UCAPAN OLEH Y.B. DATUK AMAR STEPHEN K.T. YONG,
MENTERI SAINS, TEKNOLOGI & ALAM SEKITAR,
MALAYSIA
DI UPACARA PERASMIAN SEMINAR "AUTOMOTIVE
COMPONENTS MANUFACTURING-TECHNOLOGIES AND
TRENDS"
DI BILIK SARAWAK, SHANGRI-LA HOTEL
PADA HARI SELASA, 14 MEI 1985 JAM 9.30 PAGI

Saya merasa sangat sukacita untuk menyampaikan ucapan bagi pihak Y.B. Datuk Amar Stephen K.T. Yong, Menteri Sains, Teknologi dan Alam Sekitar yang tidak dapat bersama-sama dengan kita pada pagi ini oleh kerana beliau sedang menghadiri Persidangan Program Alam Sekitar Bangsa-Bangsa Bersatu atau UNEP di Nairobi, Kenya. Beliau telah meminta saya menyampaikan kemaafannya.

Saya ingin mengambil kesempatan ini untuk mengucapkan berbanyak terima kasih di atas kesudian Yang Berhormat Tan Sri Chong Hon Nyan, Menteri Pengangkutan untuk mewakili Y.A.B. Timbalan Perdana Menteri Malaysia oleh kerana Timbalan Perdana Menteri sedang berada di Korea atas lain-lain urusan negara.

Setinggi-tinggi tahniah saya tujukan kepada pihak Jawatan-kuasa Pengelola yang telah berusaha dengan bertungkus-lumus untuk penganjuran Seminar ini.

Tuan-tuan dan Puan-puan,

Dalam usaha untuk memasuki era perin-dustrian, negara kita memerlukan sokongan dari semua pihak baik dari agensi-agensi

Kerajaan mahupun pihak swasta. Pihak awam dan swasta hendaklah berganding bahu untuk mencapai matlamat perindustrian negara kita. Sebagai menyokong tujuan itu, Kementerian saya telah mengambil langkah-langkah untuk menyediakan kemudahan dan kelengkapan yang perlu bagi memenuhi hasrat Kerajaan ke arah kemajuan perindustrian.

SIRIM telah diberi tanggungjawab untuk menyediakan piawaian, perkhidmatan pengujian dan pengesahan komponen kereta tempatan di dalam Projek Kereta Nasional. Ini bermakna SIRIM ialah di antara agensi-agensi Kerajaan seperti MIDA, HICOM, PROTON dan Kementerian Perdagangan dan Perindustrian, yang dikenalpasti untuk membangun dan meningkatkan kemajuan sektor komponen tempatan. Dalam pada itu, satu siri program bengkel-bengkel teknikal, kursus dan khidmat bimbingan mengenai komponen kereta telah disediakan. Seminar pada hari ini merupakan aktiviti pertama dalam siri program tersebut. Beberapa seminar lagi untuk usahawan akan diadakan dalam tahun ini dan tahun-tahun berterusan.

SIRIM telah mengaturkan beberapa bengkel untuk membantu usahawan-usahawan di dalam bidang plastik dan seramik. Latihan di bidang teknologi logam juga disediakan. Pada masa ini, SIRIM sedang mempertingkatkan lagi aktiviti membantu usahawan, terutama usahawan kecil dan sederhana, di bidang pemindahan teknologi. Bagi tujuan ini sebuah Unit Perdagangan dan Perkembangan Perindustrian ditubuhkan baru-baru ini.

Pada masa kini, piawaian dan kemudahan pengujian untuk beberapa komponen kereta tertentu telah sedia ada. Dengan peruntukan kewangan dari Kerajaan, pengujian akan dijalankan ke atas komponen-komponen lain seperti yang diperlukan oleh Projek Kereta Nasional dari masa ke masa.

Kerajaan kini sedang menggalakkan penubuhan perusahaan komponen tempatan bagi Kereta Nasional. Peningkatan kemahiran teknik dititikberatkan supaya mutu komponen tempatan terjamin dan setanding dengan komponen yang diimport.

Pusat-pusat teknologi di SIRIM seperti Pusat Teknologi Perindustrian Logam (MITEC) dan Pusat Penyelidikan dan Perkembangan Industri Logam (MIPDC) bolehlah menyediakan latihan teknikal untuk usahawan dalam bidang perusahaan logam. Perusahaan logam adalah penting dalam perusahaan komponen kereta. MITEC akan dapat menyediakan latihan di dalam bidang kerja tekan, kimpalan, pembuatan dai dan sadur-elektrik. MIRDC pula boleh menyediakan latihan dan memberikan bantuan mengenai pembuatan acuan, rawatan haba dan kaji bahan-bahan dan lain-lain aspek yang berkaitan dengan industri logam.

Kerja tuang dan kerja tekan ialah dua bidang penting yang mempunyai masa depan yang cerah dalam pembangunan pengeluaran komponen kereta tempatan. Sebahagian besar komponen kereta adalah diproses dengan cara ini. Kerja tekan merupakan bidang teknologi yang paling berkesan untuk diberi tumpuan bagi menambahkan pengeluaran komponen tempatan.

Bagi mengatasi masalah kekurangan teknologi yang sesuai, bahagian Perundingan dan Pemindahan Teknologi di SIRIM akan menyediakan kemudahan pemindahan teknologi melalui seminardan bengkel dari masa ke masa. Dalam pada itu, langkah-langkah awal telah diambil untuk menilai taraf teknologi di industri komponen kereta negara ini. Penilaian ini dijalankan bersama-sama dengan JETRO Jepun. Tujuannya ialah mencari penyelesaian bagi mengatasi masalah teknikal yang dihadapi oleh industri itu. Sebagai menyokong perkembangan dan pembangunan industri itu, SIRIM telah membuat perancangan untuk menubuhkan Pusat Teknologi Plastik dan Pusat Teknologi Fondri sebagai tambahan kepada pusat-pusat teknologi yang sedia ada. Dengan adanya kepakaran dan peralatan di pusat-pusat yang tersebut tadi, saya percaya sumbangan SIRIM kepada pembangunan dan kemajuan industri-industri di negara kita akan kian meningkat dan menjadi lebih berkesan lagi.

Tuan-tuan dan Puan-puan,

Saya berharap perbincangan dan pertukaran buah fikiran di Seminar ini akan mendatangkan hasil-hasil yang manfaat demi kepentingan perusahaan komponen kereta tempatan. Dengan demikian, saya mengucapkan selamat maju jaya kepada tuan-tuan dan puan-puan sekalian.

UCAPAN OLEH Y.B. DATUK AMAR STEPHEN K.T. YONG,
MENTERI SAINS, TEKNOLOGI DAN ALAM SEKITAR
DI MAJLIS PENYAMPAIAN FELLOWSHIP & GERAN
PENYELIDIKAN MPKSN
DI BILIK GERAKAN KEMSAINS
PADA HARI SELASA, 7 MEI, 1985
JAM 10.00 PAGI

Saya ingin mengucapkan terima kasih kepada tuan-tuan dan puan-puan sekalian yang hadir di Majlis Penyampaian Fellowship dan Geran-Geran Penyelidikan MPKSN Tahun 1985 pada hari ini.

Seperti tuan-tuan dan puan-puan sedia maklum, Majlis Penyelidikan dan Kemajuan Sains Negara atau MPKSN adalah sebuah badan penasihat kepada Kerajaan di dalam bidang sains dan teknologi. MPKSN telahpun menubuhkan Tabung Amanahnya pada tahun 1982 yang bertujuan untuk mempertingkatkan lagi kegiatan penyelidikan serta menggalakkan perkembangan sains dan teknologi melalui anugerah fellowship, geran penyelidikan dan lain-lain aktiviti yang mempopularkan sains.

Pada masa-masa yang lalu, MPKSN telah memberi beberapa geran sebanyak $315,830/= kepada ahli-ahli sains tempatan yang berkaliber untuk membiayai berbagai projek penyelidikan mereka.

