEM

Rasimah Dato Hj. Ahmad Hisham, BSc (Hons) Civil Eng (Aston), PEng, MIEM

#### CONSULTANT/ADVISOR

Tan Sri Dato' Abu Zarim b Haji Omar, PSM, DSNS, PJK  
DLC.Hon, FIEM, PEng(M), FIEE, CEng, MACEM

K. Kumarasivam, BE(Adelaide), MEngSc, FIEM, MIES, MIEAust, PEng(M), PEng(S), MACEM

#### GENERAL DESCRIPTION

KTA Tenaga came into being in January 1993, as a result of an equal merger between two Malaysian engineering consultancy firms, viz. Kumarasivam Tan & Ariffin Sdn. Bhd. and Tenaga Ewbank Preece (M) Sdn. Bhd. KTA Tenaga is organised to provide both Malaysia and the region engineering consultancy services for major multi-disciplinary projects. Optimising the resources and skills in specialised areas, KTA Tenaga is set to enhance its effectiveness in the engineering consultancy industry. The Company's uncompromising commitment towards quality professional services ensures clients' success in projects of every magnitude and complexity.

All principal officers of the Company are registered Professional Engineers with the Board of Engineers Malaysia (BEM) and Members of ACEM.

KTA Tenaga Sdn. Bhd. is a professional engineering body corporate registered with the BEM to practise as Consulting Engineers in the Electrical, Mechanical, Civil/Structural engineering disciplines.

#### PERSONNEL

Total: 430. Building services engineer - 1; Electrical engineers - 55; Mechanical engineers - 54; Chemical engineers - 6; Civil & Structural engineers - 58; Environmental engineer - 2; Instrumentation engineers - 4; Piping engineers - 3; Supporting staff - 247.

#### SERVICES

Economic/financial/technical studies, environmental impact assessments, quality assurance programme, project and construction management, project planning, detailed engineering design, construction supervision, contract management, equipment selection and procurement, inspection - testing - commissioning.

#### FIELDS OF SPECIALISATION

Power generation, transmission & distribution; oil/gas/coal-fired plants and hydro schemes; utility services and production facilities for oil & gas and petrochemical industries; energy management and conservation; process and manufacturing; environmental engineering management, waste management, sewerage treatment and public health engineering; water supply treatment and distribution including desalination; roads, highways and bridges; railway and rapid transit system; jetties and ports; airport terminals, runways and hangars; telecommunications and SCADA systems; land and infrastructure development; housing and township; industrial development; highrise commercial buildings; building services; leisure and tourism projects.

#### TYPICAL PROJECTS

##### POWER STATIONS

- 900MW Sultan Ismail Power Station, Paka, Terengganu.
- Sultan Salahuddin Abdul Aziz Power Station, Kapar, Selangor.
- Connaught Bridge Power Station, Klang, Selangor.
- Sg. Biawak and new Bintulu Power Station Extensions.
- YTL IPP Power Stations at Paka 2 (2 x 404MW) and Pasir Gudang (1 x 404MW).
- Powertek IPP Power Station at Melaka (440MW).

##### TRANSMISSION AND DISTRIBUTION

- KLIA 33/11kV Power Supply System, Sepang.
- LLN (SEB) 132/66kV Transmission System Development.
- Labuan-Beaufort 132kV Overhead Line - Submarine Cable Interconnection.
- LLN (NEB) 275/132kV Quad Circuit Transmission Line.

##### POWER SYSTEM AND ENERGY STUDIES

- LLN (NEB) 275kV, 132kV & 66kV Backup Overcurrent Protection Grading.
- LLN (NEB) Distribution System Planning for 25 networks.
- Arthur D Little - energy Studies for Industrial Development in Sabah and Sarawak for EPU/SESCO/SEB.
- Sabah Power Development Master Plan.
- Study of Reliability of Power Supply in Kuching Area.

##### OTHER INSTITUTIONAL DUTIES

- LLN Privatisation Study.
- LLN and SESCO Assets Valuation.
- Sabah Gas Utilization Project Divestment Study.

##### OIL & GAS

- Petronas Second Refinery (PSR-II), Melaka.
- Petronas 30,000bpd Grassroot Refinery and the new Catalytic Reformer, Kerteh.
- Gas Processing Plant, Phase II and III, Kerteh.
- Titan Petrochemical & Polyethylene Plants.
- Ethylene/Polyethylene Plant for Petronas/BP Idemitsu JV.

##### WATER SUPPLIES AND FLOOD MITIGATION

- Sg. Selangor Water Supply Scheme Phase 1 - 950mld.
- Antah Biwater Rural Water Schemes.
- Besut Flood Mitigation Project for 900 sq. km. of Sg. Besut Basin, Terengganu.

##### ROADS, BRIDGES AND HIGHWAYS

- 23km of security road at Malaysia/Thailand border.
- 68km of security road and development road Jalan Kesban, Perak.
- 38km part of East West Highway from Jambatan Pasir Pulau to Kg. Teris.

##### INDUSTRIAL

Design audit and quality assurance of turnkey contractor's engineering on M&E works for:

- CIMA Cement Plant Expansion, Perlis.
- Perwaja Steel Mill, Terengganu.
- ASEAN Bintulu Fertilizer Plant.
- Malaysian National Car Plant, Shah Alam.
- MTBE/Propylene Plant Kuantan.

##### Design and supervision of:

- Alcom's Aluminium Foil and Sheet Mills.
- Malayan Flour Mills, Perak & Johor.
- Kuala Lumpur Glass - P.J. Works.
- PROTON Engine Factory.
- Airod Hangars.
- Titanium Oxide Plant Kemaman, Terengganu.

##### COMMERCIAL

- Putra World Trade Centre, Kuala Lumpur.
- Kuala Lumpur City Centre Project - Twin 85-storey Office Towers and Central Chiller Plant, Kuala Lumpur.
- 50-storey Office and 480-Room 5-Star Nikko Hotel at Jalan Ampang, Kuala Lumpur.
- Petronas Research Institute, Bangi.

##### HOSPITAL

- General Hospital Kuala Lumpur. Upgrading of all M&E and infrastructural facilities.
- National Heart Institute Kuala Lumpur. A 300-bed heart specialist centre.

##### INFRASTRUCTURE

- Sri Damansara Development (580 ha).
- Permas Jaya (560 ha), Johor Bahru.

##### ENVIRONMENTAL IMPACT ASSESSMENT (EIA)

- Sultan Ismail Power Station, Paka.
- ASEAN Bintulu Fertilizer Plant.
- Malaysian Steel Works Rolling Mill, Petaling Jaya.
- 114km West Link Highway to East-West Highway.



## **Kualiti Alam Sdn. Bhd.** (230440-V)

17th Floor, Menara Dua, Faber Towers, Taman Desa, Off Old Klang Road,

58100 Kuala Lumpur

Tel: 603-7809199 Fax: 603-7801811 Email: kalam@uem.com.my

Homepage: <http://www.uem.com.my/KALAM/>

### **KEY PERSONNEL**

Mr. Zainol Rashid Zainuddin  
(Managing Director)

Mr. Tan Piew  
(Senior General Manager)

Ms. Nor Asiah Shamshuddin  
(Secretary)

### **WASTE MANAGEMENT CENTRE**

Ladang Tanah Merah

A3 Division

71960 Bukit Pelanduk

P.O. Box 126

71000 Port Dickson

Negeri Sembilan

Tel: 06-6342943

06-6342940

06-6342939

Fax: 06-6342607

### **DATE ESTABLISHED**

9 December 1991

### **GENERAL DESCRIPTION**

Kualiti Alam Sdn. Bhd. operates the only integrated scheduled waste management centre in Malaysia. Primarily, Kualiti Alam collects, transports, treats and disposes of scheduled waste. The full range of services includes waste analysis, incineration, physical/chemical treatment, stabilisation and disposal in secured landfill.

As at 1 July 1998, the Integrated Scheduled Waste Management Centre is ready to collect all 107 categories of scheduled wastes as listed in the Environmental Quality Regulations (Scheduled Waste) 1989.

All treatment and disposal facilities at the waste management centre in Bukit Nanas are now ready for operation.

### **PERSONNEL**

Total - 125. Engineers - 7; Chemists - 4.

# **Linatex Rubber Products Sdn. Bhd.**

6 1/2 Mile, Jalan Ipoh, 68100 Batu Caves, Selangor Darul Ehsan  
Tel: 603-6217888 Fax: 603-6202171

## **KEY PERSONNEL**

---

GENERAL MANAGER  
R. N. Spearman

BOARD OF DIRECTORS  
Jen. (B) Tan Sri Dato' Zain Hashim  
R. M. Stewart  
Mej. Jen. (B) Ismail b Ibrahim  
Dr Alan Peake  
R.N. Spearman  
Revi EMK Raman (Alternate to  
Dr Alan Peake)

## **PARENT COMPANY**

---

Elementis Plc., UK

## **RELATED COMPANY**

---

Linatex (Malaysia) Sdn Bhd  
6 1/2 Mile, Jalan Ipoh  
68100 Batu Caves, Selangor

## **OVERSEAS OPERATING COMPANIES**

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Located in UK, Europe, USA,  
Canada, Africa, Australia

## **DATE ESTABLISHED**

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27 May 1988

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## **GENERAL DESCRIPTION**

Linatex Rubber Products Sdn. Bhd. is a manufacturer of high quality abrasion resistant rubber lining. Linatex products include centrifugal pumps, diaphragm pumps, ball mills, valves, lining for chutes and pipes.

## **PRODUCT TRADE-MARKS**

Linatex  
Linard  
Linapump IIIr



## Majlis Perbandaran Petaling Jaya (MPPJ)

Jalan Yong Shook Lin, 46675 Petaling Jaya, Selangor Darul Ehsan  
Tel: 603-7563544 Fax : 603-7581494

### KEY PERSONNEL

#### PRESIDENT

Mohd Nor bin Bador

#### SECRETARY

Tuan Haji Kamarul Bahrim bin  
Dato' Haji Abdul Raof

#### DIRECTORS

Dr. AbdulRahim bin Ahmad, Dept.  
of Health

Ir. Patrick Gan,  
Dept. of Engineering

Sharipah Marhaini bt Syed Ali,  
Dept. of Town Planning

Kamariah bt Md Nor,  
Dept. of Urban Services

Rosmady bin Mohd Yahya,  
Dept. of Enforcement

Lulu Goh,  
Dept. of Treasury

Wan Yusoff bin Haji Wan Yaacob,  
Dept. of Building

Tuan Hj. Ishahak bin Saad,  
Dept. of Park & Recreational

Ir. Amir bin Tukiman, Dept. of  
Mechanical & Transport

Amreeta Kaur,  
Dept. of Valuation

Abdul Mutalib bin Mohd Ali, Legal  
Dept.

### GENERAL DESCRIPTION

Local Authority incorporated and empowered under Local Government Act, 1976 for administering the area of Petaling Jaya, a new growth centre mainly for industrial, commercial and residential activities.

Recently, an Environment Unit has been established to monitor and control the environmental problems in Petaling Jaya.

### PERSONNEL

Civil Engineers - 6; Architects - 4; Town Planners - 3; Health Inspectors - 13 and Enforcement Officers - 154.

### SERVICES

Regulatory, local government, planning permission, structure plan, preparation building and infrastructure permit licensing.



# Malaysian Environmental Services Sdn. Bhd.

(147728-T)

Room 415, Wisma Daiman, Taman Sentosa, 80150 Johor Bahru, Johor Darul Takzim  
Tel: 607-3349057 Fax: 607-3327775 E-mail: ktsio@pc.jaring.my

## KEY PERSONNEL

### MANAGING DIRECTOR

Siow Kuan Tow, SMT, PIS, PJK,  
BSc (Hons), Dip. F.M. QEP  
Qualified Environ. Professional

### DIRECTORS

Yen Miao Jong, BSc (Hons), AMIC  
Chemist  
Adren Sion Hein Yi, BE (Hons)  
Mechanical Engineer

## DATE ESTABLISHED

1986

## GENERAL DESCRIPTION

Malaysian Environmental Services Sdn. Bhd. is a private limited company registered in Malaysia under the Companies Act, 1965. The Company is registered with the Department of Environment as an environmental impact assessment firm bearing the registration no: F00037. The Managing Director is a Qualified Environmental Professional (No. 04960073) registered with the Institute of Professional Environmental Practice of Pittsburgh, USA, and registered with Environmental Professionals Register of Malaysia (No. 023) in the fields of Environmental Impact Assessment (EIA), Environmental Management System (EMS), Environmental Technology (ET) and Environmental Auditing (EA).

## SERVICES PROVIDED:

### MAJOR EIA STUDIES

#### NEW TOWNSHIP DEVELOPMENT

- 386 ha. at Puchong Estate, Mukim Petaling, Daerah Petaling, Selangor.
- 1,868 ha. at Swee Lam Estate, Mukim Senai/Kulai, Daerah Johor Bahru.
- 1,014 ha. at Mukim Pulau, Daerah Johor Bahru.
- 424 ha. at Yukong Estate, Mukim Tebrau, Daerah Johor Bahru.
- 618 ha. at Lenga Estate, Mukim Lenga, Daerah Muar, Johor.

#### HOUSING DEVELOPMENT

- 60 ha. at Mukim Pulau, Daerah Johor Bahru.
- 354 ha. at Masai, Mukim Plentong, Daerah Johor Bahru.
- 121 ha. at Mukim Plentong, Daerah Johor Bahru.
- 195 ha. at Bahau Estate, Mukim Jempol, Daerah Rompin, Negeri Sembilan.

#### INDUSTRIAL DEVELOPMENT

- Conversion of a portion of Cemerlang Industrial Estate for use of medium industries in Mukim Plentong, Daerah Johor Bahru.
- Hi-tech precision factory at Lot 3627, Mukim Senai-Kulai, Daerah Johor Bahru.
- Relocation of Kim Loong Palm Oil Mill from Ulu Tiram to Kota Tinggi.
- Establishment of industrial estate for light and medium industries at Tangkak, Johor.
- Establishment of Segamat II Industrial Park at Mukim Sg. Segamat, Johor.
- Establishment of Simpang Renggam Industrial Area, Daerah Kluang.

#### QUARRY DEVELOPMENT

- Quarry at Lot 44907, Mukim Plentong, Daerah Johor Bahru.
- Quarry at Lot 1227, Mukim Sedenak, Daerah Johor Bahru.
- Quarry at Lot 40884, Mukim Senai-Kulai, Daerah Johor Bahru.
- Quarry at Lot 1909, Mukim Ulu Semenyih, Selangor.

#### RESORT & RECREATIONAL DEVELOPMENT

- 341 ha. at Sg. Ambok Estate, Mukim Tanjung Surat, Daerah Kota Tinggi.
- 400 ha. at Mukim Sedenak, Daerah Johor Bahru.
- 1,012 ha. at Mukim Hulu Sg. Sedili, Daerah Kota Tinggi.

#### WASTE DISPOSAL

- Waste solid, liquid, gas incinerators at Pasir Gudang Industrial Estate, Johor.
- Sanitary land fill facility at Mukim Plentong, Daerah Johor Bahru.

#### WASTE RECOVERY

- Recovery of Copper Oxides from PCB spent etchant at Pasir Gudang Johor.
- Recovery of Aluminium from aluminium dross at Pasir Gudang.

#### QUANTITATIVE RISK ANALYSIS

- 110 ha. petrochemical complex at Pasir Gudang Industrial Estate, Johor.

#### ENVIRONMENTAL AUDIT

- Electronic factory at Prai Free Trade Zone, Pulau Pinang.
- Metal working factory at Larkin Industrial Area, Daerah Johor Bahru.

#### WASTE UTILIZATION

- Land application of POME effluent at Tenggaroh, Daerah Kota Tinggi.
- Land application of POME effluent at Pekan Nenas, Daerah Pontian, Johor.

#### ENVIRONMENTAL TECHNOLOGY

- Investigation on black spot formation at the construction site of the common cycle power plant at Pasir Gudang.
- Investigation on the clogging of turbine air intake filter at Pasir Gudang.
- Investigation on the impact of increase of BOD load from 25ppm to 75ppm from a palm oil factory at Sungai Sayong, Daerah Kluang.



## Malaysian Oxygen Berhad

No. 13, Jalan 222, 46100 Petaling Jaya, Selangor Darul Ehsan  
Tel: 603-7554233 Fax: 603-7566389 Telex: MA 37663 MOX PJ

### KEY PERSONNEL

#### DIRECTORS

Tun Dato' Haji Omar Yoke Lin Ong  
David J. Fuller  
Dato' Haji Mohd Shamsuddin bin  
Mohd Yaacob  
H P Careless  
Dato' Siew Nim Chee  
J Lizeray  
Laksamana Madya (B) Dato'  
Mohd Zain bin Mohd Salleh

### SUBSIDIARY ASSOCIATES

MOX Welding Products Sdn Bhd  
Eastern Oxygen Sdn Bhd  
Dayamox Sdn Bhd

### OTHER OFFICERS

Lim Jit Teng  
Chan Soo Wah  
Sunny Lee  
A Rahman Sham  
Leong Yoke Wah  
Soh Tong Hwa  
A Latiff Harun  
Yeong Tong Chow  
Hj Ismail Hj Othman

### INTERNATIONAL AFFILIATIONS

The BOC Group PLC UK  
L'Air Liquide France

### INTERNATIONAL EXPERIENCE

Australia  
France  
Japan  
United Kingdom  
U.S.A.

### DATE ESTABLISHED

21 September 1960

### GENERAL DESCRIPTION

The Company was incorporated in Malaysia on 21 September 1960 under the name of Malayan Oxygen Sdn Bhd with an authorised capital of 20,000,000 shares of \$1.00 each.

On 1 October 1960 it acquired the business of Industrial Gases (Malaya) Limited which had been operating in Malaysia and Singapore since 1946. The asset acquired included an oxygen plant and an acetylene plant located at Jalan Sungai Besi, Kuala Lumpur. Its first oxygen plant was installed in Falim, Ipoh in 1961. Due to increased demand in that area, a second plant was installed at Ipoh in 1963. Further expansion of business necessitated the construction of a new factory situated on an 11 acre site in Petaling Jaya which was completed in May 1971 at a cost of \$3.6 million. This replaced the three plants in Ipoh and Kuala Lumpur.

In September 1974, the Company acquired the whole of the issued share capital of Malayan Welding Products Sdn Bhd (MWP) in consideration of which the Company issued 1,466,000 shares of RM1.00 each to The British Oxygen Company Limited (BOC), a company incorporated in the United Kingdom. MWP was involved in the manufacture and distribution of arc welding electrodes.

The Company was then a wholly subsidiary of BOC. Following a restructuring exercise carried out in April 1977, 25% Bumiputra participation was introduced in its equity.

On 27 September 1978, the Company was converted into a public company. The name of the Company was changed to its present name on 10 January 1979, and its authorised capital was increased to RM40,000,000 and in 1983 increased to RM150,000,000.

On 10 February 1979, the Company acquired the whole of the issued share capital of Far East Oxygen (Malaysia) Bhd. (FEO) in consideration of which the Company issued 8,750,021 shares of RM1.00 each to the shareholders of FEO. FEO was involved in the manufacture and distribution of industrial and medical gases.

The Company took over the business and operations of FEO and MWP on 28 February 1979 and 31 March 1980 respectively. Both subsidiaries were put into voluntary liquidation on 31 March 1980. Turnover in 1994 was RM244.2 million.

### BUSINESS

The business of the Company consists of the following:-

#### GASES DIVISION

##### RANGE OF PRODUCTS

- A wide range of gases including nitrogen, oxygen, argon, acetylene, nitrous oxide, hydrogen and carbon dioxide.
- Supplies industrial gases, medical gases, special gas mixtures and research grade gases including krypton, neon, xenon, which are purified to ultra-high research grade purities.

##### DISTRIBUTION

- ASU and hydrogen plants are built and gas piped directly to our customers.
- Served by a fleet of modern tankers, which operate round-the-clock, while a second fleet of lorries distribute cylinders across a whole spectrum of industries.

#### GAS APPLICATIONS

- R&D is in three main areas - cryogenic, non-cryogenic and purification.
- All technical breakthroughs by BOD and L'Air Liquide are available to MOX.
- Use of liquid nitrogen in concrete cooling - a first in Malaysia.
- Use of carbon dioxide for rice preservation and tobacco processing.
- Use of liquid nitrogen in tyre curing, the first in South East Asia, food freezing, spice and rubber grinding.

#### WELDING DIVISION

##### RANGE OF ELECTRODES

- A technology leader in the manufacture of electrodes.
- Largest producer of electrodes in Malaysia.
- Its range of Malaysia-made products includes general-purpose mild steel electrodes, low hydrogen electrodes, special electrodes and hardfacing electrodes.
- Tested and approved by international bodies such as Lloyd's Register of Shipping, Det Norske Veritas and the American Bureau of Shipping.
- Used in structural welding workshops, tin mining, oil and chemical industries, the fabrication of high strength steel for critical applications, pipeline fabrication, shipbuilding, and many other engineering related industries.

### WELDING EQUIPMENT

Markets a comprehensive range of gas welding and cutting equipment, from numerically controlled profile cutting machines to protective devices, regulators, hoses and fittings, flashback arrestors, nozzles, gas economisers, welding rods and fluxes, as well as welding accessories. A broad range of welding equipment.

### TECHNICAL CENTRE

- Houses facilities for R&D in the applications of welding technology.
- Repairs, maintains and services all equipment sold by MOX are handled at the centre under the strict supervision of qualified technicians and supervisors.
- Offers consultancy services on design specifications, development of welding procedures, quality control practices and selection of welding consumables.
- Provides training at the Welding Training Centre to MOX staff, customers and other companies involved in the welding industry.

### HEALTHCARE DIVISION

Wide range of specialised equipment, including anaesthesia machines, inhalation apparatus respirometers, respiratory care, infant care equipment and monitoring equipment. We also handle the repair and servicing of medical products, advanced Venturi suction technique for medical pipelines.

### VAPORIZER SERVICE CENTRE

- Set up in 1985, our expertise in this specialised area is recognised at home and abroad in that we are the regional centre for servicing vaporizers of anaesthesia apparatus from Malaysia, Hong Kong, Thailand, Singapore, Taiwan, Myanmar and Sri Lanka.
- Overhauls, tests, calibration and regular servicing of vaporizers, infant care and respiratory management, monitors, ventilators and other oxygen therapy equipment.

### SAFETY DIVISION

Wide range of specialised equipment including welding helmets & accessories, respiratory protection, hearing protection, safety spectacles, head protection, goggles, face protection and flash shield welding curtains.



## MEMC Electronic Materials Sdn. Bhd.

No. 1, Jalan SS8/2, Sungei Way Free Trade Zone, 47300 Petaling Jaya,  
Selangor Darul Ehsan

Tel: 603-7773277 Fax: 603-7745246

### KEY PERSONNEL

#### PRINCIPALS

Subsidiary of MEMC Electronic  
Materials Inc., USA

#### DIRECTOR

Samuel Tennison, Vice President,  
MEMC Malaysia  
Ahmad Shuhiamy bin Mohd.  
Hashim, Managing Director

#### OTHER OFFICERS

M. Manogaran, Human Resources  
Manager  
Yang Yoong Chek, Facilities &  
Manufacturing Services  
Manager  
P.S. Subramaniam, Safety Officer  
Cho Shiou Hwa,  
Water Technology Engineer

### INTERNATIONAL AFFILIATIONS

Wholly owned subsidiary of  
MEMC Electronic Materials Inc.,  
USA which is part of the Huls  
AG Group.

### GENERAL DESCRIPTION

The factory is located in the Sungei Way Free Trade Zone, Petaling Jaya and was established in 1972.

### PERSONNEL

The Company employs about 600 employees and operates on a 24-hour basis.

### FIELDS OF SPECIALISATION

The Company manufactures Polished Silicon Wafers for the Semiconductor Industry and is 100% exported.



**mhes**

## **MHES Sdn. Bhd.**

Wisma MHES, No. 61, Jalan SS25/2, Taman Bukit Emas, 47301 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 603-7037117 Fax: 603-7033425

### **KEY PERSONNEL**

**MANAGING DIRECTOR**  
Panjalingam Pillay

**BOARD OF DIRECTORS**  
Dato' Mohd Zin Haji Mohamad  
Hean Keng Seong  
Lam Wai Meng  
Wan Zainab Rasidi

### **SECRETARIES**

TAT Management Services  
1-B, 2nd Floor  
Lorong Raja Hassan  
41400 Klang  
Selangor Darul Ehsan

### **AUDITORS**

S M Loh, Bala & Co  
Public Accountants  
14B, 2nd Floor  
Jalan Scott, Brickfields  
50470 Kuala Lumpur

### **SOLICITORS**

K L Rekhraj  
7th Floor Bangunan Gurcharan  
71-75 Jalan Tuanku Abdul Rahman  
50100 Kuala Lumpur

### **PRINCIPAL BANKERS**

Bank of Commerce  
Bank Bumiputra Malaysia Berhad  
Deutsche Bank AG

### **SUBSIDIARY COMPANIES**

Bulk Cargo Services Sdn Bhd  
Newcon Machinery Sdn Bhd

### **AFFILIATIONS**

Dojo Joka Senta Co Ltd, Japan  
Combustion Consultants Ltd,  
New Zealand  
UEM Inc., Florida, USA  
Utility Equipment & Management  
Pvt. Ltd, India  
National Research Development  
Corporation, India  
Brentwood Engineering Pty Ltd,  
Australia

### **DATE ESTABLISHED**

4 March 1981

### **GENERAL DESCRIPTION**

MHES Sdn Bhd was incorporated on 4 March 1981 to carry on the business of material handling operations as well as to promote technological innovations for industrial, domestic and agricultural wastewater and solid waste treatment that create a healthier environment for all mankind.

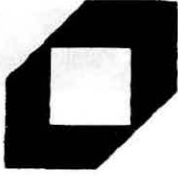
### **ACTIVITIES**

#### **ENVIRONMENTAL DIVISION**

Environmental services including the designing, construction and maintenance of effluent treatment plants, infrastructure development and construction. Solid waste management and related technologies i.e. gasification, composting and waste to energy plants.

#### **MANUFACTURING DIVISION**

- Affiliation with Combustion Consultants Ltd., New Zealand for the manufacture of Closed Coupled Gasifiers ranging from 100 MT/Day - 500 MT/Day.
- Affiliation with Brentwood Engineering Pty Ltd., Australia for the manufacture/assembly of shredders and conveying equipment.
- Affiliation as Shareholder in RH Board Sdn. Bhd. in the manufacture of rice husk particle boards. Suitable for flooring, furniture and decorative panels.



## Minconsult Sdn. Bhd.

No. 14, Lorong 20/16A, Paramount Garden, 46300 Petaling Jaya, Selangor Darul Ehsan  
Tel: 603-7765233 Fax: 603-7769676 Telex: MA 37482 INTCO Email: minco@po.jaring.my

### KEY PERSONNEL

#### BOARD OF DIRECTORS

**CHAIRMAN**  
Tan Sri Dato' Ir. Wan A. Rahman  
Ya'acob, PSM, SPMT, DPMT,  
JSM, AMN  
DEng(hc) B'ham, FASc, FCIOB,  
FIEM, FICE, FIHT, PEng, CEng,  
MACEM

#### DIRECTORS

Abdul Jamil bin Mohd Hassan,  
BSc(Hons)(Eng), MIEM, PEng,  
MACEM  
Mah Guan Seng, FRMIT, CEng,  
CP.Eng, MIEM, MICE, MIEAust,  
PEng, MACEM  
Rosaline Ganendra, BSc(Eng),  
ACGI, MIEM, PEng, MACEM  
Dr. Dennis Ganendra,  
BA(Hons)(Cantab), MSc(Eng)  
DIC, PhD, PEng, MACEM  
Ros Shamsiah bt. Hj. Muda,  
BSc(Hons) UK, PEng, MIEM,  
MACEM

### INTERNATIONAL EXPERIENCE

- Nigeria
- Thailand
- Singapore
- Nepal
- Indonesia
- Vietnam
- Brunei Darussalam
- Sri Lanka
- India
- China
- Cambodia

### DATE ESTABLISHED

1962

### GENERAL DESCRIPTION

Established in 1962 as Ganendra and Associates then as Malaysia International Consultants Sdn Bhd (MINCO) in 1971 and since 1980 known as Minconsult Sdn Bhd which is wholly Malaysian owned with 51% Bumiputra shareholding, Minconsult Sdn Bhd., is now a leading independent engineering consultancy firm in South East Asia.

### PERSONNEL

Total 389 comprising 183 Engineers and other Professionals, 45 Technical Assistants, Surveyors, Technicians and Clerk-of-Works, 76 Draughtsperson and 85 Administrative staff.

### SERVICES

Minconsult is equipped to undertake project management, preliminary technical investigations, conceptual, economic, financial and pre-investment studies and to prepare feasibility reports, preliminary and detailed engineering designs and drawings, cost estimates and comprehensive bid documentation to carry out tendering, contractor selection, construction supervision and project management for the complete range of engineering projects in civil, structural, mechanical, electrical, environmental fields and engineering design and procurement services for the oil and gas industry. Minconsult also undertake Environmental Impact Assessment (EIA) Studies for all forms of development at the proposal stage. Minconsult's unique in-house resources capability enables the firm to handle and co-ordinate all aspects of a project under one roof.

### FIELDS OF SPECIALISATION

Apart from carrying out normal civil, structural mechanical and electrical engineering work the firm maintains specialist divisions to undertake work on long-span bridges, tolled highways and expressway, marine structures such as ports, harbours and jetties, water supplies, sewerage. Environmental Impact Assessment (EIA) studies, power stations, airports (including A.G.L., Communications Runways and terminal facilities), urban and regional planning, transportation, drainage, irrigation, water resources planning and development, geotechnical and geological studies, coastal engineering, oil and gas engineering for off-shore projects, co-ordinated infrastructure planning design and construction and project management.

### ENVIRONMENTAL STUDIES (EIA)

Since 1979, over 75 EIA studies have been successfully carried out including for the following projects:

- Establishment of Coal Fired Thermal Power Generating Stations at Eight Different Locations along West Coast of Malaysia
- Hill Resort Road linking Genting Highlands, Fraser's Hill and Cameron Highlands
- Johor Bahru/Pasir Gudang Structure Plan
- Melaka Master Plan

### TYPICAL PROJECTS

#### AIRPORT

- New Sibu Airport, Sibul, Sarawak
- Penang International Airport
- Sandakan Airport

#### BRIDGES

- Bridges for New Klang Valley Expressway and Kuala Lumpur-Tanjung Malim Highway
- Bridge Over Sg. Kelantan
- Flyover leading to Putra World Trade Centre, Kuala Lumpur

#### DRAINAGE

- Penang Flood Mitigation & Drainage Project

#### GEOTECHNICAL WORKS

- North Klang Straits Reclamation Works

#### HIGHWAYS

- New Klang Valley Tolled Expressway and Kuala Lumpur - Tg. Mailm Expressway
- Hill Resort Road Project

#### INFRASTRUCTURAL DEVELOPMENT

- Putrajaya Development
- Bandar Baru Seri Petaling

#### MARINE WORKS

- PETRONAS Marine Facilities, Kertih
- Oil & Coal Handling Jetty for Kapar Power Station

#### M & E WORKS

- Financial Park (Labuan)
- 35 Storey Pemas Headquarters

#### PLANNING

- North Peninsular Malaysia Regional Development Study
- Manjung and Perak Tengah Structure Plan
- Seberang Prai District Development Plan
- STRUCTURES - INDUSTRIES \* COMMERCIAL
- Malaysian Styrene Monomer Plant in Pasir Gudang, Johor
- LPG Bottling Plant in Hai Phong, Vietnam

#### POWER STATION

- Prai Power Station - Stage III
- Port Klang Power Station, Phases I, II and III
- Genting Sanyen IPP Phase 1A and Phase 2

#### TRANSPORTATION

- Traffic Impact Assessment Studies
- New Klang Valley Expressway - Toll Studies

#### WATER SUPPLY

- Bandar Baru Seri Iskandar Water Supply Scheme
- Kota Kinabalu Water Supply Scheme

#### DESIGN AUDIT & CONDITION ASSESSMENT

- China Road Project

#### RAILWAYS & TRANSIT SYSTEMS

- Bridge Maintenance & Management System Study for KTMB
- STAR Light Rail Transit System 1 - Phase 1

#### PROJECT MANAGEMENT

- Proton City Development
- KHTP Independent Power Utility



# Ocned Water Technology Sdn. Bhd.

23-7, 6th Floor, Subang Business Centre, Jalan USJ 9/5Q, 47620 UEP Subang Jaya  
Tel: 603-7242826 Fax: 603-7242820

## KEY PERSONNEL

### DIRECTORS

Dennis Tan Soo Huang  
Soo Siaw Kian  
H. Hayashi  
Lai Ming Choo  
Ong Soon Haw

## ASSOCIATED COMPANIES

Dentech Water Specialist  
Tan-Hayashi Machinery Sdn Bhd  
Chuan Engineering Works  
Tan Brothers Trading &  
Construction  
Multitech Automation & Electrical  
Services

## DATE ESTABLISHED

1993

## GENERAL DESCRIPTION

Ocned water Technology Sdn. Bhd. officially commenced business in March 1993, as a water specialist company specialising in Water, Industrial Waste Water, Sewage and Ground Water Engineering work and equipment manufacturing. We have supplied and installed numerous units of Sewage Treatment Plants, Industrial Waste Water Treatment Plants and Ground Water (tubewell drilling) projects as an alternative source of water supply in the country.

## PERSONNEL

The company has 23 staff in its employment.

## SERVICES

We provide personal customer services in advising our client on suitable and economical type of treatment system, process design selection, submitting system design in conjunction with project consultant to the Local Authorities for approval and also carry out maintenance work on all treatment plants installed by us.

## FIELDS OF SPECIALISATION

- Community Sewage Treatment Plant
- Package FRP Sewage Treatment Plant
- Industrial Waste Water Treatment Plant
- Water Purification Systems
- Drilling of Ground Water Well and Monitoring Well
- Drilling of Hot Spring Well
- Geophysical Survey
- Resistivity Survey for Ground Water & Hot Spring
- Water & Waste Water Treatment Equipment

## TYPICAL PROJECTS

### SEWAGE AND WASTE WATER TREATMENT

- 9,500 PE - Taman Mount Austin, Johor Bahru - Plant 1
- 6,360 PE - Mines Shopping Fair, Sungai Besi
- 16,000 PE - Permodalan Negeri Selangor Berhad, Salak Tinggi
- 27,000 PE - College heights - Plant 1
- 50,400 PE - Brisdale Holding, Pulau Indah
- 75,000 PE - Bangi Height, Seremban
- 17,500 PE - Taman Mount Austin, Johor Bahru - Plant 2
- 8,000 PE - The Mines Resort Business Park, Sungai Besi
- 21,000 PE - College Heights - Plant 2
- 6,220 PE - Monterez Golf Resort, Bukit Raja
- 9,700 PE - Petunas Development, Chellam Est. Johor
- 5,260 PE - Taman Tampoi Utama (Phase 3) Johor
- 23,700 PE - Taman Mengkibol, Johor Bahru

### GROUND WATER, RESISTIVITY SURVEY & WATER TREATMENT PLANT

- 27 points Resistivity Survey - Lada, Langkawi
- Drilling and Construction Tubewell - Country Height Sdn Bhd Subang Hi-Tech
- Ground Water Resistivity Survey - Dataran Lang & Taman Lagenda, Langkawi
- Water Well Drilling for Ground Water Supply System (6 Wells) - Dataran Lang & Taman Lagenda, Langkawi
- Resistivity Survey and Water Well Drilling for Water Supply (8 wells) - Chung Hwa Picture Tube (M) Sdn Bhd. Shah Alam
- 35 Points Ground Water Resistivity Survey Work - Damai Laut Golf Resort, Lumut
- 5 Points Resistivity Survey - Tongkah Medivest Sdn Bhd
- Water Well Drilling (1 Well) - Tongkah Medivest Sdn Bhd
- 80,000 IGPD Ground Water Treatment Plant/1997 - Tongkah Medivest Sdn Bhd
- Water Well Drilling (15 Wells) - Baneng Industries Sdn Bhd
- 10 Points Resistivity Survey for Ground Water - Baneng Industries Sdn Bhd
- Ground Water Resistivity Survey and 1<sup>st</sup> well - Mitsui Copper Foil (M) Sdn Bhd
- Groundwater Survey work and Drill & Construct Tubewell - Bridgestone Sporting Goods Mfg. Sdn Bhd
- Water Well Drilling and Resistivity Survey - Shin-Etsu (Shah Alam) Sdn Bhd
- Ground water supply work - Sentul Golf Course
- Painting waste water treatment plant for Tylon Factory



## KEY PERSONNEL

K. Kawai (Managing Director)  
 K. Nakamura (Engineering GM)  
 Clarence Ko K. F. (Lab & Chem/  
 Sales & Marketing Manager)  
 Wong Soi Sang (Project Manager)  
 Tony Teh Seng Lee (Maintenance  
 Manager)  
 Y. Watanabe (Electrical Manager)  
 S. Nakajima (Commissioning  
 Manager)  
 T. Nakamura & T. Kiriya  
 (Design Manager)  
 S. Yukimasa & M. Azuma (System  
 Specialist)  
 S. Katayama (Singapore General  
 Manager)  
 N. Yumoto (Philippine Branch  
 Manager)  
 H. Kobayashi (Penang/Kulim  
 Branch Manager)

## BRANCHES

### SINGAPORE

Organo (Asia) Sdn. Bhd.  
 No. 1 Maritime Square #12-04A  
 World Trade Centre  
 Singapore 099253  
 Tel: 02-2729693  
 Fax: 02-2720848

### PHILIPPINES

Organo (Asia) Pte. Ltd.  
 Unit 403, Richville Corp. Centre  
 1314 Commerce Ave.  
 Madrigal Business Park  
 Muntinlupa City  
 Philippines  
 Tel: 5431543/8092038  
 Fax: 5431543

### PENANG, MALAYSIA

No. 19 Lintang Beringin 2  
 Off Jalan Permatang Damar Laut  
 Diamond Valley Light Industrial  
 Park  
 11960 Penang  
 Tel: 04-6262626 (3 lines)  
 Fax: 04-6261616

### KULIM, MALAYSIA

Lot 33 Jalan Hi-Tech 4  
 Taman Perindustrian Hi-Tech  
 09000 Kulim  
 Kedah Darul Aman  
 Tel: 04-4031575 (3 lines)  
 Fax: 04-4031576

## DATE ESTABLISHED

1986

## Organo (Asia) Sdn. Bhd. (149920-X)

Lot 49 Jalan Bagan Terap 26/11, Seksyen 26, Kawasan Perindustrian HICOM,  
 40000 Shah Alam, Selangor  
 Tel: 603-5116666 (10 lines) Fax: 603-5116707/08

## GENERAL DESCRIPTION

Organo (Asia) Sdn. Bhd. was incorporated in Malaysia in 1986 with its branch offices to serve as the foothold in the Southeast Asia region for Organo Corporation of Japan. Organo are totally committed to use our leading edge technologies and our state-of-the-art equipment to produce high quality ultra pure water with the usage of reverse osmosis, ultrafiltration and ion exchange processes for electronic industries. Established as one of the pioneers in waste water treatment systems, our closed systems are environment-friendly, waste water free which permit safe reusage. Our water treatment systems performance are further enhanced by stationing our skilled manpower to handle the plant. We are further equipped with an ISO/IEC G25 accredited laboratory to cater to inhouse and external clients requiring laboratory services. With quality commitment in mind, our laboratory is equipped with fully automated Atomic Absorption Spectrophotometer, TOC Analyser, Ion Chromatograph, UV-Visible Spectrophotometer Gas Chromatograph etc. We have equipped our laboratory with the clean room environment in order to accommodate equipments to achieve up to ppt level analysis. Organo also markets a wide range of water treatment products ranging from coagulants, corrosion, inhibitors, dispersants, paper processing chemicals to heavy oil additives, chemical cleaning agents, deodorizing agents and analytical chemicals and equipment.