Sementara itu, skim fellowship MPKSN pula merupakan satu program yang ulung kali diadakan oleh MPKSN. Skim ini akan memberi peluang kepada ahli-ahli sains tempatan untuk:-

(a) melanjutkan aktiviti penyelidikan di dalam bidang sains dan teknologi dengan tujuan memperkembangkan kerajaan dan

(b) memberi peluang ke arah penukaran pengetahuan dan teknik di dalam semua bidang sains.

Tuan-tuan dan puan-puan.

Ahli-ahli sains yang mempunyai kebolehan yang terbukti adalah digalakkan menjalankan penyelidikan dengan teknik-teknik baru ataupun menjalankan kajian di dalam bidang sains gunaan dan juga sains semulajadi.

Saya ucapkan setinggi-tinggi tahniah kepada mereka yang berjaya mendapatkan Fellowship FRSN dan ingin menyeru supaya mereka mengambil langkah-langkah yang wajar untuk mempelajari teknik-teknik baru di dalam bidang bio-teknologi. Ini adalah kerana memandangkan bidang bio-teknologi ini semakin bertambah penting demi pembangunan ekonomi negara kita. Bidang bio-teknologi amatlah penting sebagai alat di dalam usaha untuk menyelesaikan masalah-masalah perubatan, pertambahan pengeluaran pertanian dan juga di dalam bidang pemuliharaan dan pengawasan alam sekitar. Saya percaya di masa-masa depan, negara kita akan terus berkembang di dalam bidang bio-teknologi untuk mempertingkatkan lagi keupayaan di dalam penyebaran dan penggunaan teknologi baru ini.

Kepada penerima geran penyelidikan MPKSN, saya suka juga mengucapkan setinggi-tinggi tahniah dan selamat maju jaya. Semoga dengan bantuan yang diberikan itu, hasil-hasil penyelidikan yang dijalankan oleh mereka akan dapat digunakan demi kemajuan dan kemakmuran negara kita.

Ladies and Gentlemen,

My Ministry has been encouraged by the large number of requests for research grants that has been received by the MPKSN in the past year, of which I understand only 10 per cent could be supported by the Trust Fund. The Trust Fund as you are all aware has been established by the Government in order to stimulate research and development activities as well as the development of science and technology in the country. In the effort to develop research activities in the country, MPKSN has been actively promoting research activities in all areas of science. However, due to the large number of requests that has been submitted to MPKSN, I have been told that it is not possible for MPKSN to continue to support research projects in this manner. The Trust Fund Committee has in fact made recommendations that in future, research efforts shall be directed towards the priority areas that are identified by MPKSN and interested parties with good track records only may be invited to submit proposals to undertake research in areas so identified.

It appears that the number of research activities that could be carried out by the universities and research bodies in this country, to a large extent, has been affected by budget constraints. Another factor is that sometimes the appropriate expertise was not available in the participating institution.

I think it is necessary that efforts to co-ordinate research activities be further intensified by the MPK. so that they can be rationalized. As we are all aware, research requires large financial support, and MPKSN will not be able to continue to support these activities unless the Trust Fund is further increased through contributions by the private and public sectors.

My Ministry has established a Committee under the MPKSN to raise funds for the coming year in order to further strengthen the financial position of the Trust Fund. For this purpose, I have appointed Datuk Haji Mohd. Sahak bin Mohd. Yusuf, as the Chairman of the Fund Raising Committee with members from the private sector which includes the Chambers of Commerce, the Association of Banks as well as other professional associations. Their participation will make this fund raising as a national effort. Any contributions, large or small, will be welcomed. By contributing to the Trust Fund, the contributors will help to generate research activities which could in turn help the socio-economic development of the nation.

May I add that contributions to the Trust Fund are deductable from income tax.

Tuan-tuan dan Puan-puan,

Akhir sekali, saya berharap mereka yang berjaya memperolehi skim fellowship dan geran PKSI ini akan menggunakan peluang keemasan ini dengan bijaksana demi pembangunan dan kemajuan negara, khususnya untuk mempopularkan sains dan teknologi di kalangan rakyat Malaysia.

Terima kasih.

pada 4/7/85

Y.B. MENTERI HOLDS DIALOGUE SESSION WITH THE TRANSPORT SECTOR ON AIR POLLUTION PROBLEMS CAUSED BY SMOKY VEHICLES

INTRODUCTION

It is of great concern to my Ministry that air pollution in urban centres particularly in the Klang Valley including Federal Territory is approaching serious proportions and the Department of Environment is currently stepping up its efforts to contain this problem. The transport sector particularly motor vehicles accounted for the major share of the pollutants generated more so in view of the increase in motor vehicle population and heavy concentration of vehicles in the Klang Valley area. Smoky vehicles causing considerable nuisance and irritation to other road users is a daily scene on the roads in the Federal Territory and Klang Valley area.

It has been found that diesel-powered vehicles are the main source of smoke and they constitute about 8% of the 3.5 million vehicles registered in Malaysia today. They are very dominant in commercial use especially in the transportation of goods and personnel for gain. Indeed buses, mini-buses, lorries, large vans, long distance taxis are exclusively diesel engine driven. In urban centres such as Kuala Lumpur, Penang and Johore Bahru, conveyances for short distance are also largely diesel-powered. There is a heavy concentration of these vehicles constantly on the roads in cities and town. Their emissions therefore contribute significantly to air pollution in urban centres adding to those caused by petrol-powered vehicles.

The purpose of this dialogue session is to solicit the co-operation of the vehicle owners especially the bus companies, lorry owners, taxi drivers and all others who use diesel-powered vehicles in overcoming this problem of pollution caused by these vehicles and to jointly work out suitable strategies for implementation. Laws alone cannot overcome the problem of pollution and the task of environmental protection should be shared. Everyone concerned should do their part to protect our environment. In this

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respect I feel that the vehicle owners have an important role to play and through willing co-operation they could contribute considerably towards mitigation of pollution by diesel-powered vehicles.

I propose therefore that a task force be formed with representatives from the relevant government agencies such as the Road Transport Department, the Police, the Department of Environment, citizen groups, petroleum industry, and associations representing bus companies, mini buses, taxi owners, lorry owners, school buses, and tour buses to effectively monitor the implementation of strategies for abating pollution caused by motor vehicles, and progress achieved through regular dialogue sessions.

POLLUTION BY DIESEL-POWERED VEHICLES

Diesel vehicles are easy targets for public complaint against pollution. They are easily picked out because of their direct assault on man's two most sensitive organs: the eyes and the nose. Besides discharging some quantities of carbon monoxide (CO), sulphur dioxide (SO2) and nitrogen oxides (NOx) which under normal circumstances are not visible, the engine also emits carbon particulates and pungent odour. The black smoke is easily seen, especially when the engine is in neglected conditions. The dust generated settles on clothing, hair, food etc and are viewed as a great nuisance by the public.

EFFECTS OF POLLUTANTS FROM THE DIESEL VEHICLE EXHAUST

The main emissions are as follows :

- diesel vehicles are not significant contributors of CO in heavily travelled urban roadways.

- diesel vehicles emit hydrocarbons (HC) which include aldehydes, a special type of reactive hydrocarbon. The aldehydes are reactive and can help to bring about photochemical reactions and also may be of health concern.

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- diesel vehicles emit NOx. Half of these is nitrogen dioxide (NO2). This is of particular concern in Malaysia where under certain unfavourable meteorological conditions the gas together with HC and aldehydes will react in the presence of sunlight to cause photochemical smog. (Photochemical smog is a name given to a particular type of air pollution first observed in the city of cars - Los angeles in 1944. It consists of a number of toxic compounds including peroxyacetyl nitrate, ozone and NO2 commonly referred to as oxidants.) The main effects on people are irritation of the eyes and the throat, more frequent attacks in asthmatics and impairment of lung function.

- diesel vehicles emit substantially more particulate matter than petrol vehicles. Â poorly maintained diesel vehicle could emit more than 100 times particulate matter than a comparable petrol engine. There are two public health concerns. The high suspended particulate levels in the urban region, particularly in the presence of SO2 are associated with respiratory ailments such as emphysema, asthma and bronchitis. The other concern is the potential human carcinogens and mutagens which are absorbed onto the diesel particulate matter.