## PERSONNEL

Total Staff: 159. Managers - 12; Engineers - 20; Chemists - 10; System Specialist Consultants - 3; Coordinator - 1; Supervisors - 12; Senior Design Assistants - 4; Draughtpersons - 7; Administration, clerical & supportive staff - 90.

## SERVICES

Design, build, commission and maintain Ultra Pure Water System and Waste Water Treatment System, laboratory services and supplier of water treatment chemicals/equipments.

## FIELDS OF SPECIALISATION

- Turnkey project for waste water and ultra pure water treatment system.
- Laboratory Testing (ppm, ppb, ppt level analysis).
- Supplier for water treatment chemical.
- Supplier for water treatment equipment and accessories.

- S.E.H. (Shah Alam) Sdn. Bhd.
- Shin-Etsu (M) Sdn. Bhd.
- Shinko Electronics (M) Sdn. Bhd.
- SMCI Globetronics Tech.
- Toshiba Electronics (M) Sdn. Bhd.
- Toyo Dempa (M) Sdn. Bhd.
- Ueda Plating (M) Sdn. Bhd.
- Wako Electronics (M) Sdn. Bhd.
- Yokowo Electronics (M) Sdn. Bhd.

## TYPICAL PROJECTS/PRODUCTS

### MALAYSIA

- Canon Opto (M) Sdn. Bhd.
- Display Technology (M) Sdn. Bhd.
- Fraser & Neave Sdn. Bhd.
- Fujitsu Component (M) Sdn. Bhd.
- Fuji Electric (M) Sdn. Bhd.
- Hamadatec (M) Sdn. Bhd.
- Kobe Precision Technology (M) Sdn. Bhd.
- LLN Power Station
- Malaysian Quartz Crystal (M) Sdn. Bhd.
- Matsushita Electric Corp. (M) Sdn. Bhd.
- Matsushita Electronic Corp. (M) Sdn. Bhd.
- Mitsui Copper Foil (M) Sdn. Bhd.
- Nippon Electric Glass (M) Sdn. Bhd.
- NSC Electron (M) Sdn. Bhd.

### SINGAPORE

- Asahi Techno Vision (S) Pte. Ltd.
- Fujitsu Microelectronics Asia Pte. Ltd.
- Sony Display Device (S) Pte. Ltd.

### INDONESIA

- PT. Chemicon
- YKK
- Arjuna Utama Kimia

### VIETNAM

- Taisei (Vietnam)

### TAIWAN

- Chia Hsin Livestock
- Shin-Etsu Handotai Taiwan Co. Ltd.



## Petronas

Level 44, Tower 1, PETRONAS Twin Towers, Kuala Lumpur City Centre, 50088 Kuala Lumpur  
Tel: 603-2065500 Fax: 603-2073194

### KEY PERSONNEL

Syed Abdullah Aljunied  
(General Manager)

### OTHER OFFICERS

Mohd Radzuan Yusof,  
(Sr Manager Environment)

Gopinadhan V.  
(Manager Safety)

Vacant  
(Manager Occupational Health)

Vacant  
(Manager HSE Mgmt System/  
Audit)

Suhana Hanum Osman  
(Executive Environment)

Vacant  
(Executive Safety)

### DATE ESTABLISHED

May 1998

### GENERAL DESCRIPTION

The Corporate Health, Safety & Environment (HSE) Unit is the unit in PETRONAS that provides stewardship on the health, safety and the environment aspects of PETRONAS operations. The primary roles of the unit are to:

- (a) develop Corporate HSE policies and guidelines
- (b) provide HSE-related advisory services to OPU's so as to implement HSE programmes
- (c) manage relationship with Government and other oil companies and HSE-related organisations to protect PETRONAS interest and for networking purposes
- (d) enhance PETRONAS' image as a responsible corporate citizen

### PERSONNEL

The Corporate HSE unit is headed by the General Manager with four managers responsible for Occupational Health, Safety, Environment Management and HSE Management System/Audit, respectively.

### SERVICES

- (a) Formulation of Group Health, Safety and Environment policies, systems, standards and guidelines.
- (b) Advisory role in HSE to PETRONAS groupwide
- (c) Interaction with related government and non-governmental organisations as well as environment related international organisations.
- (d) Lead role in HSE initiatives PETRONAS groupwide.



## KEY PERSONNEL

### BOARD MEMBERS

En. Mohamed Said Mohamed Ali, Chairman  
En. Ahmad Zubeir Hj Noordin  
Pn. Hajah Azyiah Bahauddin  
En. Fadzil Yunus  
Yang Bahagia Tan Sri Dato' (Dr) Hj Ani Arope  
Hj Nasrullah Khan b Neazullah Khan  
Lee Oi Hian  
Yang Bahagia Dato' Seri B. Bek-Nielsen  
En. Toh Pang Huat  
En. Abd Rahim Mohd Zain  
Datuk Aripin b Datuk Hj Ampong  
Mohamad Bolhair b Reduan  
Dr Yusof Basiron, Director-General, PORIM

### DIRECTORS

Wan Nasir Daud, Director, Administration and Finance Division  
Prof Dr Jalani Sukaimi, Director, Biology Division  
Prof Dr Hj Badri Muhammad, Director, Chemistry and Technology Division  
Dr Ahmad Ibrahim, Director, Techno-Economic and Technical Advisory Services.

## INTERNATIONAL EXPERIENCE

Collaborative Research Projects with organisations in Japan, USA, India, Korea, Pakistan, United Kingdom, Australia, Canada and The Netherlands.

## DATE ESTABLISHED

15 May 1979

# PORIM

P O Box 10620, 50720 Kuala Lumpur  
Tel: 03-8259155/8259775 Fax: 603-8259446 Telex: MA 31609

## GENERAL DESCRIPTION

The mission is to enhance and support the palm oil industry in Malaysia in all aspects of its activities through research, development and services. The Palm Oil Research of Malaysia (PORIM) was established in February 1979 with the following main functions:

- to expand and improve the current uses of palm oil,
- to find new uses,
- improve production efficiency and quality of products, and
- promote the use, consumption and marketability of palm oil products

## PERSONNEL

Total 850 including 160 research officers.

## SERVICES

Analytical Services. On-Site Technical Audit. Pilot Plant Facilities. Technical and Advisory Services. Oil Palm Extension. Information Statistical Series. Library Services Training, Visit/General Enquiries, Publications.

## FIELDS OF SPECIALISATION

Research on Oil Palm/Palm Oil

## TYPICAL PROJECTS

Research projects in Biology, Chemistry & Technology, Technical Advisory Services connected with Oil Palm/Palm Oil.



## PS Konsultant

1st Floor, No. 41-43, Jalan Tun Ahmad Zaidi Aduce, P.O. Box 2728, 93754 Kuching, Sarawak  
Tel: 082-244876 (6 lines) Fax : 082-259678

### KEY PERSONNEL

#### PARTNERS

Abdul Aziz Hassan, BSc.(Eng),  
MIEM, PEng, MACEM  
Jong Kim Fui, BSc. (Arch), Reg.  
Architect  
Sia Yong Chuan, BE (Civil) Aust,  
MIEAust, CPEng, MNWWA,  
AMIWES, FIEM, PEng, MACEM  
Simon Sim Teck How, BE (Civil)  
Aust, MIEAust, CPEng, MIEM,  
PEng, MACEM

#### ASSOCIATES

Sim Teck Hian, Peter, Reg. Architect,  
Dipl. Arch (Portsmouth, UK),  
RIBA, APAM  
Drahman Ulis, BE (Civil Eng.)  
Soon Choon Moh, BE (Elect) Aust,  
MIEAust, PEng(M), MIES, MIEM,  
CEng (Aust)  
Wong Tung Ming, BE (Mech) New  
Zealand

### ASSOCIATED COMPANIES

Montgomery Watson, Australia  
Royds Consulting, New Zealand

### DATE ESTABLISHED

March 1980

### GENERAL DESCRIPTION

PS Konsultant is a Sarawak-based Consulting Firm providing a wide range of services in Architectural, Civil & Structural, Mechanical & Electrical and Environmental Engineering Works. It has the capacity for providing extensive scope of services like feasibility studies, planning and design, project management including contract administration and supervision of construction works

### PERSONNEL

The firm has employed approximately 100 staff comprising of 30 Professional Engineers and Architects with sub-professional and administrative back-up.

### SERVICES

Architectural and Structural design, town planning, road, highway and bridges, water & wastewater treatment, drainage & irrigation, marine & coastal engineering.

### FIELDS OF SPECIALISATION

Water resources planning, water supply planning & treatment, sewerage & sewage treatment; drainage, quarries, wharves, riverwall & associated marine works, environmental engineering, environmental impact assessment and other field of services.

### TYPICAL PROJECTS

#### WATER SUPPLIES

- Kapit Water Supply
- Gedong Water Supply
- RASCOM Military Water Supply
- Major Extension to Sri Aman Water Supply
- Limbang Water Supply
- Batu Kitang Water Treatment Plant Module 4, Kuching
- Kuching Water Supply Expansion Project
- Sibul Water Supply Expansion Project - Phase I
- Miri Water Supply Phase
- Engkilili Water Supply Extension
- Kuching Water Supply Expansion Project - Stage II
- Asajaya Regional Water Supply
- Betong-Spaoh Regional Water Supply
- Saratok Water Supply Phase II
- Miri Water Supply Third Expansion

#### MASTER PLANS & FEASIBILITY STUDIES

- Master Plan Study for Kuching Water Supply
- Master Plan Study for Sibul Water Supply
- Master Plan Study for Miri Water Supply
- Ground Water Investigation Study for Miri Water Supply
- Feasibility Study for Kuching Water Supply Expansion Project - Stage 2
- Feasibility Study for Sibul West Rural Water Supply
- Bintulu Port Sedimentation Study
- Leakage Study for Kuching Water Supply

#### ENVIRONMENTAL IMPACT ASSESSMENT STUDIES

- Environmental Impact Consideration report on Water Supply for Kuching, Sibul & Miri
- Environmental Impact Consideration report on Bintulu Port Sedimentation Studies
- Environmental Impact Assessment report on Sebanjan Bajong Drainage Scheme
- Environmental Impact Assessment report on Water Supply Transfer System in Miri

#### ROADS, HIGHWAYS AND BRIDGES

- Sri Aman/Stumbin/Bijal/Lingga Road, Second Division, Sarawak (63 miles)
- Miri/Bintulu/Labang/Tubau/Belaga/Balui Trunk Road - Package C (51 km)
- Improvement of Kuching/Sibul Road (Batu Lintang Junction to Betong Junction) (42 km)

- Proposed Selang/Sampadi/Lundu Coastal Road - Sector B (21 km)
- Upgrading, Improvement and Bitumen Surfacing of Jalan Batu Kawa-Tondong (11 km)
- Simunjan/Kpg. Pendam Road II from Kpg. Ensegei Melayu to Pendam, Samarahan (16 km)
- Upgrading, Improvement and Bitumen Surfacing of Penrissen Feeder Road (19 km)
- Proposed Miri By-Pass (10 km)
- Padawan Road Improvement - Package B (16 km)
- Matang Road Improvement (12 km)
- Improvement of Sekama Road (2 km)
- Batang Trusan Bridge, Limbang Division, Sarawak
- Sungai Sarikei Bridge, Sarikei Division, Sarawak
- Sungai Kemena Bridge, Sibul Division, Sarawak
- Batang, Sadong Bridge, Kuching Division, Sarawak
- Sg. Petian/Sg. Judan/Sg. Penat/Sg. Jalang/Sg. Jalang Baru Bridges along Mukah/Oya Road, Sibul

#### CIVIL AND STRUCTURE

- Dewan Bahasa dan Pustaka Malaysia Cawangan Sarawak Building
- Bangunan Dewan Bandaraya Kuching Utara
- Bangunan Majlis Bandaraya Kuching Selatan
- Extension of Kapit Hospital, Kapit Division
- Batu Lintang Teachers' Training College Auditorium
- Mosque at Kampung Igan

#### ARCHITECTURE AND ENGINEERING

- Bukit Hantu Condominium, Kuching
- Sarawak Children Home, Sri Aman
- SMK Agama, Kuching
- Red Crescent Headquarters, Kuching
- New Sacred Heart Church, 7th Mile, Kuching
- Taman Hui Sing, Kuching (39 Ha)
- Taman Matang Jaya, Kuching, (100 Ha)
- Nyelong Park Low Cost Housing (11 Ha)

#### MARINE STRUCTURES AND JETTIES

- R.C. Wharf for Plywood Complex at Ensurai, Sibul
- Belawai Fisheries Complex
- R.C. Wharf at Belaga, Kapit Division
- Kuching Fisheries Complex
- Mukah Fisheries Complex
- Miri Fisheries Complex
- Bintulu Fisheries Complex
- Retaining Wall, JKR Depot, Miri
- Telaga Gabion Retaining Wall, Kuching
- Pantu RC Landing Jetty
- Belaga Jetty, Kapit

#### MECHANICAL AND PROCESSING PLANT COMPLEXES

- Pepper Marketing Board-Bintangor, Sarawak
- Pepper Processing Plant-Sibul, Sarawak

#### ICE PLANTS AND EQUIPMENT

- Ice plants and equipment and associated works for Kuching, Mukah and Belawai Fisheries Complexes
- Ice plants and equipment and associated works for Miri and Bintulu Fisheries Complexes



## Ranhill Bersekutu Sdn. Bhd.

Wisma Ranhill, No. 2-12 Jalan Setiawangsa 10, Taman Setiawangsa, 54300 Kuala Lumpur  
Tel: 603-4522020 Fax: 603-4566880

### KEY PERSONNEL

#### PRESIDENT/CHIEF EXECUTIVE OFFICER

Dato' Hamdan Mohamad, BE., MSc.  
DIC, FIEM, FICE, MIE (Aust),  
PEng, CEng

#### DEPUTY PRESIDENT/CHIEF EXECUTIVE OFFICE

Hassan Saad, BSc., Dip.(UTM), MIEM,  
PEng

#### VICE-PRESIDENTS

Zamali Midun, BE(Hons), MEng,  
Dip.HE, PEng, FIEM, MASCE

Lee Meau Kon, BE, MIEM, PEng

Yap Yuen Thye, BAppSc.(Hons),  
MCSC, MIEM, PEng

Vijaya Kumar, BE, ME, FIEM,  
MASCE, PEng

Ng Wai Leong, BE (Hons), MIEM,  
PEng, MMWA

Tarique Azam, B.Tech(Civil), ME  
(Geotech.), MIEM, PEng

Stephen T.M. Tong, BSc(Hons),  
MIEM, MIAABSE, PEng

Ahmad Damanhuri Abdul Rahim,  
BSc., D.I.S.

#### ADVISER

Tan Sri Datuk Ahmad Farouk Ishak,  
PBM, DSPN

BSc Hons. (Econ & Politics), MBA

### BRANCHES

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#### PENANG

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Jalan Burmah, 10050 Pulau Pinang  
Tel: (04) 2262081, 2262350  
Fax: (04) 2274382

#### PHILIPPINES

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Road, Ortigas Center, Pasig City  
Philippines  
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#### SARAWAK

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Sect.8, K.T.L.D., Jln Haji Taha  
93400 Kuching, Sarawak  
Tel: (082) 258111  
Fax: (082) 255477

#### VIETNAM

66, Le Thi Hong Gam, District 1  
Ho Chi Minh City, Vietnam  
Tel: (848) 8211696  
Fax: (848) 8213083

### DATE ESTABLISHED

1973

Member of ENSEARCH

### GENERAL DESCRIPTION

Ranhill Bersekutu Sdn Bhd is a Malaysian firm of Engineers and Project Managers established since early 1973. Continuous growth has seen the firm expand its portfolio in mechanical, electrical, civil and structural engineering services to include, among others, oil & gas, power and energy management services. Increasingly, however, Ranhill Bersekutu is involving itself in environmental studies and environmentally related projects such as waste water management, solid waste disposal and toxic/hazardous waste disposal. The firm is currently a registered environmental engineering consultant, with the Malaysian Treasury and the Department of Environment and Natural Resources and Environmental Board, Sarawak.

### PERSONNEL

Ranhill currently employs 800 staff including 400 professionals of whom 6 engineers have developed extensive experience in the execution of Environmental Impact Assessment (EIA) studies and of projects in connection with Environmental Issues. In addition, there are presently 4 Environmental Specialists within the firm.

### SERVICES

Environmental Studies and Waste Management and Disposal Systems. Also, Civil, Structural, Mechanical, Electrical, Geotechnical, Water Resources, Energy & Power, Oil & Gas, Process, Maritime, Infrastructure Planning, Project and Construction Management.

### FIELDS OF SPECIALISATION

Environmental Studies, Waste Water Management, Solid Waste Disposal and Toxic/Hazardous Waste Disposal. Also, Housing and Township Developments, Recreational and Resort Developments, Transportation Planning and Design, Building Services for High-rise Buildings and Industrial Developments, High-rise and Low-rise Structures, Water Supply, Drainage and Sanitation Works, Maritime Engineering, Computer Installation and Systems Design, Project Management.

### TYPICAL PROJECTS

#### ENVIRONMENTAL STUDIES (EIA)

- 500kV Transmission Line Project, (Klang to Gurun)
- Pahang Cement Plant, Kuantan
- Kuala Lumpur International Airport, Sepang
- Perwaja, Rolling Mill Producing Wire Rod from Billets at Gurun, Kedah
- Shell Refinery Conversion Project, Port Dickson
- Kelantan Petroleum Complex
- Dengkil Industrial Development, Selangor
- Shah Alam Highway, Selangor
- Landfill Site at Air Hitam, Selangor
- Residential, Commercial & Industrial Development and Golf Course at Kinrara, Selangor

#### WATER QUALITY MONITORING

- Damai Laut Resort Development, Perak
- Residential & Golf Course Development at Bukit Jalil, Mukim Petaling, Kuala Lumpur
- Sayu Lake Home, Nilai, Negri Sembilan

#### MARITIME AND RIVER ENGINEERING

- Klang River Basin Flood Mitigation Study
- River Bank Protection and Tidal Flooding Alleviation Master Plan for Teluk Intan, Perak.
- Coastal Protection Works, Seberang Takir, Terengganu
- Coastal Protection Works at Dungun (Terengganu), Miri to Kuala Baram (Sarawak), Tungku to Tinagat to Batu Payong (Sabah).

#### COMMERCIAL BUILDINGS

- 60 storey Telekom Headquarters Building, Kuala Lumpur
- Ampang Tower Project, Kuala Lumpur
- 160m high Menara Alor Setar, Kedah
- Petronas Twin Towers, Kuala Lumpur
- Malayan Banking Headquarters, Kuala Lumpur

- New World Hotel/Ramada Renaissance Hotel, Kuala Lumpur
  - Pan Pacific Hotel, Kuala Lumpur
  - Istana Hotel, Kuala Lumpur
- #### PUBLIC/INSTITUTIONAL BUILDINGS
- Universiti Utara Malaysia, Kedah (Temporary Campus)
  - Redevelopment of Ipoh Airport, Perak
  - Cardio-Thoracic Centre, Kuala Lumpur
- #### HOUSING & TOWNSHIP DEVELOPMENT
- Bandar Baru Darulaman, Kedah
  - Taman Sri Sentosa, Kuala Lumpur
  - Bangi New Town Centre, Selangor
  - Sentolia Park Development, Kuala Lumpur
- #### INDUSTRIAL FACTORIES

- Yeoh Tiong Lay Cement Factory, Pahang
- Fraser & Neave, Drinks and Milk Factory, Shah Alam
- Perwaja, Re-establishment of DRI Plant, Terengganu
- Motorola Electronics Factory, Selangor
- Rolnic Ceramic, Tile Factory, Seremban

#### OIL & GAS

- MSN, Wellhead Platform, Indonesia
- Petronas, Depot and LPG Plant, Tawau
- Shell, LPG Filling Plant, Sepang Bay, Kota Kinabalu, Sabah

#### WATER SUPPLY

- Selangor Water Supply Privatisation Project
- Rehabilitation & Upgrading of Water Supply Systems in Malaysia
- Privatisation of Sungai Layang Water Supply Scheme
- Sungai Selangor Water Supply Scheme
- Johor Barat Water Supply Scheme
- Bangi Water Supply Scheme

#### HIGHWAYS & BRIDGES

- Bridge Capacity Determination Project, Malaysia
- Malaysia-Singapore Second Crossing Bridge
- North-South Expressway, Gurun-Sg. Petani-Butterworth
- Shah Alam Highway, Selangor

#### ENERGY & POWER

- 500kV Transmission System, Phase 1, Gurun-Port Klang
- Perwaja, Upgrading of 275kV Power Plant, Terengganu

### Engineering Awards

- Project Management Services for the Rehabilitation of the Existing DRI Plant and Establishment of a new DRI Plant, Terengganu (ACEM Award of Special Merit, 1994)
- Pelangi Beach Resort, Langkawi ACEM Award of High Commendation, 1991
- Central Market Redevelopment, Kuala Lumpur ACEM Award of Merit, 1990
- LUTH Headquarters, Kuala Lumpur ACEM Award of Special Merit, 1989
- Masjid Negeri, Shah Alam ACEA Merit Award, 1989
- Teluk Intan Hospital, Perak ACEA Merit Award, 1988
- Klang River Basin Flood Mitigation Study ACEA Merit Award 1994

## SEGHERSbetter technology for Water N.V.

Malaysia Representative Office: TO35, 3rd Floor, Sungei Wang Plaza, Jalan Sultan Ismail, 55100 Kuala Lumpur  
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### KEY PERSONNEL

Christel Gernay

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E-mail: info@seghers-water.com  
Website: www.seghers-water.com

### GENERAL DESCRIPTION

SEGHERSbetter technology for WATER, a member of the SEGHERSbetter technology GROUP, develops and commercialises state-of-the-art biotechnologies.

Together with SEGHERSbetter technology for SOLIDS + AIR and SEGHERSbetter technology for SERVICES + MACHINERY this 600 people, 130 million US\$ strong group is worldwide active through a continuous growing network of own offices in Argentina, Australia, China, Egypt, The Netherlands, India, Ireland, Macao, Malaysia, Philippines, Portugal, Spain, Thailand, UK, Vietnam and an international network of partners and licensees. The SEGHERSbetter technology GROUP exports their expertise by means of technology transfer or technical collaboration agreements (partners, licensees, joint ventures).

SEGHERSbetter technology WATER specialises in the field of advanced water and waste water treatment. The proprietary technologies which have been developed and which are improved through continuous feedback and ongoing research are:

UNITANK® : advanced treatment of industrial and municipal wastewater

- duo UNITANK®
- UNITANK® single stage aerobic
- UNITANK® two stage aerobic
- UNITANK® two stage anaerobic-aerobic
- zero emission UNITANK® : completely covered plant with full odour and noise control, unobtrusive
- UNITANK® zero discharge : closed loop, sustainable and integrated
- UNITANK® process control unit : adaptive and intelligent process control

COMPOSTELLA® : integrated biosolids treatment leading to organic compost

SEGHOBIOCLEAN : biological off gas treatment

SKARABEE® : manure treatment

BIOSCAN-BIOMASTER®

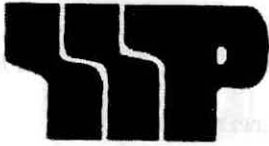
WATERDOCTOR® : process service supplier to waste water treatment plants

UNISOL® : in situ soil bioremediation

International clients include a.o. General Motors, Coca Cola (Egypt, Belgium), Interbrew (France, Belgium), Danone, Kraft - Philip Morris (Belgium, Spain), Cargill (USA, The Netherlands, Germany, Poland, Belgium), Baxter, BP, Anheuser-Bush (Spain), Puratos (Spain, Belgium), Carlsberg (U.K.), Macau, Aquafin, SIIC (Egypt), Sonae (Portugal), Sucreries et Distilleries de l'Aisne (France), Hercules, Hoffman La Roche, Amylum (Greece), Lotte (Korea), Plottier (Argentina), Dungannon Meats (Northern Ireland), Vandemoortele (France, Belgium), Campbell Soup (Malaysia, Belgium), Zhujiang (China), Eastman Chemicals, Proctor & Gamble, Brahma (Brazil), Jurong Island (Singapore), ...

Projects in Asia:

- Zhujiang Beer Group Company (China); brewery; 5000 kg BOD/day
- Chilsung (Korea); dairy industry; 1500 kg BOD/day
- Lotte Ham & Milk; food industry; 400 kg BOD/day
- Etar Da Taipa (Macao); Municipal; 320,000 pe
- Lotte Confectionery (Korea); food industry; 1560 kg BOD/day
- Campbell Soup Company (Malaysia); food industry; 460 kg BOD/day
- Yang-san Plant (Korea); food industry; 1920 kg BOD/day
- Dairy Lanka (Sri Lanka); dairy industry; 50 kg BOD/day
- Sonadezi Corp (Vietnam); industrial; 2000 kg BOD/day
- Coloane (Macao); municipal; 100,000 pe
- Jurong Island (Singapore); industrial; 4300 kg BOD/day



## Sepakat Setia Perunding (Sdn.) Bhd.

Wisma SSP, Level 8-18, Serdang Raya Seksyen 8, 43300 Seri Kembangan,  
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### KEY PERSONNEL

#### CHAIRMAN

Tan Sri Dato' Ir. Talha b Hj Mohd Hashim,  
PSM, DPCM, DSDK, KMN, AMN, BCK  
DipCEng, MM (AIM), PEng, CEng,  
FIEM, FICE, FIHT, MMIM, HonFISM,  
MACEM, MACE(UK)

#### MANAGING DIRECTOR

Ir. Wong Yoke Fai, BE (NSW), PEng,  
FIEM, MIEAust, MASCE, MIWEM,  
MMWA, AIMA, MACEM

#### BOARD OF DIRECTORS

Tuan Haji Ir. Ahmad Din B. Hj Babjee,  
PPT, PJK

DipCEng, PEng, FIEM, MACEM

Ir. Yap Chong Lee, BTech (Hons), MSc,  
CDipAF, PEng, FIEM, MICE, MACEM

Ir. Yusoff B. Md Nasir, DipCEng, BSc  
(Eng), PEng, MBA, FIEM, MMIM,  
MACEM

Ir. Teh Ming Hu, BE (Hons), PEng, MIEM,  
MACEM

Ir. Teoh Kah Seng, BE, PEng, CEng, FIEM,  
FICE, MACEM

Ir. Hj. Mohd Mazlan B. Md Ismail Merican,  
DipMechEng, MScEng, MBA, PEng,  
FIEM, MI PlantE, FTAM

Ir. Wong Wai Wah, BE (Hons), PEng,  
CEng, MIEM, MICE, MACEM

Ir. Koh Leng Fatt, BE (Hons), PEng, FIEM,  
MACEM

Ir. David Nalliah Welch, JSM, KMN, PJK,  
PIS, BE, DHE (Delft), PEng, FIEM,  
FICE, MACEM

Ir. Wong Shu Leong, BE, MBA, PEng,  
CEng, FIEM, MIEE, MIES, MACEM

#### IN-HOUSE CONSULTANTS

Ir. Knud G Sehested, BSc (Eng), PEng,  
CEng, FIEM, FICE, FIES, MIDan CEng,  
MACE (UK)

Ir. Er Kiah Choon, DipCEng, DIC, PEng,  
CEng, FIEM, FICE, MIES, MStructE,  
MIWEM, MACEM

Dato Ir. Ho Thian Hock, DIMP, DSPN,  
JSM DLC (Hons), BScEng (Hons),  
PEng, CEng, FIEM, FICE, MIWEM,  
MACEM

### OFFICES

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SABAH  
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88809 Kota Kinabalu, Sabah  
Tel/Fax: 088-211289 Cable: SIAP

SINGAPORE  
Tanglin P O Box 4  
Singapore 912401  
Tel: 02-2731889, Fax: 02-2733188  
Telegram: STEENSTED  
Telex: STEEN RS 23688

### DATE ESTABLISHED

1924

Member of ENSEARCH

### GENERAL DESCRIPTION

Sepakat Setia Perunding (Sdn) Bhd, a solely Malaysian-owned company, with Bumiputra participation in line with the National Development Policy, has been a major force in consulting engineering services in Malaysia since 1924. The original firm named Steen Sehested was founded in 1924 and has been active as civil engineering consultants in West Malaysia, Borneo and Singapore ever since. In 1956, the firm was re-organised as a partnership under the name style of Steen Sehested and Partners. The company was established in its present form in 1971, incorporating the entire organisation in Malaysia of the former partnership Steen Sehested and Partners. The Company maintains close contact with a number of overseas organisations whose resources are available for high technology consultancy wherever considered necessary.

### PERSONNEL

Total 568. Civil and Structural Engineers -165; Mechanical/Electrical - 21; Geotechnical - 13; Other Professionals - 11; Technical Personnel - 253; and Administrative Personnel - 105.

### FIELDS OF SPECIALISATION

Marine structures, dredging, bridges, roads and highways, land development, water supply, sewerage, drainage, industrial commercial and residential buildings, airports, air-conditioning, refrigeration, material handling, fire-fighting, steam and gas piping, general building and geotechnical & environmental services.

### TYPICAL PROJECTS

#### ENVIRONMENTAL IMPACT STUDY

- Industrial and Housing Development at Rasa, Selangor.
- North Kelantan Groundwater Supply.
- EMP for Precinct 8 Putrajaya.
- EIA for Ladang Elaies, Jerai, Labuan Bilah and Sg. Dingin Mixed Township Development Project.

#### LAND DEVELOPMENT

- Pahang Tenggara Town 1, 1200 acres for agricultural/settlement.
- Taman Melati Housing at Setapak, Kuala Lumpur.
- Pandan Perdana Housing Development at Cheras, Selangor.
- Sg. Long Golf and Housing Development.
- Bukit Lagong Mixed Development.
- Putrajaya Precincts 17 and 18.

#### RECREATIONAL

- Chin Woo Stadium & Swimming Pool.
- Jack Nicklaus-Design Golf Course at Sg. LONGS.

#### HOSPITALS

- Lady Templer Hospital, Kuala Lumpur.
- Assunta Hospital, Kuala Lumpur.
- Federal Teaching Hospital, Kuala Lumpur.
- Southern Hospital, Melaka.

#### ENERGY

- Pasir Gudang Power Station, Johor.
- Peninsular Gas Utilisation Project Stage II.
- Melaka Refinery (Basic Design).
- Perlis Power Plant, Preliminary site appraisal.

#### AIRPORTS

- SAAS (formerly Subang) International airport original phase structure works including aircraft hangars, etc.
- Masterplan and preliminary design of New Bintulu, Limbang and Sibul Airports, Sarawak.
- MAS Hangar No 3 for Jumbo and Airbus at Subang Airport.
- RMAF Bases for HAWK aircrafts at Subang, Kuantan, Sg Besi, Butterworth and Labuan.
- K.L International Airport Terminal Complex at Sepang.
- SAAS (formerly Subang) Airport Interim Development - Terminal 3.
- MAS Engineering Ground Support Facilities at K.L. International Airport at Sepang.

#### HARBOUR AND MARINE WORKS

- Kemaman Port for 100,000 DWT vessels.
- Bulk Cargo and Ferry Terminals at Penang.
- Extension to Hazardous Jetty and Palm Oil Jetty for Johore Port.
- West Port Development (Phase II) at Pulau Lumut, Port Klang.
- MTBE/Propylene Jetty at Kuantan Port.
- Lumut Maritime Terminal, Perak.
- Port Klang Cruise Terminal Jetty.
- Langkawi Cruise Terminal Jetty.
- Infrastructure Operating Facilities at Pelabuhan Tanjung Pelepas.
- Shipyard at Pulau Kuching Kemaman.

#### BUILDINGS

- 31-Storey Employees Provident Fund Building, K.L.
- 33-Storey Police Headquarters, K.L.
- Pelangi Plaza Shopping Complex in J.B.
- Kuantan Parade Shopping Complex.
- 10-Storey SOGO Departmental Store, K.L.
- Johore Bahru Waterfront City.
- Mahkota Parade Shopping Complex, Malacca.

- 32-Storey UMBC Building, K.L.
- 16-Storey Araville Luxurious Condominium, Bangsar, K.L.
- Bistari Condominium 4-Storey Twin Tower, K.L.
- MAS Catering Building, Sepang.

#### INDUSTRIAL COMPLEXES

- 50,000 TPD Expandable Polystyrene Plant at Pasir Gudang.
- Guinness Acnhor Bhd Brewery at Sungei Way.
- Copper Tube Factory at Shah Alam.
- 50,000 TPA Titanium Dioxide Plant at Telok Kalong.
- Southern Cement Industries Cement Plant, Pasir Gudang.
- APMC, Kanthan Cement Works.
- APMC, Rawang Cement Works.

#### IRRIGATION AND FLOOD MITIGATION

- Rompin-Endau Agricultural Development - 13,000 ha.
- Sg Sembong and Sg Bekok Dam, Johor.
- Sungai Kelinchi Dam and Transfer Tunnel, Negeri Sembilan.
- Batu Pahat river basin covering 210,000 ha for flood mitigation.
- Golok River Protection Works.
- Kelantan River Basin Flood Mitigation Study.
- Marang River Mouth Improvement Works.
- LRT Tunnel from Benting to Kg. Baru Stations.

#### HIGHWAY AND BRIDGES

- 180km Seremban- Ayer Hitam Expressway.
- 67Km Road, Kuala Berang - Gua Musang.
- Toll Equipment for North - South and New Klang Valley Expressway.
- Upgrading of Kuala Lumpur Old Klang Road into 6 lane dual carriageway.
- Mount Austin Interchange, Johor Bahru.
- Johor Bahru - Kota Tinggi 1.0 to 14.3 km.
- Tolled Roads and Interchanges in Kuala Lumpur (Salak Expressway and East West Link Expressway).
- NSE Central Link (NKVE to Hicom) and KLIA Expressway.
- LRT System Two for Kuala Lumpur - Section 1B Paramount To Kerinchi.
- Manila Cavite Toll Expressway, Philippines.
- Damansara - Puchong Expressway.
- Cheras - Kajang Highway.
- Southern Inner Ring Road for Putrajaya Development.
- Cyberjaya Road Link.

#### WATER SUPPLY

- Johor Bahru District Water Supply.
- Kulim District Water Supply in Kedah.
- Bandar Amanjaya Water Supply.
- West Johor Water Supply Distribution System.
- Putrajaya Water Supply.
- Rehabilitation and Upgrading of Water Supply Systems for 12 Districts in Malaysia.
- Sg. Selangor Water Supply Phase 2.
- Pelubang Water Supply Phase 2.
- Cyberjaya Water Supply.
- North Kelantan Water Supply.

#### SEWERAGE AND WASTE TREATMENT

- MAS Waste Water Treatment System at Subang International Airport.
- Sewer System for Rasa Industrial and Housing Development, Selangor.
- Johor Bahru City Sewerage Project.
- Sludge disposal sites for the States of Kedah, Negeri Sembilan, Melaka and Johor.
- Johor Bahru Floating City Sewerage System.
- Solid Waste Disposal Sites for Central Region of West Malaysia.
- Seremban Centralised Sludge Facilities.



## SHELL Companies of Malaysia Sdn. Bhd.

Bangunan Shell Malaysia, Off Jalan Semantan, Damansara Heights,  
P O Box 11027, 50732 Kuala Lumpur  
Tel: 603-2559144

### KEY PERSONNEL

Datuk Megat Zaharuddin M.M Nor,  
Chairman & Chief Executive  
Saw Choo Boon, Executive Director  
& Managing Director Oil Products  
Sector  
Lim Haw Kuang, Executive Director  
& Managing Director Exploration  
& Production Sector  
Giles Craven, Executive Director &  
Director, Finance  
(Shell Companies in Malaysia)  
Heng Hock Cheng, Executive  
Director & Director, Gas &  
Planning  
(Shell Companies in Malaysia)  
Zarinah Anwar, Executive Director &  
Director, Human Resources  
(Shell Companies in Malaysia)

### SHELL COMPANIES IN MALAYSIA

Shell Malaysia Limited  
Sarawak Shell Berhad  
Sabah Shell Petroleum Company  
Shell Malaysia Trading Sdn Bhd  
Shell Timur Sdn Bhd

### CORPORATE PROFILE

Shell Companies are involved in the entire spectrum of Malaysia's Oil & Gas Industry, from exploration to production, and manufacturing to marketing. It is also a leading producer of oil and gas in this country. Shell Malaysia comprises a group of wholly-owned companies, joint-ventures and subsidiaries. Companies involved in the exploration and production of oil and gas belong to the Exploration and Production Sector (EP) and those involved in manufacturing, trading and marketing of petroleum products are in the Oil Products Sector (OP). Joint-venture companies are involved in chemicals, natural gas liquefaction, middle distillates and waxes, manufacturing and sales, product distribution and customer services providers.

In 1991, Shell records a century of operations in Malaysia, having first traded in kerosine under the name of its founder, Marcus Samuel & Company in the Straits Settlements in 1891. The Shell name and logo are also derived from the company's trading in ornamental shells from these shores in the late 19th century. It then went on to produce the country's first barrel of oil some 19 years later, following the discovery of its first oil well in Miri, Sarawak in 1910. This was followed by the country's first refinery in Miri in 1914. Malaysia's largest refinery (and Shell Malaysia's second) was built in Port Dickson in 1961 with a licensed capacity of 105,000 bpd. Currently, the Low Residue Catalytic Cracker Unit (LRCCU) is being constructed at the Port Dickson Refinery.

Shell Malaysia's marketing activities can be traced back to the 1890s and the 1920s with the early formation of a network of depots. Today, the refineries' comprehensive range of petroleum products such as Motor Gasoline, Diesel, Kerosine, Lubricants, Aviation fuels, Fuel Oils, Bitumen, Liquefied Petroleum Gas, Naptha and Gasoil are almost all consumed within the country. This is achieved through an extensive nationwide distribution network supported by Area Offices, retail stations, LPG bottling plants, bulk depots and aviation depots and bunkering facilities.

Its exploration and production activities today in Sabah & Sarawak continue on a production sharing contract basis with the national oil company PETRONAS. The complexities of operating in deep waters have resulted in may Shell pioneered technical breakthroughs for the industry. With its headquarters in Miri and office in Kota Kinabalu, Shell Malaysia's Exploration & Production operations produce close to half of Malaysia's total volume of crude oil and more than two thirds its volume of gas.

Shell Malaysia is also involved in several joint ventures in this country. These include:

- PS Terminal Sdn Bhd & PS Pipeline Sdn Bhd (with PETRONAS to facilitate a joint-depot in Tawau and a multi-product pipeline from the Petronas Refinery in Melaka to the Klang Valley Depot Terminal);
- Malaysia LNG Sdn Bhd, Malaysia LNG Dua Sdn Bhd and Malaysia LNG Tiga Sdn Bhd for gas liquefaction and trading;
- Shell MDS (M) Sdn Bhd which is the world's first commercial middle distillate synthesis plant.

Amongst the recent achievements for Shell Malaysia are:

- Being awarded for ISO 14001 for excellent environment management at Bagan Luar (December 1996)
- PIKOM Award for IT utilization in Business Process Reengineering (April 1997)
- Smithsenian nomination for IT utilization in Business Process Reengineering (1996)
- ISO 9000 accreditation for Petrol Stations (1995)
- First unmanned production platform (Kinabalu oilfield off Sabah)
- Introduction of Multilateral drilling technology (1996)

For the future, Shell Malaysia will draw further its collective strength vis-a-vis the main sectors of the oil, gas, chemicals and selected businesses to meet the challenges of the new millenium through innovation, collaboration, and cost efficiency while remaining aligned to the nation's vision and aspirations, all with a view to helping people build a better world. Over the next few years, we will continue to invest in projects that will witness the application of world class technology, research and development and enhanced Health, Safety and Environment systems, in striving for a sustainable world.



## SMHB Sdn. Bhd. (63281-X)

(Formerly known as Syed Muhammad, Hooi dan Binnie Sdn Bhd)

No. 38, Jalan 1/76, Desa Pandan, 55100 Kuala Lumpur

Tel: 603-9839766/9815415 Fax: 603-9839648

Email: smhbkl@pop1.jaring.my <http://www.smhb.com/smhb>

### KEY PERSONNEL

#### EXECUTIVE CHAIRMAN

Dato' Ir Syed Muhammad Shahabudin,  
DSDK, PJK, PEng, MIEM, FICE,  
MIWEM, MPUJA(B), MACEM

#### MANAGING DIRECTOR

Chan Hon Lam, BE, PEng, MICE,  
MIWEM, MACEM

#### EXECUTIVE DIRECTORS

Teo Chok Boo, BSc, MEng, PEng,  
MIEM, MICE, MIWEM, MACEM  
Mohd Rousdin Hassan, BE, PEng,  
MIEM, MICE, MACEM  
Thomas Sia Mee Hie, BE, PEng, MIEM,  
MICE, MACEM

#### DIRECTORS

S P Thiagarajan, BE, MSc, PEng, MIEM,  
MIEE, MACEM  
Dr. Fauzi Abdul Samad, BE, ME, PhD,  
PEng, FIEM, MIWEM, MACEM  
Tang Bee Kok, BE, PEng, MIEM,  
MIWEM, MStructE, MACEM  
Syed Mohd Adnan Mansor, BE, PEng,  
MIEM

#### TECHNICAL DIRECTORS

Sin Chok Yuen, BE, PEng, MIEM,  
MIWEM  
Ong Boo Say, BE, PEng, MIEM  
Zulkiflee Abd. Hamid, BSc, PEng, MIEM

#### ASSOCIATE DIRECTORS

K. Ponnusamy, BE, PEng, MIEM  
Khoo Kwee Lim, BE, PEng, MIEM  
Chan Kok Peng, BE, PEng, MIEM  
Wong Mun Thim, BE, PEng, MIEM

#### CONSULTANTS

Hooi Kah Hung, BCE, FIEM, PEng,  
FIES, FICE(UK), FIWEM(UK),  
PEng(S)  
Dato' Lim Choo Boon, BE, PEng, FIEM,  
MICE, MIHT, MACEM  
Lee Tong Pheng, BE, PEng, MIEM,  
MICE, MIWEM, MACEM  
Chan Chiang Heng, KMN, AMN, AMS,  
PEng, MIEM, MICE, MIWEM  
S.H. Thavaraj, BCE, PEng, FIEM, FICE,  
MIWES

#### AFFILIATED COMPANIES

SMHB Oil and Gas Services Sdn Bhd  
SMHB Environmental Services Sdn Bhd  
Syed Muhammad dan Hooi, Brunei

#### INTERNATIONAL EXPERIENCE

Singapore, Brunei, Indonesia  
Papua New Guinea, Namibia  
Vietnam, India

#### DATE ESTABLISHED

1980

### GENERAL DESCRIPTION

SMHB Sdn Bhd., a Malaysian firm incorporated in 1980, is registered with the Board of Engineers to practise as consulting engineers. The Executive Chairman of SMHB, Dato' Syed Muhammad Shahabudin, is the past Chairman of the Association of Consulting Engineers Malaysia. All environmental-related works carried out by SMHB is undertaken by SMHB Environmental Services Sdn Bhd, which is a sister firm of SMHB.

### PERSONNEL

As at June 1998, the staff comprised 140 professional engineers, 130 sub-professionals including technical assistants, surveyors, draughtsmen and inspectors and 80 administrative staff.

### SERVICES

SMHB undertakes technical investigation, economic and financial studies, the preparation of master plans, feasibility reports, engineering design and contract documents, project management, supervision of construction, installation of mechanical & electrical plant and equipment, witness testing and commissioning.

### FIELDS OF SPECIALISATION

#### WATER SUPPLY DEVELOPMENT & WASTEWATER MANAGEMENT

Dam, intake, pumping station, treatment works, RC reservoir, land and submarine pipeline.

#### WATER RESOURCES ENGINEERING

Hydrological and hydrogeological studies, surface water, groundwater and development of these resources.

#### HIGHWAYS

Road and highway, bridge and viaducts, interchange, earth and rockface slope stabilisation.

#### DRAINAGE, FLOOD MITIGATION AND IRRIGATION

Flood studies, flood mitigation, drainage and irrigation distribution system

#### WASTEWATER

Treatment plant, sewerage and pumping station.

#### MECHANICAL AND ELECTRICAL

Pumping systems, surge suppression analysis, waste and wastewater treatment systems, dam drawoff siphon systems, air conditioning, ventilation and fire protection systems. Power distribution, standby power generation, telemetry, instrumentation, automation and control.

#### OIL AND GAS

Towed subsea system, offshore satellite development and gas reticulation.

#### ENVIRONMENTAL

Environmental impact assessment, environmental audit, monitoring and pollution studies.

### TYPICAL PROJECTS

- Johor River Waterworks Extension, Stage 4
- Kajang Outer Ring Road - Section B, C and D
- Urban Drainage Masterplan Study for Sibu Town, Sarawak
- Operation and Maintenance of Langkat, Klang gate and Meru Dams
- Kuching Water Supply Masterplan Study
- Kelantan Flood Mitigation Project
- The Second Crossing New Township Development, Johor
- Kuala Lumpur International Airport, Sepang (Utilities)
- Commonwealth Games Facilities - National Sports Complex
- Sungai Selangor Water Supply
- Sg. Muar-Melaka Water Transfer
- Johor State Water Resources Study
- Sungai Buloh Dam, Selangor
- Linggiu Dam, Johor
- Raising of Durian Tunggal Dam, Melaka
- ADB-Rehabilitation and Upgrading of Water Supply Systems
- ADB - Water Utility Handbook
- Berjaya Premier Beach Resort, Langkawi
- Karambunai Golf Resort, Sabah
- Pintu Malim Sewage Treatment Works, Brunei
- Gadong Sewage Treatment Works, Brunei
- Alor Setar Town Drainage
- Alor Setar Town Sewerage
- Scott Paper Wastewater Management Upgrading
- North Klang Valley Expressway - Sec. 2C, Kuala Lumpur
- Middle Ring Road II - Package 9A & 9B, Kuala Lumpur
- ESSO Offshore Environmental Monitoring
- National Water Resources Study
- Environmental Monitoring of Malaysian Scheduled Waste Management Centre Bukit nanas
- Putrajaya Development - utility planning and design coordination
- Jus Dam, Melaka



## Sterling Fluid Systems (M) Sdn. Bhd. (431848-K)

Lot 778, S/L 4, Jalan Subang 4, Sungai Penaga Industrial Park, 47500 Subang Jaya  
Tel: 603-7389468/69/70/71 Fax: 603-7389472 Email: sfsmlh@tm.net.my

### KEY PERSONNEL

#### REGIONAL OFFICE -

##### KUALA LUMPUR

Chong Loong How, Sales Manager  
(Berkefeld Systems)

Kong Sing Ng (General Manager)

Loh Kim Poh (Sales Manager (Pump  
Applications))

Chan Hong Fook (Service Manager)

#### REGIONAL HEADQUARTERS - SINGAPORE

A J. Lukes, Managing Director

Jeryl Tan, General Manager  
(Commercial)

Roger Elliot-Wright, General Manager  
(Regional After Service)

#### OTHER REGIONAL OFFICES

Thailand

Philippines

Vietnam

Indonesia

Taiwan

Hong Kong

Melbourne

### GENERAL DESCRIPTION

The Sterling World Wide Group members consist of BERKEFELD, SIHI, LABOUR, HALBERG, SPP, PEERLESS PUMP, HALBERG and MELOTTE. The group consists of several specialist manufacturing centers situated in USA, UK and Germany as well as regional headquarters in Singapore having fabrication/package facilities. With specific regional responsibilities; it enables the group to provide a closer total interactive consultation and service to the customers. At the same time, we are able to draw on individual group technical expertise as and when required.

### PERSONNEL

Total Regional (Far East) Work Force - 112.

### ACTIVITIES

#### WASTE WATER & WATER TREATMENT

We plan, design, manufacture, install and commission our plant upon delivery to site for

- Drinking Water Treatment from any kind of surface or ground water.
- Open and Closed water Works, Arsenic Removal, Ammonia Removal and Mobile Compact units using a wide variety of treatment processes to meet WHO requirement
- Drinking Water through Reverse Osmosis for brackish water and sea water
- Mobile Drinking Water Purifiers capable to convert contaminated surface water into drinking water for areas suffering from natural disasters
- Industrial waste water and water treatment using a wide variety of treatment processes e.g. chemical, ion exchange and membrane technology in micro filtration, ultrafiltration, mano filtration and reverse osmosis. These technologies are applied in industrial waste water, boiler feed water, process water, water recycling and recirculation, etc.
- Ultra pure water treatment and waste water treatment for pharmaceutical, microelectronics, etc.
- Water treatment for special applications e.g. dolphin pool water, preservation of ships etc.
- Standard Packages for sterilization, defferization, demanganization, neutralization, compact water softeners, compact reverse osmosis, compact demineralized plant etc.
- Domestic Water Treatment consist of filter candle for sterilization, activated carbon filter, gravity filter, backwashable protective filter etc.
- Swimming Pool Water Treatment

### COMMITMENTS

As a company with more than 100 years experience capable of providing a wide range of products from small appliances to large water works, we seek to provide advice for the most appropriate techniques and most economic solution when question of water is raised.

### REFERENCES

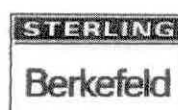
BKMI, Holzmann, Bilfiner-Berger, Strabag, Polysius. The World Health Organization, the International Red Cross, the Red Crescent, armed forces in many countries, Daimler Benz, BMW, Audi, Volkswagen, Wella AG, Nestle, AEG, Telefunken, Avon Cosmetics, Pepsi-Cola, Coca-Cola, Seven-Up, Canada Dry, Intercontinental, Hilton, Holiday Inn, Maritim, Steigenberger, Siemens, ABB, BASF, etc.

### OTHER ACTIVITIES

Manufacturing activities for pumps with a world ranking of No. 6. Among pumps manufactured are centrifugal split case pump, end suction pump, vertical turbine pump, multistage pump, vacuum pump and sewage dry/wet well pump water filtration.

### SERVICES

Manufacturer, Stokist, packaging, Spares, Commissioning and After-Sales Support



Members of the Sterling Fluid Systems Group

# Tioxide

## KEY PERSONNEL

### PRINCIPALS

A subsidiary of Tioxide Group PLC of the United Kingdom.

### EXECUTIVES

Mizanur Rahman Ghani, Chairman  
Dr. Steve Ward, General Manager/  
Executive Director (Operations)

## INTERNATIONAL AFFILIATIONS

A member of the Tioxide Group of Companies, with operations in the UK, France, Spain, Italy, Canada, Australia and Africa.

The Tioxide Group is a wholly owned subsidiary of ICI.

## Tioxide (Malaysia) Sdn. Bhd.

Kawasan Perindustrian Teluk Kalung, Peti Surat 29, 24007 Kemaman, Terengganu  
Tel: 609-8631688 Fax: 609-8631988

## GENERAL DESCRIPTION

Tioxide (Malaysia) Sdn Bhd is a wholly owned subsidiary of the TIOXIDE Group of companies, producing titanium dioxide pigments. TIOXIDE are part of ICI Plc, the renowned multinational chemical manufacturer.

The plant in Kemaman, Terengganu is the first in the Group to be set up in Asia. It is geared to supply the Asia Pacific region, the fastest growing region in the world and one of the fastest growing market for titanium dioxide pigments.

The plant which has a production unit of 50,000 tonnes per annum capacity using a modern developed sulphate process, started its commercial production in early 1993. It is sited at the Teluk Kalung Industrial Estate, occupying 500 acres. About 80% of its production are exported to ASEAN countries and other countries in the Asia Pacific region.

The product, titanium dioxide pigment, is a non toxic supreme white pigment for all applications including paint, plastics, rubber and paper.

The plant is designed and operated to use the latest proven process and pollution control equipment to maximise the efficiency of raw material usage and provide consistently high quality product, whilst being 'environmental friendly' by operating to the highest international standards.

The Tioxide (Malaysia) Sdn Bhd project was one of the first major project to be subjected to the Environmental Impact Assessment (EIA) procedure in Malaysia. Extensive environmental studies were carried out in 1987-8 using local and international consultants to ensure the project did not present any threat to the local population or the valuable biological resources in Terengganu.

The Tioxide EIA report, approved by the Department of Environment in July 1989, contains a wealth of scientific information about the environment in Terengganu.

Tioxide (Malaysia) Sdn Bhd is continuously updating its knowledge of the environment at Teluk Kalung, as an on-going commitment to Good Corporate Citizenship and Sustainable Development programmes.

## PERSONNEL

Tioxide (Malaysia) Sdn Bhd employs nearly 250 staff in Malaysia of which about 25 are based in its regional corporate office in Petaling Jaya. At Kemaman, the factory staff include management, engineers and technicians.



## UMW Industries (1985) Sdn. Bhd.

Jalan Utas 15/7, P O Box 7052, 40915 Shah Alam, Selangor Darul Ehsan  
Tel: 603-5591201 Fax: 603-5509681 Telex: MA 38690

### KEY PERSONNEL

#### PRINCIPALS

Elgin Sweeper Co, USA  
Tennant Co, USA  
Toyota Motor Corporation, Japan  
Aichi Tire Industry Co, Japan  
Bridgestone Corporation, Japan  
Bergougnan Benelux, Belgium  
BT Systems AB, Sweden  
Boss Trucks Ltd, UK  
CMP Batteries Ltd, UK

#### DIRECTORS/GOVERNING BOARD

Wan Salleh bin Mohd  
Hj Mohd Sallehuddin bin Othman  
Kuah Kock Heng  
Henry Heng Kouk Hui  
Khoo Kay Cheok  
Dato' Abdul Rashid bin Abdullah  
Keong Choon Keat

### OTHER OFFICERS

Kuah Kock Heng, General  
Manager  
Chan Chiau Khoon, Ms  
Environmental Management  
Henry Heng, Singapore Operation  
Leong Kok Yeng, East Malaysia  
Operation

### INTERNATIONAL AFFILIATIONS

UMW Asia Ltd, Japan  
UMW/Int-Tra-Link, Canada

### INTERNATIONAL EXPERIENCE

Singapore/Brunei/Indo-China/  
Philippines/Vietnam

### DATE ESTABLISHED

4 June 1959

### GENERAL DESCRIPTION

UMW Industries (1985) Sdn Bhd is a wholly owned subsidiary of UMW Corporation Sdn Bhd. The UMW group of Companies is organised along the line of strategic business division which houses companies in specific business sectors. UMW Industries (1985) Sdn Bhd is principally engaged in sales, service and contracts serving the material handling and environmental management market sector. In its trading activities it represents namely Toyota Industrial Equipment, ET indoor trucks, Boss container handling truck, Tennant Industrial Sweepers/Scrubbers, Elgin Road Sweepers, etc., where it is the market leader in these fields. The company's head office is in Shah Alam, Selangor Darul Ehsan and it operates regional offices in Kota Kinabalu, Philippines, Kuching with a total network of 22 branch offices throughout Malaysia and Singapore.

### PERSONNEL

Total 660 in Malaysia and Singapore.

### SERVICES

Equipment supplies and provision of after-sales services for range of material handling and environmental management products. Contract for supply and installation of material handling and environmental systems. Provision of services to the material handling and environmental sector.

### FIELDS OF SPECIALISATION

#### MATERIAL MANAGEMENT

Supplies, source, service, installation and advisory of material handling system and equipment.

#### TYPICAL PROJECTS

##### MATERIAL MANAGEMENT

- Refurbishment of equipment
- Supply and installation of auto stacking and retrieval systems
- Service contracts for equipment and systems

##### ENVIRONMENTAL MANAGEMENT

- Supply and installation of equipment
- Advisory role on mechanisation of road maintenance



## Westfalia Separator (M) Sdn. Bhd.

25 Jalan SS 25/41, Taman Mayang Industrial Park, 47301 Petaling Jaya  
Tel: 603-7040807 Fax: 603-7040724 Toll-free: 1-800-88-6168

### KEY PERSONNEL

Erik Tonroth, General Manager

### HEAD OFFICE

Westfalia Separator (SEA) Pte Ltd  
No. 87 Defu Lane 10  
The Exalibur #05-00  
Singapore  
Tel: 65-2836834  
Fax: 65-2832349

### GENERAL DESCRIPTION

Westfalia Separator, established in Germany in 1893, is a world leader in centrifugal separation technology. The company's separators and decanters play key roles in a wide range of industries including municipal industrial effluent treatment., Providing process-integrated environmental protection with the goal to conserve resources. Westfalia Separator's high-tech decanters and separators (as mobile or stationary installations) achieve:

- highest possible dewatering
- thickening of surplus activated sludge
- partial dewatering of sludges for agricultural use
- recovery of valuable substances from production processes

In order to provide better service and support to the local customers, Westfalia has set up a subsidiary in Malaysia - Westfalia Separator (M) Sdn Bhd. In addition to having 3 service teams to assist customer round-the-clock, a toll-free number is also available nationwide

# ***MEMBERSHIP DIRECTORY***

## ***INDIVIDUAL MEMBERS***

- ***ENSEARCH***
- ***CETEC***

# ENSEARCH WANTS YOU!...

**... to contribute to the support of  
environmental management and  
protection in Malaysia.**

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2. Join one of the ENSEARCH Committees:
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Planning, Design and Management of Water Supply & Waste Water projects

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Environmental Planner & Engineering

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Waste Management, Environmental Auditing & Management, Energy with respect to Environment

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Sewage Treatment and Disposal

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**CHONG Fatt Choy, Dip. BIET**

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# ***ENVIRONMENTAL LAWS, REGULATIONS & GUIDELINES***

- ***LIST OF REGULATIONS UNDER  
ENVIRONMENTAL QUALITY ACT (EQA), 1974  
(ACT NO: 127)***
- ***LIST OF ENVIRONMENTAL GUIDELINES***
- ***LIST OF OTHER REGULATIONS  
RELATED TO ENVIRONMENT***

**LIST OF REGULATIONS  
UNDER ENVIRONMENTAL QUALITY ACT, 1974 (ACT NO: 127)**

No.	Regulations/Order	P.U. (A)	Effective Date of Enforcement
1.	Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977	199	1 July 1978
2.	Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977 Amendment (1982)	342	4 November 1977
3.	Environmental Quality (Licensing) Regulations 1977	198	1 October 1977
4.	Motor Vehicle (Control of Smoke and Gas Emissions) Rules 1977 (made under the Road Traffic Ordinance, 1958)	414	22 December 1978
5.	Environmental Quality (Prescribed Premises) (Raw Natural Rubber) (Amendment) Order 1978	337	1 April 1979
6.	Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978 Amendment (1980)	338	1 December 1978
7.	Environmental Quality (Clean Air) Regulations 1978	280	1 October 1978
8.	Environmental Quality (Compounding of Offences) Regulations 1978	281	1 October 1978
9.	Environmental Quality (Sewage and Industrial Effluents) Regulations 1979	12	1 January 1979
10.	Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations 1985	296	11 July 1987
11.	Environmental Quality (Motor Vehicles Noise) Regulations 1987	244	16 July 1987
12.	Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987	362	1 April 1988
13.	Environmental Quality (Scheduled Wastes) Regulations 1989	139	1 May 1989
14.	Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order 1989	140	1 May 1989
15.	Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulations 1989	141	1 May 1989
16.	Environmental Quality (Prohibition on the Use of Propellants and Blowing Agent) Order 1993	434	30 December 1993
17.	Environmental Quality (Delegations of Powers on Marine Pollution Control)	537	8 December 1994
18.	Environmental Quality (Prohibition on the Use of Controlled Substance in Soap, Synthetic Detergent and Other Agents) Order 1995	115	11 April 1995
21.	Environmental Quality (Control of Emission from Diesel Engines) Regulations 1996	429	1 September 1996
22.	Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996	543	1 November 1996

# LIST OF ENVIRONMENTAL GUIDELINES

EIA GUIDELINES	LAND/INDUSTRIAL DEVELOPMENT GUIDELINES	
<ul style="list-style-type: none"> <li>• A Handbook of EIA Guidelines, 1987 (revised 1995)</li> <li>• Coastal Resort and Recreational Projects 1994</li> <li>• Industrial Estate Development, 1994</li> <li>• Petrochemical Industries, 1994</li> <li>• Golf Course Development, 1994</li> <li>• Groundwater and/or Surface Water Supply, 1995</li> <li>• Drainage and/or Irrigation Projects, 1995</li> <li>• Dams and/or Reservoirs Projects, 1995</li> <li>• Thermal Generation and/or Transmission Projects, 1995</li> <li>• Fishing Harbours and/or Land-Based Aquaculture Projects, 1995</li> <li>• Industrial Projects, 1995</li> <li>• Toxic and Hazardous Waste Treatment and Disposal Projects, 1995</li> <li>• Development of Tourist and Recreational Facilities on Islands in Marine Parks, 1995</li> <li>• Development of Tourist and Recreational Facilities in National Parks, 1995</li> <li>• Development of Resort and Hotel Facilities in Hill Stations, 1995</li> <li>• Mines and Quarries, 1995</li> <li>• Municipal Solid Waste and Sewage Treatment and Disposal Projects, 1995</li> </ul>	<ul style="list-style-type: none"> <li>• Siting and Zoning of Industries, 1976 (revised 1994)</li> <li>• Prevention and Control of Soil Erosion and Siltation, 1978 (revised 1996)</li> <li>• Environmental Requirements: A Guide for Investors (1989); (revised 1992; 1994) (reprint 1996)</li> <li>• Interim Guidelines for Controlled Burning of Felled Plant Materials and Combustible Solid Wastes from the Housing Industry in the Klang Valley, 1991</li> <li>• Code of Practice for Service Stations, 1980 (revised 1993)</li> </ul>	<ul style="list-style-type: none"> <li>• The Selection of Landfill Sites for Scheduled Wastes, 1985</li> <li>• Monitoring of Landfills for Scheduled Wastes, 1985</li> <li>• Scheduled Wastes Sampling, 1985</li> <li>• Recommended Code of Practice for the Disposal of Solid Waste on Land, 1985</li> <li>• Disposal of Asbestos Wastes, 1991</li> <li>• Export of Scheduled Wastes, 1993</li> <li>• Storage of Scheduled Wastes, 1993</li> <li>• Interim Guidelines for the Transportation on Dangerous Goods (Chemicals Not Otherwise Controlled) 1993</li> <li>• Import of Scheduled Wastes, 1994</li> <li>• Zero Burning of Felled Plant Materials, 1994</li> <li>• Open Burning of Felled Plant Materials (Agricultural Wastes) 1981, (revised 1994)</li> <li>• Management and Disposal of Wastes from Downstream Petroleum Industries, 1994</li> <li>• Management and Disposal of Wastes from Upstream Petroleum Industries, 1994</li> </ul>
	<b>OZONE-DEPLETING SUBSTANCES GUIDELINES</b>	
	<b>WASTE MANAGEMENT GUIDELINES</b>	<ul style="list-style-type: none"> <li>• Notification and Control Procedure for Movement of Wastes between Singapore and Malaysia, 1995</li> <li>• Disposal of Asbestos Wastes (revised 1995)</li> <li>• Guidelines on the export, import and storage of scheduled wastes in Malaysia (CD ROM)</li> </ul>
	<ul style="list-style-type: none"> <li>• Air Pollution Control Measures in Palm Oil Mills, 1977</li> <li>• Erection of Fuel Burning Equipment, 1981</li> </ul>	

## LIST OF OTHER REGULATIONS RELATED TO ENVIRONMENT

<b>FEDERAL LAWS</b>	
<ol style="list-style-type: none"> <li>1. Merchant Shipping Ordinance, 1952</li> <li>2. National Land Code, 1965</li> <li>3. Road Traffic Ordinance, 1958</li> <li>4. Land Conservation Act, 1960</li> <li>5. Fisheries Act, 1963 (Revised 1978)</li> <li>6. Aboriginal Peoples Act, 1954</li> <li>7. Drainage Works Cordinance, 1 (Revised 1972)</li> <li>9. Factories and Machinery Act, 1967</li> <li>10. Protection of Wildlife Act, 1972</li> <li>11. Petroleum Mining Act, 1972</li> <li>12. Petroleum Development Act, 1974</li> <li>13. Environmental Quality Act, 1974</li> <li>14. Street, Drainage and Building Act, 1974</li> <li>15. Pesticides Act, 1974</li> <li>16. Local Government Act, 1976</li> <li>17. Antiquities Act, 1976</li> <li>18. Town and Country Planning Act, 1976</li> <li>19. National Parks Act, 1980</li> <li>20. Atomic Energy Licensing Act, 1984</li> <li>21. National Forestry Act, 1985</li> <li>22. Exclusive Economic Zone Act, 1985</li> <li>23. Customs Act, 1967, Customs Duties (Amendment) (No. 35) Order, 1989</li> <li>24. Promotion of Investments Act 1986, Promotion of Investments (Promoted Activities and Products) (Amendment) (No. 10) Order, 1990</li> <li>25. Customs (Prohibition of Import)(Amendment) (No. 2) Order 1993</li> <li>26. Customers (Prohibition of Export) (Amendment) (No. 3) Order 1993</li> </ol>	<ol style="list-style-type: none"> <li>4. Mining Enactment (Malacca)</li> <li>5. Mining Enactment (Pulau Pinang)</li> <li>6. Mining Ordinance (Sabah)</li> <li>7. Mining Ordinance (Sarawak)</li> <li>8. Forest Enactment (F.M.S. Chapter 153) 1935 (Applicable for Negeri Sembilan, Pahang, Selangor, Perak)</li> <li>9. Forest Enactment (Straits Settlement Chapter 147) (Applicable for Malacca, Penang)</li> <li>10. Forest Enactment - Terengganu - Cap 114/1937</li> <li>11. Forest Enactment - Kelantan - 4/39</li> <li>12. Forest Enactment - Johor - En. 58</li> <li>13. Forest Enactment - Kedah - En. 5/1357</li> <li>14. Forest Enactment - Perlis - En. 3/1370</li> <li>15. Forest Enactment - Sabah - En. 2/1968</li> <li>16. Forest Enactment - Sarawak - Cap 126, 1956 Reprint 1972</li> <li>17. Natural Resources Ordinance (Sarawak) Chapter 84, 1949</li> <li>18. Public Health Ordinance (Sabah) Ordinance 7, 1960</li> <li>19. Public Health Ordinance (Sarawak) Ordinance 24, 1962</li> <li>20. Rearing of Pig Enactment (Melaka) Enactment 3/80</li> <li>21. Rearing of Pig Enactment (Johor) Enactment 5/80</li> <li>22. Control of Rearing of Pig Enactment (Negeri Sembilan) Enactment No. 9/90</li> <li>23. The Natural Resources and Environment (Amendment) Ordinance, 1993 (Sarawak)</li> <li>24. The Natural Resources and Environment Ordinance, The Natural Resources and Environment (Prescribed Activities) Order, 1994 (Sarawak)</li> </ol>
<b>STATE LAWS</b>	
<ol style="list-style-type: none"> <li>1. Waters Enactment (F.M.S. Chapter 146) 1920 (Applicable for all States except Kelantan, Sabah and Sarawak)</li> <li>2. Rivers and Drainage Enactment (Kelantan)</li> <li>3. Mining Enactment (F.M.S. Chapter 147) 1929 (Applicable for States of Negeri Sembilan, Pahang, Perak and Selangor; slightly amended for Kedah, Perlis, Johore, Kelantan and Terengganu)</li> </ol>	

***ENVIRONMENTAL  
DECLARATIONS &  
AGREEMENT***

### ASEAN STRATEGIC PLAN OF ACTION ON THE ENVIRONMENT, 1994-1998

1. The UN Conference on Human Environment held at Stockholm in 1972 provided a strong stimulus for the development of regional and sub-regional environmental programmes with a view to dealing with environmental problems in a cooperative framework. The ASEAN Environment Programme I (ASEP I), initiated 1977 through the catalytic support of the United Nations Environment Programme (UNEP), marked the beginning of regional environmental cooperation in ASEAN.
2. ASEP I described the extent of regional cooperation and listed the different priority areas and projects/activities on environment. On the recommendation of the ASEAN Committee on Science and Technology, the first meeting of the ASEAN Experts Group on the Environment (AEGE) was held in Jakarta in December 1978 to consider ASEP I. The First ASEAN Ministerial Meeting on the environment which was held in Manila in April 1981 endorsed ASEP I, thereby adopting its objectives and guidelines.
3. In 1981, the first ASEAN declaration on cooperation on the environment was made. It defined the broad objective of cooperation as being to "ensure the protection of the ASEAN environment and the sustainability of its natural resources so that it can sustain continued development with the aim of eradicating poverty and attaining the highest possible quality of life for the people of the ASEAN countries". It enumerated a number of policy guidelines enjoining member countries to: develop a common awareness of the environmental considerations are taken into environmental protection measures, ensure that environment programmes were developed and implemented, namely, ASEP II covering the period 1982-1987, and ASEP III covering the period 1988 - 1992.
4. The Fourth Meeting of the ASEAN Senior Officials on the Environment held in July 1993 in Bangkok, agreed that a new ASEAN Action Plan should be developed taking into account new developments following the outcome of UNCED which adopted Agenda 21. The plan should take into consideration the need to harmonise the working groups' objectives, strengthen the existing institutional arrangements, identify priority regional issues including environmentally related implications of the ASEAN Free Trade agreement (AFTA), as well as establish ASEAN's position in international for a such as the Commission on Sustainable Development (CSD) and Inter-Governmental Committee on the Convention on Biological Biodiversity (ICCBD). The Meeting requested the ASEAN Secretariat to initiate action to prepare such a plan.
5. This Strategic Plan of Action on the Environment has the following five objectives:
  - a. to respond to specific recommendations of Agenda 21 requiring priority action in ASEAN;
  - b. to introduce policy measures and promote institutional development that encourage the integration of environmental factors in all developmental processes both at the national and regional levels;
  - c. to establish long term goals on environmental quality and work towards harmonised environmental quality standards for the ASEAN region;
  - d. to harmonise policy directions and enhance operational and technical cooperation on environmental matters, and undertake joint actions to address common environmental problems; and
  - e. to study the implications of AFTA on the environment and take steps to integrate sound trade policies with sound environmental policies.
6. To attain these objectives, the following strategic thrusts and actions will be pursued.

**STRATEGY 1:**  
Support the development of a regional framework for integrating environment and development concerns in the decision-making process

**STRATEGY 2:**  
Promote government-private sector interactions that lead towards the development of policies that mutually support the thrust of each sector

**STRATEGY 3:**  
Strengthen the knowledge and information database on environmental matters

**STRATEGY 4:**  
Strengthen institutional and legal capacities to implement international agreements on environment

**STRATEGY 5:**  
Establish a regional framework on biological diversity conservation and sustainable utilisation of its components

**STRATEGY 6:**  
Promote the protection and management of coastal zones and marine resources

**STRATEGY 7:**

Promote environmentally sound management of toxic chemicals and hazardous wastes, and control of transboundary movement of hazardous wastes

**STRATEGY 8:**

Develop a system for the promotion of environmentally sound technologies

**STRATEGY 9:**

Promote regional activities that strengthen the role of major groups in sustainable development

**STRATEGY 10:**

Strengthen the coordinative mechanism for the implementation and management of regional environment programmes

7. To implement the Plan of Action, various funding sources and schemes should be explored. These include: cost-sharing arrangements among participating ASEAN member countries for selected priority projects; the ASEAN Fund which gives priority to urgent, short-term projects of strategic or confidential nature and which are considered fundamental in building a stronger cooperative ASEAN infrastructure; the ASEAN Sub-regional Environment Trust (ASSET); and other project-related sources of funding such as ASEAN's Dialogue Partners, the Global Environment Facility (GEF) and the Asia Sustainable Development Fund.

*Source: ASEAN Strategic Plan of Action on the Environment, 1994-1998 (Executive Summary)*

# RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT, 1992

## **PREAMBLE**

**The United Nations Conference on Environment and Development,**

**Having met** at Rio de Janeiro from 3 to 14 June 1992,

**Reaffirming** the Declaration of the United Nations Conference on the Human Environment, adopted at Stockholm on 16 June 1972, and seeking to build upon it.

**With the goal of** establishing a new and equitable global partnership through the creation of new levels of cooperation among States, key sectors of societies and people.

**Working towards** international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system,

**Recognizing** the integral and interdependent nature of the Earth, our home,

## **PROCLAIMS THAT:**

### **Principle 1**

Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.

### **Principle 2**

States have, in accordance with the Charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental and developmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

### **Principle 3**

The right to development must be fulfilled so as to equitably meet developmental and environmental needs of present and future generations.

### **Principle 4**

In order to achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.

### **Principle 5**

All States and all people shall cooperate in the essential task of eradicating poverty as an indispensable requirement for sustainable development, in order to decrease the disparities in standards of living and better meet the needs of the majority of the people of the world.

### **Principle 6**

The special situation and needs of developing countries, particularly the least developed and those most environmentally vulnerable, shall be given special priority. International actions in the field of environment and development should also address the interests and needs of all countries.

### **Principle 7**

States shall cooperate in a spirit of global partnership to conserve, protect and restore the health and integrity of the Earth's ecosystem. In view of the different contributions to global environmental degradation, States have common but differentiated responsibilities. The developed countries acknowledge the responsibility that they bear in the international pursuit of sustainable development in view of the pressure their societies place on the global environment and of the technologies and financial resources they command.

### **Principle 8**

To achieve sustainable development and a higher quality of life for all people, States should reduce and eliminate unsustainable patterns of production and consumption and promote appropriate demographic policies.

### **Principle 9**

States should cooperate to strengthen endogenous capacity-building for sustainable development by improving scientific understanding through exchanges of scientific and technological knowledge, and by enhancing the development, adaptation, diffusion and transfer of technologies, including new and innovative technologies.

### **Principle 10**

Environmental issues are best handled with the participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

### **Principle 11**

States shall enact effective environmental legislation. Environmental standards, management objectives and priorities should reflect the environmental and developmental context to which they apply. Standards applied by some countries may be inappropriate and of unwarranted economic and social cost to other countries, in particular developing countries.

### **Principle 12**

States should cooperate to promote a supportive and open international economic system that would lead to economic growth and sustainable development in all countries, to better address the problems of environmental degradation. Trade policy measures for environmental purposes should not constitute a means of arbitrary or unjustifiable discrimination or a disguised restriction on international trade. Unilateral actions to deal with environmental challenges outside the jurisdiction of the importing country should be avoided. Environmental measures addressing transboundary or global environmental problems should, as far as possible, be based on an international consensus.

**Principle 13**

States shall develop national law regarding liability and compensation for the victims of pollution and other environmental damage. States shall also cooperate in an expeditious and more determined manner to develop further international law regarding liability and compensation for adverse effects of environmental damage caused by activities within their jurisdiction or control to areas beyond their jurisdiction.

**Principle 14**

States should effectively cooperate to discourage or prevent the relocation and transfer to other States of any activities and substances that cause severe environmental degradation or are found to be harmful to human health.

**Principle 15**

In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

**Principle 16**

National authorities should endeavour to promote the internalisation of environmental costs and the use of economic instruments, taking into account the approach that the polluter should, in principle, bear the cost of pollution, with due regard to the public interest and without distorting international trade and investment.

**Principle 17**

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have a significant adverse impact on the environment and are subject to a decision of a competent national authority.

**Principle 18**

States shall immediately notify other States of any natural disasters or other emergencies that are likely to produce sudden harmful effects on the environment of those states. Every effort shall be made by the international community to help States so afflicted.

**Principle 19**

States shall provide prior and timely notification and relevant information to potentially affected States on activities that may have a significant adverse transboundary environmental effect and shall consult with those States at any early stage and in good faith.

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3-14 June 1992*

**Principle 20**

Women have a vital role in environmental management and development. Their full participation is therefore essential to achieve sustainable development and ensure a better future for all.

**Principle 21**

The creativity, ideals and courage of the youth of the world should be mobilised to forge a global partnership in order to achieve sustainable development and ensure a better future for all.

**Principle 22**

Indigenous people and their communities, and other local communities, have a vital role in environmental management and development because of their knowledge and traditional practices. States should recognise and duly support their identity, culture and interests and enable their effective participation in the achievement of sustainable development.

**Principle 23**

The environment and natural resources of people under oppression, domination and occupation shall be protected.

**Principle 24**

Warfare is inherently destructive of sustainable development. States shall therefore respect international law providing protection for the environment in times of armed conflict and cooperate in its further development, as necessary.

**Principle 25**

Peace, development and environmental protection are interdependent and indivisible.

**Principle 26**

States shall resolve all their environmental disputes peacefully and by appropriate means in accordance with the Charter of the United Nations.

**Principle 27**

States and people shall cooperate in good faith and in a spirit of partnership in the fulfillment of the principles embodied in this Declaration and in the further development of international law.

## **KUALA LUMPUR DECLARATION ON ENVIRONMENT AND DEVELOPMENT, 1992**

We, the Ministers from 55 Developing countries<sup>1</sup> met in Kuala Lumpur, at the invitation of the Government of Malaysia, from 26 to 29 April 1992, at the Second Ministerial Conference of Developing Countries on Environment and Development. The Kuala Lumpur Conference which has its initiation in New Delhi, India in April 1990, is a follow-up to the First Ministerial Conference held in Beijing in June 1991. The Kuala Lumpur Conference was also attended by observers<sup>2</sup> from 11 Developed Countries, 10 International Organizations and 9 Non-Governmental Organizations.

1. We exchanged views on the United Nations Conference on Environment and Development (UNCED) process, which started in 1989 with the United Nations General Assembly (UNGA) Resolution 44/228, in the light of the results of the Fourth Substantive Session of the Preparatory Committee of UNCED held in New York from 2 March to 3 April 1992. To that effect, we reaffirm the will and the determination of our Governments to ensure that the Rio Conference fully and clearly achieves in concrete terms, the provisions contained in the relevant General Assembly Resolutions notably UNGA Resolution 44/228. In this context, the discussions centered on efforts to address important outstanding issues, with a view to finding solutions from them at UNCED scheduled at Rio de Janeiro, Brazil, 3-14 June 1992.
  2. While noting that progress was made in a number of areas at the Fourth Substantive Session of the Preparatory Committee, we express our serious concern at the lack of progress on a few key issues, particularly financial resources and mechanisms.
  3. UNCED is of historic importance and provides the occasion at the highest levels of government to address environment and development in an integrated, comprehensive and balanced manner for the benefit of both present and future generations. We call for a new global partnership based on respect for sovereignty and the principles of equity and equality among States for the achievement of sustainable development, taking into account the main responsibility of developed countries for the deterioration of the environment, and the need for sustained economic growth and development of developing countries.
  4. Development is a fundamental right of all peoples and countries. An environmentally sound planet should correspond to a socially and economically just world. An environmentally sound development, and the creation of a supportive international economic environment to achieve this objective, including transfer of new and additional financial resources to developing countries, through distinct and specific mechanisms which are transparent, accountable and with equal representation in decision-making, and modalities for transfer of technology, must be at the centre of the international agenda. In this regard, recognising the importance of international trade to all countries and the need for far reaching reforms in international economic relations, we call on the developed countries to ensure without further delay a balanced, meaningful and satisfactory conclusion of the Uruguay Round of Multilateral Trade Negotiations. We further emphasise that developed countries should not attempt to impose unilateral restrictions on international trade, in particular, on natural resource-based and other related products on environmental grounds.
  5. We further underline, in the context of attaining sustainable development, the need for the urgent conclusion and implementation of internationally supported measures to enhance and stabilise commodity prices, including commodity diversification, processing and development.
  6. We reiterate that for the new global partnership to be meaningful, developing countries must have the resources to participate effectively. We also underline the urgent need to eradicate poverty and to guarantee sustained growth in both economic and environmental terms.
  7. We stress that sustainable development makes it incumbent on developed countries to take major steps to transform their production, consumption and distribution patterns towards environmentally sound development. For the developing countries, sustainable development implies the right to development with due regard to the ecological processes. In order for the developing countries to achieve sustainable development, developed countries should adhere to a new concept of global partnership.
  8. On the basis of the foregoing, and reaffirming the principle and objectives of the First Ministerial Conference of Developing Countries on Environment and Development held at Beijing, we agree on the following positions on the core issues of special importance to developing countries to be taken up at the Rio Conference:-
- RIO DECLARATION ON ENVIRONMENT AND DEVELOPMENT**
9. We note the progress made at the Fourth Substantive Session of the Preparatory Committee in regard to the elaboration of the Rio Declaration on Environment and Development, as reflected in the Chairman's Draft Text transmitted for further consideration and finalisation at the Rio Conference. Recalling the reservations made, including those by developing countries, we agree that steps need to be taken to further develop the text in line with UNGA Resolution 44/228.