THE NEED TO CONTROL DIESEL VEHICLE EMISSIONS

On emissions of the various gases, a properly designed and constructed engine is the first requisite to ensure minimum release of these gases. Subsequent to these, regular inspection, testing, adjustment, and other maintenance procedures as recommended by the manufacturers should be observed. This would ensure that the vehicles are kept within design specifications on discharge of pollutants.

On particulate matter emission control, it is stated above that some components in diesel engine exhaust are likely to be human carcinogens. Scientists have yet to identify firmly the components

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that are responsible for the adverse effects. However it is believed that reducing the total particulate emissions would contribute towards reducing the carcinogenic health hazard. Black smoke emissions bring about heavy release of carbonaceous particles. These cause reduced visibility. Besides being a potential road safety hazard, they are also carriers of the hydrocarbons. Black smoke emissions also implies fuel wastage.

BLACK SMOKE EMISSIONS:

The three necessary conditions to avoid excessive smoke emissions are :

- correct vehicle loading during operation;
- use of appropriate fuel; and
- correct operation of fuel pump and appropriate adjustment of the injection timing at service.

Loading of vehicle is entirely in the hands of the person in charge of the vehicle. Any overloading is therefore wilfully done and would receive little sympathy from the authorities; though some operators consider overloading necessary to make their transportation operations economically viable.

Diesel used in Malaysia is subject to strict quality control by the petroleum manufacturers and the authorities. However, in the course of transportation, handling and storage, contamination e.g. by water and sediment, may occur. The vehicle manufacturers do recognize this, and they provide fuel filter and specify strict servicing procedures to be observed by the users. It is well known that the users, either through ignorance or a false sense of economizing, usually fail to follow the instructions.

Diesel engines are designed to operate under certain load conditions and power is derived from correct fuel feed. The manufacturers would specify calibration requirements and maintenance schedule requiring engines to be regularly serviced and upkept. The fuel supply system especially requires diligent attendance to ensure proper power output and optimum operation. The majority

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of diesel vehicle users seldom observe these recommendations, and the Malaysian motoring syndrome of "don't do a thing unless it really can't move" is best illustrated here. And there are those who are led by ill-equipped, half-baked mechanics to believe that readjusting and tampering the fuel supply system would solve all their problems.

REVIEW OF PROGRESS

In 1977, control regulations on black smoke emissions, the Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977 were gazetted under the Road Traffic Ordinance. Since then, DOE officers with the assistance of the Police have been carried out compliance enforcement.

These campaigns have been carried out mostly in the major towns of Peninsular Malaysia where emissions of black smoke are rampant and air pollution is known to be severe. Awareness campaigns were also carried out in Kuching and Kota Kinabalu. As a result of over 700 campaigns, more than 50,000 vehicles were checked and various measures taken against violators of the Rules.

Analyses of the enforcement data show that percentage-wise, violations by diesel vehicles have dropped from the initial 32.7% in 1979 to 20.3% in 1984 for vehicles checked. However in terms of number of vehicles, the total number violating the Rules was found to be increasing from the initial 600 units to 2657 in 1984.

In these enforcement campaigns, it is also evident that amongst the offenders that emit excessive dark smoke, ¾ of them are public service vehicles. It is obvious that the owners of these vehicles, particularly those in the Klang Valley, care little for the need to maintain these vehicles. The small fines of up to $100/- appear to be a mere pittance and violating vehicles are not rectified before being put back onto the roads. Fleet owners do not possess their own smoke testing facilities. They do not carry out regular examinations of the vehicle: smoke emission capacity other than complying with the once-in-six month compulsory check currently in force under the Road Traffic Ordinance 1958.

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I view this with serious concern. The failure of these owners to take appropriate measures to maintain their vehicles in good conditions is negating the efforts by DOE to improve the air quality and to protect the health of the people.

CONTROL PROGRAMME : EIGHT POINT CONTROL PLAN

In order to bring about a more effective control programme on the emissions from diesel-powered vehicles, co-operation from all quarters is required. In particular, the following Eight Point Control Plan would be implemented :

1) Vehicle manufacturers should set up more service and maintenance workshops adequately equipped with instruments and trained personnel to ensure availability of professional services.

2) The DOE together with the petroleum industry and other interested parties would encourage the establishment of approved engine calibration and smoke testing facilities to provide readily available services at reasonable cost.

3) Fleet owner should maintain and upkeep its own engine calibration and smoke testing facilities and to regularly test its vehicles for compliance before allowing them onto the roads. Report of tests carried out should be sent to DOE quarterly.

4) Public service vehicles in the major urban centres where pollution is significant should undergo smoke test at regular intervals at approved smoke testing facilities and to keep record of such test.

5) More stringent control regulations would be introduced under the Environmental Quality Act with stiffer fines and more effective deterent actions.

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6) Awareness programme should be initiated in order to bring home the dangers of pollution with the help of relevant associations through issue of circulars and dialogue sessions. It should become the responsibility of each and every vehicle owner to see that smoky vehicles are not taken to the road.

7) The public should co-operate in reporting smoky vehicles to the authorities such as DOE, RTD and the Police.

8) DOE would also like to see greater use of LPG by vehicles in the urban areas. It would recommend for the compulsory use of this clean fuel by all new public service vehicles operating in Kuala Lumpur, Petaling Jaya, Penang and Johor Bahru. With the large milage they travel now they would in fact recover the initial cost in the first year, saving on their fuel bill for the remaining life of the vehicle and at the same time contributing towards cleaner urban air.

The above plan constitutes part of the over-all approach to control emissions from motor vehicles in general and diesel vehicles in particular. It must be borne in mind that for satisfactory urban air quality improvement, urban traffic/transportation planning should take into account environmental factors such as the needs for smoother traffic flow and lesser use of private vehicles in city centres.

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SPEECH BY THE HON. DATUK AMAR STEPHEN K.T. YONG
MINISTER OF SCIENCE, TECHNOLOGY & ENVIRONMENT,
AT THE SYMPOSIUM ON SCIENCE & SPIRITUALITY;
COMMERCE AND MORALITY
ON FRIDAY, 8 NOVEMBER 1985
AT THE RAINTREE CLUB OF KUALA LUMPUR
AT 9.00 A.M.

I am pleased to be here this morning to address you in conjunction with the opening of the Symposium on "Science and Spirituality; Commerce and Morality". May I commend the Sathya Sai Central Council of Malaysia for taking the initiative to organize this Symposium to focus our attention on issues that are important for man in this technological age.

The theme of the Symposium is indeed timely and apt as it has come at an opportune moment where in the wake of rapid development taking place in our nation, we need to ponder upon matters that are on a higher plane catering both for the physical and spiritual dimensions of man.

Great emphasis and importance have been attached to science and technology as a key to economic development, progress and prosperity. There is also great encouragement given to the younger generation, particularly school children, to give their attention in the study of science. Science, which enables man to perceive certain principles and characteristics of the world around him, can either bring infinite benefit to mankind or may result in man's total destruction of himself and his world if not properly used.

Many today are disillusioned with a world in which they feel that they are no more than cogs in a machine, despite the advancement of science. Even the scientists themselves are unsure of the implications of their research. Others have been sickened by the applications of science in modern warfare. Many scientists in the West are finding that science is not fulfilling the role that has been given it - it has been made a god, but it has been found wanting. Man seems to be losing his humanity in a technological society.

What is the answer to this dilemma? Has man's intellect created powers which are beyond his control?

One of the outstanding features of the past 25 years of scientific research has been the fundamental advances made in the biological sciences. This 'biological revolution' has often been likened to the discoveries in physics which dominated the scientific world earlier this century. Few could really have predicted the long-term results of these discoveries. However, there has been no lack of those with forebodings about our increasing understanding of the mechanisms of life itself.

When Aldous Huxley wrote "Brave New World" in 1931, the science of molecular biology was in its infancy. Drug-users then were an insignificant minority. The possibility of synthesizing life artificially seemed remote.

Yet in 1958, a few years before his death from cancer, Huxley wrote: "When 'Brave New World' was being written, I was convinced that there was still plenty of time ... these things were coming all right, but not in my time, not even in the time of my grandchildren". Then he adds: "The prophecies ... are coming true much sooner than I thought they would".