<sup>1</sup>. Annex 1 - List of developing countries participating in the above Conference.

<sup>2</sup>. Annex 2 - Listing of observers in the above Conference.

## **AGENDA 21**

10. We note the progress made at the Fourth Substantive Session of the Preparatory Committee Meeting in the identification of specific objectives, programmes and activities of Agenda 21 in a number of areas, including the recognition of the need for international efforts to address the serious problem of desertification and drought. We further reaffirm our willingness to continue participating in a constructive attitude in the issues yet to be resolved. We are also of the view that the programmes must support national priorities, must form an integrated package, and should not be used as a new form of conditionality in access to development support or any attempts to review national policies or strategies. We believe that agreement on the implementation of Agenda 21 programmes will depend on the availability to adequate, new and additional financial resources, and the transfer of technology to developing countries on preferential and concessional terms.

## **FINANCIAL RESOURCES**

11. We reaffirm the position which was presented by the Group of 77 and China at the Fourth Substantive Session of the Preparatory Committee for UNCED.
12. As regards the means of implementation, we are of the view that new and additional funding should be the basis of an evolving partnership leading progressively towards the goal of sustainable development in both developing and developed countries. This funding should be provided in addition to, and separate from the Official Development Assistance (ODA) target commitments by the developed countries. A specific and separate fund for the implementation of Agenda 21 should be established. Predictability in the flow of funds should be ensured by assessed contributions from developed countries. Developing countries could contribute on a voluntary basis. The governance of the fund should include the following criteria:-
- a) it should be transparent;
  - b) it should be democratic in nature, with an equal voice for all parties in setting project eligibility criteria, project selection, and the authority to release funds, enabling an equitable balance between developed and developing countries;
  - c) it should provide access and disbursement to all developing countries without any conditionality; and
  - d) it should provide for funding of activities according to the priorities and needs of the developing countries, taking into account Agenda 21.

All possibilities can be explored in regard to location or locations of the fund and its administrative and operational activities in the light of the above criteria. In addition, existing mechanisms governed by the criteria defined above, could also be utilised as appropriate, in order to optimise provision of substantial grants or concessionary resources for the implementation of Agenda 21. In the follow-up after UNCED, there should be provisions for the effective monitoring of the financing of Agenda 21 and the mechanisms utilised for that purpose.

13. We welcome the initiative and note the Tokyo Declaration on Financing Global Environment and Development.

## **TRANSFER OF TECHNOLOGY**

14. We recognise the progress made at the Fourth Substantive Session of the Preparatory Committee Meeting on this subject and strongly stress the need for assured access to, and transfer of technology on preferential and concessional terms to developing countries, taking into consideration that Intellectual Property Rights should not hinder the transfer of technology to developing countries. We further stress that the concept of transfer of technology should not be diluted by referring to it as technology cooperation. We emphasise that modalities should be immediately set up for the transfer of technology, including state-of-the-art technologies, to developing countries consistent with the relevant provisions of the UNGA Resolution 44/228.

## **STATEMENT OF PRINCIPLES ON FORESTS**

15. We emphasise that forest ecosystems and resources are part of the national patrimony to be managed, conserved and developed by each country in accordance with its national plans and priorities in the exercise of its sovereign rights.
16. We call on all countries to give full support to the finalisation of a Non Legally-binding Authoritative Statement of Principles on the Management, Conservation and Development of All types of Forests and its adoption at the Rio Conference. Considering that the Statement of Principles would provide an adequate and sound basis for the greening of the world, including through reforestation, afforestation, regeneration and sustainable use of forest resources, the negotiations of a legally binding instrument on forest would not be required.
17. We also call on the developed countries to substantially increase their forest cover and to avoid unilateral measures in the name of environmental protection, that constitute arbitrary or discriminatory action such as bans and restrictions on international trade of forest and forest-related products from the developing countries.

## **INSTITUTIONS**

18. We stress the necessity for an early decision on an intergovernmental institutional arrangement for the follow-up of Agenda 21 and other decisions of UNCED, in accordance with agreed sections of document A/CONF. 151 / PC / WG.III / L.31 / REV.1 and further agreement to be achieved at the Rio Conference. The Rio Conference could also recommend to the General Assembly, provisions for financial and other means in the interim period between the Rio Conference and the 47th United Nations General Assembly. In addition, we agree that national and regional institutions should be strengthened in order to promote sustainable development.

## **PROPOSED CONVENTIONS ON CLIMATE CHANGE AND BIOLOGICAL DIVERSITY**

19. We note the current stage of negotiations pertaining to the Framework Convention on Climate Change and the Convention on Biological Diversity, and call for their early conclusion.

## **FRAMEWORK CONVENTION ON CLIMATE CHANGE**

20. We express deep concern at the lack of progress in the negotiations for the Framework Convention on Climate Change. In this regard, and in accordance with UNGA Resolution 46/169, we urge the Intergovernmental Negotiating Committee to expedite and successfully complete the negotiations as soon as possible and to adopt the Framework Convention on Climate Change, containing appropriate commitments and any related legal instruments as may be agreed upon, in time for it to be opened for signature during UNCED. We stress the importance of these negotiations which should seriously address the adverse impact of climate change on developing countries including adaptation and mitigation measures. This is especially relevant to small island states; states with low-lying coastal areas, which are vulnerable to climate change and its consequential sea-level rise; disaster prone developing countries; and countries liable to drought and desertification.
21. We urge the developed countries to undertake meaningful and specific commitments on the stabilisation and reduction of emissions of carbon dioxide and other greenhouse gases.
22. We further stress that developed countries should make commitments for the provision of financial resources and transfer of technology to developing countries to enable them to adapt, mitigate and combat climate change and its adverse effects. We also stress that a fund should be established under this Convention for its implementation.
23. We also express concern on the implications of the Convention to developing countries whose economies are highly dependent on income generated from the production, processing, export, and/or the consumption of fossil fuels and associated energy-intensive products.
24. We reiterate that the implementation mechanisms of the Convention should fully take into account the sovereign rights of each country to determine its national policies, plans and programmes for sustainable development.

## **CONVENTION ON BIOLOGICAL DIVERSITY**

25. We note the progress of the negotiations for a Convention on Biological Diversity and reaffirm the sovereign rights of States to use their biological and genetic resources.
26. We underline the need for the Convention to establish mechanisms to give effect to the rights of countries which possess biological and genetic resources in *in-situ* conditions. In this context, we reiterate that the Convention on Biological Diversity must include legally binding commitments to ensure the link between the access to the genetic material of developing countries and the transfer of biotechnology and research capabilities from developed countries, as well as sharing of commercial profits and products derived from the genetic material.
27. We recognise that developing countries are already taking measures to conserve and use in a sustainable manner their biological resources and stress that those measures should be supported by the developed countries through the provision of financial and other resources.
28. We are of the view that providing for a 'Global List of Biogeographic Areas of Global Importance' under the Convention on Biological Diversity is not necessary.
29. We also stress that a fund should be established under this Convention to make it possible for developing countries to fulfil their obligations under the Convention.

## **SOUTH-SOUTH COOPERATION**

30. We recognise the need to enhance South-South cooperation on environment and development, by regular consultations at all levels and through exchange of environmentally sound scientific and technological knowledge on mutually acceptable terms, in the interest of accelerating development. We agree that there should be regular consultations at ministerial, scientific and other expert levels to encourage cooperation and monitor the decisions to be taken at the Rio Conference.

*Second Ministerial Conference of Developing Countries on Environment and Development  
Kuala Lumpur, April 1992*

**LIST OF DEVELOPING COUNTRIES  
ATTENDING THE SECOND MINISTERIAL CONFERENCE OF  
DEVELOPING COUNTRIES ON ENVIRONMENT AND DEVELOPMENT  
26-29 April 1992**

<b>DEVELOPING COUNTRIES</b>					
<b>No.</b>	<b>Country</b>	<b>No.</b>	<b>Country</b>	<b>No.</b>	<b>Country</b>
1.	Algeria	21.	The Islamic Republic of Iran	38.	Papua New Guinea
2.	Argentina	22.	Jordan	39.	Peru
3.	Bangladesh	23.	Kenya	40.	The Philippines
4.	Barbados	24.	The People's Bureau of the Great Socialist People's Libyan Arab Jamahiriah	41.	The Republic of Korea
5.	Benin	25.	Malaysia	42.	Saudi Arabia
6.	Brazil	26.	The Maldives	43.	Senegal
7.	Brunei Darussalam	27.	Mali	44.	Singapore
8.	Chile	28.	Malta	45.	Sudan
9.	China	29.	Mauritania	46.	Tanzania
10.	Colombia	30.	Mauritius	47.	Thailand
11.	Cote D' Ivoire	31.	Mexico	48.	Tunisia
12.	Cuba	32.	Morocco	49.	Uganda
13.	Democratic People's Republic of Korea	33.	Nepal	50.	Vanuatu
14.	Egypt	34.	Nigeria	51.	Venezuela
15.	Ethiopia	35.	Oman	52.	Vietnam
16.	Fiji	36.	Pakistan	53.	Yugoslavia
17.	Ghana	37.	Palestine	54.	Zaire
18.	Guyana			55.	Zimbabwe
19.	India				
20.	Indonesia				

## ANNEX 2

**LIST OF OBSERVERS ATTENDING  
THE SECOND MINISTERIAL CONFERENCE OF  
DEVELOPING COUNTRIES ON ENVIRONMENT AND DEVELOPMENT  
26-29 April 1992**

<b>DEVELOPED COUNTRIES</b>					
<b>No.</b>	<b>Country</b>	<b>No.</b>	<b>Country</b>	<b>No.</b>	<b>Country</b>
1.	Australia	5.	Japan	9.	Sweden
2.	Canada	6.	The Netherlands	10.	The United Kingdom
3.	France	7.	Norway	11.	The United States of America
4.	Germany	8.	Portugal		

<b>INTERNATIONAL ORGANIZATIONS</b>	<b>NON-GOVERNMENTAL ORGANIZATIONS (NGOs)</b>
1. United Nations Conference on Environment and Development (UNCED) 2. United Nations Development Programme (UNDP) 3. Department of Economic & Social Development (DESD), United Nations 4. International Tropical Timber Organization (ITTO) 5. United Nations Environment Programme (UNEP) 6. European Community (EC) 7. World Meteorological Organization (WMO) 8. ASEAN Secretariat 9. International Fund for Agricultural Development (IFAD) 10. Asian Wetland Bureau	1. SUNS 2. Third World Network 3. Research Foundation for Technology and Natural Resources 4. Environmental Protection Society of Malaysia 5. Sahabat Alam Malaysia 6. Federation of Malaysian Consumers' Association 7. Genetic Resources 8. Malaysian Business Council for Sustainable Development 9. World Wide Fund for Nature, Malaysia
<b>OTHER OBSERVERS</b>	
1. African National Congress (ANC)	

## THE KUALA LUMPUR ACCORD ON ENVIRONMENT AND DEVELOPMENT, 1990

AWARE, that the management of the environment and the pursuit of sustainable development are imperative to secure the well-being of the people of ASEAN today and in the future.

FURTHER AWARE, that the management of the environment and the pursuit of sustainable development require close cooperation between the member countries of ASEAN in particular and global cooperation in general, and that ASEAN should endeavour to strengthen such cooperation.

CONSCIOUS, that the United Nations Conference on Environment and Development, to be held in 1992, provides a forum and an opportunity to further promote such cooperation and for ASEAN to assert its views on environmental management and sustainable development.

RECOGNISING, that the formulation of such views and practices would require preparatory steps and studies, jointly as well as separately.

ALSO RECOGNISING that in such formulation, it would be beneficial to take note of:

- the Manila Declaration of 1981
- the Bangkok Declaration of 1984
- the Jakarta Resolution of 1987
- the Manila Summit Declaration of 1987, and
- the Langkawi Declaration of 1989

### WE THE ASEAN MINISTERS FOR THE ENVIRONMENT HEREBY AGREE:

1. To initiate efforts leading towards concrete steps pertaining to environmental management, including:
  - a. the formulation of an ASEAN strategy for sustainable development and a corresponding action programme,
  - b. the harmonisation of environmental quality standards,
  - c. the harmonisation of transboundary pollution prevention and abatement practices,
  - d. the undertaking of research and development and the promotion of the use of cleaner technologies.
2. To initiate efforts leading towards concrete steps pertaining to natural resource management, including:
  - a. the harmonisation of approaches in natural resource assessment,
  - b. the development of joint natural resource management programmes,
  - c. the development and harmonisation of procedures aimed at obtaining a better reflection of the state of natural wealth in the context of the System of National Accounts.
3. To initiate efforts enabling the inclusion of environmental factors into economic calculations and thus providing a better base for international economic cooperation.
4. To develop and formulate a common ASEAN position to be presented to the Ministerial Level Conference on the Environment for Asia and the Pacific and later to the United Nations Conference on Environment and Development in 1992, including:
  - a. affirming ASEAN's commitment to the pursuit of sustainable development;
  - b. stressing the need to strengthen regional and international cooperation and proposing the principles upon which such cooperation should be based;
  - c. emphasizing the importance of a global environmental agenda which reflects the priorities and concerns of all countries;
  - d. calling attention to the patterns of international relations that inhibit the implementation of national environmental efforts in developing countries and their participation in global environmental efforts;
  - e. reiterating the urgency for a supportive and predictable international economic environment which promotes economic growth and development of all countries;
  - f. stressing the need for equitable sharing of responsibilities and allocation of liabilities in global environmental efforts;
  - g. stressing that although global environmental efforts will benefit the common good, such benefits should be shared equitably, including the benefits of Research and Development;
  - h. underlining the need for substantial additional resources to assist developing countries to pursue their goals of sustainable development as well as access to, and transfer of, environmentally sound technologies at affordable costs and the establishment of appropriate funding mechanisms.

*The Fourth Asean Ministerial Meeting on the Environment (AMME)  
Subang, Selangor Darul Ehsan, Malaysia 18-19 June 1990*

# THE LANGKAWI DECLARATION ON THE ENVIRONMENT, 1989

## THE LANGKAWI DECLARATION ON THE ENVIRONMENT

We, the Heads of Government of the Commonwealth, representing a quarter of the world's population and a broad cross-section of global interests, are deeply concerned at the serious deterioration in the environment and the threat this poses to the well-being of present and future generations. Any delay in taking action to halt this progressive deterioration will result in permanent and irreversible damage.

2. The current threat to the environment, which is a common concern of all mankind, stems essentially from past neglect in managing the natural environment and resources. The environment has been degraded by decades of industrial and other forms of pollution, including unsafe disposal of toxic wastes, the burning of fossil fuels, nuclear testing and non-sustainable practices in agriculture, fishery and forestry.
3. The main environmental problems facing the world are the 'greenhouse effect' (which may lead to severe climatic changes that could induce floods, droughts and rising sea levels), the depletion of the ozone layer, acid rain, marine pollution, land degradation and the extinction of numerous animal and plant species. Some developing countries also face distinct environmental problems arising from poverty and population pressure. In addition, some islands and low-lying areas of other countries, are threatened by the prospect of rising sea level.
4. Many environmental problems transcend national boundaries and interests, necessitating a co-ordinated global effort. This is particularly true in areas outside national jurisdiction, and where there is transboundary pollution on land and in the oceans, atmosphere and outer space.
5. The need to protect the environment should be viewed in a balanced perspective and due emphasis be accorded to promoting economic growth and sustainable development, including eradication of poverty, meeting basic needs, and enhancing the quality of life. The responsibility for ensuring a better environment should be equitably shared and the ability of developing countries to respond be taken into account.
6. To achieve sustainable development, economic growth is a compelling necessity. Sustainable development implies the incorporation of environmental concerns into economic planning and policies. Environmental concerns should not be used to introduce a new form of conditionality in aid and development financing, nor as a pretext for creating unjustified barriers to trade.
7. The success of global and national environmental programmes requires mutually reinforcing strategies and the participation and commitment of all levels of society - government, individuals and organisations, industry and the scientific community.
8. Recognising that our shared environment binds all countries to a common future, we, the Heads of Government of the Commonwealth, resolved to act collectively and individually, commit ourselves to the following programme of action:
  - advance policies and programmes which help achieve sustainable development, including the development of new and better techniques in integrating the environmental dimension in economic decision-making;
  - strengthen and support the development of international funding mechanisms and appropriate decision-making procedures to respond to environmental protection needs which will include assisting developing countries to obtain access to and transfer of needed environmental technologies and which should take account of proposals for an international environment fund/Planet Protection Fund;
  - support the work of the UNEP/WMO Intergovernmental Panel on Climate Change (IPCC);
  - call for the early conclusion of an international convention to protect and conserve the global climate and, in this context, applaud the efforts of member governments to advance the negotiation of a framework convention under UN auspices;
  - support the findings and recommendations of the Commonwealth Expert Group's Report on Climate Change as a basis for achievable action to develop strategies for adapting to climate change and for reducing greenhouse gas emissions, as well as making an important contribution to the work of the IPCC;
  - support measures to improve energy conservation and energy efficiency;
  - promote the reduction and eventual phase-out of substances depleting the ozone layer;
  - promote afforestation and agricultural practices in developed and developing countries to arrest the increase in atmospheric carbon dioxide and halt the deterioration of land and water resources;
  - strengthen efforts by developing countries in sustainable forest management and their manufacture and export of higher value-added forest products and, in this regard, support the activities of the International Tropical Timber Organisations and the Food and Agriculture Organisation's Tropical Forestry Action Plan, as well as take note of the recommendations of the 13th Commonwealth Forestry Conference;

- support activities related to the conservation of biological diversity and genetic resources, including the conservation of significant areas of virgin forest and other protected natural habitats;
  - support low-lying and island countries in their efforts to protect themselves and their vulnerable natural marine ecosystems from the effects of sea level rise;
  - discourage and restrict non-sustainable fishing practices and seek to ban tangle net and pelagic drift net fishing;
  - support efforts to prevent marine pollution including curbing ocean dumping of toxic wastes;
  - strengthen international action to ensure the safe management and disposal of hazardous wastes and to reduce transboundary movements, particularly to prevent dumping in developing countries;
  - participate in relevant international agreements relating to the environment and promote new and innovative instruments which will attract widespread support for protecting the global environment; and
  - strengthen national, regional and international institutions responsible for environmental protection as well as the promotion of active programmes on environmental education to heighten public awareness and support.
9. We, the Heads of Government of the Commonwealth, resolve to take immediate and positive actions on the basis of the above programme. In this regard, we pledge our full support for the convening of the 1992 UN Conference on Environment and Development.
  10. We call on the international community to join us in the endeavour.

*Issued by Commonwealth Heads of Government at Langkawi, Malaysia  
October 21, 1989*

# ***INVESTMENT GUIDE***

## ***(Environmental Requirements)***

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Sources: 1. Department of Environment. Environmental Requirements: A Guide for Investors.  
2. The National Resources & Environmental Ordinance Order, 1994, Sarawak

*July 1994*

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# INVESTMENT GUIDE

## (Environmental Requirements)

### INTRODUCTION

In the promotion of environmentally sound and sustainable development, the Government of Malaysia has established the necessary legal and institutional arrangements such that environmental factors are considered at the early stages of project planning. With reference to the licensing requirements for establishment of business/industry in the country (**Appendix A**), environmental requirements and assessment constitute the second level of approval that need to be obtained after a business or industry has been registered. Environmental assessment is an important technique for ensuring that the likely impacts on the environments of proposed development are fully understood and taken into account before such development is allowed to go ahead. In Malaysia, Environmental Impact Assessment (EIA) is required for activities prescribed under the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987. Those industrial activities that are not subject to the mandatory EIA requirements are nevertheless subject to various regulations under the Environmental Quality Act 1974 (EQA). The standing regulations call for project siting evaluation, pollution control, monitoring and self-enforcement.

This set of guidelines, which is intended primarily for investors or project proponents and their consultants, sets out Malaysia's environmental policy objectives, and explains the environmental requirements for planning of industrial development projects in Malaysia. It also provides information on the relevant legislation and describes procedures for obtaining appropriate approvals from the Department of Environment, the regulatory agency which administers the EQA of 1974.

### ENVIRONMENTAL POLICY OBJECTIVES

National environmental policy in Malaysia (as reiterated in the 3rd and 5th Malaysia Plans, and reinforced by the 6th Malaysia Plan) will continue to give greater emphasis on the following objectives:

- to maintain a clean and healthy environment;
- to maintain the quality of the environment relative to the needs of the growing population;
- to minimise the impact of the growing population and human activities relating to mineral exploration, deforestation, agriculture, urbanisation, tourism and the development of other resources on the environment;
- to balance the goals for socio-economic development and the need to bring the benefits of development to a wide spectrum of the population against the maintenance of sound environmental conditions;

- to place more emphasis on prevention through conservation rather than on curative measures, *inter alia* by preserving the country's unique and diverse cultural and natural heritage;
- to incorporate an environmental dimension in project planning and implementation, *inter alia* by determining the implication of the proposed projects and the costs of the required environmental mitigation measures through the conduct of Environmental Impact Assessment Studies; and
- to promote greater cooperation and increased coordination among relevant Federal and State authorities as well as among the ASEAN Governments.

Under the **National Development Plan** and in the **Second Outline Perspective Plan (OPP2)** as well as in the **Sixth Malaysia Plan 1991-1995**, emphasis is given to enhancement of the environment and ecology to ensure sustainable development of the country. Based on the above Environmental Policy Objectives, the Department of Environment has formulated and adopted the following strategies :-

- pollution control and prevention;
- the integration of environmental factors in project planning and implementation; and
- environmental inputs into resource and regional development planning.

### ENVIRONMENTAL QUALITY ACT, 1974

The legislation that is related to the prevention, abatement, control of pollution and enhancement of the environment in Malaysia is the Environmental Quality Act, 1974 (Amendment) 1985. The Act restricts the discharge of wastes into the environment in contravention of **acceptable conditions**. To date 20 sets of Regulations and Orders as per **Appendix B** have been introduced and enforced. The Director General of Environmental Quality has been appointed by the Minister to administer this Act and any regulations and orders made thereunder.

### ENVIRONMENTAL REQUIREMENTS

Under the Environmental Quality Act, 1974 and the Regulations thereunder, industrial activities are required to obtain the following approvals from the Director-General of Environmental Quality prior to project implementation:

- Environmental Impact Assessment reports (for prescribed activities);
- Site suitability evaluation (for non-prescribed activities);
- Written permission to construct;

- Written approval for installation of incinerator, fuel burning equipment and chimney; and
- Licence to use and occupy (for prescribed premises).

### ENVIRONMENTAL IMPACT ASSESSMENT (EIA) FOR PRESCRIBED ACTIVITIES

Every industrial proposal should be examined by the investor to see whether an environmental impact assessment (EIA) needs to be conducted. A prospective investor should therefore first of all determine whether or not a proposed venture is categorised as a 'prescribed activity' as stipulated in the Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987, (**Appendix C**).

If the proposed venture is categorised as a 'prescribed activity', an EIA study needs to be conducted and report submitted to the Director General of Environmental Quality (in the case of Sarawak, the Natural Resources and Environment Board) for approval. The project is not allowed to proceed unless approval of the EIA report has been granted.

For an industrial project, the EIA generally would assist in determining site suitability as well as the necessary environmental control and mitigation measures. The objectives of EIA are summarised as follows:

- To examine and select the best from the project options available;
- To identify and incorporate into the project plan, appropriate abatement and mitigating measures;
- To predict significant residual environmental impacts; and
- To identify the environmental costs and benefits of the project to the community.

A Handbook of EIA PROCEDURE AND GUIDELINES has been prepared to assist project proponents understand the objectives of EIA, procedures for carrying out EIA studies and guidelines on the preparation of EIA reports. A booklet for quick reference is also available. Both can be obtained from the Headquarters of the Department of Environment, Kuala Lumpur, the State Offices of the Department of Environment and the office of the representative of the Department of Environment at the Malaysian Industrial Development Authority (MIDA). Addresses and telephone numbers of these offices are given in **Appendix D**.

### SITE SUITABILITY EVALUATION FOR NON-PRESCRIBED ACTIVITIES

One of the most important procedure which has an immediate bearing on the period of processing and condition of approval on environmental ground is the SITE SUITABILITY for the proposed project. Irrespective of whether the proposed industrial activity is going to be sited within an industrial estate or otherwise, it should be developed and managed with environmentally sound control measures. Therefore, all potential industrial sites

for the establishment of new industrial activities which are **NOT** subject to EIA, particularly the Small and Medium Scale Industries (SMIs), are advised to refer to the Department of Environment for consideration and advice on site suitability.

In considering the suitability, the site is evaluated in terms of its compatibility with respect to the gazetted structure/local plans, surrounding landuse, provision of set-backs or buffer zones, the capacity of the area to receive additional pollution load, and waste disposal requirements.

Details on the appropriate buffer zone with respect to a specific category of industry can be obtained from 'Guidelines for the Siting and Zoning of Industries' prepared by Department of Environment. An outline of the guidelines is given in **Appendix E & F**.

For potentially hazardous\* type of industries, the project proponent may be required to submit a RISK ANALYSIS to the Department of Environment as part of the site consideration.

### WRITTEN PERMISSION

Any person intending to carry out activities as listed below shall obtain prior written permission from the Director General of Environmental Quality:

- *New installation near dwelling area as detailed out in Regulation 4 and First Schedule of the Environmental Quality (Clean Air) Regulations, 1978 - P.U. (A) 280 (refer **Appendix G**);*
- *Construction of any building or carrying out of any work that may result in a new source of effluent or discharge as stipulated under*
- \* *Hazardous Industry: Any industry or installation which has the potential for causing injury, death and damage to property or the environment.*

Regulation 4, Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979 - P.U. (A) 12; and

- A factory which is categorised as prescribed premises namely:
  - (a) The Crude Palm Oil Mill;
  - (b) The Raw Natural Rubber Processing Mill; and
  - (c) The treatment and disposal facilities of scheduled waste.

### WRITTEN APPROVAL

For any erection, installation, resiting or alteration of fuel burning equipment that is rated to consume:

- pulverised fuel or solid fuel at 30 kg or more per hour; or
- liquid or gaseous fuel at 15 kg or more per hour;

an applicant shall obtain prior 'written approval' from the Director General as stipulated in Regulations 36 and 38, Environmental Quality (Clean Air) Regulations, 1978 - P.U. (A) 280. Written approval is also required for erection of incinerators.

#### LICENCE TO OCCUPY

A licence is required to occupy and operate prescribed premises. Application shall be made after obtaining written permission and written approval. Licensing fee will be charged for every licence issued for palm oil and raw natural rubber processing mills.

#### EMISSION AND EFFLUENT STANDARDS

Industries are required to comply with both air emission and effluent discharge standards as stipulated in **Appendices H and I** respectively. These standards are regarded as acceptable conditions of emissions and discharge allowed in Malaysia. **Appendix J**, gives the Recommended Malaysian Air Quality Guidelines (Ambient Standards).

#### SCHEDULED WASTES MANAGEMENT

Malaysia has developed a comprehensive set of legal provisions related to the management of toxic and hazardous wastes. The regulation was based on the cradle to grave principle.

A facility which generates, stores, transports, treats or disposes scheduled waste is subject to the following regulations:

- Environmental Quality (Scheduled Wastes) Regulations, 1989;
- Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order, 1989;
- Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulations, 1989;
- Customs (Prohibition of Export) Order (Amendment) (No. 2) 1993; and
- Customs (Prohibition of Import) Order (Amendment) (No. 2) 1993.

A summary of the environmental requirements on scheduled wastes is given in **Appendix K** and the list of scheduled wastes is as per **Appendix L**.

#### INCENTIVES FOR THE STORAGE, TREATMENT AND DISPOSAL OF TOXIC AND HAZARDOUS WASTE

To encourage proper industrial waste management, the following incentives are currently available:

- Pioneer Status incentive for 5 years to companies which are principally engaged in an **integrated operation** for the storage, treatment and disposal of toxic and hazardous wastes;
- Special Capital Allowance incentive to companies which *generate wastes* and intent to set up facilities to treat their own wastes. This allowance is at an initial rate of 40% and an annual rate of 20% for 5 years on all capital expenditure incurred in waste treatment and disposal; and
- As a further incentive for both the above categories of companies, the Government also extend the current import duty and sales tax exemption scheme for machinery, equipment, raw materials and components.

All facilities for storage, treatment and disposal of toxic and hazardous wastes must be approved by the Department of Environment before the application is made for the incentives.

#### CONCLUSION

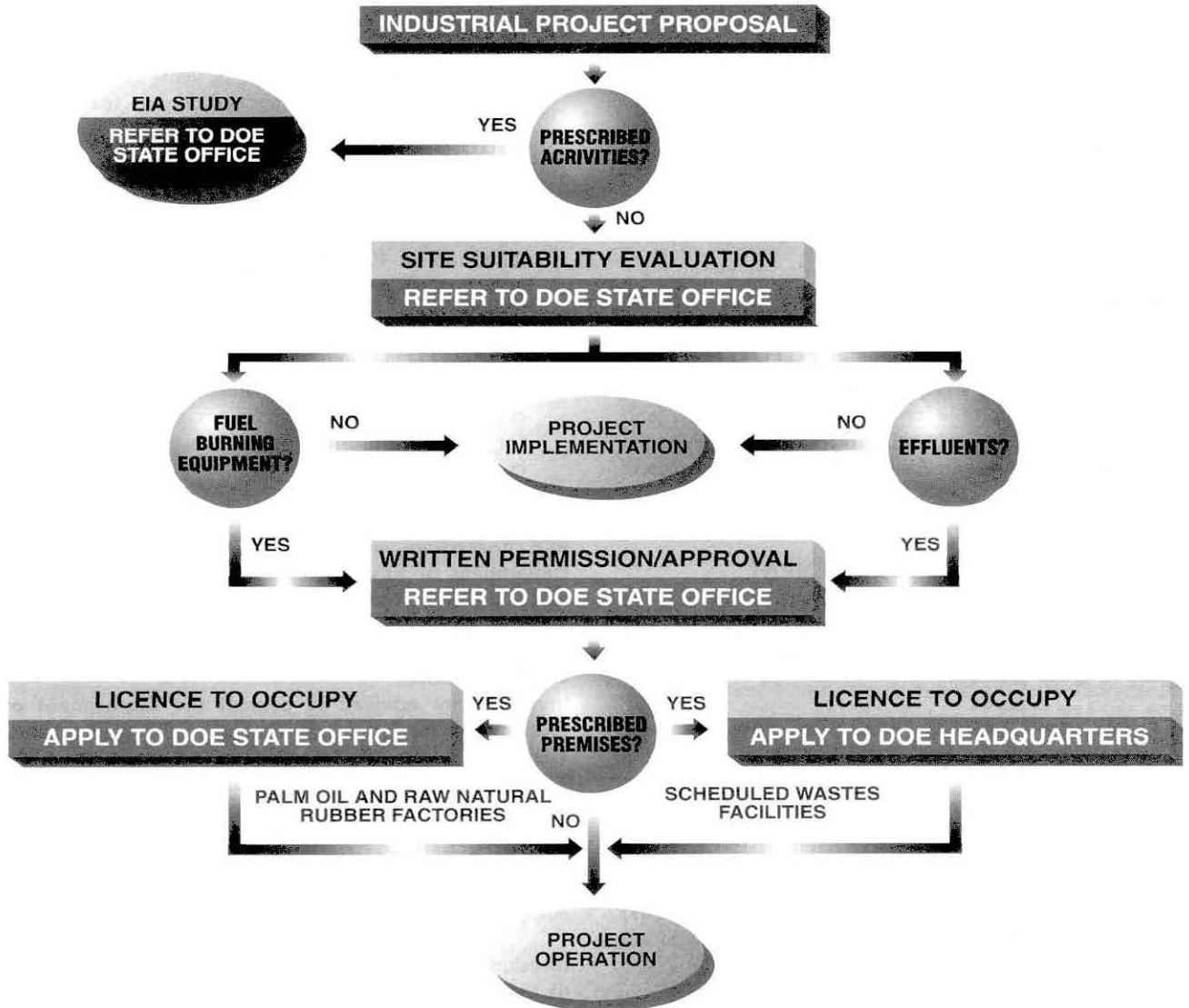
Investors are advised to consult the Department of Environment for further clarification of the requirements. They may do so by contacting the officers in the DOE headquarters, DOE State Offices or the DOE representative at MIDA. A checklist and a summary of approvals issued by the Department of Environment are given in **Appendices M and N** respectively to serve as a guide to investors. Investors are advised to provide adequate information to avoid any delay in processing.

Investors are also encouraged to give attention to some of the following aspects of pollution control during the early planning stages of their projects-

- look into pollution control measures as early as at the prefeasibility study stage;
- find possible modifications in the process line that can minimise waste generation;
- see pollution control as part of the production; and
- consider recycling options as far as possible.

In conclusion, investors should be aware that environmental issues are now a growing concern all over the world. Today, the public demands a better quality of life and environment. Therefore, investors should not only work towards complying with the law but also to fulfil their public obligations.

Figure 1 : Application procedure for Environmental Requirements in Malaysia



**STEP1**  
Prescribed activities

**STEP2**  
Activities subject to air and water pollution control

**STEP3**  
Licence to occupy

- Crude Palm Oil Mills
- Raw Natural Rubber Factories
- Scheduled Wastes Facilities



Activity	Type of Licence/Approval	Approving Authority
(iii) Building Plans	Approval for Building Plans (Other plans to be submitted with application): - Key Plan - Layout Plan - Elevation Plan for front, back and side view of building - Details on open space - Plan on septic tanks/sewerage - Plan on water-pipe installation - Plan on land works and infrastructure	Respective Local Authorities
(b) During Construction (i) Construction Work	1. Notice to Start Work and Date of Completion 2. Temporary Permits for Construction works such as: - Construction of a contractor's workshop and store-shed; - Construction of roadside scaffolding; - Construction of work platforms/framework or any structures; - Construction of fencing along the road; and 3. Permit to remove sand/stone materials	Respective Local Authorities  Respective District Land Office
(ii) Temporary Supply of Utilities	Approval for Temporary Supply of Utilities to the Project Site	Tenaga Nasional Bhd. Water Supply Dept.
(c) On Completion of Construction	1. Letters of Certification from respective technical departments 2. Certificate of Fitness	Fire Services Department Telekom Malaysia Bhd. Tenaga Nasional Bhd. Water Supply Dept. Respective Local Authorities
(d) Premises for Operating Trade/ Business/Industries	1. Premises Licence for trade/ industry/business concerned 2. Approval for Sign Boards/ Advertisement Sign	Respective Local Authorities
(e) Factory Inspection	Factory Inspection Report	Department of Occupational Safety and Health
<b>VI. UTILITIES</b>		
(a) Electricity	1. Approval for electricity supply 2. Approval for Construction of Electricity Sub-station 3. Approval to Install Standby Generator 4. Licence to Generate, Transmit or Distribute Energy from any Installation	Tenaga Nasional Bhd. Tenaga Nasional Bhd. Dept. of Electricity Supply Dept. of Electricity Supply
(b) Water Supply	Approval for water supply	Waterworks Department
(c) Telecommunication	Approval for telephone lines	Telekom Malaysia Bhd.

Activity	Type of Licence/Approval	Approving Authority
<b>VII. MANPOWER</b> (a) Employment of Works  (b) Limit of Working Hours  (c) Industrial Hygiene  (d) Worker's Competency  (e) Expatriate Posts  (f) Foreign Workers	<ol style="list-style-type: none"> <li>1. Permit Allowing Employers to Keep Employees' Register in the Company's Headquarters</li> <li>2. Registration of Workers with the Employees Provident Fund (EPF)</li> <li>3. Registration of employees with with the Social Security Organisation (for employers employing 1 worker or more earning wages RM2,000 per month or less)</li> </ol> <ol style="list-style-type: none"> <li>1. Permit to Exceed the Limit of Working Overtime Hours</li> <li>2. Permit to Vary Hours of Work</li> <li>3. Permit to Allow Women Working at Night</li> </ol> <ol style="list-style-type: none"> <li>1. Approval of Competent Person for:               <ul style="list-style-type: none"> <li>- Noise Exposure</li> <li>- Mineral Dust</li> <li>- Asbestos Process</li> <li>- Lead</li> </ul> </li> <li>2. Approval of Hearing Protectors</li> <li>3. Approval of Breathing Apparatus</li> <li>4. Approval of Sound Level Meters</li> <li>5. Approval of Audiometric Silent Booth</li> </ol> <ol style="list-style-type: none"> <li>1. Certificate of Competency (First Grade and Second Grade Degree Master)</li> <li>2. Registration of Competent Personnel (e.g. Chargeman, Engineer Supervising an installation, Wireman)</li> </ol> <ol style="list-style-type: none"> <li>1. Approval for Expatriate Posts</li> <li>2. Valid National Passports/ other recognised travel documents valid for entry into Malaysia</li> <li>3. Visa Requirement</li> <li>4. Employment Pass</li> </ol> <ol style="list-style-type: none"> <li>1. Approval to employ foreign workers in certain sectors</li> <li>2. Valid national passport/ other recognised travel documents valid for entry into Malaysia</li> <li>3. Visa Requirement</li> <li>4. Employment Pass/Permit</li> </ol>	<p>Labour Department</p> <p>Employees Provident Fund</p> <p>Social Security Organisation</p> <p>Labour Department</p> <p>- as above -</p> <p>- as above -</p> <p>Department of Occupational Safety and Health</p> <p>- as above -</p> <p>- as above -</p> <p>- as above -</p> <p>- as above -</p> <p>Department of Occupational Safety and Health</p> <p>Department of Electricity Supply</p> <p>MIDA</p> <p>--</p> <p>Nearest Malaysia mission abroad</p> <p>Immigration Department</p> <p>Ministry of Human Resources</p> <p>--</p> <p>Nearest Malaysian mission abroad</p> <p>Immigration Department</p>

Activity	Type of Licence/Approval	Approving Authority
<b>VIII. MACHINERY AND EQUIPMENT</b>		
(a) Importation/Use of Second-hand Machinery	Approval to import used plant and machinery (for projects under the Industrial Coordination Act 1975)	MIDA
(b) Certificated Machinery	Design Approval of Certificated Machinery (i.e. Steam boilers, unfired pressure vessels and hoisting machines)	Department of Occupational Safety and Health
(c) Commissioning and Operation of Certificated Machinery	Certificate of Fitness for Certificated Machinery	Department of Occupational Safety and Health
(d) Electrical Equipment	1. Approvals for Import or Manufacture of Electrical Appliances	Dept. of Electricity Supply
	2. Registration of Switchboard Manufacturers	- as above -
<b>IX. POLLUTION CONTROL</b>		
	1. Written Permission to increase production capacity of factory	Department of Environment
	2. Written Approval for Installation of incinerator, fuel burning equipment and chimney	- as above -
	3. Licence to Occupy and Operate Prescribed Premises	- as above -
	4. Licence to Discharge Effluent in the Continental Shelf	- as above -
<b>X. TRANSPORTATION BY:</b>		
(a) Land	1. Licence for Commercial Vehicles (such as factory buses, lorries etc.)	Commercial Vehicles Licensing Board
	2. Driving Licence for Goods Vehicle	Road Transport Department
	3. Approval for Locked Vans	Royal Customs and Excise Department
(b) Sea	1. Notification of Port Entry and Port Clearance	Respective Port Authority, Royal Customs and Excise Department
	2. Port Conveyance Permit	- as above -
	3. Certificate to carry Dangerous Goods	- as above -
	4. Approval for Private Jetty	Royal Customs and Excise Department
(c) Air	Declaration for Transportation of Dangerous Goods	Civil Aviation Department

Activity	Type of Licence/Approval	Approving Authority
<b>XI. IMPORT AND EXPORT</b> (a) Import of Prohibited Goods  (b) Export of Prohibited Goods	1. Import Licence for goods specified in Custom (Prohibition of Imports) Order 1988  2. Import Licence for Liquor and Cigarettes  1. Export Licence for goods specified in Customs (Prohibition of Exports) Order 1988  2. Export Approval under GSP System 3. Certificate of Origin	Ministry of International Trade and Industry and other Ministries, Departments or Statutory Bodies appointed by the Director General of Customs. Royal Customs and Excise Department  Ministry of International Trade and Industry and other Ministries, Departments or Statutory Bodies appointed by the Director General of Customs. Ministry of International Trade and Industry - as above -
<b>XII. LOCAL MARKET</b>	1. Sales Tax Licence	Royal Customs and Excise Department
<b>XIII. INTELLECTUAL/ INDUSTRIAL PROPERTY AND CONSUMERS PROTECTION</b> (a) Trade Mark  (b) Patent  (c) Copyright  (d) Weights and Measures  (e) Product Quality and Standards	- Trade Mark Certificate  - Certificate for Grant of a Patent  - Copyright Approval  - Licence to manufacture, repair and sell instruments for weighing and measuring  1. SIRIM Product Certification Scheme 2. Quality System Certification Scheme	Ministry of Domestic Trade and Consumers Affairs - as above -  - as above -  - as above -  SIRIM
<b>XIV. BANKING AND FINANCE</b> (1) Local Payment in Foreign Currency Between Residents  (2) Borrowing (a) Borrowing from non-residents (inclusive of guarantees): (i) In foreign currency exceeding RM1 million in aggregate (ii) In ringgit	Approval letter from the Controller of Foreign Exchange  - as above -	Balance of Payments Department Central Bank of Malaysia  - as above -

Activity	Type of Licence/Approval	Approving Authority
(b) Local borrowing (i) Obtained by non-resident controlled companies exceeding RM10 million in aggregate  (ii) Obtained by non-residents and non-residents controlled companies to finance the purchase of immovable properties in Malaysia  (iii) Obtained by non-residents exceeding RM100,000	- as above -	- as above -
(c) Local borrowing in foreign currency exceeding RM1 million	- as above -	- as above -
(3) Opening of Bank Account	Approval letter from the Controller of Foreign Exchange	Balance of Payments Department Central Bank of Malaysia
(a) Overseas account by resident	- as above -	- as above -
(d) Foreign currency account maintained by residents in Malaysia	- as above -	- as above -
(4) Flow of Funds	Approval letter from the Controller of Foreign Exchange	Balance of Payments Department, Central Bank of Malaysia
(a) Export proceeds (i) exceeding 6 months from the date of export  (ii) to offset export proceeds against import payment or loan repayments	- as above -	- as above -

Activity	Type of Licence/Approval	Approving Authority
(iii) will not receive export export proceeds  (b) Investment abroad and loan to non-residents if the resident concerned has obtained local borrowing	- as above -	- as above -

Source: 'Dealing With The Malaysian Civil Service'.  
MAMPU.

**LIST OF REGULATIONS AND ORDERS ENFORCED UNDER THE  
ENVIRONMENTAL QUALITY ACT 1974 BY THE DEPARTMENT OF ENVIRONMENT**

No.	Regulations/Order	P.U. (A)	Effective Date of Enforcement
1.	Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977	199	1 July 1978
2.	Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977 Amendment (1982)	342	4 November 1977
3.	Environmental Quality (Licensing) Regulations 1977	198	1 October 1977
4.	Motor Vehicle (Control of Smoke and Gas Emissions) Rules 1977 (made under the Road Traffic Ordinance, 1958)	414	22 December 1978
5.	Environmental Quality (Prescribed Premises) (Raw Natural Rubber) (Amendment) Order 1978	337	1 April 1979
6.	Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978 Amendment (1980)	338	1 December 1978
7.	Environmental Quality (Clean Air) Regulations 1978	280	1 October 1978
8.	Environmental Quality (Compounding of Offences) Regulations 1978	281	1 October 1978
9.	Environmental Quality (Sewage and Industrial Effluents) Regulations 1979	12	1 January 1979
10.	Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations 1985	296	11 July 1987
11.	Environmental Quality (Motor Vehicles Noise) Regulations 1987	244	16 July 1987
12.	Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 1987	362	1 April 1988
13.	Environmental Quality (Scheduled Wastes) Regulations 1989	139	1 May 1989
14.	Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order 1989	140	1 May 1989
15.	Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulations 1989	141	1 May 1989
16.	Environmental Quality (Prohibition on the Use of Propellants and Blowing Agent) Order 1993	434	30 December 1993
17.	Environmental Quality (Delegations of Powers on Marine Pollution Control)	537	8 December 1994
18.	Environmental Quality (Prohibition on the Use of Controlled Substance in Soap, Synthetic Detergent and Other Agents) Order 1995	115	11 April 1995
21.	Environmental Quality (Control of Emission from Diesel Engines) Regulations 1996	429	1 September 1996
22.	Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996	543	1 November 1996

**LIST OF PRESCRIBED ACTIVITIES**  
**[Extract from the Environmental Quality (Prescribed Activities)**  
**(Environmental Impact Assessment) Order 1987]**

<p><b>1. AGRICULTURE:</b></p> <p>(a) Land development schemes covering an area of 500 hectares or more to bring forest land into agricultural production.</p> <p>(b) Agricultural programmes necessitating the resettlement of 100 families or more.</p> <p>(c) Development of agricultural estates covering an area of 500 hectares or more involving changes in types of agricultural use.</p> <p><b>2. AIRPORT:</b></p> <p>(a) Construction of airports (having an airstrip of 2,500 metres or longer).</p> <p>(b) Airstrip development in state and national parks.</p> <p><b>3. DRAINAGE AND IRRIGATION:</b></p> <p>(a) Construction of dams and man-made lakes and artificial enlargement of lakes with surface areas of 200 hectares or more.</p> <p>(b) Drainage of wetland, wildlife habitat or of virgin forest covering an area of 100 hectares or more.</p> <p>(c) Irrigation schemes covering an area of 5,000 hectares or more.</p> <p><b>4. LAND RECLAMATION:</b> Coastal reclamation involving an area of 50 hectares or more.</p> <p><b>5. FISHERIES:</b></p> <p>(a) Construction of fishing harbours.</p> <p>(b) Harbour expansion involving an increase of 50 percent or more in fish landing capacity per annum.</p> <p>(c) Land based aquaculture projects accompanied by clearing of mangrove swamp forests covering an area of 50 hectares or more.</p> <p><b>6. FORESTRY:</b></p> <p>(a) Conversion of hill forest land to other land use covering an area of 50 hectares or more.</p> <p>(b) Logging or conversion of forest land to other land use within the catchment area of reservoirs used for municipal water supply, irrigation or hydro-power generation or in areas adjacent to state and national parks and national marine parks.</p> <p>(c) Logging covering an area of 500 hectares or more.</p> <p>(d) Conversion of mangrove swamps for industrial, housing or agricultural use covering an area of 50 hectares or more.</p> <p>(e) Clearing of mangrove swamps on islands adjacent to national marine parks.</p>	<p><b>7. HOUSING:</b> Housing development covering an area of 50 hectares or more.</p> <p><b>8. INDUSTRY:</b></p> <p>(a) Chemical - Where production capacity of each product or of combined products is greater than 100 tonnes/day.</p> <p>(b) Petrochemicals - All sizes.</p> <p>(c) Non-ferrous - Primary smelting: Aluminium - all sizes. Copper - all sizes. Others - producing 50 tonnes/day and above of products.</p> <p>(d) Non-Metallic - Cement - for clinker through put of 30 tonnes/hour and above. - Lime - 100 tonnes/day and above burnt lime rotary kiln or 50 tonnes/day and above vertical kiln.</p> <p>(e) Iron and steel - Require in iron ore as raw materials for production greater than 100 tonnes/day, or - Using scrap iron as raw materials for production greater than 200 tonnes/day.</p> <p>(f) Shipyards - Dead Weight Tonnage greater than 5,000 tonnes.</p> <p>(g) Pulp and paper Industry - Production capacity greater than 50 tonnes/day.</p> <p><b>9. INFRASTRUCTURE:</b></p> <p>(a) Construction of hospitals with outfall into beachfronts used for recreational purposes.</p> <p>(b) Industrial estate development for medium and heavy industries covering an area of 50 hectares or more.</p> <p>(c) Construction of expressways.</p> <p>(d) Construction of national highways.</p> <p>(e) Construction of new townships.</p> <p><b>10. PORTS:</b></p> <p>(a) Construction of ports.</p> <p>(b) Port expansion involving an increase of 50 percent or more in handling capacity per annum.</p>
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<p><b>11. MINING:</b></p> <ul style="list-style-type: none"> <li>(a) Mining of minerals in new areas where the mining lease covers a total area in excess of 250 hectares.</li> <li>(b) Ore processing, including concentrating for aluminium, copper, gold or tantalum.</li> <li>(c) Sand dredging involving an area of 50 hectares or more.</li> </ul> <p><b>12. PETROLEUM:</b></p> <ul style="list-style-type: none"> <li>(a) Oil and gas fields development.</li> <li>(b) Construction of off-shore and on-shore pipelines in excess of 50 kilometres in length.</li> <li>(c) Construction of oil and gas separation, processing, handling and storage facilities.</li> <li>(d) Construction of oil refineries.</li> <li>(e) Construction of product depots for the storage of petrol, gas or diesel (excluding service stations) which are located within 3 kilometres of any commercial, industrial or residential areas and which have a combined storage capacity of 60,000 barrels or more.</li> </ul> <p><b>13. POWER GENERATION AND TRANSMISSION:</b></p> <ul style="list-style-type: none"> <li>(a) Construction of steam generated power stations burning fossil fuels and having a capacity of more than 10 megawatts.</li> <li>(b) Dams and hydroelectric power schemes with either or both of the following: <ul style="list-style-type: none"> <li>(i) dams over 15 metres high and ancillary structures covering a total area in excess of 40 hectares;</li> <li>(ii) reservoirs with a surface area in excess of 400 hectares.</li> </ul> </li> <li>(c) Construction of combined cycle power stations.</li> <li>(d) Construction of nuclear-fueled power stations.</li> </ul> <p><b>14. QUARRIES:</b></p> <p>Proposed quarrying of aggregate, limestone, silica, quartzite, sandstone, marble and decorative building stone within 3 kilometres of any existing residential, commercial or industrial areas, or any area for which a licence, permit or approval has been granted for residential, commercial or industrial development.</p>	<p><b>15. RAILWAYS:</b></p> <ul style="list-style-type: none"> <li>(a) Construction of new routes.</li> <li>(b) Construction of branch lines.</li> </ul> <p><b>16. TRANSPORTATION:</b></p> <p>Construction of Mass Rapid Transport projects.</p> <p><b>17. RESORT AND RECREATIONAL DEVELOPMENT:</b></p> <ul style="list-style-type: none"> <li>(a) Construction of coastal resort facilities or hotels with more than 80 rooms.</li> <li>(b) Hill station resort or hotel development covering an area of 50 hectares or more.</li> <li>(c) Development of tourist or recreational facilities in national parks.</li> <li>(d) Development of tourist or recreational facilities on islands in surrounding waters which are gazetted as national marine parks.</li> </ul> <p><b>18. WASTE TREATMENT AND DISPOSAL:</b></p> <ul style="list-style-type: none"> <li>(a) Toxic and Hazardous Waste - <ul style="list-style-type: none"> <li>(i) Construction of incineration plant.</li> <li>(ii) Construction of recovery plant (off-site).</li> <li>(iii) Construction of wastewater treatment plant (off-site).</li> <li>(iv) Construction of secure landfill facility.</li> <li>(v) Construction of storage facility (off-site).</li> </ul> </li> <li>(b) Municipal Solid Waste - <ul style="list-style-type: none"> <li>(i) Construction of incineration plant.</li> <li>(ii) Construction of composting plant.</li> <li>(iii) Construction of recovery/recycling plant.</li> <li>(iv) Construction of municipal solid waste landfill facility.</li> </ul> </li> <li>(c) Municipal Sewage - <ul style="list-style-type: none"> <li>(i) Construction of wastewater treatment plant.</li> <li>(ii) Construction of marine outfall.</li> </ul> </li> </ul> <p><b>19. WATER SUPPLY:</b></p> <ul style="list-style-type: none"> <li>(a) Construction of dams or impounding reservoirs with a surface area of 200 hectares or more.</li> <li>(b) Groundwater development for industrial, agricultural or urban water supply of greater than 4,500 cubic metres per day.</li> </ul>
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## APPENDIX C(II)

### LIST OF PRESCRIBED ACTIVITIES AS GIVEN IN FIRST SCHEDULE OF THE NATURAL RESOURCES & ENVIRONMENT ORDINANCE (PA) ORDER 1994 (SARAWAK)

1. Agriculture
2. Logging
3. Development of Commercial Industrial Housing Estates
4. Activities which may Pollute Inland Water or Affect Sources of Water Supply.
5. Fisheries and Activities which may Endanger Marine or Aquatic Life, Plants in Inland Waters or Erosion of River Banks.
6. Extension and Removal of Rock Materials and Mining.
7. Any other activities which may damage or have an adverse impact on Quality of Environment or Natural Resources of the State.

**(A) LIST OF EIA PUBLICATIONS  
BY DEPARTMENT OF ENVIRONMENT, MALAYSIA**

CLASSIFICATION	NO.	TITLE	YEAR
Books/Reports	1.	Environmental Quality Report (Malay/English)	Annually
	2.	ODS Country Study	1991
	3.	Malaysia Country Programme to Reduce and Eliminate the Consumption and Emissions of Ozone Depleting Substances	1991
	4.	Laporan Kajian Ulangkaji Undang-Undang Alam Sekitar	1992
	5.	Malaysian Strategy for Ozone Layer Protection	1992
	6.	Strategi Rancangan Perlindungan Lapisan Ozon, 1990-2000	1993
	7.	Perkembangan Terkini Protokol Montreal	1993
	8.	Buku Panduan Kawasan Sensitif Alam Sekitar	1993
	9.	EIA Guidelines for Coastal Resort Development Projects	1994
	10.	EIA Guidelines for Industrial Estate Development	1994
	11.	EIA Guidelines for Petrochemical Industries	1994
	12.	Garis Panduan Penilaian Kesan Kepada Alam Sekitar bagi Pembangunan Golf	1994
	13.	Malaysia: Soal Jawab Dewan Rakyat Mengenai Alam Sekitar 1977-1993	1994
	14.	Malaysia: Soal Jawab Dewan Rakyat Mengenai Alam Sekitar 1976-1993	1994
	15.	Monograf Forum Etika dan Alam Sekitar	1994
	16.	Keperihatian menangani Protokol Montreal 1985-1994	1994
	17.	Guidelines for the Management and Disposal of Wastes in Downstream Petroleum Industries	1994
	18.	Guidelines on the Management and Disposal of Wastes in Upstream Petroleum Industries	1994
	19.	Guidelines for the Siting and Zoning of Industries	1994
	20.	Reduction and Recovery of CFC in Mobile Air Conditioning: A Guide Book for Mechanics	1994
	21.	Classification of Malaysian Rivers (Ten Rivers)	1994
	22.	Social Study on Impacts of Noise Pollution to Population Residing in the Vicinity of Noise Sources	1994
	23.	Development of Criteria and Standards for Water Quality (Phase IV)	1994
	24.	Modelling of Oil Spill Trajectory in the Straits of Malacca	1994
	25.	Socio-Economic Study of Coastal Areas Threatened by Oil-Spills	1995
	26.	Study of Toxic and Hazardous Waste Disposal Sites	1995
	27.	The Study of A Scheme on the Assessment and Registration of Chemicals	1995
	28.	A Handbook of Environmental Impact Assessment Guidelines	1995
	29.	Notification and Control Procedure Adopted by Malaysia and Singapore for Movement of Wastes Between the Two Countries	1995
	30.	EIA Guidelines for Thermal Power Generation and/or Transmission Projects	1995
	31.	EIA Guidelines for Fishing Harbours and/or Land Based Aquaculture Projects	1995
	32.	EIA Guidelines for Dams and/or Reservoirs Projects	1995
	33.	EIA Guidelines for Groundwater and/or Surface Water Supply Projects	1995
	34.	EIA Guidelines for Drainage and/or Irrigation Projects	1995
	35.	EIA Guidelines for Mines and Quarries	1995
	36.	EIA Guidelines for Development of Tourist and Recreational Facilities in National Parks	1995
	37.	EIA Guidelines for Development of Tourist and Hotel Facilities in Hill Stations	1995
	38.	EIA Guidelines for Development of Tourist and Recreational Facilities on Islands in Marine Parks	1995
	39.	EIA Guidelines for Industrial Projects	1995

CLASSIFICATION	NO.	TITLE	YEAR
	40.	EIA Guidelines for Municipal Solid Waste and Sewage Treatment and Disposal Projects	1995
	41.	EIA Guidelines for Toxic and Hazardous Waste Treatment and Disposal Projects	1995
	42.	Koleksi Cerita-Cerita Pendek Bertemakan Alam Sekitar	1995
	43.	Malaysia Country Programme Update to Phase Ozone Depleting Substances Under the Montreal Protocol	1995
	44.	Guidelines on the Disposal of Asbestos Wastes	1995
	45.	Review of ODS Country Programme 1994	1995
	46.	Prosedur Penguatkuasaan Pencemaran Marin	1995
	47.	Environmental Quality Data, 1992-1995	1996
	48.	Guidelines for the Prevention and Control of Soil Erosion and Siltation in Malaysia	1996
	49.	Non-ODS Technology in Malaysia	1996
	50.	Groundwater Quality, Monitoring Network in Malaysia	1996
	51.	Laws of Malaysia, Act A953, Environmental Quality (Amendment) Act 1996	1996
Booklets	1.	Guidelines for the Export of Scheduled Wastes	1993
	2.	Guidelines for Storage of Scheduled Wastes	1993
	3.	Environmental Requirements: A Guide to Investors	1994
	4.	Environmental Impact Assessment (EIA): Procedure and Requirements in Malaysia	1994
	5.	Guidelines for the Import of Scheduled Wastes	1994
	6.	Guidelines on Control Measures for the Protection of Ozone Layer	1994
Magazines/ Newsletter	1.	IMPAK	Quarterly

**(B) LIST OF EIA PUBLICATIONS  
BY NATURAL RESOURCES AND ENVIRONMENT BOARD  
(SARAWAK)**

1.	Handbook of the Policy of Basic Procedure of Environmental Impact Assessment (EIA) in Sarawak.
2.	Guidelines for Preliminary Environmental Impact Assessment (EIA) for Agricultural Development.
3.	Guidelines for Preliminary Environmental Impact Assessment (EIA) for Forest Harvesting.
4.	Natural Resources and Environment Ordinance (Chapter 84 - Laws of Sarawak) [1958 Edition].
5.	The Natural Resources and Environment (Compounding of Offences) Rules, 1997.
6.	The Natural Resources and Environment (Prohibition of Clearing and Burning of Vegetation and Combustible Materials) Order, 1997.

## LIST OF DEPARTMENT OF ENVIRONMENT OFFICES

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### MALAYSIAN INDUSTRIAL DEVELOPMENT AUTHORITY (MIDA)

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## GUIDELINES FOR THE SITING AND ZONING OF INDUSTRIES

Types of Industries	Description and Standard Requirements	Buffer Zone
<b>LIGHT Type A</b>	<ul style="list-style-type: none"> <li>• Industries shall not generate excessive noise</li> <li>• Industries shall not accommodate stacks or chimneys thus producing no gaseous emissions</li> <li>• Industries shall not discharge industrial effluents apart from sewage and kitchen waters and non-toxic solid wastes</li> <li>• Industries shall not use any raw materials which are toxic and hazardous and therefore will not produce any scheduled wastes</li> <li>• Industries shall have height restrictions determined by the Local Authority</li> <li>• Industries shall use electricity and gas as fuels</li> <li>• Industries shall not use any radioactive material and scheduled wastes</li> </ul> <p><i>Note: Light industries (Type A) shall not produce any industrial emissions and significant discharges</i></p>	30 m
<b>Type B</b>	<ul style="list-style-type: none"> <li>• Industries shall not generate excessive noise</li> <li>• Industries shall not accommodate stacks or chimneys thus producing no gaseous emissions</li> <li>• Industries shall not use any raw materials or produce any scheduled wastes</li> <li>• Industries shall have height restrictions determined by the Local Authority</li> <li>• Industries shall produce industrial effluent that can be treated on site before being discharged to meet Standard A or B of the Environmental Quality (Sewage and Industrial Effluent) Regulation 1979 depending on the site</li> <li>• Compatibility in industrial mixing, e.g. between food based industries and leather-based industries</li> <li>• Industries shall not use any radioactive materials or scheduled wastes</li> </ul> <p><i>Note: Industrial Effluent discharge and gaseous emissions shall meet the relevant Environmental Quality Regulations as stipulated in the Environmental Quality Act, 1974.</i></p>	50 m

Types of Industries	Description and Standard Requirements	Buffer Zone
<b>MEDIUM</b>	<ul style="list-style-type: none"> <li>• These industries shall generate significant noise from machineries, generators etc but which could be controlled to meet the level not exceeding 65 dB (A) Leq at the factory boundary, and not exceeding 55 and 45 dB(A) Leq at the residential / buffer zone boundary during day and night time respectively</li> <li>• Industries shall emit some gaseous emission but which can be controlled to comply with the Environmental Quality (Clean Air) Regulation 1978.</li> <li>• The industries shall produce some industrial effluent that can be treated on site before being discharged to meet the Environmental Quality (Sewage and Industrial Effluent) Regulation 1979, Standard A or B depending on the site.</li> <li>• These industries shall use toxic and hazardous raw materials in its production.</li> <li>• The industries shall produce scheduled wastes but which can be treated on site to comply with the Environment Quality (Scheduled Wastes) Regulation 1989 or disposed off from their premises.</li> <li>• These industries shall produce fumes and odours that can possibly affect the workers health and the neighbouring plant, but for which design solutions are available for prevention and shall comply with the Environment Quality (Clean Air) Regulation 1978</li> <li>• The stack height shall conform to the production capacity of the specific plant to be based on air quality modelling and simulation with the DOE approval</li> <li>• The industries shall be located in designated industrial estates or zones with good compatibility within the industrial estates and zones to ensure good industrial mixing</li> <li>• These industries shall not use any radioactive materials</li> </ul> <p><i>Note: All discharges and emissions shall meet the relevant Environmental Quality Regulations as stipulated in the Environment Quality Act, 1974</i></p>	250 m
<b>HEAVY</b>	<ul style="list-style-type: none"> <li>• Heavy industries must be sited in designated industrial estates or designated industrial zones with sufficient buffer zones from residential areas, livestock farms, agricultural farms, recreation areas and tourist designated areas. A minimum distance from the fence of the industry to the nearest residential area is 500 meters, to be finalised by the EIA Report.</li> <li>• These industries shall generate excessive noise from its operations but for which design solutions are incorporated in the form of appropriate high technologies to reduce the noise levels generated to a level to meet the WHO recommended level of not greater than 75 dB(A) at the residential/buffer zone boundary during day and night time respectively.</li> <li>• These industries shall produce gaseous emissions at rates, volumes and concentrations that will require detailed engineering design incorporated into the operation and control mechanisms and other mitigation measures to reduce these emissions to comply with the Environmental Quality (Clean Air) Regulations 1978.</li> <li>• Stack heights shall be determined by detailed air quality modelling and simulations within the EIA Report.</li> </ul>	500 m

Types of Industries	Description and Standard Requirements	Buffer Zone
<b>HEAVY</b>	<ul style="list-style-type: none"> <li>• These industries shall produce industrial effluent at rates, volumes and concentrations that will require detailed engineering design incorporated into the operation and control mechanisms to meet the Environmental Quality (Sewage and Industrial Effluent) Regulation 1979 and/or to dispose such wastes to the Central Treatment Facilities.</li> <li>• The industries shall use radioactive materials and scheduled wastes which are toxic and hazardous for which pollution control technology, design solution and mitigation measures shall meet the necessary approvals.</li> <li>• These industries shall generate scheduled wastes which cannot be treated on-site or which exceed the levels recommended in the Environmental Quality (Scheduled Wastes) Regulations 1989. Thus in compliance with the above regulation the industries shall incorporate necessary technologies to reduce the scheduled wastes generation to the acceptable level or they can be disposed for treatment at a centralised scheduled wastes treatment plant, or recycled within its premise, or sold to other parties for the purpose of recycling.</li> <li>• Siting within an industrial estate or zones should take into consideration the compatibility in industrial mixing.</li> <li>• Hot water discharges shall be supported by thermal plume modelling and simulations to be clearly presented in the EIA Report.</li> </ul> <p><i>Note: All discharges and emissions shall meet the relevant Environmental Quality Regulations as stipulated in the Environmental Quality Act, 1974 and using appropriate control measures.</i></p>	
<b>SPECIAL</b>	<ul style="list-style-type: none"> <li>• Industries which by their process description and plant outputs are involved in the manufacturing of products that are generally accepted being categorised as high technology based products.</li> <li>• Industries that utilises high advanced and clean technology in their process and control mechanisms, as verified by EIA documents, and backed up by examples of parent plants or other plants operating elsewhere.</li> <li>• Industries that will eliminate or minimise emissions, wastewater discharges and schedule waste production to meet the relevant Environmental Quality Regulations as per Environmental Quality Act (1974) with sufficiently large margins.</li> <li>• Industries shall be located within designated special industries zones, being compatible with the neighbouring plants, which are designed to be environmentally friendly.</li> </ul> <p><i>Note: Near-zero emissions and discharge shall be achieved by incorporating clean technologies.</i></p>	200 m

**ENVIRONMENTAL QUALITY (CLEAN AIR)  
REGULATIONS 1978  
(P.U. A280)**

**New Installation Within Residential Areas Not Permitted  
Without Prior Approval (Regulation 4)**

a.	Any equipment, plant or facility that may discharge or emit smoke as dark as or darker than shade No. 1 on a Ringelmann Chart.
b.	Any equipment, plant or facility used for the purpose of heating or generating of power that is rated to consume -  (i) pulverished fuel; (ii) any solid fuel at 20 kilogrammes or more per hour; or (iii) any liquid or gaseous matter at 10 kilogrammes or more per hour.
c.	Any equipment, plant or facility that emits any solid particle exceeding 0.5 kilogrammes per hour.
d.	Any equipment, plant used for grain milling or polishing and consumes 1.5 kw and above.
e.	Any wood working machinery that consumes 0.75 kw and above.
f.	Any equipment plant or facility used in the manufacture, packing or repacking of paints, varnishes, lacquers and all pesticides listed in the First Schedule to the Pesticides Act 1974.
g.	Any equipment or facility used in the manufacture, packing or repacking of industrial chemicals, in the process of which mercury, antimony, arsenic, cadmium, zinc, lead, copper or any compound thereof is emitted.
h.	Any equipment, plant or facility used in the manufacture, packing or repacking of fish manure or animal feed or fertilizer.
i.	Any equipment or plant used in the manufacture of asbestos containing products.

**STACK GAS EMISSION STANDARDS**  
**[Extract of Environmental Quality**  
**(Clean Air) Regulations, 1978]**

<b>Pollutants</b>	<b>Emission Sources</b>	<b>Standard</b>
1. Dark Smoke*	(1.1) Solid Fueled Equipment or Facilities  (1.2) Equipment using other types of fuel	Ringelmann Chart No. 2  Ringelmann Chart No. 1
2. Dust	(2.1) Facilities used for the heating of metals other than Cold Blast Foundry Cupola  (2.2) Facilities discharging dust containing asbestos and free silica  (2.3) Portland Cement Mfg: (2.3.1) Kiln (2.3.2) Clinker cooler, grinder, others  (2.4) Asphalt concrete/bituminous mixing plant: (2.4.1) #Stationary Plant (2.4.2) #Mobile Plant  (2.5) Other sources	0.2 gm/Nm <sup>3</sup>  0.12 gm/Nm <sup>3</sup>  0.2 gm/Nm <sup>3</sup> 0.1 gm/Nm <sup>3</sup>  0.3 gm/Nm <sup>3</sup> 0.4 gm/Nm <sup>3</sup>  0.4 gm/Nm <sup>3</sup>
3. Metal and Metallic Compound:-  3.1 Mercury 3.2 Cadmium 3.3 Lead 3.4 Antimony 3.5 Arsenic 3.6 Zinc 3.7 Copper	Industry Industry Industry Industry Industry Industry Industry	0.01 gm/Nm <sup>3</sup> 0.015 gm/Nm <sup>3</sup> 0.025 gm/Nm <sup>3</sup> 0.025 gm/Nm <sup>3</sup> 0.025 gm/Nm <sup>3</sup> 0.1 gm/Nm <sup>3</sup> 0.1 gm/Nm <sup>3</sup>
4. Gases (a) Acid gases  (b) Sulphuric Acid Mist or SO <sub>3</sub> or both	Sulphuric Acid Manufacture  Any Sources other than (a)	3.5 gm of SO <sub>3</sub> /Nm <sup>3</sup> and no persistent mist  0.2 gm of SO <sub>3</sub> /Nm <sup>3</sup> and no persistent mist

Pollutants	Emission Sources	Standard
(c) Chlorine gas	Any source	0.2 gm of HCL/Nm <sup>3</sup>
(d) HCL	Any source	0.4 gm of HCL/Nm <sup>3</sup>
(e) Fluorine, Hydrofluoric acid, inorganic fluorine compound	Aluminium Manufacture from Alumina	0.2 gm of Hydrofluoric acid/Nm <sup>3</sup>
(f) - do -	Any source other than (e)	0.10 gm of Hydrofluoric acid/Nm <sup>3</sup>
(g) Hydrogen Sulphide	Any source	5 ppm (Vol%)
(h) NO <sub>x</sub>	Acid Nitric Manufacture	1.7 gm of SO <sub>3</sub> /Nm <sup>3</sup> and Substantial Colourless
(i) NO <sub>x</sub>	Any source other than (h)	2.0 gm of SO <sub>3</sub> /Nm <sup>3</sup>

\* Allowable to exceed both standards not longer than 5 minutes in any period of one hour and 15 minutes in any period of 24 hours.

## THIRD SCHEDULE

**ENVIRONMENTAL QUALITY ACT 1974**  
**ENVIRONMENTAL QUALITY (SEWAGE AND INDUSTRIAL**  
**EFFLUENTS) REGULATIONS 1979**

**[Regulations 8(1), 8(2), 8(3)]**  
**PARAMETER LIMITS OF EFFLUENT OF STANDARDS A AND B**

Parameter	Unit	Standard	
		A*	B
(1)	(2)	(3)	(4)
(i) Temperature	°C	40	40
(ii) pH Value	-	6.0 - 9.0	5.5 - 9.0
(iii) BOD <sub>5</sub> at 20°C	mg/l	20	50
(iv) COD	mg/l	50	100
(v) Suspended Solids	mg/l	50	100
(vi) Mercury	mg/l	0.005	0.05
(vii) Cadmium	mg/l	0.01	0.02
(viii) Chromium, Hexavalent	mg/l	0.05	0.05
(ix) Arsenic	mg/l	0.05	0.10
(x) Cyanide	mg/l	0.05	0.10
(xi) Lead	mg/l	0.10	0.5
(xii) Chromium, Trivalent	mg/l	0.20	1.0
(xiii) Copper	mg/l	0.20	1.0
(xiv) Manganese	mg/l	0.20	1.0
(xv) Nickel	mg/l	0.20	1.0
(xvi) Tin	mg/l	0.20	1.0
(xvii) Zinc	mg/l	1.0	1.0
(xviii) Boron	mg/l	1.0	4.0
(xix) Iron (Fe)	mg/l	1.0	5.0
(xx) Phenol	mg/l	0.001	1.0
(xxi) Free Chlorine	mg/l	1.0	2.0
(xxii) Sulphide	mg/l	0.50	0.50
(xxiii) Oil and Grease	mg/l	Not Detectable	10.0

\* This standard applies to the industrial and development projects which are located within catchment areas (areas upstream of surface or above sub-surface water supply intakes, for the purpose of human consumption including drinking)

**Note:**

- To minimise unnecessary pollution control cost, project proponents are advised to avoid siting their proposed projects that generate effluents in areas subject to Standard A. You may refer to the Fourth Schedule of the said Regulations or its latest update on catchment areas where Standard A applies. Otherwise, Standard B generally applies.
- These sets of uniform standards generally apply to both industrial and development projects throughout the country. However, the Environmental Quality Act, 1974 does provide legal provisions for project proponents to vary their standards of emissions or effluents, provided that a licence is obtained from the Director-General of Environment. In granting such licence, consideration will be given to some factors such as technology availability and constraints and capacity of the area to receive additional pollution load. It must also be shown that contravention of the acceptable conditions will not cause hazards to public health, safety, or welfare, or to animals, birds, wildlife, fish or aquatic life, or to plants or to affect adversely any beneficial use of the environment.

A SUMMARY OF ENVIRONMENTAL REQUIREMENTS  
ON SCHEDULED WASTES  
**RECOMMENDED MALAYSIAN AIR QUALITY GUIDELINES**  
(Ambient Standards)  
(at 25° Celcius and 101.13 kPa)

Pollutant and Method	Averaging Time	Malaysian Guidelines		Target Year for Compliance
		(ppm)	( $\mu\text{g}/\text{m}^3$ )	
Ozone AS 2524	1 hour	0.10	200	1995
	8 hours	0.06	120	
Carbon* Monoxide AS 2695	1 hour	30	35	1995
	8 hours	9	10	
Nitrogen Dioxide AS 2447	1 hour	0.17	320	1990
Sulfur Dioxide AS 2523	10 minutes	0.19	500	1990
	1 hour	0.13	350	
	24 hours	0.04	105	
Particles TSP AS 2724.3	24 hours	-	260	1995
	1 year	-	90	
PM10 AS 2724.6	24 hours	-	150	1995
	1 year	-	50	
Lead AS 2800	3 months	-	1.5	1991

**RECOMMENDED MALAYSIAN SECONDARY GUIDELINES**

Pollutant and Method	Averaging Time	Malaysia Guidelines ( $\text{mg}/\text{m}^2/\text{day}$ )	Target Year for Compliance
Dustfall AS 2724.1	1 year	133	1995

\*  $\text{mg}/\text{m}^3$

**A SUMMARY OF ENVIRONMENTAL REQUIREMENTS  
ON SCHEDULED WASTES**

<b>I</b>	<b>ENVIRONMENTAL QUALITY (SCHEDULED WASTES) REGULATIONS 1989</b>
	<ol style="list-style-type: none"> <li>1. Under the regulation, 107 categories of wastes have been classified as scheduled wastes (refer Appendix K). Waste generators should determine whether their wastes are classified under scheduled wastes. New generators of scheduled wastes are required to notify the Department of Environment within one month from the date of generation of wastes.</li> <li>2. Scheduled wastes can be stored, recovered and treated within the premises of a waste generators. Such activities do not require licensing by the Department of Environment. However, land farming, incineration, disposal and off-site facilities for recovery, storage and treatment can only be carried out at prescribed premises licensed by Department of Environment.</li> <li>3. Waste generators shall also keep an up-to-date inventory of scheduled wastes generated, treated and disposed off. Proper labelling, containers and storage areas as well as prohibition of storage of incompatible waste are also required by the law.</li> <li>4. In the case of transporting the waste from the waste generator to the treatment and disposal facilities, the transporting of waste shall conform to the consignment note system whereby the movement of waste is monitored until it reaches the approved destination. It is the responsibility of a waste generator to monitor and ensure that the waste transported from his factory reaches the approved destination. The waste generator is responsible for informing the transport contractor regarding the nature of the waste and what actions to be taken during accidents to minimise damage to human life and the environment. Scheduled wastes transporters should also be licensed by the Department of Environment.</li> </ol>
<b>II</b>	<b>ENVIRONMENTAL QUALITY (PRESCRIBED PREMISES) (SCHEDULED WASTE TREATMENT AND DISPOSAL FACILITIES ORDER), 1989</b>
	<p>There are six types of premises prescribed under the Order that require written permission and a licence from the Department of Environment. The premises include:</p> <ol style="list-style-type: none"> <li>a. Land treatment facilities such as sludge farming for oil wastes or sludges;</li> <li>b. Off-site recovery facilities such as solvent recycling plant;</li> <li>c. Off-site treatment facilities such as centralised physical/chemical wastewater treatment plant;</li> <li>d. Scheduled wastes incinerators;</li> <li>e. Off-site storage facilities including the premises of waste transport contractors; and</li> <li>f. Secure landfills designated for the disposal of scheduled wastes.</li> </ol>
<b>III</b>	<b>ENVIRONMENTAL QUALITY (PRESCRIBED PREMISES) (SCHEDULED WASTES TREATMENT AND DISPOSAL FACILITIES) REGULATIONS, 1989</b>
	<ol style="list-style-type: none"> <li>1. These regulations list the procedures for licence application, renewal and ownership transfer as well as requirements for record keeping and submission to the Department of Environment. Every owner or occupier of prescribed premises is responsible to keep accurate and up-to-date records of wastes handled and to submit these record within 14 days at the end of every period of three (3) months to the Department of Environment.</li> <li>2. Offences under these Regulations can be compounded up to a maximum for RM500 or offenders can be prosecuted in court and the maximum penalty is RM10,000 or imprisonment for a period not exceeding two (2) years or both and to a further fine not exceeding RM1,000 per day every day the offence is committed.</li> </ol>

## FIRST SCHEDULE

ENVIRONMENTAL QUALITY (SCHEDULED WASTES)  
REGULATIONS 1989**PART I****N. SCHEDULED WASTES FROM  
NON-SPECIFIC SOURCES**

1. Mineral oil and oil contaminated wastes.
  - N011 Spent oil or grease used for lubricating industrial machines.
  - N012 Spent hydraulic oil from machines, including plastic injection moulding machines, turbines and die-casting machines.
  - N013 Spent oil-water emulsion used as coolants.
  - N014 Oil tanker sludges.
  - N015 Oil-water mixture such as ballast water.
  - N016 Sludge from oil storage tank.
2. Waste containing polychlorinated biphenyls (PCB) or polychlorinated triphenyls (PCT).
  - N021 Spent oil contaminated with PCB or PCT.
  - N022 Discarded electrical equipment or parts containing or contaminated with PCB or PCT.
  - N023 Containers contaminated with PCB or PCT.
3. Spent organic solvents containing halogen or sulphur, including methylene chloride, 1,1,1 trichloroethane, perchloroethylene, dimethyl sulphide.
  - N031 Spent oil contaminated solvents from cleaning or degreasing processes.
4. Spent aromatic organic solvent without containing compounds of organic halogen or sulphur including toluene, xylene, turpentine, kerosene.
  - N041 Spent aromatic organic solvent from washing, cleaning or degreasing processes.
5. Spent non-aromatic organic solvents without containing compounds of organic halogen or sulphur including acetone, ketones, alcohols, cleansing benzene, dimethyl formamide.
  - N051 Spent non-aromatic organic solvent from washing, cleaning or degreasing processes.
6. Residues from recovery of halogenated solvents, may contain oil, fat and solvents.
  - N061 Residues from recovery of halogenated solvents.
7. Residues from recovery of non-halogenated solvents, may contain oil, fat and solvents.
  - N071 Residues from recovery of non-halogenated solvents.
8. Spent organo-metallic compounds, may be mixed benzene excluding mercury compounds.
  - N081 Residues of organo-metallic compounds, including tetraethyl lead, tetramethyl lead and organotin compounds from mixing process of anti-knock compound with gasoline.
9. Flux wastes, may contain mixture of organic acids, solvents or compounds of ammonium chloride.
  - N091 Flux wastes from fluxing bath of metal treatment processes.
10. Spent aqueous alkaline solutions not containing cyanide, may contain heavy metals.
  - N101 Spent aqueous alkaline solutions from treatment process of metal or plastic surfaces.
  - N102 Spent aqueous alkaline solution from bleaching process of textile materials.
11. Spent aqueous alkaline solutions containing cyanide, may contain heavy metals.
  - N111 Spent aqueous alkaline solution containing cyanide from treatment process of metal or plastic surfaces.
12. Spent aqueous chromic acid solutions.
  - N121 Spent aqueous chromic acid solution from treatment process of metal or plastic surfaces.
  - N122 Spent aqueous chromic acid solution from leather tannery processes.
13. Spent aqueous inorganic acid solutions other than spent chromic acid solutions, may contain heavy metals.
  - N131 Spent aqueous acid solution from treatment process of metal or plastic surfaces.
  - N132 Spent aqueous inorganic acid solution from industrial equipment cleaning.
14. Spent aqueous or discarded photographic waste from film processing or plate making.
  - N141 Spent aqueous or discarded photographic waste from film processing or plate making

15. Metal hydroxide sludges containing one or several of the following metals: chromium, copper, nickel, zinc, lead, cadmium, aluminium and tin.
- N151 Metal hydroxide sludges from wastewater treatment system.
16. Plating bath sludges containing cyanide.
- N161 Plating bath sludges containing cyanide from metal finishing processes.
17. Spent salt containing cyanide.
- N171 Spent salt containing cyanides from heat treatment process.
18. Sludges of inks, paints, pigments, lacquer with or without organic solvent.
- N181 Paint sludges from solvent recovery of solvent-based paint waste.
- N182 Ink sludges from solvent recovery of solvent-based ink waste.
- N183 Lacquer sludges from solvent recovery of solvent-based lacquer waste.
- N184 Paint sludges from paint wastewater treatment system.
- N185 Ink sludges from ink wastewater treatment system.
- N186 Pigment sludges from pigment wastewater treatment system.
19. Wastes of printing ink, paint, pigment, lacquer or varnish containing organic solvents.
- N191 Discarded or off-specification ink, pigment and paint products.
20. Sludges, dust, slag, dross and ashes, may contain oxides or sulphate of one or several of the following metals, lead, cadmium, copper, zinc, chromium, nickel, iron, vanadium and aluminium.
- N201 Dross, slag, ash, dust from metal smelting process or dust emission control system.
- N202 Dross from soldering process.
- N203 Residues from recovery of acid pickling liquor.
- N204 Oxide or sulphate sludges from wastewater treatment system.
21. Spent or discarded strong acids or alkalis.
- N211 Spent or discarded acid of pH less or equal to 2.
- N212 Spent or discarded alkali of pH greater or equal to 12.5.
22. Spent oxidising agents.
- N221 Spent oxidising agents.
23. Contaminated soil, water, debris or matter resulting from clean-up of a spill of chemical or scheduled wastes.
- N231 Contaminated soil, water, debris or matter resulting from clean-up of a spill of chemical or scheduled wastes.
24. Immobilised scheduled wastes, including chemically fixed or encapsulated sludges.
- N241 Immobilised scheduled wastes.
25. Discarded drugs except living vaccines and euphoric compounds.
- N251 Discarded drugs except living vaccines and euphoric compounds.
26. Pathogenic and clinical wastes and quarantined materials.
- N261 Pathogenic and clinical wastes and quarantined materials.
27. Containers and bags containing hazardous residues.
- N271 Used containers or bags contaminated with cyanide, arsenic, chromium or lead compound or salts.
28. Mixtures of scheduled wastes.
- N281 A mixture of scheduled wastes.
- N282 A mixture of scheduled wastes and non scheduled wastes.