In the 1970s, many molecular biologists faced a crisis of conscience equivalent to that faced by nuclear physicists after the atom bomb. Today, man with his science and technology, is able to fit people with new mechanical hearts, keep people alive in machines, change their minds or their sex. It is man who eventually may have the full ability to produce himself artificially and affect his own inheritance. It is man who can benefit from his own research with its potential for healing the minds and bodies of millions of sick people. Nevertheless, despite all this, one of the most marked characteristics of our generation is a turning away from science as a panacea for all its ills. Strangely enough in those countries where science and technology is already developed, there is a general feeling of disillusionment, whilst in countries where it is still just developing, there is still an air of optimism. Why?

There are many reasons. One is simply that evil is still as rampant in our society as ever. No amount of science and technology, further education or raised standard of living has changed that. If we are to be brutally honest about the history of

science during the past hundred years, there is no doubt that nearly every major scientific discovery has been misused.

It might therefore be more accurate to talk of the potential of science for good or evil. Even the most sober-minded, level-headed scientist must feel some sense of uneasiness as he surveys the current literature and evaluates the potential for evil in the light of past history. Paradoxically, it is often the knowledge of the fundamental discoveries about the nature of life itself by scientists with the purest motives of healing sickness has potentially become so dangerous. Has science failed?

Ladies and Gentlemen,

Every scientist has a responsibility to himself and to the Almighty who gave him the ability and knowledge to use that skill for the betterment of mankind. As he goes deeper into Science and examines the very frontiers of knowledge, he may find that spirituality is not so isolated from Science as he thought it was.

Science will be restored to its rightful place only when the God of the whole universe is made the Log of Science. When the world's fundamental reference-point is restored, then the main reason for the reaction against science is removed. Society must be oriented to use science for good rather than for evil purposes. General directions of research must be channelled into

those things which are going to alleviate human suffering directly. This revolution must take place at all levels collectively and personally, from the corridors of power to the research laboratory and to society as a whole. Only then, can we hope to see the integration of science and spirituality.

Allow me to tie up this portion of my speech by mentioning this - "Scientists are searching for what they call the "god particle". Reporting on this item, The Detroit News of USA said, "Within the international brotherhood of high-energy physicists, the search is on for the basic 'building block' of matter. It could be one particle - or a set of particles," the article continues. "Nobody knows for sure yet. But whatever it is, some scientists have a name for it. They call it the 'god' particle, or simply 'G'. For the first physicist to discover nature's most minute particle, the prize is power, national honours, and world acclaim".

The quest for the basic building block of matter is not new. It began way back in the early days of the Greeks, when Leucippus and Democritus conceived the idea of the atom before 400 B.C. Its existence was proven in 1808 by British scientist John Dalton. But smaller particles continue to be discovered. Electrons were first traced in 1897, protons in 1911, and neutrons in 1932. But these parts of the atom were huge in comparison to the infinitesimal substances discovered later: the pimeson in 1947, the omega particle in 1964, the J/psi particle in 1974, and the "W" and "Z" particles in 1983.

Of course, we applaud the physicists in their quest for knowledge. But if there really is a "god particle," and if the physicists do find it, what then? Searching for the "god particle" is worthwhile only if it leads to a greater appreciation of the Almighty God who created it.

May I touch briefly on the subject of Commerce and Morality". It is unfortunate that we tend to measure one's success in life by his wealth. So accumulation of wealth by hook or by crook has became the norm. Unethical practices in commercial circles have become widespread in modern society. If we allow honesty and integrity to be relegated to the background in commercial dealings, then we shall have a corrupt society devoid of morality.

Every businessman has a responsibility over and above his dollars and cents and his accountability to his shareholders. His first responsibility is towards the Society of which he is an integral part. If he allows the cancer of unethical practices to flourish, then as surely as the cancer cells in one part of a human body will destroy the whole, the cancer of immorality in commerce will ultimately be responsible for its own self-destruction.

I hope that this Symposium will examine these issues in depth and come up with recommendations and ideas for all to consider. Perhaps the formation of separate panels of scientists and businessmen could be worked out to come out with a code of ethics for all in the fields of Science and Commerce. In this way at least Malaysia would have taken the lead in attempting to fuse Science with Spirituality (and vice versa) and Commerce with morality so that they can be seen to be compatible with modern society.

On this note, I now have pleasure in declaring this Symposium officially opened.

ADDRESS BY MR. S.T.SUNDRAM, J.S.M., DIRECTOR-GENERAL OF ENVIRONMENT AT THE OFFICIAL OPENING OF THE COURSE ON "MANAGEMENT AND TREATMENT OF WASTES" ON 26TH MARCH, 1984 AT 8.15 A.M. AT THE RUBBER RESEARCH INSTITUTE OF MALAYSIA, KUALA LUMPUR

Yang Berbahagia Tan Sri Dr. B.C.Sekhar,
Yang Di Pertua,
Institut Kimia Malaysia (IKM),

Dr. P.V.R. Subramaniam,
Head, Industrial Wastes Division,
National Environment Engineering Research Institute,

Distinguished Guests and Participants,

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I view this Course as something of a pacesetter in environmental cooperation among the Asian countries, providing yet another dimension of cohesion and solidarity. The wealth of experience and knowledge about the scientific, technical and economic aspects of waste management that will be exchanged at this Course leavened by the expertise of several eminent persons who have so readily agreed to contibute to the success of this Course by presenting papers will, I am confident, contribute positively to the continued development and progress of environmental management in the Asian region.

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On the contrary, investment in pollution control should be looked upon as analogous to outlays on research and development since it happens that new products and new processes often emerge when pollution control is viewed in its proper perspective and positive and constructive actions are taken in good time in line with such enlightened thinking.

The goal of industry should be to adopt a rational approach to pollution control with resolute steps taken firstly to minimise the amount of waste generated in any given industrial process through proper in-plant measures, then applications of resource conservation technology and through to enlightened waste utilisation practices. Of even greater significance is the need to develop non-waste and low-waste technologies which can help curb drastically wastes discharged into the environment and head off harmful effects on the biosphere. Even after all these approaches, it is still necessary to treat a waste prior to ultimate disposal, hence appropriate technology suitable to the local situation should be developed. The choice of treatment processes has great influence on costs of treatment and it is important to opt for those processes which minimise capital and maintenance costs and continuing reliance on sophisticated skills not readily available in developing country situation.

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However in the early days, the enforcement of control regulations in the palm oil and rubber industries was not without trials and tribulations caused by the lack of economically viable technology. The difficulty was further compounded by the fact that these twin industries which once constituted chronic sources of pollution are also important as being the mainstay of the Malaysian economy. Great care had to be taken, therefore, in the formulation of standards as these had to be not only environmentally sound but also sensible within the framework of economics and available technology. Hence the 4-year time span to develop economically viable technology to reduce the biochemical oxygen demand of palm oil mill effluent from 25,000 ppm to the current standard of 100 ppm.

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DEPARTMENT OF ENVIRONMENT,
MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT.
MARCH, 1984.

ADDRESS BY MR. S.T.SUNDRAM, J.S.M., DIRECTOR-GENERAL OF ENVIRONMENT AT THE OFFICIAL OPENING OF THE COURSE ON "MANAGEMENT AND TREATMENT OF WASTES" ON 26TH MARCH, 1984 AT 8.15 A.M. AT THE RUBBER RESEARCH INSTITUTE OF MALAYSIA, KUALA LUMPUR

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SPEECH BY DATUK AMAR STEPHEN K.T. YONG, THE MINISTER OF SCIENCE, TECHNOLOGY AND THE ENVIRONMENT, AT THE OPENING CEREMONY OF THE MANAGEMENT AND UTILIZATION OF INDUSTRIAL WASTES AT UNIVERSITI PERTANIAN MALAYSIA, SERDANG ON 13 SEPTEMBER, 1984 AT 9.00 A.M.

Yang Berbahagia Prof Dr. Nayan Ariffin,
Naib Canselor, Universiti Pertanian Malaysia;

Ir. Abang Abdullah bin Abang Ali,
Pengerusi Jawatankuasa Pengelola Seminar;

Tuan-Tuan dan Puan-Puan yang dihormati sekalian.