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## PART II

### S. SCHEDULED WASTES FROM SPECIFIC SOURCES

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1. Mineral oil and oil contaminated wastes.
  - S011 Waste oil or oily sludge from wastewater treatment plant of oil refinery or crude oil terminal.
  - S012 Oily residue from automotive workshop or service station oil or grease interceptor.
  - S013 Oil contaminated earth from re-refining of used lubricating oil.
  - S014 Oil or sludge from oil refinery maintenance operation.
2. Tar or tarry residues from oil refinery or petrochemical plant.
  - S021 Tar or tarry residues from oil refinery or petrochemical plant.
3. Wastes of printing ink, paint, pigment, lacquer varnish or wood preservative containing organic solvents.
  - S031 Ink waste from washing of reaction tank or container of ink manufacturing plant.
  - S032 Paint waste from washing of reaction tank or container of paint manufacturing plant.
  - S033 Pigment waste from washing of reaction tank or container of pigment manufacturing plant.

- S034 Lacquer or varnish waste from washing of reaction tank or container of lacquer or varnish manufacturing plant.
4. Clinker, slag and ashes from scheduled wastes incinerator.
- S041 Clinker, slag and ashes from scheduled waste incinerator.
5. Waste of printing ink, pigment, paint or lacquer without containing solvents.
- S051 Water-based paint waste from the washing of reaction tank or container of paint manufacturing plant.
- S052 Water-based ink waste from the washing of reaction tank or container of ink manufacturing plant.
- S053 Water-based pigment waste from the washing of reaction tank or container of pigment manufacturing plant.
- S054 Ink waste from the washing or cleaning of printing machine of printing works.
- S055 Pigment waste from tile works and hat manufacturing plant.
- S056 Paint waste from the paint spraying or dipping process of metal works, motor vehicle assembly plant or electrical appliances manufacturing plant.
6. Spent tars or anti-corrosion oils.
- S061 Anti-corrosion oil or tar residue from the sealing, spraying or coating processes of motor vehicle assembly plant or automotive workshop.
7. Spent ethylene glycol.
- S071 Contaminated ethylene glycol from gas processing plant.
- S072 Unhardened ethylene glycol from polyester manufacturing plant.
8. Wastes containing phenol or formaldehyde.
- S081 Phenol or formaldehyde waste from the washing of reaction or mixing tank of adhesive or glue or resin manufacturing plant.
- S082 Sludges containing phenol or formaldehyde from the wastewater treatment system of adhesive or glue or resin manufacturing plant.
9. Residues of isocyanate compounds (excluding solid polymeric materials).
- S091 Residues of isocyanate compounds from foam manufacturing process.
10. Adhesive or glue waste may contain organic solvents (excluding solid polymeric materials).
- S101 Off-specification adhesive or glue products from adhesive or glue manufacturing plant.
- S102 Effluent from washing of the reaction or processing tank of adhesive or glue manufacturing plant.
11. Uncured resin waste, may contain organic solvents or heavy metals including epoxy resin, phenolic resin.
- S111 Uncured resin residues from electronic or semiconductor, electrical appliances, fibreglass manufacturing plants and metal works.
- S112 Effluent from washing of reactor of resin manufacturing plant.
- S113 Resin sludge from wastewater treatment system of resin manufacturing plant.
12. Latex effluent, rubber or latex sludges containing organic solvents or heavy metals.
- S121 Rubber or latex sludge containing heavy metals from the wastewater treatment system of rubber products manufacturing plant.
- S122 Rubber or latex sludge containing organic solvents from rubber products manufacturing plant.
- S123 Latex effluent from rubber products manufacturing plants.
13. Sludges from the re-refining of used oil products including oily sludges containing acid or lead compound.
- S131 Acid sludge from the re-refining of used lubricating oil.
14. Sludges containing fluoride.
- S141 Sludges containing fluoride from the wastewater treatment system of electronic or semiconductor manufacturing plant.
15. Mineral sludges including calcium hydroxide sludges, phosphating sludges, calcium sulphite sludges, carbonates sludges.
- S151 Sludges from phosphating process of motor vehicle assembly, air conditioning, electrical appliances and electronic or semiconductor plants.
- S152 Sludges from wastewater treatment system of plant producing ceramic or tiles, industrial gas and bleaching earth.
16. Asbestos wastes.
- S161 Asbestos sludges from wastewater treatment system of asbestos/cement products manufacturing plant.
- S162 Asbestos dusts or loose asbestos fibre wastes from asbestos/cement products manufacturing plant.
- S163 Empty bags or sacks containing loose asbestos fibres from asbestos/cement products manufacturing plant.

17. Wastes from the production, formulation and trade of pesticides, including herbicides, insecticides, rodenticides and fungicides.
  - S171 Dust from emission control equipment of pesticides formulation plant.
  - S172 Sludges from wastewater treatment system of pesticides formulation plant.
  - S173 Residues from filtering process of intermediate products of pesticides formulation plant.
  - S174 Waste from washing of reaction tank or mixing tank and spillages of pesticides formulation plant.
  - S175 Solid residues resulting from stamping process of mosquito coil production plant.
  - S176 Off-specification products from pesticides formulation plant and trade of pesticides.
  - S177 Waste from the production of pesticides.
18. Press cake from pre-treatment of glycerol soap lye.
  - S181 Press cake from pre-treatment of glycerol soap lye from detergent or soap or toileteries plants.
19. Wastes containing dye.
  - S191 Wastewater containing dye from textile manufacturing plant.
20. Wastes from wood preserving operation using inorganic salts containing copper, chromium as well as arsenic of fluoride compound or using compound containing chlorinated phenol or creosote.
  - S201 Wastes from wood preserving operation using inorganic salts containing copper, chromium and arsenic of fluoride compounds or using compound containing chlorinated phenol or creosote.
21. Mercury wastes, containing metallic mercury, organic and inorganic mercury compounds.
  - S211 Mercury waste containing metallic mercury from manufacturing of fluorescent lamps.
  - S212 Activated carbon waste containing mercury from hydrogen gas purification process.
  - S213 Mercury bearing sludges from brine treatment and mercury bearing brine purification muds from chlorine production plant.
22. Arsenic wastes from the purification process of phosphoric acid.
  - S221 Arsenic waste from the purification process of phosphoric acid plant.
23. Spent catalysts.
  - S231 Spent industrial catalysts from chemical plant and plant manufacturing detergent or soap or toileteries.
24. Leachate from scheduled waste landfills.
  - S241 Leachate from scheduled waste landfills.
25. Rags, papers, plastics or filter contaminated with organic solvents.
  - S251 Rags, plastics, papers or filters contaminated with paint or ink or organic solvents from motor vehicle assembly plants, metal works, electronic or semiconductor plants and printing or packaging plants.
26. Containers and bags containing hazardous residues.
  - S261 Used containers or bags contaminated with residues of raw materials and products of pesticides formulation plant.
27. Discarded or off-specification batteries containing lead, mercury, nickel and lithium.
  - S271 Discarded or off-specification batteries from battery manufacturing plant.
28. Pharmaceutical wastes.
  - S281 Wastewater from washing of reaction vessels and floors of pharmaceutical products manufacturing plant.
29. Spent aqueous inorganic acid solution.
  - S291 Wastewater from acid and battery manufacturing plant.
30. Waste from manufacturing or processing or use of explosives.
  - S301 Waste from manufacturing or processing or use of explosives.

**CHECKLIST OF ACTIVITIES, PROJECTS OR INSTALLATIONS  
WHICH REQUIRE APPROVALS FROM THE DOE**

<b>I. INDUSTRIAL OR PROJECT SITE PLANNING STAGE</b>		
Activities/installation	Licences or approvals required	Tick' appropriate boxes
(1) Prescribed Activities	EIA Report preparation approval	<input type="checkbox"/>
(2) Non-Prescribed Activities	Site Suitability Evaluation	<input type="checkbox"/>
<b>II. PRIOR TO CONSTRUCTION STAGE</b>		
(3) Factory which generates effluents	Written Permission To Construct	<input type="checkbox"/>
(4) New installations near residential area	Installation approval	<input type="checkbox"/>
(5) Fuel Burning Equipment:		
Boilers	Installation approval	<input type="checkbox"/>
Incinerators	- same -	<input type="checkbox"/>
Generator Sets	- same -	<input type="checkbox"/>
Furnaces	- same -	<input type="checkbox"/>
Ovens	- same -	<input type="checkbox"/>
Dryers	- same -	<input type="checkbox"/>
Chimney/outlet/vent discharging air impurities	- same -	<input type="checkbox"/>
(6) Installation of air pollution control and wastewater treatment system	Prior consultation with DOE	<input type="checkbox"/>
(7) A facility that generates scheduled waste	Consultation with DOE on waste management plan	<input type="checkbox"/>
<b>III. PRIOR TO OPERATIONAL STAGE</b>		
(8) Palm Oil, Natural Eubber Processing Mills, Scheduled Waste Treatment and Recovery Facilities, Scheduled Wastes Incinerators and Secure Landfills of Scheduled Wastes	Licence to occupy to use	<input type="checkbox"/>
(9) Effluent or Sludges Disposal onto Land	Written Permission to dispose	<input type="checkbox"/>
(10) New or additional source of discharge as a result of expansion of industrial activity (increase production capacity) for existing industry	Permission to dispose new or additional source of discharge	<input type="checkbox"/>

**SUMMARY OF APPROVALS ISSUED BY  
THE DEPARTMENT OF ENVIRONMENT (DOE)**

<b>Type of Licence Approvals and Fees</b>	<b>Act/Regulations and Year</b>	<b>Application Centre and Time Taken for Approval</b>	<b>Main Terms/Conditions for Application/Supporting Document</b>
<b>1. Environmental Impact Assessment</b>	Section 13A, Environmental Quality Act, 1974 (Act 127)  Environmental Quality (Prescribed Activities) (EIA) Order, 1987	DOE State Offices 2 - 3 months	EIA report which meets DOE requirements (Section 34A). Risk analysis shall be included for projects involved with handling of dangerous and hazardous goods.
<b>2. Site Suitability</b>	Environmental Quality (Clean Air) Regulations, 1978	DOE State Offices 1 month	Compatibility of industries with the surrounding landuse and the landuse planning.  <i>Information required</i> - Information on the industry, site, raw materials, products and inventory of materials stored on the premises.  <i>Forms</i> - Preliminary screening form for new industries.
<b>3. Written Permission</b>  - To construct any building which will result in a new source of effluent discharge.  - To increase production capacity which will cause material change in quantity/quality of effluent.	Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979  Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977  Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978	DOE State Offices 1 month	Able to treat the effluent discharged to the standard required under the regulations.  <i>Information required</i> Information on the site, industries, raw materials, products, design of the treatment systems and the quantity/quality of effluent

Type of Licence Approvals and Fees	Act/Regulations and Year	Application Centre and Time Taken for Approval	Main Terms/Conditions for Application/Supporting Document
<p><b>Processing Fee</b></p> <ul style="list-style-type: none"> <li>- Palm Oil Mill, Rubber Mill and Other Industries RM100.00</li> <li>- Treatment and disposal facilities of scheduled wastes RM1,000.00</li> </ul>	<p>Environmental (Prescribed activities) (Scheduled Wastes Treatment and Disposal Facilities) Regulations, 1989</p>	<p>HQ 3 months</p>	<p><i>Forms</i> AS 3 - Palm Oil Mill AS 6 - Rubber Mill AS 9 - Industries other than Palm Oil and Rubber Mill Off-site treatment facilities AS 10 - Land treatment facilities AS 11 - Off-site recovery facilities AS 12 - Secure landfill AS 13 - Off-site storage facilities AP/E/2/INC - Scheduled waste incinerators</p>
<p><b>4. Written Approval</b></p> <ul style="list-style-type: none"> <li>- To install, resite or alter fuel burning equipment incinerator or chimney.</li> </ul>	<p>Environmental Quality (Clean Air) Regulations, 1978</p>	<p>DOE State Offices 1 month</p>	<p>Able to comply with the emission standard under the regulations.</p> <p><i>Information required</i> Information on the equipment, fuel/combustion material, design of the chimney and quantity and quality of the emission.</p> <p><i>Forms</i> AP/E/2/INC - Incinerator AP/E/1/86 - Fuel Burning Equipment AP/E/3P/82 - Generator</p>
<p><b>5. Licence to occupy and use the Prescribed Premises</b></p> <ul style="list-style-type: none"> <li>- Processing Fee RM100.00</li> <li>- Effluent Related Fee for palm oil mill and rubber mill will be based on the quantity and quality of effluent.</li> </ul>	<p>Environmental Quality Act, 1974 (Act 127)</p> <p>Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977</p> <p>Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978</p>	<p>DOE State Offices</p> <p><i>Palm Oil Mill</i></p> <ul style="list-style-type: none"> <li>- From 1st April - 30th June (Processing period for licence renewal)</li> <li>- 1 month (new licence)</li> </ul>	<p>Obtain EIA approval for scheduled waste treatment and disposal facilities.</p> <p>The facilities have been constructed.</p> <p><i>Forms</i> AS 1 - For all licence applications AS 3 &amp; 4 - Palm Oil Mill AS 6 &amp; 7 - Rubber Mill</p>

Type of Licence Approvals and Fees	Act/Regulations and Year	Application Centre and Time Taken for Approval	Main Terms/Conditions for Application/Supporting Document
	Environmental Quality (Licencing) Regulation, 1977	<i>Rubber Mill</i> - From 1st Jan - 30th March (Processing period for licence renewal). - 1 month (new licence)	
	Environmental Quality (Prescribed Premises) (Scheduled Wastes and Disposal Facilities) Regulations, 1989	HQ Scheduled Wastes Treatment & Disposal Facilities - From 1st Feb. - 30th April (Processing period for licence renewal) - 3 months (new licence)	
<p><b>6. Contravention Licence</b></p> <p>- To contravene the acceptable conditions stipulated under the Act and regulations thereunder for a limited period.</p> <p><b>Processing fee</b></p> <p>Section 22 (1) - RM300.00            Section 25 (1) - RM100.00</p> <p><b>Effluent Related Fee</b></p> <p>Section 25 (1)            Based on the quality and quantity of effluent.</p>	<p>Environmental Quality Act, 1974 (Act 127)</p> <p>Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979</p> <p>Environmental Quality (Clean Air) Regulations, 1978</p> <p>Environmental Quality (Scheduled Wastes) Regulations, 1989</p>	<p>HQ</p> <p>Section 22(1) - 1 month            Section 24(1) - 2 months            Section 25(1) - 3 months</p>	<p>The Director-General of Environmental Quality is satisfied that the granting of such licence is not likely to cause or worsen the condition of inland waters or cause pollution in any other segment of element of the environment.</p> <p><i>Forms</i></p> <p>AS 1 - For all licence application            AS 1A - 4/89 - Section 22 (1)            AS 1A - 91 - Section 24 (1)            AS 1A - 3/85 - Section 25 (1)</p>
<p><b>7. Licence to dispose waste in Exclusive Economic Zone</b></p>	<p>Exclusive Economic Zone, 1966 (Act 83)</p>	<p>DOE State Offices</p>	<p>Report of Study on the Suitability of Dumping sites</p> <p><i>Forms</i></p> <p>AS 1 - For licence application</p>

# ***DEPARTMENT OF ENVIRONMENT MALAYSIA***

- ***LIST OF OFFICES OF  
THE DEPARTMENT OF ENVIRONMENT***

- ***ORGANISATIONAL SET-UP  
AND FUNCTIONS***

# LIST OF OFFICES OF THE DEPARTMENT OF ENVIRONMENT, MINISTRY OF SCIENCE, TECHNOLOGY AND THE ENVIRONMENT, MALAYSIA

## HEAD OFFICE

Puan Hajah Rosnani bt. Ibarahim  
Director-General  
Department of Environment  
Ministry of Science, Technology and the  
Environment  
12th & 13th Floor, Wisma Sime Darby  
Jalan Raja Laut  
50662 Kuala Lumpur  
Tel: 03-2947844  
Fax: 03-2931480  
Cable: 'Sekitar' Kuala Lumpur  
Telex: MOSTEC MA 28154  
Email: SEKITAR@JAS.sains.my  
Homepage: [Http://www.jas.sains.my](http://www.jas.sains.my)

## LIST OF REGIONAL OFFICES

YB Raja Rokiah Raja Saigon  
Director  
Department of Environment (Kedah & Perlis)  
Tingkat 1, Bangunan Zakat  
Jalan Telok Wanjah  
05200 Alor Setar, Kedah  
Tel: 04-7332832/7335633  
Fax: 04-7337530  
E-mail: paked@po.jaring.my

Director  
Department of Environment (Langkawi)  
Tingkat 6, Kompleks LADA  
Jalan Persiaran Putera  
07000 Kuah, Langkawi  
Tel: 04-9664633  
Fax: 04-9664530  
E-mail:

Encik Rusli b. Che Husin  
Director  
Department of Environment (Pulau Pinang)  
Tingkat 5 & 6, Wisma Peladang  
Jalan Kampung Gajah  
12000 Seberang Perai, Pulau Pinang  
Tel: 04-3334441/442  
Fax: 04-3316078  
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Encik Noor Alshuridin b. Md. Salleh  
Director  
Department of Environment (Perak)  
Tingkat 9, Bangunan Seri Kinta  
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30000 Ipoh, Perak  
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Encik Jalaludin b. Ismail  
Director  
Department of Environment (Selangor)  
17th Floor, Wisma MPSA  
Persiaran Perbandaran  
40000 Shah Alam, Selangor  
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Puan Halimah bt. Hassan  
Director  
Department of Environment (Wilayah  
Persekutuan)  
Tingkat 1, Wisma SCA  
No. 3, Jalan Sungai Besi  
57100 Kuala Lumpur  
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Encik Omar b. Mohamad Zain  
Director  
Department of Environment (Pahang)  
Tingkat 4, Bangunan Asia Life  
Jalan Telok Sisek  
25622 Kuantan, Pahang  
Tel: 09-5554793/5529211  
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Encik Lee Choong Min  
Director  
Department of Environment (Negeri  
Sembilan)  
Tingkat 2-2 dan 3-2  
Wisma Arab Malaysian  
Jalan Tuanku Munawir  
70000 Seremban, Negeri Sembilan  
Tel: 06-7649017/18  
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Encik Ahmad Kamarulnajiub b. Che Ibrahim  
Director  
Department of Environment (Melaka)  
2nd Floor, Bangunan Graha Maju, Jalan  
Tan Chay Yan  
75300 Melaka  
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Y.M. Tengku Bakry Shah Tengku Johan  
Director  
Department of Environment (Johor)  
Aras 3, Bangunan Timjaya, KM7  
Jalan Skudai  
81200 Johor Bahru, Johor  
Tel: 07-2356044/45/46/47/48  
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Encik Mohamad b. Jaafar  
Director  
Department of Environment (Kelantan)  
Tingkat 4, Wisma Ilmu  
Bangunan Tabung Haji, Jalan Doktor  
15000 Kota Bharu, Kelantan  
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E-mail: pakel@po.jaring.my

Encik Hassan b. Mat  
Director  
Department of Environment  
(Terengganu)  
Tingkat 9, Menara Yayasan Islam Terengganu  
Jalan Sultan Omar  
20200 Kuala Terengganu, Terengganu  
Tel: 09-6203150  
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E-mail: patre@po.jaring.my

Encik Mohd Sayuti b. Sepeai  
Director  
Department of Environment (Sabah)  
Tingkat 7, Blok E, Bangunan KUWASA  
Jalan Karamunsing  
88000 Kota Kinabalu, Sabah  
Tel: 088-250122/250123  
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Encik Abdul Aziz b. Abd Rasol  
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Department of Environment (Sarawak)  
Tingkat 9, Bangunan Sultan Iskandar  
Jalan Simpang Tiga  
93592 Kuching, Sarawak  
Tel: 082-418535  
Fax: 082-422863  
E-mail: pasar@po.jaring.my

# DEPARTMENT OF ENVIRONMENT, MALAYSIA

## ORGANISATIONAL SET-UP AND FUNCTIONS

DIVISION/FUNCTION	POST	STAFF
<b>1. ADMINISTRATION</b>	Director-General	Pn Hajjah Rosnani bt. Ibrahlim
	Deputy Director-General Director Personnel and Finance	En. Shamsuddin b. Abdul Latif En Yusof b. Ibrahlim
<b>2. CONTROL</b>	Director	En. Shamsuddin b. Abdul Latif
	a) Toxic Waste	Pn. Marina bt. Md. Nor En. Ibrahlim b. Shafii Pn. Norhayati bt. Mohd. Yusof En. Rosli b. Zul
	b) Water Monitoring	Pn. Pauziah Hanum bt. Abd. Ghani En. Hasbullah b. Zakaria Pn. Dzuriyati bt. Nor Yaacop
	c) Air Monitoring	Pn. Che Asmah bt. Ibrahlim En. Zulkifli b. Din
	d) Prescribed Premises (Rubber, Palm Oil and Motor Vehicles)	En. Ruslan b. Muhamad En. Mohd. Shahuri b. Abdul Roah En. Aminuddin b. Ishak En. Abdul Azi b. Parmin
	e) Non-Prescribed Premises (Sec. 25 of EQA)	En. Mohd. Ishak b. Thani Pn. Norhayati bt. Yahya Pn. Roshahad bt. Hashim
<b>3. DEVELOPMENT PLANNING</b>	Director	En. Patrick Tan Hock VChuan
	a) Research & Development	Pn. Rahani bt. Hussin Pn. Rusnani bt. Abdullah En. Azlan b. Ahmad
	b) Guidelines & Laws/Regulations	Pn. Wan Ramlah bt. Wan Ibrahlim En. P. Vellayutham Pn. Raseli bt. Mat Lazim
	c) Inventory & Special Studies	En. Jamaluddin Mahmud b. Abu Bakar En. Nor Azizi b. Adinan En. Amirul b. Ariffin
	d) Environment Information & Education	En. Patrick Tan Hock Chuan Cik Loke Siew Year Y.M. Tunku Khalkauser Tunku Fathahi Pn. Zainab bt. Zubir
	e) International Affairs	Cik Muslina bt. Sulaiman Pn. Muhibbah bt. Selamat

<b>DIVISION/FUNCTION</b>	<b>POST</b>	<b>STAFF</b>
<b>4. ASSESSMENT</b>	Director	Ir. Lee Heng Keng
a) Resources	Principal Assistant Director Control Officer	Ir. Lee Heng Keng Pn. Hanili bt. Ghazali
b) Industry, Waste Treatment & Disposal	Principal Assistant Director Control Officer Control Officer Control Officer	Pn. Kalsom bt. Abdul Ghani Pn. Halimah bt. Taib Pn. Mashitah bt. Darus En. Hamzah b. Mohamad
c) Infrastructure	Principal Assistant Director Control Officer Control Officer	Tn. Hj. Abu Hassan b. Md. Isa Pn. Zuraini bt. Ahmad Tajuddin En. Ean Aminordin b. Wan Kamarudin
d) Land & Mines	Principal Assistant Director Control Officer Control Officer	En. Abdul Razak b. Manap En. Rosli b. Mustafa En. Mohd. Famey b. Yusoff
e) Recreation, Scheduled	Principal Assistant Director Control Officer Control Officer	En. Charapal Singh Pn. Nor Azian bt. Hamid Pn. Noraziah bt. Jaafar
f) Mixed Development	Principal Assistant Director Control Officer Control Officer	Pn. Choong Mei Chun Pn. Sharifah Zakiah En. Badlishah Ahmad
g) GIS/Ozone Unit	Principal Assistant Director	Pn. Norlin bt. Jaafar
h) PAT	Control Officer	En. Mohd. Hidzir b. Abu Bakar
i) Centre of Investment in MIDA	Control Officer	En. Mokhtar b. Majid

***LIST OF  
ENVIRONMENT-RELATED  
GOVERNMENT AGENCIES  
& MINISTRIES***

# QUOTABLE QUOTES

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1. Earth is covered with blue oceans, green lands and white skies. The Earth is like a diamond hanging in the universe.  
- *Neil Armstrong*
2. A greening of human mind must precede the greening of the Earth. A green mind is one that cares, saves, and shares. These are the qualities essential for conserving biological diversity now and forever.  
- *M.S. Swaminathan*
3. We abuse land because we regard it as commodity belonging to us. When we see land as a community to which we belong, we may begin to use it with love and respect.  
- *Aldo Leopold*
4. When it is asked how much it will cost to protect the environment, one more question should be asked; How much will it cost our civilization if we do not?  
- *Gaylord Nelson*
5. Sustainable development can be achieved only through a new and strong partnership between governments, business, citizens' groups and the broader society that comprises consumers, voters, and those who through their daily actions are the planet's true environmental decision makers.  
- *Stephen Schmidheiny*
6. Solid wastes are only raw materials we're too stupid to use.  
- *Arthur C. Clarke*
7. The proactive pollution prevention approach seeks more lasting and complete solutions to environmental problems. The proactive approach to environmental management is the essence of sustainable development.  
- *Robert P. Bringer and David M. Benforador, 3M Company*
8. The government has introduced tougher enforcement and control measures for the environmental conservation. For this purpose alone RM 142 million has been allocated. Stricter enforcement will be carried out against sources of pollution, which have yet to comply with emission levels permitted under Environmental Regulations. Industries are required to thoroughly evaluate the impact of their development projects on the environment and take steps to overcome any negative effects. These will be done through self-regulation and environmental audit.  
- *Y.B Dato' Seri Anwar Ibrahim, Budget Speech, October 1997*

## LIST OF ENVIRONMENTAL-RELATED GOVERNMENT AGENCIES & MINISTRIES

### **Chemistry Department**

Jalan Sultan  
46667 Petaling Jaya  
Tel: 03-7569522  
Fax: 03-7556764

### **Department of Agriculture**

5th Floor, Wisma Tani  
Jalan Sultan Salahuddin  
50632 Kuala Lumpur  
Tel: 03-2982011  
Fax: 03-2913758

### **Department of Environment**

13th Floor, Wisma Sime Darby  
Jalan Raja Laut  
50662 Kuala Lumpur  
Tel: 03-2938955  
Fax: 03-2936006

### **Department of Fisheries**

8th Floor, Wisma Tani  
Jalan Sultan Salahuddin  
50682 Kuala Lumpur  
Tel: 03-2982011  
Fax: 03-2910305

### **Department of Forestry**

Jalan Sultan Salahuddin  
50660 Kuala Lumpur  
Tel: 03-2988244

### **Department of Meteorological Services**

Jalan Sultan  
46667 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7569422

### **Department of Mines, Malaysia**

6th Floor, Bangunan Ukur  
Jalan Semerak  
50650 Kuala Lumpur  
Tel: 03-2925180

### **Department of Occupational Safety & Health**

Tingkat 10, Wisma Perdana  
Jalan Dungun  
Damansara Heights  
50490 Kuala Lumpur  
Tel: 03-2542355  
Fax: 03-2541337

### **Department of Sewerage Services**

Ministry of Housing and Local  
Government  
Ground Floor, Wisma Damansara  
Jalan Semantan  
50490 Kuala Lumpur  
Tel: 03-2562605/2562612  
Fax: 03-2562609

### **Department of Veterinary Services**

Wisma Tani  
Jalan Sultan Salahuddin  
50630 Kuala Lumpur  
Tel: 03-2982011

### **Department of Wildlife and National Parks**

Km10 Jalan Cheras  
50664 Kuala Lumpur  
Tel: 03-9052872

### **Drainage & Irrigation Department**

Wisma Tani  
Jalan Sultan Salahuddin  
50626 Kuala Lumpur  
Tel: 03-2982011  
Fax: 03-2914282

### **Federal Department of Town & Country Planning**

Jalan Cenderasari  
50646 Kuala Lumpur  
Tel: 03-2989211/2989650  
Fax: 03-2929994

### **Forest Research Institute Malaysia (FRIM)**

Kepong  
52100 Kuala Lumpur  
Tel: 03-6342633

### **Geological Survey Department, Malaysia**

19-20th Floors, Bangunan Tabung  
Haji  
Jalan Tun Razak, PS 11110  
50736 Kuala Lumpur  
Tel: 03-2611032

### **Institut Tadbiran Awam Negara (INTAN)**

Bukit Kiara  
Jalan Damansara  
50490 Kuala Lumpur  
Tel: 03-2552400  
Fax: 03-2561403

### **Lands & Mines Department Federal Territory**

34-35 Floors, Menara PNB  
Jalan Tun Razak  
50678 Kuala Lumpur  
Tel: 03-4231011, 4231051,  
4231090

### **Malaysian Agricultural Research & Development Institute (MARDI)**

Ibu Pejabat MARDI  
P O Box 12301  
Serdang  
50774 Kuala Lumpur  
Tel: 03-9486601  
Fax: 03-9483664

### **Malaysian Industrial Development Authority (MIDA)**

Ground Floor, 3-6 Floors  
Wisma Damansara  
Jalan Semantan  
50720 Kuala Lumpur  
Tel: 03-2553633  
Fax: 03-2557970

### **Marine Department Peninsular Malaysia**

Ibu Pejabat Malaysia  
Jalan Foreshore  
Peti Surat 12  
42007 Port Klang  
Selangor Darul Ehsan  
Tel: 03-3686616

### **Ministry of Agriculture**

Wisma Tani  
Jalan Sultan Salahuddin  
50624 Kuala Lumpur  
Tel: 03-2982011  
Fax: 03-2913758

**Ministry of Culture, Arts & Tourism**

45 Jalan Tun Ismail  
50480 Kuala Lumpur  
Tel: 03-293711  
Fax: 03-2910951

**Ministry of Health**

Jalan Cenderasari  
50590 Kuala Lumpur  
Tel: 03-2985077 /29851761  
Fax: 03-2985964

**Ministry of Housing & Local Government**

Paras 4 & 5, Block K  
Pusat Bandar Damansara  
50490 Kuala Lumpur  
Tel: 03-2547033  
Fax: 03-2547380

**Ministry of Human Resources**

2nd - 4th Floors (Level 3)  
Block B Jalan Satu  
Pusat Bandar Damansara  
Damansara Heights  
50530 Kuala Lumpur  
Tel: 03-2557200  
Fax: 03-2554700

**Ministry of International Trade & Industry**

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Complex  
Jalan Duta  
50622 Kuala Lumpur  
Tel: 03-2540033  
Fax: 03-2550827

**Ministry of Land & Regional Development**

3rd Floor, Bangunan Ibu Pejabat FELDA  
Jalan Perumahan Gurney  
54000 Kuala Lumpur  
Tel: 03-2921566  
Fax: 03-2918641

**Ministry of Primary Industries**

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50564 Kuala Lumpur  
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**Ministry of Science, Technology and the Environment**

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**Ministry of Transport**

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Jalan Dungun  
Damansara Heights  
50616 Kuala Lumpur  
Tel: 03-2548122f  
Fax: 03-2557041

**Muzium Department**

Muzium Negara  
Jalan Damansara  
50566 Kuala Lumpur  
Tel: 03-2380255

**Natural Resources and Environment Board**

Ministry of Resource Planning  
18th Floor, Wisma Sumber Alam  
93050 Petra Jaya  
Kuching  
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Fax: 082-442254

**Palm Oil Research Institute of Malaysia (PORIM)**

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**Rubber Research Institute of Malaysia (RRIM)**

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Peti Surat 10508  
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**Standard Institute and Research Institute Malaysia (SIRIM)**

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40700 Shah Alam  
Selangor Darul Ehsan  
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**Survey & National Mapping Department Malaysia**

Ibu Pejabat Ukur  
Jalan Semerak  
50578 Kuala Lumpur  
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**Town Country Planning Department**

Jalan Cenderasari  
50646 Kuala Lumpur  
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2989310

**Urban Development Authority (UDA)**

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50704 Kuala Lumpur  
Tel: 03-2428022/2416022  
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# ***LIST OF MIDA OFFICES/ TRADE COMMISSIONS***

- ***MALAYSIA/OVERSEAS***
- ***TRADE COMMISSIONERS OVERSEAS***

# SUSTAINABLE DEVELOPMENT TIMELINE

Concerns about the environment and development are not new. More recently the ongoing global dialogue has formed around the strategies needed to address the inter-related challenges of building healthy societies, economies and environments. This dialogue has its roots in the gradual merging of the environmental movement and the post- World War II international development community. Over the past fifty-five years, optimism about the creation of modern technological utopia has been replaced by more realistic understanding of the forces contributing to the world's problems. Many people consider 1962 as the seminal year in which people began to understand how closely linked the environment and development truly are.

## 1962

Rachel Carson publishes "**SILENT SPRING**". This book brought together research on toxicology, ecology and epidemiology to suggest that agricultural pesticides were building to catastrophic levels. This was linked to damage to animal species and to human health. It shattered the assumption that the environment had an infinite capacity to absorb pollutants.

## 1963

**International Biological Programme** initiated by nations around the world. This ten-year study analysed environmental damage and the biological and ecological mechanisms through which it occurs. In creating a large body of data, it laid the foundation for a sciences-based environmentalism.

## 1968

Paul Ehrlich publishes "**POPULATION BOMB**" on the connection between human population, resources exploitation and the environment. **Intergovernmental Conference for Rationale Use and Conservation of Biosphere (UNESCO)** is held. This provided a forum for early discussions of the concept of ecologically sustainable development. The UN General Assembly authorises the Human Environment Conference to be held in 1972.

## 1969

**Friends of Earth** forms as a non-profit advocacy organisation dedicated to protecting the planet from environmental degradation; preserving biological, cultural, and ethnic diversity; and empowering citizens to have an influence voice in decisions affecting the quality of their environment.

USA passes the National Environmental Policy Act (NEPA) creating the first national agency for environmental protection – **US EPA**

## 1970

**First Earth Day** held as a national teach-in on the environment in USA.

## 1971

A panel of experts meeting in Founex, Switzerland prepares **Founex Report**. It calls for the integration of environment and development strategies. The report notes that while concern about the environment sprang from the production and consumption patterns of the industrialised world, many of the environmental problems in the world are a result of underdevelopment and poverty. This acknowledgment was a factor in persuading many developing countries to attend the 1972 Stockholm Conference.

**International Institute for Environment and Development** is established in UK with a mandate to seek ways to make economic progress without destroying the environmental resource base.

## 1972

**United Nations Conference on Human Environmental** held in Stockholm under the leadership of Maurice Strong. The conference is rooted in the regional pollution and acid rain problems of northern Europe. This eco-agenda is opposed by the Group of 77 and the Eastern bloc. Nevertheless, it provides the first international recognition of environmental issues. The concept of sustainable development is cohesively argued to present a satisfactory resolution to the environmental versus development dilemma. The conference leads to the establishment of numerous national environmental protection agencies and the United Nations Environment Programme (UNEP).

The Values Party is formed in New Zealand as the world's first national green party.

**CLUB of ROME** publishes "**Limits to Growth**". The report is extremely controversial because it predicts dire consequences if growth is not slowed. Northern countries criticise the report for not including technological solutions while Southern countries are incensed because it advocates abandonment of economic development. The ensuing debate heightens awareness of the interconnections between several well-known global problems.

OPEC oil crisis fuels limits to growth debate

## 1973

**European Environmental Action Programme** launched. This is the first attempt to synthesise a single environmental policy for the European Economic Community (EEC).

## 1974

Chemists Sherwood Rowland and Mario Molina release seminal work on Chloroflorocarbons (CFCs) in *Nature* magazine. They calculated that if human use of CFC gases were to continue at an unaltered rate the ozone layer would be depleted by many percent after some decades.

## 1975

**Conventions on International Trade in Endangered Species of Flora and Fauna (CITES)** Comes into effect.

UN Conference on Desertification is held.

## LIST OF MIDA OFFICES IN MALAYSIA

MIDA Head Office  
Ground, 3th - 6th & 9th Floor  
Wisma Damansara  
Damansara Heights  
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Room No. 15.03,  
Level 15 Wisma LKN  
49 Jalan Wong Ah Fook  
80000 Johor Bahru  
Johor Darul Takzim  
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8th Floor, Wisma PKNK  
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Kedah Darul Aman  
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15000 Kota Bharu  
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### Korea, Republic of

Counsellor (Investment)  
Embassy of Malaysia (Investment  
Section)  
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Fax: (822) 792 2427

### Singapore

Director  
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UIB Building, Singapore 0106  
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### Taiwan

Director (Investment)  
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Taipei, Taiwan, Republic of China  
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e-mail: midatpe@ms18.hinet.net

## EUROPE

### France

Director  
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75116 Paris, France  
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Fax: (331) 4755 6375

### Germany, Republic of

Director  
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Dompropst-Ketzer Str. 1-9  
50667 Cologne  
Federal Republic of Germany  
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Fax: (49221) 136 198  
e-mail: mida.cologne@t-online.de

### Italy

Consul-Investment  
Consulate of Malaysia (Investment  
Section)  
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20124 Milan, Italy  
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### Sweden

Economic Counsellor  
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## NORTH AMERICA

### United States of America

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Los Angeles, California 90071  
United States of America  
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Republic of South Africa  
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Fax: 2711-8802458

### Nairobi, Kenya

Malaysian Trade Commissioner  
4th Floor, Eagle House  
Kimathi Street, P O Box 48916  
Nairobi, Kenya  
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Fax: 254-2-340376

## ASIA

### Beijing China

Malaysian Trade Commissioner  
Embassy of Malaysia (Trade  
Promotion Section)  
#13 Dongzhimenwai Dajie  
San Li Tun  
Beijing 100600  
People's Republic of China  
Tel: 8610-5322531-922  
Fax: 8610-5322849

### Ho Chi Minh City, Vietnam

Malaysian Trade Commissioner  
Consulate of Malaysia (Trade  
Commissioner's Office)  
53 Nguyen Dinh Chieu Street  
3rd District, Ho Chi Minh City  
Vietnam  
Tel: 848-299023/293132  
Fax: 848-231882

### Hong Kong

Malaysian Trade Commissioner  
Malaysian Commission (Commercial  
Section)  
Ground Floor, Malaysian Building  
47-50 Gloucester Road  
Wanchai, Hong Kong  
Tel: 8522-5278273  
Fax: 8522-8042866

### Osaka, Japan

The Director  
Malaysian External Trade  
Development Corporation  
Osaka Office  
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Osaka 530, Japan  
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### Republic of Singapore

The Director  
Malaysia External Trade Development  
Corporation  
(Singapore Office)  
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02-3922129 (DL)  
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### Seoul, South Korea

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### Taipei, Taiwan

The Director Malaysian Friendship &  
Trade Centre (Trade Section)  
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Taipei, Taiwan  
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### Tokyo, Japan

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## AUSTRALIA

### Sydney, Australia

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MATRADE  
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## EUROPE

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### Milan, Italy

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### Moscow, Russia

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**Paris, France**

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**Rotterdam, The Netherlands**

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**Santiago, Chile**

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**WEST ASIA****Dubai, UAE**

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**Jeddah, Saudi Arabia**

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**Kuwait**

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***LIST OF  
TOWN & DISTRICT  
COUNCILS***

(Continue from page 190)

### 1979

Convention on Long-Range Transboundary Air Pollution is adopted.

Late 1970s - Environmental catastrophes capture public attention. Eg. Amoco Cadiz oil spill and Three Mile Island nuclear reactor leak.

### 1980

**World Conservation Strategy** released by IUCN. The strategy defines development as "the modification of the biosphere and the application of human, financial, living and non-living resources to satisfy human needs and improve the quality of human life". The section "Towards Sustainable Development" identifies the main agents of habitat destruction as poverty, population pressure, social inequity and the terms of trade.

Independent Commission on International Development Issues publishes "North:South - A Programme for Survival" (Brandt Report).

### 1982

The United Nations **World Charter for Nature** published. It adopts the principle that every form of life is unique and should be respected irrespective of its value to humankind. It also calls for an understanding of our dependence on natural resources and the need to control of our exploitation of them.

The UN Convention on the Law of the Sea is adopted. It establishes material rules concerning environmental standards as well as enforcement provisions dealing with pollution of the marine environment.

### 1983

**World Commission on Environment and Development** forms. Chaired by Norwegian Prime Minister Gro Harlem Brundtland, the commission works for three years to weave together a report on social, economic, cultural, and environmental issues.

**Development Alternatives** is established in India as a non-profit research, development and consultancy organisation. It fosters a new relationship between people, technology and the environment in the South in order to attain the goal of sustainable development.

Mid - 1980s - More global environmental problems shock an increasingly "tuned in" Northern public. Eg. Bhopal, India, famine in Africa's Sahel region, rain forest decimation, international debt crisis

### 1984

Worldwatch Institute publishes its first **State of the World Report**. The report monitors changes in the global resource base, focusing particularly on how changes there affect the economy. It concludes "we are living beyond our means, largely by borrowing against the future."

**Third World Network** is founded as the activist voice of the South on issues of economics, development, and environment.

### 1985

Antarctic ozone hole discovered by British and American scientists.

Villach, Austria meeting called by World Meteorological Society, UNEP and International Council of Scientific Unions (ICSU) reports on the build-up of carbon dioxide and other greenhouse gases in the atmosphere. They predict global warming.

### 1986

IUCN **Conference on Environment and Development** held in Ottawa.

Accident at nuclear station in Chernobyl generates a massive toxic radioactive explosion.

### 1987

"**Our Common Future**" (**Brundtland Report**) published. It ties problems together and, for the first time, gives some direction for comprehensive global solutions. It also popularizes the term "sustainable development".

24 countries adopt **Montreal Protocol** on Substances that deplete the Ozone Layer.

### 1988

**Inter-governmental Panel on Climate Change** established with three working groups to assess the most up-to-date scientific, technical and socio-economic research in the field of climate change.

Centre for Our Common Future is founded in Geneva to act as a focal point for follow-up activities to the Brundtland Report.

### 1990

**Business Council for Sustainable Development** is formed in Geneva.

### 1992

**U.N. Conference on Environment and Development (UNCED)** held in Rio de Janeiro. It results in the publication of Agenda 21, the Convention on Biological Diversity, the Framework Convention on Climate Change, the Rio Declaration, and a statement of non-binding Forest Principles. The parallel NGO Forum signs a full set of alternative treaties.

### 1995

**World Business Council for Sustainable Development** formed through the merging of Business Council for Sustainable Development and World Industry Council for Environment.

### 1997

UN General Assembly held **Earth Summit + 5** in New York.

**Kyoto Protocol** on Climate Change.

## TOWN COUNCILS

Yang Dipertua

**Majlis Perbandaran Ampang Jaya**

Menara MPAJ, Persiaran MPAJ

Jalan Pandan Utama

Pandah Indah

55100 Kuala Lumpur

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Fax: 03-4968060

(En Abdul Karim b. Munisar

Tel: 03-4968080)

**Majlis Bandaraya Ipoh**

Peti Surat 1009

30820 Ipoh

Perak Darul Ridzuan

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Ahmad Salleh b. Sarif

Tel: 05-2411831)

Yang Dipertua

**Majlis Bandaraya Johor Bahru**

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Peti Surat 232

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Johor Darul Takzim

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(Datuk Bandar: Y B Dato' Hj. Hashim

b Hj. Yahya

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Yang Dipertua

**Majlis Perbandaran Kajang**

43000 Kajang

Selangor

Tel: 03-8377899

Fax: 03-8377897

(Tuan Hj Md Yusup b. Badol

Tel: 03-8377457)

Yang Dipertua

**Majlis Perbandaran Kangar**

Bang. Pej. Majlis Perbandaran Kangar

No. 192 Jalan Kangar

01000 Kangar

Perlis Indera Kayangan

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Fax: 04-9766052

(YB En. Johari b. Mohd Darus

Tel: 04-9761942 - DL)

Yang Dipertua

**Majlis Perbandaran Klang**

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Selangor Darul Ehsan

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Tel: 03-3315882)

Yang Dipertua

**Majlis Perbandaran Kota Bahru**

15000 Kota Bahru

Kelantan Darul Naim

Tel: 09-7483344

Fax: 09-7486026

(YB Tuan Hj Hassan Abdullah

Tel: 09-7446007)

Presiden

**Majlis Perbandaran Kota Kinabalu**

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88675 Kota Kinabalu

Sabah

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(Y Bhg Datuk David Lee Thau Phin

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**Dewan Bandaraya Kuala Lumpur**

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Kamaruzzaman Shariff)

Yang Dipertua

**Majlis Perbandaran Kuala Terengganu**

Ting. 8, Menara PERMINT

Jalan Sultan Ismail

20200 Kuala Terengganu

Terengganu

Tel: 09-6221044/6221662

Fax: 09-6222570

(YAB Dato' Seri Amar Di Raja Tan Sri

Hj Wan Mokhtar Ahmad

Tel: 09-6225305 - DL)

Yang Dipertua

**Majlis Perbandaran Kuantan**

Jalan Tanah Puteh

25100 Kuantan

Pahang Darul Makmur

Tel: 09-5132311

Fax: 09-5130644

(YAB Tan Sri Dato' Seri Hj. Mohd

Khalil b. Yaakob

Tel: 09-5148977)

Datuk Bandar

**Majlis Bandaraya Kuching Selatan**

Jalan Padungan

93675 Kuching

Sarawak

Tel: 082-242311

Fax: 082-417372

(YB En. Chang Seng Khai)

Datuk Bandar

**Dewan Bandaraya Kuching Utara**

Bukit Siol, Jalan Semariang

Petra Jaya

93050 Kuching

Sarawak

Tel: 082-446688

Fax: 082-446414

(Tuan Hj Awang Ehsan b. Awang

Joini)

Pegawai Kerja  
**Lembaga Bandaran Kudat**  
Peti Surat No. 201  
89058 Kudat  
Sabah  
Tel: 088-611204/611091  
Fax: 088-613002  
(Pesuruhjaya: En. Yeo Boon Hai  
Tel: 088-612091)

Yang Dipertua  
**Majlis Perbandaran Melaka**  
Bandaraya Bersejarah  
Bang. Graha Makmor  
No. 1 Lebuah Ayer Keroh  
75450 Melaka  
Tel: 06-2326411  
Fax: 06-2325716  
(YAB Datuk Seri Hj. Mohd Din Abdul  
Ghani)

Pengerusi  
**Majlis Perbandaran Miri**  
Jalan Raja  
98000 Miri  
Sarawak  
Tel: 085-433439  
Fax: 085-415486  
(En Wee Han Wen)

Yang Dipertua  
**Majlis Perbandaran Padawan**  
Kota Padawan, Pasar Batu 10  
Jalan Penrissen  
93250 Kuching  
Sarawak  
Tel: 082-615566  
Fax: 082-611832  
(En. Chen Thin Kong)

Yang Dipertua  
**Majlis Perbandaran Petaling Jaya**  
Jalan Yong Shook Lin  
46675 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7563544  
Fax: 03-7586491/7575476  
(Y. Bhg. Dato' Mohd. Nor b. Bador  
Tel: 03-7563110  
Fax: 03-7581494)

Yang Dipertua  
**Majlis Perbandaran Pulau Pinang**  
Tingkat 17, Bangunan KOMTAR  
10675 Pulau Pinang  
Tel: 04-2624400  
Fax: 04-2626260  
(YB Dr. Teng Hock Nan  
Fax: 04-6443797)

Presiden  
**Majlis Perbandaran Sandakan**  
Peti Surat 221  
90007 Sandakan  
Sabah  
Tel: 089-273753  
Fax: 089-272112217343  
(Y Bhg Datuk Claudius Roman  
Tel: 089-273753)

Yang Dipertua  
**Majlis Perbandaran Seberang  
Perai**  
Tingkat 9, Wisma UMNO  
12000 Butterworth  
Pulau Pinang  
Tel: 04-3343377  
Fax: 04-3322140  
(YB Tuan Hj Daud b. Taha  
Tel: 04-3343302)

Yang Dipertua  
**Majlis Perbandaran Selayang**  
Persiaran 3, bandar Baru Selayang  
KM 15, Jalan Ipoh  
68100 Batu Caves  
Selangor  
Tel: 03-6180001  
Fax: 03-6188933  
(Tuan Hj. Kasjoo b. Hj. Kadis)

Yang Dipertua  
**Majlis Perbandaran Seremban**  
Wisma Perbandaran, Jalan Yam Tuan  
70990 Seremban  
Negeri Sembilan  
Tel: 06-7623381  
Fax: 06-7637449  
(YAB Dato' Seri Utama Tan Sri Hj.  
Mohd Isa b. Dato' Hj. A. Samad  
Tel: 06-722840)

Yang Dipertua  
**Majlis Perbandaran Shah Alam**  
Tingkat 1, Wisma MPSA  
Peti Surat 7200  
40606 Shah Alam  
Selangor Darul Ehsan  
Tel: 03-5505133  
Fax: 03-5508010  
(En Mohamad Adzib b. Mohd Isa  
Tel: 03-5592558)

Pengerusi  
**Majlis Perbandaran Sibiu**  
96007 Sibiu  
Sabah  
Tel: 084-332423  
Fax: 084-320240  
(En Kon Sien Han)

Yang Dipertua  
**Majlis Perbandaran Subang Jaya**  
Jalan USJ 5  
47610 Subang Jaya  
Selangor  
Tel: 03-7311616  
Fax: 03-7376585  
(En. Ahmad Fuad b. Ismail  
Tel: 03-7376576)  
Yang Dipertua

**Majlis Perbandaran Sungai Petani**  
08000 Sungei Petani  
Kedah Darul Aman  
Tel: 04-4123205  
Fax: 04-4233416  
(En Osman b. Salleh  
Tel: 04-4123206)

Yang Dipertua  
**Majlis Perbandaran Taiping**  
Wisma Perbandaran  
Jalan Taming Sari  
34000 Taiping  
Perak Darul Ridzuan  
Tel: 05-8080777  
Fax: 05-8078354  
(Tuan Hj Anwar Hj Abdul Rahman  
Tel: 05-8074631)

Presiden  
**Majlis Perbandaran Tawau**  
Peti Surat 412  
91007 Tawau  
Sabah  
Tel: 089-772868  
Fax: 089-762267  
(Y Bhg Datuk Aziz Rashid Zainuddin)

Yang Dipertua  
**Majlis Perbandaran Temerloh**  
28000 Temerloh  
Pahang  
Tel: 09-2961477  
Fax: 09-2962664  
(Y B Dato' Bahari b. Tan Sri Yahya  
Tel: 09-2961602)

Presiden  
**Majlis Perbandaran Wilayah**  
Persekutuan Labuan Peti Surat 235  
Wilayah Persekutuan Labuan  
87008 Labuan  
(Y. Bhg Dato' Baseri b. Lamsah)

## DISTRICT COUNCILS

### JOHOR

#### **Majlis Daerah Batu Pahat Barat**

83000 Batu Pahat  
Johor Darul Takzim  
Tel: 07-4341045/4341944  
Fax: 07-4321164  
(YB Dato' Hj. Sukiman Sahlan  
Tel: 07-4311858)

Yang Dipertua

#### **Majlis Daerah Batu Pahat Timur**

83700 Yong Peng, Batu Pahat  
Johor Darul Takzim  
Tel: 07-4671276/4675649  
Fax: 07-4671712  
(YB Dato' Hj. Sukiman Sahlan  
Tel: 07-4311858)

Yang Dipertua

#### **Majlis Daerah Johor Bahru Tengah**

81300 Skudai  
Johor Darul Takzim  
Tel: 07-5561005/5571730  
Fax: 07-5568007  
(YB Dato' Hj. Ismail b A. Aziz  
Tel: 07-2231964)

Yang Dipertua

#### **Majlis Daerah Kluang Utara**

Jalan Pejabat Kerajaan  
86000 Kluang  
Johor Darul Takzim  
Tel: 07-7723912/7723911  
Fax: 07-7713209  
(YB Dato' Hj. Zabha b. Umar  
Tel: 07-7721963)

Yang Dipertua

#### **Majlis Daerah Kluang Selatan**

Jalan Pejabat  
86300 Simpang Renggam  
Johor Darul Takzim  
Tel: 07-7551300/7551303  
Fax: 07-7536131  
(YB Dato' Hj. Zabha b. Umar  
Tel: 07-7721673)

Yang Dipertua

#### **Majlis Daerah Kota Tinggi**

Jalan Padang  
81900 Kota Tinggi  
Johor Darul Takzim  
Tel: 07-8831004/8834558  
Fax: 07-8834015  
(Tuan Hj. Mohd Razali b. Mahusin  
Tel: 07-8831209)

Yang d Dipertua

#### **Majlis Daerah Kulai**

Jalan Pejabat Kerajaan  
81000 Kulai  
Johor Darul Takzim  
Tel: 07-6631511/6632132  
Fax: 07-6632407  
(YB Dato' Hj. Ismail b A. Aziz  
Tel: 07-2231964)

Yang Dipertua

#### **Majlis Daerah Mersing**

243 Jalan Ibrahim  
86800 Mersing  
Johor Darul Takzim  
Tel: 07-7992969  
Fax: 07-7993975  
(Tuan Hj A Aziz b. A Hamid  
Tel: 07-7993793)

Yang Dipertua

#### **Majlis Daerah Muar Selatan**

Jalan Maharani  
84000 Muar  
Johor Darul Takzim  
Tel: 06-9321204  
Fax: 06-9322691  
(Y B Dato' Hj Lokman Thany  
Tel: 06-9511333)

Yang Dipertua

#### **Majlis Daerah Muar Utara**

Pejabat Besar Majlis Daerah Muar  
Utara  
84900 Tangkak  
Johor Darul Takzim  
Tel: 06-9781261  
Fax: 06-9782670  
(Y B Dato' Hj Lokman Thany  
Tel: 06-9511333)

Yang Dipertua

#### **Majlis Daerah Pontian**

Bangunan Majlis Daerah  
82000 Pontian  
Johor Darul Takzim  
Tel: 07-6871442 /6870292  
Fax: 07-6873131  
(En Noh b. Jaafar  
Tel: 07-6871366)

Yang Dipertua

#### **Majlis Daerah Segamat Selatan**

85300 Labis  
Johor Darul Takzim  
Tel: 07-9251781  
Fax: 07-9251308  
(Y B Dato' Hj Johari b. Suratman  
Tel: 07-9311212)

Yang Dipertua

#### **Majlis Daerah Segamat Utara**

No. 1, Jalan Abdullah  
85000 Segamat  
Johor Darul Takzim  
Tel: 07-9314455  
Fax: 07-9312712  
(Y B Dato' Hj Johari b. Suratman  
Tel: 07-9311212)

#### **Pihakberkuasa Tempatan Pasir Gudang**

L3-06, Kompleks Pusat Bandar  
Jalan Bandar  
81700 Pasir Gudang  
Johor Darul Takzim  
Tel: 07-2513720  
Fax: 07-2515260  
(YB Dato' Mohd. Ali b Hj. Hashim  
Tel: 07-2230332)

#### **Lembaga Bandaran Johor Tenggara**

Ibu Pejabat KEJORA  
Jalan Dato' Onn  
Bandar Penawar, Desaru  
81900 Kota Tinggi  
Johor Darul Takzim  
Tel: 07-8221601/8221610  
Fax: 07-8221600  
(En Zubir b. Yahya  
Tel: 07-8221631)

### KEDAH

Yang Dipertua

#### **Majlis Daerah Baling**

d/a Pejabat Daerah Baling  
717 Jalan Mahmud  
09100 Baling  
Kedah Darul Aman  
Tel: 04-4701800  
Fax: 04-4701580  
(Tuan Hj. Abdul Wahab b. Abdullah)

Yang Dipertua

#### **Majlis Daerah Bandar Bahru**

09800 Serdang  
Kedah Darul Aman  
Tel: 4077581  
(En Rasli b. Bassir)

Yang Dipertua

#### **Majlis Daerah Kulim**

09000 Kulim  
Kedah Darul Aman  
Tel: 04-4906522/4907526  
Fax: 04-4901443  
(En. Ahmad Fisol b. Md Noor)

Yang Dipertua

**Majlis Daerah Kubang Pasu**

06000 Jitra

Kedah Darul Aman

Tel: 04-9171901

Fax: 04-9174057

(En Osman b. Salleh

Tel: 04-4123206)

Yang Dipertua

**Majlis Daerah Langkawi**

07000 Kuah

Kedah Darul Aman

Tel: 04-9666590

Fax: 04-9666158

(Tuan Hj. Ismail b. Hamid

Fax: 04-9666904))

Yang Dipertua

**Majlis Daerah Padang Terap**

06300 Kuala Nerang

Kedah Darul Aman

Tel: 04-7866328

Fax: 04-7866042

(Tuan Hj Abdul Mukhti b. Abdullah

Tel: 04-7866206)

Yang Dipertua

**Majlis Daerah Pendang**

06700 Pendang

Kedah Darul Aman

Tel: 04-7596077

Fax: 04-7596709

(Tuan Hj. Ahmad b. Abdullah

Tel: 04-7596732)

Yang Dipertua

**Majlis Daerah Sik**

08200 Sik

Kedah Darul Aman

Tel: 04-4695394

Fax: 04-4695448

(En Abdul Rahman b. Ahmad

Tel: 04-4695394)

Yang Dipertua

**Majlis Daerah Yan**

06900 Yan

Kedah Darul Aman

Tel: 04-4655745

Fax: 04-4655990

(Tuan Hj. Wan Mustafa b. Wan

Mahmud)

**Pihakberkuasa Tempatan**

Taman Perindustrian Hi-Tech Kulim

PO Box 28

09000 Kulim,

Kedah Darul Aman

Tel: 04-4912266

Fax: 04-4912277

(Y Bhg Dato' Hj Mohd Zain b. Osman)

**KELANTAN**

Yang Dipertua

**Majlis Daerah Bachok**

16300 Bachok

Kelantan Darul Naim

Tel: 09-7788524

Fax: 09-7788500

(Tuan Hj. Ab. Rahim b. Hj. Hassan

Tel: 09-939939 - DL)

Yang Dipertua

**Majlis Daerah Gua Musang**

18300 Gua Musang

Kelantan Darul Naim

Tel: 09-9121235

Fax: 09-9121044

(Tuan Hj Ismail Latiff

Tel: 09-9121/963 -DL/9121239

Fax: 09-9121669)

Yang Dipertua

**Majlis Daerah Jeli**

17600 Jeli

Kelantan Darul Naim

Tel: 09-9440023

Fax: 09-9940007

(Tuan Hj. Zawawi b. Mohamad

Tel: 09-9440024)

Yang Dipertua

**Majlis Daerah Kota Bharu**

16450 Kota Bharu

Kelantan Darul Naim

Tel: 09-7886112/7887267

Fax: 09-7886031

(Tuan Hj. Ibrahim b. Hj Ismail

Tel: 09-7886090)

Yang Dipertua

**Majlis Daerah Kuala Krai Selatan**

18200 Dabong

Kelantan Darul Naim

Tel: 09-7440725

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(Tuan Hj Mahmood Sabri Hj Che Lah)

Yang Dipertua

**Majlis Daerah Kuala Krai Utara**

18000 Kuala Krai

Kelantan Darul Naim

Tel: 09-9665215/9666121

Fax: 09-9663284

(Tuan Hj. Che Dir b. Ibrahim

Tel: 09-9667511)

Yang Dipertua

**Majlis Daerah Machang**

Pejabat Majlis Daerah Machang

Tingkat 1 & 2

Bangunan Aked MDM

Jalan Dato' Hashim

18500 Machang

Kelantan Darul Naim

Tel: 09-9751076

Fax: 09-9751431

(En Ahmad b. Mahmood

Tel: 09-9751260 - DL)

Yang Dipertua

**Majlis Daerah Pasir Mas**

17000 Pasir Mas

Kelantan Darul Naim

Tel: 09-7909250

Fax: 09-7903250

(Tuan Hj. Zainuddin @ Nordin Hj

Abdul Manaf)

Yang Dipertua

**Majlis Daerah Pasir Puteh**

16800 Pasir Puteh

Kelantan Darul Naim

Tel: 09-7866011

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(En Md Yusof b. Noh

Tel: 09-7861963 - DL)

Yang Dipertua

**Majlis Daerah Tanah Merah**

17500 Tanah Merah

Kelantan Darul Naim

Tel: 09-9556026

Fax: 09-9556826

(Tuan Hj Kamaruddin b. Hj Mohd Zin

Tel: 09-9556007 - DL)

Yang Dipertua

**Majlis Daerah Tumpat**

16200 Tumpat

Kelantan Darul Naim

Tel: 09-7257285/7257788

Fax: 09-7256919

(En Mohd Azamli b. Hj Jamaluddin

Tel: 09-7257215)

**MELAKA**

Yang Dipertua

**Majlis Daerah Alor Gajah**

JKR No. 2239

78000 Alor Gajah

Melaka

Tel: 06-5562575

Fax: 06-5564909

(Tuan Hj. Othman b. Baba

Tel: 06-5561217)

Yang Dipertua  
**Majlis Daerah Jasin**  
77000 Jasin  
Melaka  
Tel: 06-5291245/5291994  
Fax: 06-5293537  
(En Ab Rahim b Ahmad)

### NEGERI SEMBILAN

Yang Dipertua  
**Majlis Daerah Jelebu**  
d/a Dewan Besar, Kuala Klawang  
71600 Jelebu  
Negeri Sembilan Darul Khusus  
Tel: 06-6136479/6136991  
Fax: 06-6137515  
(En Ramdzan b. Hj Chali  
Tel: 06-6136762)

Yang Dipertua  
**Majlis Daerah Jempul**  
72100 Bahau  
Negeri Sembilan Darul Khusus  
Tel: 06-4541233  
Fax: 06-4545800  
(En Jasmil b. Hj. Ghani)

Yang Dipertua  
**Majlis Daerah Kuala Pilah**  
Jalan Seremban  
72009 Kuala Pilah  
Negeri Sembilan Darul Khusus  
Tel: 06-4812025  
Fax: 06-4811042  
(En Mohd Pajrid @ Mohd Rashid b.  
Ujang)

Yang Dipertua  
**Majlis Daerah Port Dickson**  
71009 Port Dickson  
Negeri Sembilan Darul Khusus  
Tel: 06-6471122  
Fax: 06-6474007/6474984  
(Tuan Hj Ramli Ibni Hajar  
Tel: 06-6473904)

Yang Dipertua  
**Majlis Daerah Rembau**  
Jalan Dato' Maharaja Lela  
71309 Rembau  
Negeri Sembilan Darul Khusus  
Tel: 06-6851144  
Fax: 06-6855117  
(Tuan Hj. Ishak b. Idris  
Tel: 06-6851215)

Yang Dipertua  
**Majlis Daerah Seremban**  
71700 Mantin  
Negeri Sembilan Darul Khusus  
Tel: 06-7581243/7583857  
Fax: 06-7582129  
(En Daman Huri b. Hussain  
Tel: 06-7581963)

Yang Dipertua  
**Majlis Daerah Tampin**  
73000 Tampin  
Negeri Sembilan Darul Khusus  
Tel: 06-4411601  
Fax: 06-4413001  
(Tuan Hj. Othman Hj A Rashid)

### PAHANG

Yang Dipertua  
**Majlis Daerah Bentong**  
28700 Bentong  
Pahang Darul Makmur  
Tel: 09-2221148  
Fax: 09-2223729  
(Tuan Hj. Abu Ishak b Hj. Ahmad  
Tel: 09-2221604)

Yang Dipertua  
**Majlis Daerah Cameron Highlands**  
29007 Tanah Rata  
Pahang Darul Makmur  
Tel: 05-4911455/4912097  
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(En Razali b. Hj. Ahmad  
Tel: 09-4911455)

Yang Dipertua  
**Majlis Daerah Jerantut**  
27000 Jerantut  
Pahang Darul Makmur  
Tel: 09-2662205  
Fax: 09-2661545  
(En Abdul Hamid b. Musa  
Tel: 09-262220)

Yang Dipertua  
**Majlis Daerah Lipis**  
27100 Kuala Lipis  
Pahang Darul Makmur  
Tel: 09-3121433/3121253  
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Yang Dipertua  
**Majlis Daerah Maran**  
d/a Pejabat Daerah Maran  
26500 Maran  
Pahang Darul Makmur  
Tel: 09-4771411/4771412  
Fax: 09-4771511  
(En Mohamad b. Abdul Mufti  
Tel: 09-4771500)

Yang Dipertua  
**Majlis Daerah Pekan**  
Jalan Tengku Mahkota  
26600 Pekan  
Pahang Darul Makmur  
Tel: 09-4224350/4221350  
Fax: 09-4221954  
(Tuan Hj Wan Abdullah Wan Salleh  
Tel: 09-4221026)

Yang Dipertua  
**Majlis Daerah Raub**  
27600 Raub  
Pahang Darul Makmur  
Tel: 09-3551175/3551804  
Fax: 09-3554270  
(En Abdullah b. Jusoh  
Tel: 09-3551104)

Yang Dipertua  
**Majlis Daerah Rompin**  
26800 Kuala Rompin  
Pahang Darul Makmur  
Tel: 09-4146677/4146688  
Fax: 09-4146077  
(En Dzul-Kifly b. Osman  
Tel: 09-4145230)

### PERAK

Yang Dipertua  
**Majlis Daerah Gerik**  
309, Jalan Sultan Abdul Aziz  
33000 Grik  
Perak Darul Ridzuan  
Tel: 05-7912305/7912933  
Fax: 05-7912288  
(Tuan Hj Ismail b. Dolah Harun  
Tel: 05-7912686)

Yang Dipertua  
**Majlis Daerah Hilir Perak**  
36000 Teluk Intan  
Perak Darul Ridzuan  
Tel: 05-6221299/6221277  
Fax: 05-6212446  
(Tuan Hj. Mustapha b. Sa'ad  
Tel: 05-6225883)

Yang Dipertua  
**Majlis Daerah Kerian**  
Wisma Majlis Daerah Kerian  
1, Jalan Padang  
34200 Parit Buntar  
Perak Darul Ridzuan  
Tel: 05-7163658  
Fax: 05-7169268  
(Tuan Hj. Mad. Isa b. Ramli  
Tel: 05-7161075)

Yang Dipertua  
**Majlis Daerah Kinta Barat**  
Jalan Dewangsa  
31007 Batu Gajah  
Perak Darul Ridzuan  
Tel: 05-3661216  
Fax: 05-3665930/2702  
(Tuan Sheikh Ahmad b. Sheikh Long  
Tel: 05-3664167)

Yang Dipertua  
**Majlis Daerah Kinta Selatan**  
JKR 163, Jalan Batu  
31900 Kampar  
Perak Darul Ridzuan  
Tel: 05-4666004  
Fax: 05-4665136  
(En Mohd Fouzib Wan Ab Rahman  
Tel: 05-4664823)

Yang Dipertua  
**Majlis Daerah Kuala Kangsar**  
Jalan Raja Chulan  
33000 Kuala Kangsar  
Perak Darul Ridzuan  
Tel: 05-7763199  
Fax: 05-7761004  
(Tuan Hj Abd Rahim Saleh  
Tel: 05-7761060)

Yang Dipertua  
**Majlis Daerah Lenggong**  
Jalan Alang Iskandar  
33400 Lenggong  
Perak Darul Ridzuan  
Tel: 05-7677207  
Fax: 05-7677002  
(En Mohamad Izani b. Ab Ghafar  
Tel: 05-7677102)

Yang Dipertua  
**Majlis Daerah Manjung**  
Pejabat Majlis Daerah Manjung  
Kompleks Pentadbiran Daerah  
Manjung  
32040 Sri Manjung  
Perak Darul Ridzuan  
Tel: 05-6883121/6882122  
Fax: 05-6882101  
(En Samsul Baharin Hassan  
Tel: 05-6885325)

Yang Dipertua  
**Majlis Daerah Pengakalan Hulu**  
33100 Kroh  
Perak Darul Ridzuan  
Tel: 05-4778148  
Fax: 05-4778735  
(En Muzamin b. Mastak  
Tel: 04-4778181)

Yang Dipertua  
**Majlis Daerah Perak Tengah**  
Aras Bumi  
Kompleks Pentadbiran Daerah  
Perak Tengah  
32600 Seri Iskandar  
Perak Darul Ridzuan  
Tel: 05-3762088  
Fax: 05-3762089  
(Tuan Hj. Hasan b. Abdullah  
Tel: 05-3762092)

Yang Dipertua  
**Majlis Daerah Selama**  
34100 Selama  
Perak Darul Ridzuan  
Tel: 05-8904201  
Fax: 05-8904377  
(En Ngah b. Senik  
Tel: 05-8394201)

Yang Dipertua  
**Majlis Daerah Tanjong Malim**  
No. 1, Jalan Raja Itam  
35900 Tanjong Malim  
Perak Darul Ridzuan  
Tel: 05-4596201/4599163  
Fax: 05-4596773  
(En Basiran b. Sabah  
Tel: 05-4590961)

Yang Dipertua  
**Majlis Daerah Tapah**  
Jalan Station  
35000 Tapah  
Perak Darul Ridzuan  
Tel: 05-4011326  
Fax: 05-4012288  
(En Sulaiman b. Ibrahlim  
Tel: 05-4011332)

## SABAH

Pengerusi  
**Majlis Daerah Beaufort**  
Peti Surat Bil 181  
89800 Beaufort, Sabah  
Tel: 087-211539/211558  
Fax: 087-211539  
(En Mohd Yusof Hj Taha  
Tel: 087-211533)

Pengerusi  
**Majlis Daerah Keningau**  
Peti Surat 181  
89008 Keningau  
Sabah, Tel: 087-331536  
Fax: 087-333262  
(En Louis Rampas  
Tel: 087-331536)

Pengerusi  
**Majlis Daerah Kinabatangan**  
Pekan Baru Kota Kinabatangan  
W.D.T. No. 8  
90200 Kinabatangan, Sabah  
Tel: 089-214949/561811  
Fax: 089-561869  
(En Muhammad b. Zinin  
Tel: 089-561811)

Pengerusi  
**Majlis Daerah Kota Belud**  
Peti Surat 8  
891507 Kota Belud, Sabah  
Tel: 088-976542  
Fax: 088-976529  
(En. Hamzah b. Datuk Hj Mohd  
Zakaria  
Tel: 088-976542)

Pengerusi  
**Majlis Daerah Kota Marudu**  
Peti Surat 129  
89100 Kota Marudu, Sabah  
Tel: 088-661321  
Fax: 088-661323  
(En Peter Chee Nyuk Foh  
Tel: 088-661321)

Pengerusi  
**Majlis Daerah Kuala Penyu**  
Peti Surat 120  
89740 Kuala Penyu, Sabah  
Tel: 087-884900  
Fax: 087-884709  
(En Adnan Miasin  
Tel: 087-889400  
Fax: 087-884229)

Pengerusi  
**Majlis Daerah Beluran/Labuk  
Sugut**  
Peti Surat 20  
90107 Beluran, Sabah  
Tel: 089-511255  
Fax: 089-511272  
(En. Rajibi b. Hj Aman  
Tel: 089-511255)

Pengerusi  
**Majlis Daerah Kunak**  
Peti Surat 15  
91207 Lahad Datu, Sabah  
Tel: 089-851273/851475  
Fax: 089-851398  
(En. Ahmad Samsuri)

Pengerusi  
**Majlis Daerah Lahad Datu**  
Peti Surat 60249  
91112 Lahad Datu, Sabah  
Tel: 089-881518  
Fax: 089-881832  
(En Hussein Alisaputra  
Tel: 089-881518)

Pengerusi  
**Majlis Daerah Nabawan/  
Pensiangan**  
Peti Surat 27  
89957 Nabawan Pensiangan  
Sabah  
Tel: 087-335212  
Fax: 087-335194  
(En. Sirimin M.F. Basir  
Tel: 087-335212)

Pengerusi  
**Majlis Daerah Papar**  
Peti Surat 177  
89608 Papar, Sabah  
Tel: 088-912318/912517  
Fax: 088-913608  
(Tuan Hj. Dahali Hj. Harun  
Tel: 088-913517)

Pengerusi  
**Majlis Daerah Penampang**  
Peti Surat 80  
89507 Penampang, Sabah  
Tel: 088-711567  
Fax: 088-712588  
(En James Loijin  
Tel: 088-711567  
Fax: 088-711003)

Pengerusi  
**Majlis Daerah Ranau**  
Peti Surat 57  
89308 Ranau, Sabah  
Tel: 088-875253  
FDax: 088-875542  
(En. Amri b. Suratman  
Tel: 088-875253)

Pengerusi  
**Majlis Daerah Semporna**  
Peti Surat 134  
91308 Semporna, Sabah  
Tel: 089-785350  
Fax: 089-785484  
(En Salsidu Hj Ibrahim)

Pengerusi  
**Majlis Daerah Sipitang**  
Peti Surat 28  
89857 Sipitang, Sabah  
Tel: 087-821426  
Fax: 087-822433  
(En. Mohd Farid b. Mohd Yamin)

Pengerusi  
**Majlis Daerah Tambunan**  
89650 Tambunan, Sabah  
Tel: 087-770126/770127  
Fax: 087-774441  
(En. Steven Beliku)

Pengerusi  
**Majlis Daerah Tenom**  
Peti Surat 114  
89907 Tenom, Sabah  
Tel: 087-735607  
Fax: 087-735553  
(En Nobert Lee)

Pengerusi  
**Majlis Daerah Tuaran**  
Peti Surat 580  
89208 Tuaran, Sabah  
Tel: 088-788518  
Fax: 088-788303  
(Tuan Hj Uda Sulai)

## SARAWAK

Setiausaha  
**Majlis Daerah Bau**  
94000 Bau, Sarawak  
Tel: 082-7631298  
Fax: 082-763545  
(En Peter Ling  
Tel: 082-763211)

Setiausaha  
**Majlis Daerah Betong**  
Bangunan Kubu Rentap  
95700 Betong, Sarawak  
Tel: 083-472124  
Fax: 083-472192  
(En. Gannie Ugay)

Setiausaha  
**Majlis Daerah Samarahan**  
94300 Samarahan, Sarawak  
Tel: 082-671023  
Fax: 082-671342  
(En Frederick Bayoi Manggie  
Tel: 082-671241)

Setiausaha  
**Majlis Daerah Lundu**  
94500 Lundu, Sarawak  
Tel: 082-735501  
Fax: 082-735035  
(En Stephen Kalong)

Setiausaha  
**Majlis Daerah Simunjan**  
94800 Simunjan, Sarawak  
Tel: 082-803784  
Fax: 082-874785  
(En Tom Hem Mijjod)

Setiausaha  
**Majlis Daerah Serian**  
94700 Serian, Sarawak  
Tel: 084-874246  
Fax: 084-874799  
(En Hang Tuah Merawin)

Setiausaha  
**Majlis Daerah Sri Aman**  
95000 Sri Aman, Sarawak  
Tel: 083-322066/322072  
Fax: 083-320829  
(En Mikai ak Mandau)

Setiausaha  
**Majlis Daerah Saratok**  
Jalan Datuk Abang Abu Talip  
Peti Surat 73  
95400 Saratok, Sarawak  
Tel: 083-436104  
Fax: 083-436511  
(En Chai Moi Fong)

Setiausaha  
**Majlis Daerah Lubok Antu  
(Engkilili)**  
95800 Engkilili, Sarawak  
Tel: 084-563144/ 563015  
Fax: 084-563144  
(En Roland Nawe Abot)

Setiausaha  
**Majlis Daerah Dalat Mukah  
(Mukah)**  
96400 Mukah, Sarawak  
Tel: 084-871622  
Fax: 084-871041  
(En Philip Mejin)

Setiausaha  
**Majlis Daerah Kanowit**  
96700 Kanowit, Sarawak  
Tel: 084-752164  
Fax: 084-752695  
(En Michael Dawi Alli)

Setiausaha  
**Majlis Daerah Luar Bandar Sibul**  
96000 Sibul, Sarawak  
Tel: 084-336077  
Fax: 084-324694  
(En Vincent Goh Chung Siong)

Setiausaha  
**Majlis Daerah Marudi**  
98050 Baram, Sarawak  
Tel: 085-755755  
Fax: 085-755336  
(En Goh Choo Thaw)

Setiausaha  
**Majlis Daerah Subis**  
98150 Bekenu, Sarawak  
Tel: 085-719019  
Fax: 085-719018  
(En Sapawi b. Mustapha)

Setiausaha

**Majlis Daerah Limbang**

98700 Limbang, Sarawak  
Tel: 085-211358/211299

Fax: 085-212577

(Tuan Hj Abd Wahab Hj Abu Bakar)

Setiausaha

**Majlis Daerah Lawas**

98850 Lawas, Sarawak

Tel: 085-284001

Fax: 085-285485

(En Sulaiman Narawi)

Setiausaha

**Majlis Daerah Sarikei**

96108 Sarikei, Sarawak

Tel: 084-651557

Fax: 084-653702

(En Chan Kam Wuai)

Setiausaha

**Majlis Daerah Maradong & Julau**

Peti Surat 4

96507 Bintangor, Sarawak

Tel: 084-693295

Fax: 084-693973

(En Moris Bujang)

Setiausaha

**Majlis Daerah Matu & Daro**

96250 Matu, Sarawak

Tel: 084-832233

Fax: 084-832343

(En Daniel Supit)

Setiausaha

**Majlis Daerah Kapit**

96800 Kapit, Sarawak

Tel: 084-796261

Fax: 084-796323

(En Joseph Jingtut)

**SELANGOR**

Yang Dipertua

**Majlis Daerah Hulu Selangor**

Jalan Bukit Kerajaan  
44000 Kuala Kubu Bahru

Selangor Darul Ehsan

Tel: 03-8043851

Fax: 03-8043991

(En. Asaha @ Ishak b. Abong

Tel: 03-8041258

Fax: 03-8044253)

Yang Dipertua

**Majlis Daerah Kuala Langat**

Off Persiaran Majlis

Jalan Morib

42700 Banting

Selangor Darul Ehsan

Tel: 03-8672825/8672732

Fax: 03-8679304

(Tuan Hj Mohd Yusop b. Mat Judin)

Yang Dipertua

**Majlis Daerah Kuala Selangor**

45000 Kuala Selangor

Selangor Darul Ehsan

Tel: 03-8891439

Fax: 03-8891101

(En Ishak b. Ahmad

Tel: 03-8891010

Fax: 03-8892145)

Yang Dipertua

**Majlis Daerah Sabak Bernam**

43300 Sungei Besar

Selangor Darul Ehsan

Tel: 05-8841655

Fax: 05-8842766

(Tuan Hj. Mohd. Shamsuddin b. Hj.