Saya merasa amat sukacita kerana dapat bersama dengan tuan-tuan dan puan-puan pada pagi ini untuk merasmikan Pembukaan Seminar ini mengenai Pengurusan dan Penggunaan Sisa-Sisa Industri yang dikelolakan bersama oleh Universiti Pertanian Malaysia, UNESCO dan Jabatan Alam Sekitar Kementerian saya. Setinggi-tinggi tahniah saya ucapkan kepada Jawatankuasa Pengelola di atas inisiatif dan usaha mereka untuk mengadakan Seminar ini.

Saya difahamkan bahawa tumpuan asas Seminar ini ialah ke arah menyediakan pihak-pihak yang bertanggungjawab ke atas soal pengurusan alam sekitar dengan matlumat menyeluruh terhadap pengurusan sisa-sisa serta penggunaan sisa-sisa dan menentukan bidang-bidang penyelidikan yang berkaitan dengannya.

Ladies and Gentlemen,

For us in Malaysia, there is little choice but to forge ahead with the industrialization programme in order to provide for the material conditions of an acceptable standard of living for our people. In successive five-year national economic development plans, prominence has been given to urbanization and industrialization. Indeed, on present trends, the manufacturing sector is becoming the fastest growing sector of the national economy, and by 1990 it may displace agriculture as the largest sector in terms of contribution to the G.D.P. The Eighties have been characterized as the decade of development of Malaysia's resource-based industries, including utilization of energy supplies into

finished products and moving towards heavy industries. This means that the outlook is one of increasing pollution potential with its attendant risks, unless timely, systematic and positive preventive measures are taken.

The prospect of increasing population density adds urgency to the need for greater emphasis on recycling of waste. More people means greater consumption. It not only results in more rapid depletion of scarce resources, but also means more waste to dispose of - whether in the form of solid wastes, or pollutants that foul our air and water.

Yet much of this waste is unnecessary. Essentially, waste is contrived by humans and represents a misplaced resource. Natural

systems are generally closed systems. Energy is transformed into vegetation, vegetation into animal life, and the latter returns to the air and soil to be recycled once again. Man, on the other hand, has all too often developed 'open' systems - ending all too often in an open sewer or an open dump!

We can no longer afford the indiscriminate and wanton waste of our natural resources. Neither should we accept as inevitable the mounting costs of waste removal. We must move increasingly towards closed systems that recycle what are now considered wastes back into useful products of economic value. Of greater importance would be to develop non-waste and low-waste technologies; thus reducing or excluding harmful effects on the biosphere. These pose a major challenge - and a major opportunity for our scientists!

To cope with the environmental problems in the wake of industrialization and urbanization, the Government formulated certain policies and programmes based on the process of integrating environmental considerations in all development plans; thus ensuring that economic development goes hand in hand with sound management of the environment. The action taken includes pollution control measures, initiation of river basin surveys and air quality measurements, the creation of the Department of Environment now within my Ministry and the enactment of the Environmental Quality Act, 1974 and the National Parks Act, 1980.

All too often environmental laws, regulations and technologies are geared to

cleaning up pollution after it has occurred, that is, in a reactive fashion. It would have been better if attention were paid to prevention from the start. Nevertheless, we have to face the fact that environmental problems had accumulated over many years from an era when the relevant scientific knowledge and control measures were not properly developed or understood.

Conventional pollution control technologies and processes are now largely out-moded and costly since they were developed at a time when the costs of energy, water and equipment were significantly lower than at present. Not only do they involve significant capital outlay and operating ecpenses, but also result in secondary pollution problems such as in the area of sludge treatment and disposal.

Governments, industry and the general public are now increasingly aware of the negative side-effects of ill-planned industrial development. This coincides with the growing concern of recent years for conservation of energy and other natural resources.

The conservation approach is relatively simple, comprising the practical application of knowledge, methods and means to provide the most rational use of resources to improve the environment. It means eliminating the causes of pollution before spending money and resources to clean up afterwards. The advantages are evident as one considers the natural resources, manpower and money required to build pollution control facilities and the cost of operating such facilities throughout its life-span.

Malaysia has adopted a positive approach to pollution control and is placing considerable emphasis on non-waste and low-waste technology. Resource conservation is becoming an integral part of pollution control.

There is growing evidence in Malaysia of the efforts by industries to shift from the conventional pollution-control approach to the pollution-prevention approach. It means learning how to create valuable resources from waste products.

In many industries in Malaysia, resolute steps are taken firstly to minimize the amounts of waste that originate in the industrial process through proper in-plant measures such as:-

(a) Modification or replacement of raw material input;

(b) Modification or replacement of production processes;

(c) Segregation of strong waste streams;

(d) In-plant recirculation of water; and

(e) Changing product output.

This is followed by measures to limit the entry of certain waste materials or waste contaminants into the waste water streams; the type of waste materials that are subsequently

difficult or expensive to remove or treat, once they have become part of the final waste streams.

The next step is to reduce wastes after generation through:-

(i) Materials recovery and recycle;

(ii) By-product production;

(iii) Waste utilization;

(iv) Effluent re-use; and

(v) Waste treatment.

Waste treatment is to be used as a rule only after all possible measures suggested above have been taken.

In the palm oil industry, we have been concerned with the high B.O.D. of the waste which is about 25,000 milligrams per litre. If untreated, the 210 mills currently in operation in Malaysia would produce raw effluent with a B.O.D. load of 1,200 tonnes per day, which is equivalent to the waste produced from a population of 24 million people. Through conservation, process modification, waste utilization and low-cost waste treatment technology, the palm oil industry is able to comply with the current standard of 100 milligrams per litre; thus reducing the B.O.D. load discharged to 5 tonnes per day which is equivalent to the waste produced from a population of about 100,000 people.

This is indeed a remarkable achievement considering that this type of technology was not developed in any part of the world, but is the brain-child of the innovative and inventive mind of our Malaysian scientific community, the researchers and technologists.

At this juncture, I would like to mention various other treatment systems currently in use in Malaysia. In some of the mills, the effluent is subjected to anaerobic digestion where biogas is produced and the digested sludge is used as fertilizer for the oil palm.

Palm oil mill effluent has also been successfully converted into animal feed. This process, however, has still not been widely used due to the high capital outlay and uncertainties in marketing the product.

Research is under way to obtain other useful substances, such as pharmaceutical products from the effluent.

In the case of rubber factory effluents, a set of good house-keeping rules covering matters such as minimizing the use of water in processing, the use of efficient rubber traps to allow recovery of rubber, de-ammoniation towers to reduce ammonia level, minimal acid usage for coagulation and composting the effluent in a pond for at least one day, have been adopted.

After taking the above measures to reduce the quantity of waste produced, the effluent is treated by a low-cost ponding system consisting of anaerobic and facultative ponds. Since land is not a constraint, this

has been found to be the most economical method for Malaysia. The cost of the treatment plant for a factory producing 20 tonnes of rubber per day is estimated to be from $50,000 to $65,000. The land area needed for such a plant is less than one hectare. The maintenance and operation cost of the plant is estimated to be about $300 per month.

In the case of factories located in urban areas and other developed areas where land is a constraint, oxidation ditch treatment has been adopted which requires less land, and also less expensive than the conventional treatment system.

I am told that one of the palm oil mills is making use of rubber factory effluent to irrigate fields of oil palm and fodder gra

It is beneficial both as a source of nutrient and water supply resulting in increased yields. Land application of rubber effluent is beginning to be increasingly practised by several factories with satisfactory results.

In the case of manufacturing industries, progress of waste treatment cannot be said to have proceeded satisfactorily or according to expectations. However, the efforts made are encouraging. Several factories are considering the adoption of low-waste and non-waste technology rather than the costly conventional treatment systems.

Palm oil refineries have adopted an in-plant modification by changing from alkali refining to physical refining using steam.

This has reduced the amount of effluent, thereby achieving substantial cut-backs in the cost of effluent treatment to bring it well within the economic means of the industry.

Other manufacturing concerns are also taking steps to deal with their effluents. One factory, which produces black and galvanized wires and wire ropes, has 14 potential sources of industrial effluents which presented a complex management problem. However, a satisfactory effluent management strategy has been developed involving:-

(a) Spent sulphuric acid recovery as a potentially valuable by-product;

(b) In-plant modification to the rinse water system in the cleaning house to allow this source of effluent to be utilized as acid dilution water; and

(c) Rinse water neutralization with wet sludge disposal on an approved site.

In a cane sugar production factory, there has been a proposal to use the effluent for irrigation of the sugar cane plantation.

In the food processing industry, the general tendency is to reduce the specific water consumption and to recover and utilize the different waste products.

Ladies and Gentlemen,

These are some of the examples in the local context that come to my mind where trends towards proper waste management in the real sense and waste utilization practices have been adopted successfully.

I would also, at this juncture, draw your attention to a much more serious problem of industrialization. As Malaysia gets more and more involved in a whole gamut of industrial activities, another area that has emerged and fraught with serious consequences is the matter of safe disposal of toxic and hazardous wastes. Lack of appropriate technology and in-depth expertise in this area has resulted all too often in the indiscriminate disposal of these wastes. There are over 600

industrial establishments in Peninsular Malaysia alone that generate toxic and hazardous wastes. The Department of Environment under my Ministry is taking action on the matter.

As a first step, all factories with a potential to generate toxic and hazardous wastes had been directed by the Director General of Environmental Quality to complete a questionnaire on toxic and hazardous wastes under Section 37 of the Environmental Quality Act, 1974. A total of 620 forms had been sent out. To date, 369 forms had been completed and returned, while 120 forms were returned undelivered. The Department of Environment may take legal proceedings against those factories which have not completed and returned the questionnaires.

In the meantime, the information received is being processed and will be used by the DOE in the planning and implementation of toxic and hazardous waste disposal plans in Malaysia. As a matter of fact, under the ASEAN-EEC Short-Term Consultancy Programme, Malaysia has been granted technical assistance for the preparation of regulations as well as Codes of Practice on the Disposal of Toxic and Hazardous Wastes. A Danish consultancy firm has been awarded the contract by the Commission of the European Communities to execute the project and will begin its work in Malaysia in early October. As part of the preparatory work for the toxic and hazardous waste project, two of DOE's officers have been sent to Denmark to attend a Symposium cum Training Course on Toxic and Hazardous Waste Management. These officers will be working as counterpart staff to the consultant upon their return from Denmark.

Ladies and Gentlemen,

Economic development can make heavy demands on the environment, but developing nations like ours can show the way to balanced development. A workable compromise must be sought whereby development proceeds apace without undesirable deleterious side-effects by means of careful planning and implementation.

Direct importation of pollution control methods from the industrialized countries cannot be counted upon to solve environmental problems here. Waste collection, treatment and disposal systems must meet the criteria of being affordable in the sense of being cost-effective and within the technological capacity of Malaysia. Furthermore, resource

conservation is a pre-requisite for sustainable development. Innovative methods and approaches are required for pollution control which are relevant to the Malaysian situation and also reflect the needs, both of protecting and enhancing the environment and sustaining economic growth and development. Malaysia has, therefore, rightly moved increasingly towards the preventive approach leading to non-waste and low-waste technology, although admittedly priority had to be given initially to clean-up and repair accumulated damage and to curb and contain the multiple sources of pollution inherited from the past.

In this regard the Seminar held today is most timely and apt and would help to re-inforce the efforts already underway in this

direction. Once again, I would congratulate the Organizers for their far-sighted initiative.

Tuan-tuan dan Puan-puan,

Memandangkan negara kita akan terus maju ke arah pembangunan industri, Seminar yang dianjurkan pada hari ini adalah tepat dan kena pada masanya. Saya berharap syor-syor dan hasil-hasil dari perbincangan dan pertukaran buah fikiran di dalam Seminar ini akan dapat disampaikan kepada saya untuk mengikuti perkembangannya.

Dengan ini, saya dengan sukacitanya mengisytiharkan Seminar ini dibuka dengan rasminya.

UCAPAN Y.B. DATUK AMAR STEPHEN K.T. YONG
MENTERI SAINS, TEKNOLOGI & ALAM SEKITAR
DI UPACARA PERASMIAN KULIAH AWAM
PADA SABTU, 2 NOVEMBER 1985
DI AUDITORIUM SULTAN AHMAD SHAH, RISDA
KUALA LUMPUR JAM 9.00 PAGI.

Saya merasa sangat gembira di atas sambutan kepada Kuliah Awam ini. Ini menandakan minat saudara-saudari di dalam kemajuan sains dan teknologi. Usaha-usaha Urusetia Majlis Penyelidikan dan Kemajuan Sains Negara (MPKSN) dan Bahagian Sains & Teknologi Kementerian saya dalam menganjurkan Kuliah Awam patutlah dipuji. Kuliah Awam pagi ini ialah salah satu daripada aktiviti-aktiviti Tahun Sains Kebangsaan yang bermula pada bulan Mei tahun ini.

Matlamat Tahun Sains Kebangsaan 1985/86 ini adalah yang pertama, untuk memberi fokus terhadap perkembangan Sains dan Teknologi negara ini; dan yang kedua, untuk menimbulkan kesedaran terhadap pentingnya Sains dan Teknologi kepada rakyat jelata.

Pada 6 Julai tahun ini, 3 orang ahli sains telah dianugerah-kan dengan Anugerah Sains Negara, dan mereka ialah Prof. Augustine Ong Soon Hock, Prof. Abdul Latif Ibrahim dan Dr. Mak Joon Wah. Ketiga-tiga ahli sains ini merupakan ahli sains yang ulung di negara kita yang telah diberi penghargaan oleh negara berasaskan sumbangan cemerlang masing-masing. Saya mengucapkan terima kasih kepada ahli-ahli sains ini yang sudi melapangkan masa untuk memberi kuliah awam kepada orang ramai.

Biasanya kita tidak dapat peluang untuk mendengar syarahan oleh ahli-ahli sains memandangkan tidak semua golongan masyarakat kita memahami apakah sebenarnya Sains dan Teknologi. Masyarakat umum di masa-masa yang lampau menganggap Sains dan Teknologi sebagai satu bidang yang sukar untuk difahami. Mungkin juga ada segolongan masyarakat yang menganggapkan sains sebagai satu misteri ataupun satu pengetahuan yang anih. Ini mungkin memberi gambaran yang tidak tepat terhadap kepentingan Sains dan Teknologi.

Kementerian saya sedang mengambil tindakan untuk mempopularkan Sains dan Teknologi melalui MPKSN dan juga badan-badan lain seperti "Malaysian Scientific Association (MSA)", Balai Ikhtisas Malaysia (BIM) dan lain-lain badan lagi yang terus membantu Kementerian saya untuk menggalakkan perkembangan Sains dan Teknologi.

Pada tahun 1982, Kementerian saya mengadakan satu Pameran Sains yang amat menggalakkan. Hampir 250,000 pelawat telah mengunjungi Pameran tersebut. Usaha-usaha sedang dijalankan untuk menubuhkan satu "Pusat Sains Negara" yang sementara di Jalan Kelantan. Pusat ini akan mempamerkan benda-benda saintifik seperti komputer, mikro-komputer dan lain-lain benda dalam bidang seperti fizik, tenaga, astronomi sebagai langkah mempopularkan Sains dan Teknologi. Usaha-usaha ini akan mengeratkan lagi perhubungan di antara masyarakat umum dengan usaha-usaha Kerajaan di dalam bidang Sains dan Teknologi. Dengan cara ini, masyarakat

umum dapat memahami sumbangan-sumbangan Sains dan Teknologi serta arah kemajuan yang dituju di dalam usaha-usaha pembangunan negara. Di masa-masa yang lampau, pembangunan kita di dalam bidang pertanian dan sumber alam semulajadi telahpun diberi perhatian yang lebih dengan adanya institut-institut penyelidikan seperti Institut Penyelidikan Getah, Institut Penyelidikan Perhutanan, Institut Penyelidikan Minyak Kelapa Sawit dan Institut Penyelidikan dan Kemajuan Pertanian Malaysia. Usaha-usaha penyelidikan di negara kita pada masa kini tertumpu lebih kepada soal pengeluaran bahan-bahan komoditi. Pada hemat saya, perhatian perlu juga diberi kepada penyelidikan ke atas meningkatkan hasil-hasil keluaran atau "products", meninggikan lagi kualiti dan memperelokkan rekabentuk prodak. Ini adalah perlu untuk bersaing di dalam pasaran seberang laut. Satu lagi institut penyelidikan iaitu SIRIM perlu memberi perhatian yang lebih mendalam terhadap masalah-masalah perindustrian supaya kita dapat mencipta teknologi-teknologi yang baru dan berguna untuk negara. Saya percaya dengan penumpuan di dalam bidang teknologi perindustrian yang akan menggunakan teknologi-teknologi yang maju dan digunakan untuk memproses hasil-hasil sumber alam kita, ianya akan memberi kesan yang baik kepada ekonomi negara.