Lias

Tel: 03-8841963

Fax: 03-8842178)

Yang Dipertua

**Majlis Daerah Sepang**

Tingkat 1, Bangunan Tun Aziz

Salak Tinggi

43900 Sepang

Selangor Darul Ehsan

Tel: 03-8461016/8461090

Fax: 03-8461971

(Tuan Hj. Mansur b. Ramli

Tel: 03-8461001

Fax: 03-8461371)

**TERENGGANU**

Yang Dipertua

**Majlis Daerah Besut**

Kampung Raja

22200 Besut

Terengganu

Tel: 09-6956388

Fax: 09-6956199

(YB Tuan Hj. Idris b. Mamat

Tel: 09-6956389)

Yang Dipertua

**Majlis Daerah Dungun**

23000 Dungun

Terengganu

Tel: 09-8441931/841932

Fax: 09-8443210

(YB Tuan Hj Shafie b. Daud

Tel: 09-8441931)

**Majlis Daerah Kemaman**

24000 Kemaman

Terengganu

Tel: 09-8597777

Fax: 09-8594954

(YB Dato' Hj Abu Bakar Ali

Tel: 09-8598888)

Yang Dipertua

**Majlis Daerah Hulu Terengganu**

21700 Hulu Terengganu

Terengganu

Tel: 09-6811466/6811149

Fax: 09-6811655

(YB Tuan Hj. Ibrahim Yusof

Tel: 09-6811464)

Yang Dipertua

**Majlis Daerah Marang**

21600 Marang

Terengganu

Tel: 09-6182366/6182368

Fax: 09-6181963

(YB Dato' Hj Muda Mamat

Tel: 09-6183545)

Yang Dipertua

**Majlis Daerah Setiu**

Bandar Permaisuri

22100 Setiu

Terengganu

Tel: 09-6099377/6099434

Fax: 09-6099367

(YB En. Mohd Jidin Shafee

Tel: 09-6099335)

*LIST OF  
NON-GOVERNMENTAL  
ORGANISATIONS*

## **Contribution to the success of ENSEARCH Publications**

Apart from the many publications on environmental issues; problems and solutions that ENSEARCH publish from time to time, there are three main periodicals that ENSEARCH publish as a means to carry out its vision and mission.

### **1. Berita ENSEARCH**

A bi-monthly that reports environmental related events, issues, new developments, innovations in science and technologies.

### **2. Journal of ENSEARCH**

Is a multidisciplinary journal devoted to all aspects of environmental research management including original research papers, technical reports and review articles on such topics as water, air and soil pollution control and prevention, waste management and treatment, environmental policy, toxic wastes, environmental impact assessment and education. 4 issues per year.

### **3. ENSEARCH YEARBOOK**

Published biennially as an essential reference source for environmental professional, published jointly by ENSEARCH and CETEC. The Yearbook includes a summary of environmental polices, laws, regulations, standards and practices in Malaysia along with a comprehensive directory of government agencies and ministries, town and district councils, industry associations, trade commissions, foreign embassies and profiles of consultants and contracts specialising in environmental management and practices.

Copies of these publications are distributed to members of various organisations and professionals including scientists, engineers, administrators and others from government, private consultancy firms, academic and research institutions, plantations and manufacturing industries, contracting firms, suppliers and other service industries directly and indirectly involved in environmental management and research.

In order to further strengthen the quality and the effectiveness of these publications, members and non-members are kindly invited to provide contribution in the following:-

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*For further information, please contact:*

ENSEARCH  
20A Jalan SS2/72  
47300 Petaling Jaya  
Tel: (603) 7177588

# LIST OF NON-GOVERNMENTAL ORGANISATIONS - ASSOCIATIONS & SOCIETIES -

**Asia Pacific Institute of Environmental Assessment (APIEA)**

Suite 711, 7th Floor  
Wisma Lim Foo Yong  
Jalan Raja Chulan  
50200 Kuala Lumpur  
Tel: 03-2456522  
Fax: 03-2452453

**Asia-Pacific People's Environment Network (APPEN)**

27, Lorong Mahtob  
10250 Penang  
Tel: 04-376930  
Fax: 04-375705

**Association of Consulting Engineers Malaysia (ACEM)**

63-2 & 65-2, Medan Setia 1  
Damansara Heights  
50490 Kuala Lumpur  
Tel: 03-2550079/2550031  
Fax: 03-2553499

**Association of Environmental Consultants and Contractors of Malaysia (AECCOM)**

Peti Surat 8125  
Kelana Jaya  
46782 Petaling Jaya  
Tel/Fax: 03-7358460

**Balai Ikhtisas Malaysia (BIM)**

51B Jalan SS 21/56B  
Damansara Utama  
47500 Petaling Jaya  
Tel: 03-7187272

**Business Council for Sustainable Development Malaysia (BCSDM)**

No. 79-2 Plaza Damansara  
Bukit Damansara  
50490 Kuala Lumpur  
Tel/Fax: 03-2522566

**Centre for Environmental Technologies (CETEC)**

No. 20A, 1st Floor  
Jalan SS 2/72  
47300 Petaling Jaya  
Tel: 03-7177322  
Fax: 03-7181268  
Email: [execdir@CETEC.po.my](mailto:execdir@CETEC.po.my)

**Centre for Environment, Technology and Development - Malaysia (CETDEM)**

No. 71 Jalan SS2/53  
47301 Petaling Jaya  
Tel: 03-7757767

**Consumers Association of Penang (CAP)**

No. 228 Jalan Macalister  
10400 Penang  
Tel: 04-2293511/2293713  
Fax: 04-2298106

**Eastern Regional Organisation for Planning & Housing (EAROPH)**

PAM Centre  
4 & 6, Jalan Tangsi  
50480 Kuala Lumpur  
Tel: 03-2984136

**Environmental Management & Research Association of Malaysia (ENSEARCH)**

20A, 1st Floor  
Jalan SS 2/72  
47300 Petaling Jaya  
Tel: 03-7177588/7173819  
Fax: 03-7177596  
E-mail: [ensearch@tm.net.my](mailto:ensearch@tm.net.my)

**Environmental Protection Society of Malaysia (EPSM)**

71 Jalan SS 2/53  
P. O. Box 382  
47300 Petaling Jaya  
Tel: 03-7757767

**Federation of Malaysian Consumers Associations (FOMCA)**

8, Lorong SS1/22A  
47300 Petaling Jaya  
Tel: 03-7762009

**Federation of Malaysian Manufacturers (FMM)**

17th Floor, Wisma Sime Darby  
Jalan Raja Laut  
50350 Kuala Lumpur  
Tel: 03-2931244

**Friends of the Earth (SAM)**

No. 27 Lorong Maktab  
10250 Penang  
Tel: 04-376930/375705

**Housing Developers' Association**

2C, Jalan SS5D/16  
Kelana Jaya  
47301 Petaling Jaya  
Tel: 03-7032978  
Fax: 03-7035285

**International Organisation of Consumers Union for Asia and the Pacific (IOCU)**

2508 Jalan Ayer Hitam  
10500 Penang  
Tel: 04-2291396F  
ax: 04-2286506

**Malaysian Association of Medical & Health Science**

Medical Education Unit  
Faculty of Medicine  
National University of Malaysia  
Jalan Raja Muda Abdul Aziz  
50300 Kuala Lumpur  
Tel: 03-2923066

**Malayan Nature Society (MNS)**

34 Jalan Bukit Idaman 8/1  
Taman Bukit Idaman  
68100 Batu Caves  
Tel: 03-6165259/60  
Fax: 03-6165258

**Malaysian Bureau of Consultants (MABCON)**

63-2 & 65-2, Medan Setia 1  
Damansara Heights  
50490 Kuala Lumpur  
Tel: 03- 2550158/  
Fax: 03-2553499  
2550031

**Malaysian Fire Protection Association**

86 Jalan SS 24/17  
Taman Megah  
47301 Petaling Jaya

**Malaysian Institute of Architects**

4 & 6 Jalan Tangsi  
50480 Kuala Lumpur  
Tel: 03-2984136  
Fax: 03-2928782

**Malaysian Institute of Chemistry**

129B Jalan Aminuddin Baki  
Taman Tun Dr. Ismail  
60000 Kuala Lumpur  
Tel: 03-7189909

**Malaysian Plant Protection Society**

P O Box 12351  
50774 Kuala Lumpur  
Tel: 03-9486101 ext 2634

**Malaysian Society of Marine Sciences (MSMS)**

P O Box 250  
Jalan Sultan Post Office  
46050 Petaling Jaya

**Malayan Institute of Planners**

51B Jalan SS 21/56B  
Damansara Utama  
47400 Petaling Jaya  
Tel: 03-7187272  
Fax: 03-7177354

**Master Builders Association Malaysia**

13C Jalan Gereja  
50100 Kuala Lumpur  
Tel: 03-2321636

**Nutrition Society of Malaysia**

Division of Human Nutrition  
Institute of Medical Research  
Jalan Pahang  
50588 Kuala Lumpur  
Tel: 03-2986033

**Persekutuan Jurukur Tanah Bertauliah Malaysia (PEJUTA)**

27369 Jalan Permata 4  
Taman Permata  
Ulu Kelang  
53000 Kuala Lumpur  
Tel: 03-4088540

**The Institution of Engineers Malaysia**

Bangunan Ingenieur  
Lots 60 & 62, Jalan 52/4  
46200 Petaling Jaya  
Tel: 03-7569173  
Fax: 03-7577678

**The Institute of Mineral Engineering**

Peti Surat 12523  
50780 Kuala Lumpur

**The Institution of Surveyors Malaysia**

Penthouse, Bangunan Jurukur  
Lots 64-66 Jalan 52/4  
46200 Petaling Jaya  
Tel: 03-7569728  
Fax: 03-7550253

**The Road Engineering Association of Asia & Australasia**

1A Jalan Setiapuspa  
Medan Damansara  
50490 Kuala Lumpur

**Third World Network (TWN)**

No. 228, Jalan Macalister  
10490 Penang  
Tel: 04-2266159  
Fax: 04-2264505

**World Rainforest Movement (WRM)**

No. 228 Jalan Macalister  
10400 Penang  
Tel: 04-2266159  
Fax: 04-2264505

**World Wild Fund for Nature, Malaysia**

(WWF)  
3rd Floor, Wisma IJM Annexe  
Jalan Yong Shook Lin  
46200 Petaling Jaya  
Tel: 03-7579192  
Fax: 03-7565594

**INSTITUTIONS OF HIGHER LEARNING - UNIVERSITIES**

**Institut Kemahiran MARA (IKM)**

12 Jalan Templer  
46000 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7928971, 7927823

**MARA Institute of Technology (MIT)**

43450 ITM Shah Alam  
Selangor Darul Ehsan  
Tel: 03-5592311, 5592721

**Universiti Islam Antarabangsa (UIA)**

Jalan Universiti  
46350 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7555322

**Universiti Kebangsaan Malaysia (UKM)**

43600 Bangi  
Selangor Darul Ehsan  
Tel: 03-8250001, 8250601

**Universiti Malaya (UM)**

Lembah Pantai  
59100 Kuala Lumpur  
Tel: 03-7560022

**Universiti Malaysia Sarawak (UNIMAS)**

94300 Kota Samarahan  
Sarawak  
Tel: 082-671000  
Fax: 082-672411

**Universiti Putra Malaysia (UPM)**

43400 Serdang  
Selangor Darul Ehsan  
Tel: 03-9486101

**Universiti Sains Malaysia (USM)**

Minden  
11800 Pulau Pinang  
Tel: 04-877888, 875613

**Universiti Teknologi Malaysia (UTM)**

Jalan Semarak  
54100 Kuala Lumpur  
Tel: 03-2929033, 2933050

**Universiti Teknologi Malaysia (UTM)**

Karung Berkunci 791  
80990 Johor Bahru, Johor  
Tel: 03-576160

**Universiti Utara Malaysia (UUM)**

Bandar Barul Darul Aman  
Tanjung Pauh  
06000 Jitra, Kedah  
Tel: 04-741801

# ***LIST OF FOREIGN EMBASSIES***

## ADVERTISEMENT RATES

### BERITA and JOURNAL of ENSEARCH

#### ADVERTISING RATES

POSITION	:	BERITA	JOURNAL
Full Page Full Colour	:	RM1,500.00	RM2,000.00
Full Page Black & White	:	RM1,000.00	RM1,500.00
Half Page Full Colour	:	RM 800.00	RM1,200.00
Half Page Black & White	:	RM 500.00	RM 800.00

#### MECHANICAL REQUIREMENTS

- a) Black & White advertisement : Positive Film
- b) Colour advertisement : Complete colour separated films with progressive proofs

#### ADVERTISEMENT SIZE

- a) Full Page : 7 1/2" (w) x 10 1/4" (h)
- b) Half Page : 7 1/2" (w) x 5 1/8" (h)

## YEARBOOK

#### ADVERTISING RATES

Outside Back Cover (Full Colour)	RM4,200
Inside Front Cover (Full Colour)	RM3,500
Inside Back Cover (Full Colour)	RM2,800

#### Special Positions (Full Colour)

Facing Inside Front Cover	RM2,600
Opposite Section Dividers	RM2,200
Full Page - Inter. Pages (Full Colour)	RM2,000
Full Page - Inter. Pages (Black/White)	RM1,500

#### STANDARD REQUIREMENTS

Black & White Advertisement  
- Positive Film

Colour Advertisement  
- Complete colour separated films with progressive proofs.

#### ADVERTISING SIZE

Full Page - 7 1/2" (W) x 10 1/4" (H)

*For further information, please contact:*

ENSEARCH  
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# LIST OF FOREIGN EMBASSIES AND HIGH COMMISSIONS

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Counselor for Commercial Affairs  
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Tel: 03-2489011  
Fax: 03-2422207

## ARGENTINA

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First Secretary  
Embassy of The Argentine Republic  
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Damansara Heights  
50490 Kuala Lumpur  
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Fax: 03-2552706

## AUSTRALIA

Ms Valerie Kelly  
First Secretary (Commercial)/  
Trade Commissioner  
Australia Trade Commission  
c/o Australian High Commission  
No. 6, Jalan Yap Kwan Seng  
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50450 Kuala Lumpur  
Tel: 03-2406661  
Fax: 03-2488870

## AUSTRIA

Dr. Hartwig Seuchter  
Commercial Counsellor  
Austrian Embassy (Office of the  
Commercial Counsellor)  
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Jalan Raja Chulan  
P O Box 10555  
50716 Kuala Lumpur  
Tel: 03-2614724/2614836  
Fax: 03-2613130

## BANGLADESH

Mr Md Abdul Mannan Miah  
First Secretary (Consular)  
High Commission of the People's  
Republic of Bangladesh  
No. 204-1, Jalan Ampang  
50450 Kuala Lumpur  
Tel: 03-2422505/2423271  
Fax: 03-2413381

## BELGIUM

Mr. Jean Jacques Manigart  
Commercial Attache  
Embassy of Belgium  
No. 12, Lorong Yap Kwan Seng  
50450 Kuala Lumpur  
Tel: 03-2618707 & 2625991  
Fax: 03-2616284

## BRAZIL

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Second Secretary  
Embassy of Brazil  
No. 22, Persiaran Damansara Endah  
Damansara Heights  
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***INTERNATIONAL  
ENVIRONMENT-RELATED  
PROGRAMMES***

- ***BRITISH HIGH COMMISSION***
  - ***DANCED***
- ***FEDERAL REPUBLIC OF GERMANY***
  - ***US-AEP***
  - ***UPM***
  - ***USM***

## **MALAYSIA/UNITED KINGDOM CONSERVATION, MANAGEMENT & DEVELOPMENT OF FOREST RESOURCES PROGRAMME**

A total of 23 joint research projects by Malaysian and British institutions to enhance conservation, management and development of forest resources in Malaysia will be carried out under a five-year British/Malaysian jointly-funded forestry research programme which was launched in 1993.

The project, which was initiated in May 1992 by the signing of a Memorandum of Understanding between the Governments of UK and Malaysia in London, has two sub-programmes. The first consists of 13 research projects and is primarily concerned with the conservation of biodiversity and sustainable use of forest resources. The second programme has 10 research projects and concentrates on the valuation of the costs and benefits of non-timber forest products and services.

The project will continue until March 1998. The British Government will contribute over £1 million to the programme.

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## **DANCED PROGRAMME IN MALAYSIA**

The Danish Corporation for Environmental Development (DANCED) programme under the Danish Ministry of Environment and Energy was launched as a follow-up to the UNCED conference held in Rio de Janeiro 1992.

The DANCED programme is a regional collaboration between both DANCED & Danish Ministry of Foreign Affairs (DANIDA) & S.E. Asian countries. DANCED will cooperate with Malaysia and Thailand, while Danida will render development assistance to Vietnam, Laos and Cambodia.

The actual amount allocated for cooperation with Malaysia for the five-year period 1994-1998 is 390 million Danish Kroner (approximately RM180 million)

Support from DANCED is granted to Malaysia in the following principal areas:

- Environmental problems in urban areas
- Forest management
- Biological diversity
- Coastal zone management

In addition to specific project activities the programme will include support for institutional development and capacity building for environmental management in the public and private sectors.

All activities are to be implemented in close cooperation with key central and local authorities in the fields of environmental management, forest management and nature conservation. Close cooperation with the populations is deemed essential, and NGO's shall be brought in to support the programme activities and to liaise with the local population.

The collaboration was initiated by the signing of an Memorandum of Understanding between the Ministry of Science, Technology and Environment and the Danish Ministry of Environment and Energy on 12 June 1994.

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## **EMBASSY OF THE FEDERAL REPUBLIC OF GERMANY**

Germany is considered one of the leaders in environmental technologies. 600,000 Germans work today in the environmental protection industry - predominantly characterised by small and medium-sized companies.

Germany provides 10 million German Marks annually in technical cooperation to Malaysia.

The bulk of this goes to Environment Related Projects under the Malaysian German Forestry Cooperation Program:

- Forest Research Project (FRIM), Sustainable Forest Management Project (Forest Department, Sabah)
- Sustainable Forest Management and Conservation Project (Forestry Department Peninsular Malaysia)
- Seed and Plant Procurement Program (Forestry Department Peninsular Malaysia)
- Forest Management Information System (Forestry Department, Sarawak)
- Belum Nature Zone (Malaysian Nature Society)

Furthermore, joint projects were undertaken with DOE and SIRIM in the areas of Noise Control, Emission of Motor Vehicles, Environmental Measuring Technology etc.

Germany continues to provide scholarships for advanced professional training of Malaysians in the environmental field.

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**UNITED STATES - ASIA  
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(US-AEP)**

**INSTITUTE OF CONSULTANCY  
UNIVERSITI PERTANIAN MALAYSIA  
(UPM)**

The United States-Asia Environmental Partnership (US-AEP) was founded in 1992 as a ten-year effort to assist in addressing environmental degradation and sustainable development issues in the Asia/Pacific region by mobilising U.S. environmental experience, technology, expertise and practice. Led by the US Agency for International Development (USAID), the programme brings together the resources of 25 U.S. government departments and agencies and thousands of businesses and non-governmental organizations that work with 35 nations and territories in Asia and the Pacific.

US-AEP activities focus on stemming the loss of biodiversity in Asia; preventing and controlling industrial pollution; assisting in the creation of urban environmental infrastructure; and improving energy efficiency and employing renewable energy technologies. While individual US-AEP activities seek practical solutions to local problems, the cumulative effort positively affects global environmental issues such as climate change.

The programme receives USAID core funding of US\$100 million (1992-1996) and leverages cash and in-kind contributions from public, private and non-governmental partners equivalent to a further US\$400 million.

US-AEP activities fall in five broad categories:

- Professional and Organisational Development
- Technology Cooperation: The Offices of Technology Cooperation operate in 9 Asian countries - Malaysia, Indonesia, Singapore, Korea, Hong Kong, The Philippines, Taiwan, India and Thailand.
- Environment & Energy Infrastructure
- Biodiversity Conservation
- Partnering Activities

The US-AEP Office of Technology Cooperation in Malaysia was established in January 1994. It focuses on business-to-business partnerships between the U.S. and Malaysia with intent to improve the environmental quality in Malaysia. US-AEP serves Malaysians by acting as a liaison and information resource for local businesses and government entities for U.S. environmental expertise through technology sourcing and partnership activities, short-term training and fellowships.

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Established in 1984 the Institute of Consultancy was mandated to facilitate and manage consultancy activities of Universiti Pertanian Malaysia. Over the years the activities of Institute of Consultancy has been expanded to include contract research, professional courses, analytical services and environmental impact studies besides the consultancy services. Clients come from the public sector, the private sector as well from international agencies such as FAO, ITTO, IDRC, JICA and WINROCK International. Currently with 11 faculties and several centres in UPM, the Institute of Consultancy has the services of not less than 500 professionals who are registered with the institute. This has enabled the Institute to mobilise a multidisciplinary team on short notices.

The Institute of Consultancy has undertaken not less than 16 projects relating to the environment and environmental management issues for the 1994/95 session with the gross value of RM2.3 million as given below:

1. EIA : Study of the Tanjung Rhu Coastal Resort, Langkawi Island
2. EIA : Study on Colour Removal by Membrane Filtration
3. EIA : Mukah Palm Industries
4. EIA : Cadangan Tapak Pelupusan Sampah
5. EIA : Projek Akuakultur Sg. Kesang/Sebatu Melaka
6. EIA : Kelantan River Flood Mitigation
7. EIA : Proposed 650 MW Combined Cycle Gas Turbine Power Plant Near Kuala Sg. Baru, Perlis
8. EIA : Pembangunan Pusat Pentadbiran Putra Jaya
9. TCOT Outfall Marine Study
10. Menaikkan Taraf Tapak Pelupusan Sisa di Sekamat, Seremban
11. Kajian Sektor Pesisiran & Luar Pantai Bagi Kajian Rancangan Struktur Daerah Manjung & Perak Tenga
12. Port Dickson Coastal Water Survey & Sg. Lukut/Sg. Lukut Kechil Environmental Study
13. Analisa Kualitatif Terhadap Hakisan Tebing Sungai di Sarawak
14. Green Sea Turtle Conservation Project in Chagar Hutang
15. Rehabilitation of Natural Forest (ITTO)
16. Solid Waste Management Study of the Central & Southern Regions of Peninsular Malaysia

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**INNOVATION AND CONSULTANCY  
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UNIVERSITI SAINS MALAYSIA**

Universiti Sains Malaysia (USM) strives to lead and innovate for excellence and is strongly committed to societal, national and universal aspiration. As such USM makes available the talent and the cultural and physical resources of the University to enrich the community at large.

USM is very active in the field of Environmental Sciences. The staff has been actively involved in various aspects of environmental studies and has carried out extensive consultancy work related to conservation of the environment. Multidisciplinary specialists from the various Schools of USM have given strength and depth to the studies and consultancies undertaken. The availability of multidisciplinary specialists has enabled a comprehensive and integrated approach to be taken. Over and above this, USM has a Centre for Marine and Coastal Studies (CEMACS) which carries out work related to conservation and coastal studies, as well as the Centre for Atmospheric Studies. When necessary modelling studies using mathematical techniques have been used to strengthened the work.

USM thus has strength in the field of environmental sciences and to-date the USM multidisciplinary group has been active and has carried out some major studies. These are in respect of:

- Studies on Land Reclamation
- Biodegradation of Crude Oil under Tropical Conditions
- Baseline Studies of Macrobenthos in the Vicinities of Crude Oil Terminals
- Toxicity Study of Effluent Discharge on Marine Organisms for Sarawak Shell
- EIA Studies for Dam Projects, Disposal Sites, Resorts and Flood Mitigation and Drainage
- Water Quality Studies, Evaluation of Waste Water Treatment
- Classification of Rivers in Malaysia according to various Beneficial Uses
- Geographic Information System

Consultancy work is coordinated by the Innovation and Consultancy Centre.

Contact:

The Director

Innovation and Consultancy Centre

Universiti Sains Malaysia

11800 USM Penang

Tel: 04-6572407

Fax: 04-6572210

# ***MISCELLANEOUS***

# ENSEARCH

(Environmental Management & Research Association of Malaysia)

## BETTER ENVIRONMENT

### BE PART OF

### ENSEARCH

## ***TOGETHER WE SERVE, PROTECT & PRESERVE OUR EXOTIC HERITAGE OF TROPICAL MALAYSIA***

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### **WHAT IS ENSEARCH?**

ENSEARCH, the Environmental Management & Research Association of Malaysia, formed on the 24th February 1984, is a professional organisation recognised and supported by Government agencies, private enterprises and leading individuals and institutions in this field.

ENSEARCH constitutes itself as a national body of all interested parties in the field of environmental research and management. The governing Council of ENSEARCH is equally composed of professionals from the government, private consultancy firms, academic & research institutions, contractors, suppliers and other environmental service industries. It is a place for the concern professionals to channel their valuable resources towards a better environment.

ENSEARCH is an independent, non-profit organisation. It is financed by membership subscriptions, sales of publications, revenue gained through activities of ENSEARCH and contributions from companies, institutions and individuals.

### **OBJECTIVES OF ENSEARCH**

- To constitute itself as a national body of all interested parties in the field of environmental research and management, particularly with reference to water supply, wastewater, solid and gaseous waste systems.
- To contribute to the development of means to protect and enhance the quality of the environment in Malaysia.
- To promote the exchange of information on all aspects of environmental management and technology including systems investigations, design and operation.
- To encourage communication and facilitate understanding among scientists, engineers, administrators and all others actively engaged in environmental research and management at local and international level.
- To identify ways and means of tackling the pressing environmental problems and forestalling emerging ones in the country.
- To mobilise professional opinion as an input to decision making by relevant authorities at Federal and State level.
- To promote and organise the publication of journals and reports of ENSEARCH activities, suitable scientific and technical contributions from the members, and any work that further the aims of the Association.
- To organise technical and scientific meetings including exhibitions, display sessions, training and seminars.
- To promote the practical application of research findings with respect to process engineering, pollution control technology, waste utilization and resource recovery.

# ENSEARCH

(Environmental Management & Research Association of Malaysia)

- To cooperate with other national or international organisations in similar or related fields.
- To function as the Malaysian National Committee in relation to international bodies having broadly similar objectives, such as International Association on Water Quality (IAWQ), Pacific Basin Consortium for Hazardous Waste Research, Water Environmental Federation (WEF) Asia/Pacific Rim Steering Committee, and the International Network for Environmental Management (INEM).

## WHAT DO ENSEARCH MEMBERS GET?

- Numerous environment-orientated indoor and outdoor activities, including monthly seminars on various topics, field trips to factories, treatment plants, parks and other places of interest;
- Receipt of Journal of ENSEARCH, the ENSEARCH half yearly journals;
- Receipt of BERITA ENSEARCH, the ENSEARCH quarterly news magazine;
- Receipt of the ENSEARCH YEARBOOK;
- Discount on registration fees for all conferences/seminars and workshops organised by ENSEARCH
- Access to library material maintained at the Secretariat in Petaling Jaya;
- An opportunity to serve in the Council which is the main coordinating body for all ENSEARCH activities.

## WHAT DOES ENSEARCH DO?

- The Association publishes its own journal and newsletter, monographs on environmental related subjects, books and proceedings of seminars and conferences as well as other information;
- Organises field trips to places of environment interest;
- Organises seminars, workshops, conferences, talks and training courses from time to time;
- Participates in environment-oriented exhibitions;
- Initiates scientific research and projects, such as the ENSEARCH-PETRESA Project on Detergent Pollution Studies for Sewage Treatment, Water Pollution Control 2000AD in Palm Oil Industries in Malaysia and Pollution Control in the Natural Rubber Industry in Malaysia.

## WHO ARE ITS MEMBERS?

Members come from all areas, bound by a common interest in environment. They comprise professionals from both the private and the public sector, such as, the universities, research institutions, government departments, statutory bodies, local authorities, developers, consultants, scientists, engineers, suppliers, leading local and international corporations and companies.

Honorary membership is awarded to those who have made substantial contributions in the field of environmental research and management. The first person to be conferred the title of Honorary Membership of ENSEARCH is Y.Bhg. Datuk Amar Stephen Yong, former Minister of Science, Technology and the Environment.

The ENSEARCH membership profile can best be described as a unique blend of enthusiastic professionals together providing a highly-motivated voluntary commitment to all aspects of the environment. By joining ENSEARCH, you too can become part of this interactive team.

## MEMBERSHIP AND SUBSCRIPTION

Membership of ENSEARCH is extended to both individuals and institutions.

Subscription	Admission Fee	Annual Subscription
Institutional Member	RM300.00	RM500.00
Individual	RM 50.00	RM 50.00
Life Member	RM500.00	

*(Please note that membership year runs from January 1 each year)*

**JOIN ENSEARCH TODAY, HELP US SUSTAIN OUR ENVIRONMENT!**

# ENSEARCH

(Environmental Management & Research Association of Malaysia)

## APPLICATION FOR MEMBERSHIP

The Secretary-General, ENSEARCH  
No. 20A, Jalan SS 2/72  
47300 Petaling Jaya  
Tel: 03-7177588/7173819 Fax: 03-7177596  
email: ensearch@tm.net.my

**Class of Membership:** Institutional ..... Individual .....

Name: .....  
(Please Print)

Organisation: .....

Correspondence Address: .....

Tel: ..... (Off) ..... (Hse)

Classification of Profession (please cross)

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| <input type="checkbox"/> Consulting  | <input type="checkbox"/> Government   |
| <input type="checkbox"/> Contractors | <input type="checkbox"/> Teaching     |
| <input type="checkbox"/> Research    | <input type="checkbox"/> Others ..... |
- (Please specify)

Areas of interest (please cross)

- |  |  |
|--|--|
| <input type="checkbox"/> Air & Noise         | <input type="checkbox"/> Natural Resources     |
| <input type="checkbox"/> Water & Wastewater  | <input type="checkbox"/> Land & Urban Systems  |
| <input type="checkbox"/> Health & Safety     | <input type="checkbox"/> Legal & Institutional |
| <input type="checkbox"/> Solid & Toxic Waste | <input type="checkbox"/> Planning & Management |
| Marine Environment                           | Others .....                                   |
- (Please specify)

Date: .....

.....  
(Signature of Applicant)



**CENTRE FOR  
ENVIRONMENTAL  
TECHNOLOGIES**

**APPLICATION FOR MEMBERSHIP  
~~ EXPLANATORY NOTES ~~**

**ELIGIBILITY**

Any member of the public including members of the Environmental Management and Research Association of Malaysia may apply to be members of the Centre. The categories of membership are:

**1. Corporate Member**

Membership of this category shall be open to any organisation which is interested in or concerned with the objectives of the Centre.

**2. Individual Member**

Membership of this category shall be open to any person who is interested in or is concerned with the objectives of the Centre.

**Entrance fee and annual subscription**

<b>Members</b>	<b>Entrance Fee (RM)</b>	<b>Annual Subscription (RM)</b>
Individual	50	50
Corporate	100	500
*Life	1000	-

*Note: The rates specified above are rates currently in force. However the Board of CETEC has the discretionary power to vary them from time to time depending on circumstances.*

**Procedure for Application**

Application for membership should be made by completing the attached application form and submitting it to the Executive Director, CETEC, No. 20A, Jalan SS2/72, 47300 Petaling Jaya, with a crossed cheque payable to "Centre for Environmental Technologies" for the total amount of the annual subscription applicable and the entrance fee.



**CENTRE FOR  
ENVIRONMENTAL  
TECHNOLOGIES**

No. 20A, Jalan SS2/72  
47300 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7177322/7199297/7199427  
Fax: 03-7181268  
email: [execdir@cetec.po.my](mailto:execdir@cetec.po.my)

**APPLICATION FOR MEMBERSHIP  
~~ CORPORATE ~~**

Name of Company: .....  
(Please Print)

Activity: .....

Date of Incorporation: .....

Business Registration No: .....

Name of Director: .....

I/C or Passport No: ..... Citizenship: .....

Organisation: .....

Correspondence Address: .....

.....

Permanent Address: .....

.....

Tel: ..... (Off) ..... (Hse)

Fax: ..... e-mail: .....

Classification of Profession (please cross)

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| <input type="checkbox"/> Consulting  | <input type="checkbox"/> Government   |
| <input type="checkbox"/> Contractors | <input type="checkbox"/> Teaching     |
| <input type="checkbox"/> Research    | <input type="checkbox"/> Others ..... |
- (Please specify)

Areas of interest (please cross)

- |  |  |
|--|--|
| <input type="checkbox"/> Air & Noise         | <input type="checkbox"/> Natural Resources     |
| <input type="checkbox"/> Water & Wastewater  | <input type="checkbox"/> Land & Urban Systems  |
| <input type="checkbox"/> Health & Safety     | <input type="checkbox"/> Legal & Institutional |
| <input type="checkbox"/> Solid & Toxic Waste | <input type="checkbox"/> Planning & Management |
| <input type="checkbox"/> Marine Environment  | <input type="checkbox"/> Others .....          |
- (Please specify)

Date: .....

.....  
Signature of Applicant



**CENTRE FOR  
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TECHNOLOGIES**

No. 20A, Jalan SS2/72  
47300 Petaling Jaya  
Selangor Darul Ehsan  
Tel: 03-7177322/7199297/7199427  
Fax: 03-7181268  
email: [execdir@cetec.po.my](mailto:execdir@cetec.po.my)

**APPLICATION FOR MEMBERSHIP  
~~ INDIVIDUAL ~~**

Name : .....  
(Please Print)

Occupation: .....

Date of Birth: ..... Place of Birth: .....

I/C or Passport No: ..... Citizenship: .....

Organisation: .....

Correspondence Address: .....

Permanent Address: .....

Tel: ..... (Off) ..... (Hse)

Fax: ..... e-mail: .....

Classification of Profession (please cross)

- |                                      |                                       |
|--------------------------------------|---------------------------------------|
| <input type="checkbox"/> Consulting  | <input type="checkbox"/> Government   |
| <input type="checkbox"/> Contractors | <input type="checkbox"/> Teaching     |
| <input type="checkbox"/> Research    | <input type="checkbox"/> Others ..... |
- (Please specify)

Areas of interest (please cross)

- |  |  |
|--|--|
| <input type="checkbox"/> Air & Noise         | <input type="checkbox"/> Natural Resources     |
| <input type="checkbox"/> Water & Wastewater  | <input type="checkbox"/> Land & Urban Systems  |
| <input type="checkbox"/> Health & Safety     | <input type="checkbox"/> Legal & Institutional |
| <input type="checkbox"/> Solid & Toxic Waste | <input type="checkbox"/> Planning & Management |
| <input type="checkbox"/> Marine Environment  | <input type="checkbox"/> Others .....          |
- (Please specify)

Date: .....

.....  
Signature of Applicant

# ENSEARCH

(Environmental Management & Research Association of Malaysia)

## ENVIRONMENTAL PROFESSIONALS REGISTRAR OF MALAYSIA (EPRM)

### APPLICATION FOR MEMBERSHIP

The Secretary-General, ENSEARCH  
No. 20A, Jalan SS 2/72  
47300 Petaling Jaya  
Tel: 03-7177588/7173819 Fax: 03-7177596  
email: ensearch@tm.net.my

**Class of Membership: EPRM MEMBERSHIP**

There are two categories of members as follows :

• **Individual Membership**

Membership is applicable to all 4 fields.

Requires a nominal processing fee of RM50.00 for each field applied and an annual subscription of RM50.00

• **Institutional Membership**

Membership is applicable for all 4 fields. Requires a nominal processing fee of RM50.00 for each field applied and an annual subscription of RM300.00

Name: .....  
(Please Print)

Organisation: .....

Date of Birth: ..... Place of Birth: .....

I/C or Passport No: ..... Citizenship: .....

Organisation: .....

Address: .....

Correspondence Address: .....

Tel: ..... (Off) ..... (Hse)

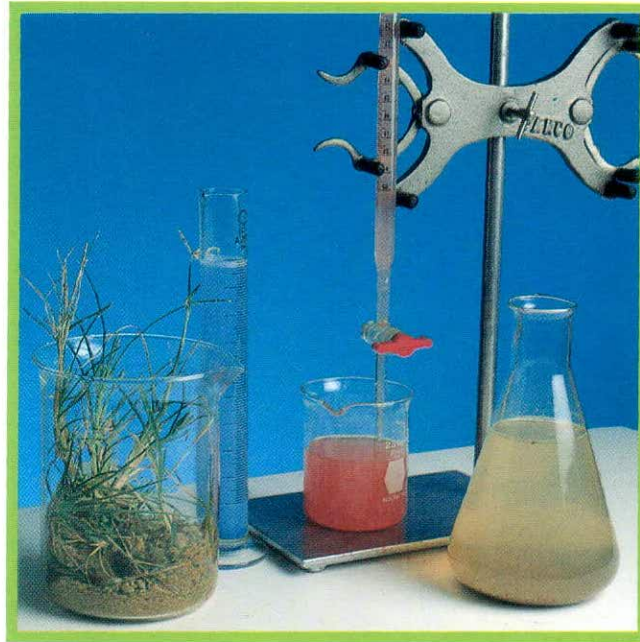
email: .....

Date: .....  
(Signature of Applicant)





**CENTRE FOR  
ENVIRONMENTAL  
TECHNOLOGIES**



*Excellence  
in  
Environmental  
Research  
and  
Development*

For Further Information Please call or write to:

**CENTRE FOR ENVIRONMENTAL TECHNOLOGIES (CETEC)**

20A, Jalan SS2/72, 47300 Petaling Jaya, Selangor Darul Ehsan, Malaysia.

Tel: 603-7177322/7199297/7199427 Fax: 603-7181268 E-mail: [execdir@cetec.po.my](mailto:execdir@cetec.po.my)