Kemanangnya Sains dan Teknologi akan terus berkembang. Kejayaan kita atau sebaliknya dalam menghadapi cabaran-cabaran masa depan bergantung kepada sama ada kita dapat mengembangkan kebolehan dan kuasa penyesuaian untuk menyerap teknologi-teknologi baru yang kian berkembang. Untuk menambahkan lagi

kepakaran negara di dalam bidang Sains dan Teknologi, tenaga manusia yang terlatih diperlukan, terutamanya di kalangan muda-mudi. Pelajar-pelajar di bangku sekolah yang mempunyai penuh minat di dalam bidang Sains dan Teknologi perlu diberi dorongan untuk mempelajari sains. Di peringkat awal, amatlah senang untuk kita mengajar dan memberi fahaman Sains dan Teknologi kepada belia kita.

Saudara-saudari,

Pada hari ini, Prof. Abdul Latif akan memberi ceramah mengenai perkembangan vaksin penyakit Newcastle; dan Dr. Mak Joon Wah pula akan menyentuh bidang penyelidikan penyakit filaria ataupun penyakit untut.

Prof. Augustine Ong Soon Hock yang tidak dapat hadir bersama kita pagi ini untuk menyampaikan kuliahnya telah memberi sumbangan di dalam perkembangan industri minyak kelapa sawit yang telahpun menghasilkan paten-paten tertentu.

Saudara-saudari,

Pencapaian yang begitu cemerlang oleh ketiga-tiga saintis menunjukkan bahawa ahli-ahli sains kita boleh menyumbang kepada kemajuan sains yang seterusnya dapat membawakan manafaat bukan sahaja kepada negara kita bahkan juga kepada dunia. Saya berharap kejayaan ini akan meningkatkan lagi kesedaran terhadap

pentingnya Sains dan Teknologi di masa-masa hadapan. Dengan usaha Kementerian saya dengan kerjasama jabatan-jabatan kerajaan yang lain, saya percaya kesedaran ini akan disokong penuh oleh Kerajaan dan rakyat kita demi menambahkan lagi kepakaran kita di dalam bidang Sains dan Teknologi.

Saudara-saudari,

Saya berharap ahli-ahli sains yang menjalankan aktiviti-aktiviti penyelidikan akan juga mencapai kejayaan dan dapat juga tergulung di antara ahli-ahli sains yang cemerlang di negara kita.

Saya berharap juga para hadirin di dewan ini akan dapat memahami apakah sumbangan ahli-ahli sains kepada masyarakat kita.

Kepada pelajar-pelajar yang ada bersama kita pada pagi ini dan juga di negara kita, suka saya menyeru saudara-saudari mengambil minat yang lebih di dalam bidang Sains dan Teknologi supaya kita akan mendapat sumbangan di dalam bidang Sains dan Teknologi demi kemakmuran dan kemajuan negara kita.

Saya dengan sukacitanya merasmikan Kuliah Awam ini dimulakan.

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DRAF UCAPAN PERASMIAN OLEH YB MENTERI SAINS, TEKNOLOGI & ALAM SEKITAR DI PERSIDANGAN 'IMPACT OF MICROBIOLOGY IN TROPICAL AGRICULTURE', ANJURAN FAKULTI PERTANIAN, UPM PADA HARI ISNIN 24HB. OKTOBER, 1983 JAM 9.00 PAGI DI DEWAN PERSIDANGAN PPPL

I am honoured to be given this opportunity to officially open this Regional Symposium on "Impacts of Microbiology in Tropical Agriculture" organised by the Agriculture Faculty of University Pertanian in commemoration of the 10th Anniversary of University Pertanian Malaysia. The initiative on the part of the organisers of this Symposium is highly commendable and I am pleased that it aims to focus on the role of microorganisms in tropical agriculture assessing its contribution in boosting agriculture production as well as appraising agriculture losses and spoilage through microbial activities, evaluating the significance of microorganisms in food processing and preservation and highlighting the potential of microbial transformation of agricultural products and wastes.

Microbiology as a scientific discipline not only entails the study of microorganisms such as bacteria, viruses, yeasts, moulds, protozoa and primitive algae but also deals with the application of this study to the fields of medicine, agriculture, environment and industry among others. The universal distribution and the wide variety of microorganisms found everywhere, in the air, water and soil, make them extremely important to human welfare. Microbial activities are of great and direct importance to man and microbiology plays an important role in many fields of human endeavour including medicine, sanitation, food industries, agriculture and antibiotic manufacture.

Ladies and gentlemen, as you are all aware, agriculture is the mainstay of the mainstay of the Malaysian economy and indeed of the economies of the developing world. It provides the necessary resource base not only for industrialisation but also for economic development in general. The history of economic growth is replate with instances of how agriculture supports industry through the provision of raw materials, labour and above all a ready market in the development process towards sustained growth.

The role of microbiology in the field of agriculture has been long known and has left a significant mark. As you are aware life on this earth is dependent on the existence of a dynamic system of

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use and recovery. The nitrogen, sulphur and carbon cycles, for instance, are maintained in large by the activity of microbes which are the universal agents of decay being responsible for the formation of humans and for the breakdown of complex compounds into simpler substances. They are a significant component in maintaining the balance of nature.

A more recent contribution of microbes in agriculture is the use of mycorrhizal fungi in increasing phosphorus uptake by plants. In some instances the simultaneous application of mycorrhiza and rhizobia in a double symbiosis system has helped reduce mineral nitrogen and phosphorus fertilizer consumption.

Equally significant is the role of microbes in causing plant diseases. Much of our development efforts would have gone to waste if not for the role microbiologists have played in finding solutions to control such diseases which constantly threaten us.

Microbes can also be a major cause for losses in crop and animal production. Such losses have brought along serious economic and social consequences to farmers and nations. Their controls have let to a staggering ibcrease in the cost of food production. Globally, it has been estimated that preharvest crop losses amounted to 20% with another 10% occurrring between harvest and consumption. According to a 1972 survey the annual loss in the tropics was estimated as 30 million tons of the food produced. But this did not include the perishable crops such as cassava, yams, sweet potato, plantain bananas and fruits. And for industrial crops like cacao, the losses sustained are considered to be greater than the losses from any other perennial or annual crops in Africa.

Ladies and gentlemen, producing enough food for the world population of four billion remains a desperate problem not to contemplate the six billion world population expected by the year 2000. The massice problems of world food shortage, the increasing number of individuals who are underfed or malnourished have been recognised and quantified. As many as 20 million people face starvation in the coming year. The solution to these problems is becoming increasingly urgent. This is particularly important in the developing countries where the traditional method of increasing food production by expanding the

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cultivated land, increasing agriculture yields manifold, producing more animals for their meat and to harvest more edible fish from the sea are not producing the desired result.

The protein shortage is developing rapidly, particularly in the underdeveloped countries. Its impact is becoming evident on the standard of health and working capacity of the poorest group. Although the level of protein is high in fish and animal products like cheese and milk, their cost of production is much higher than those of plant sources with equivalent levels of protein. Though meat is the preferred source of protein in most countries, the production rate has not been able to cope adequately with the increasing demands both on account of increasing numbers and change in lifestyles.

The fishing industry is also beset with its share of problems. Far from proving to be an unexhaustible source of protein, fish catches and landings are fluctuating unpredictably from year to year. Moreover, world fisheries are in serious trouble due to overfishing, lack of enforcement of regulations and increasing effects of coastal pollution.

It, therefore, becomes apparent that the application of science and technology to developing not only new but cheap sources of protein food is vital. In this respect, the single cell protein derived from the micro-organisms may make a valuable contribution to the solution of this problem.

The use of micro-organisms for the transformation and production of foods is as old as the discovery of fermentation. Most of you are already aware that many of our traditional foods like tempe, soya-sauce, tapai outjam tempoyak and budu are all fermentation products derived by the activity of micro-organisms. Drinkers shall always be grateful to microbiology for producing their daily pint of beer, sake or 'toddy'. One can in fact name a whole list of foods which have been eaten and utilised by man which have been produced through the activity of micro-organisms.

In Malaysia, the majority of agriculture and industrial discharges constitute large quantities of pant materials which if properly researched could become an economic potential for the production of single cell

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protein. Typical wastes that could be considered are palm oil mill sludge, rubber factory effluent, tapioca processing wastes, the pineapple canning wastes, wastes from the coconut industry, the sugar can industry, crop residues, wood and paper industry, petroleum wastes, domestic sewage and animal droppings.

The normal practice of handling such wastes is to destroy or dispose of them into the environment without proper control and management. The consequence of such poor practices is the increase in environmental pollution problems effecting in particular the nations's water resources, land and air. Past practices of waste handling gave little consideration to either recovery of useful by-products or utilisation for other uses. In effect, valuable recoverable material was needlessly lost while the world is facing severe food shortage. Herein lies the challenge to the microbiolggists to exploit this potential to the advantage of our people as a whole.

Concurrent with the need for accelerated development, the Government has also stressed the need to harness advances in science and technology to improve the quality of life of our people. The role of microbiology in keeping the environment healthy has been significant. As we are all aware, several years ago the problems of pollution due to wastes discharged from our two economically important industries namely palm oil and rubber have been plaguing the nation with several 'dead' rivers and depriving the poor riverince kampung folks of the main source of their protein intake and even livelihood. This was during a time when economically viable technology for treating such wastes was lacking. Today Malaysia can justly be proud of her success in controlling pollution from these industries by harnessing micro-organisms to bring down the Biochemical Oxygen Demands of these wastes to the desirable level of 50 parts per million (ppm), thus enabling the safe discharge of these wastes into our environment. It is so well established that the biological treatment systems currently available have come to be well within the economic means of these industries today.

Microbiology has not only been utilised in finding a solution to the agro-industrial wastes but has been applied to the treatment of other industrial wastes and sewage. The successful construction and operation of the oxidation ponds for the treatment of sewage at one-tenth of the cost of the conventional treatment system at Wardieburn Estate

has enabled the hygenic water-borne sewerage system to be extended to a larger population of Malaysia's capital city.

Mr. Chairman, Universiti Pertanian has akey role to play in monitoring the changing environment in order to determine the health threat posed by the many forms of pollution and develop the necessary controls. In this connection another area of importance is the natural limitation of insect pests and plant diseases by micro-organisms. The present practice of 'overkill' to pest control by the use of modern synthetic pesticides poses serious hazard to the environment. Though some success has been achieved in the microbial or biological control of insect pests and plant pathogens, it is still in its infancy.

There are areas of the world where 'staying alive and healthy' is still the main pre-occupation of the people. While micro-organisms, as indicated earlier, are powerful tools which can be manipulated for the benefit of mankind, they can also be the same agents which bedevil us. Diseases are in most instances a result of the activity of micro-organisms. Life in this 'natural' environment is somewhat tenuous in what man is competing for living space, not so much with other large mammals as with microscopic creatures, such as bacteria and protozoa, that can be far more lethal in impact. The accidental discovery of the first antibiotic penicillin as far back as 1929 by Fleming paved the way for the fight against several diseases, including the dreaded leprosy and tuberculosis, through the use of micro-organisms. For man to prevent or overcome disease, it is necessary to understand the agents which cause them. Microbiology is an important study in our fight to maintain a healthy environment and a healthy people. The development of this country could have been severely hampered but for the successful way in which we have controlled diseases. Malaria and small-pox for example are known to be responsible for the failure of many development projects in several countries. It is fortunate that this country has successfully contained their spread.

Ladies and gentlemen, the role of microbiology in the development of Malaysia has been significant. However, there is no room for complacency and for resting on laurels, the challenges of the eighties have to be faced. In facing those challenges, alternative energy sources from plant materials should under present circumstances be accorded due priority, and certainly not get overlooked. Considerable success

by fuel technologists in Brazil in this area has been recorded in the production of gasohol from cane sugar but the challenge for the microbiologists in this region is to make use of indigenous materials, particularly of a hardy type which flourishes in soil types not suitable for other crops. I understand that several working papers from within and without the country will be presented on a variety of topics by both local and foreign experts. I am sure this Symposium will pave the way to determine your priorities for the future to effectively enhance the application of microbiology to the benefit of mankind and evolve a strategy to put microbilogy as a duscipline on a wider scale. I will certainly rollow this Symposium with keen interest and meanwhile wish it every success.

To all our guests from overseas, I bid you a very warm welcome to Malaysia and a pleasant and memorable stay. I hope that not withstanding your busy schedule during this Symposium you will be able to find some time to see our country and flavour at least something of Malaysian hospitality and other attractions.

UCAPAN Y.B. MENTERI SAINS, TEKNOLOGI DAN ALAM SEKITAR, DATUK AMAR STEPHEN K.T. YONG SEMASA MERESMIKAN PERMULAAN LOJI PENGOLAHAN EFFLUEN DI KILANG AJINOMOTO (MALAYSIA) BERHAD PADA 6HB MEI, 1983.

Yang Berhormat Mulia
Tan Sri Tunku Mohamed bin Tunku Besar
Burhanuddin,
Pengerusi,
Ajinomoto (Malaysia) Berhad;

Mr. Matsumoto,
Pengurus Besar,
Ajinomoto (Malaysia) Berhad;

Tan Sri-Tan Sri;

Datuk-Datuk;

Dzif-Dzif yang dihormati;

dan seterusnya para hadirin sekalian.

Saya berasa amat berbesar hati dan bertuah kerana dijemput merasmikan permulaan Loji Pengolahan Effluen Kilang Ajinomoto (Malaysia) Berhad.

As I was saying, it is both a great pleasure and honour to have been invited

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to officiate at the commissioning of the industrial effluent treatment plant of Ajinomoto (Malaysia) Berhad. The management of this Company must be commended for their forward-looking attitude and sensitivity to environmental concerns. That Ajinomoto (Malaysia) Berhad has put up an outlay of no less than 5 million ringgit on this industrial effluent treatment system, is eloquent testimony both to their willing and ready acceptance of responsibility to the environment in which the Company operates and to their unflagging confidence in the resilience and growth prospects of the Malaysian economy. This is significant indeed when we consider that this effluent treatment plant is put up at a time when

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the economy is experiencing a slow down.

Malaysia as a developing country has to pursue actively a policy of economic growth, in order to meet our New Economic Policy objectives by 1990. What is of great concern to us is that such pursuit of development paying scant attention to environmental impact has brought to the fore many problems of damage and disruption to the human environment.

Environmental disruption and pollution of the biosphere have grown in scale and become more complex in this modern world of ours. In the quest for improvement of our standard of living, the chosen path is that of rapid economic

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development.

The economic activities have reached such a level that the residual flows of materials and energy have begun to alter the physical, chemical and biological quality of the human environment in certain regions. It is timely to take stock of the price paid by society at large for haphazard and ill-planned economic activities. For example, deforestation and attendant denudation of the forest cover can destablize water flows, leading to siltation of rivers, reservoirs, hydro-electric dams and irrigation works, resulting in severe flooding and water shortages and stress situations during periods of drought such

as the present one. Other negative aspects of ill-planned economic development and industrialization without adequate environmental safeguards include: crop damage due to increasing air and water pollution, loss of fisheries down-stream due to water pollution and dam and highway construction, loss of good quality farmland to urban sprawl, pollution of coastal waters caused by wastewater discharges from communal and industrial sources and oil pollution from passing ships, loss of wildlife habitat due to deforestation and to reservoir construction, increased health risks due to discharge of toxic and hazardous wastes and to accumulation of persistent chemicals in the environment.

It is a sobering thought, once we reflect that there is only one land mass, one atmosphere and a finite supply of water for us to share - and the seas are by no means a bottomless sewer. To survive, let alone maintain life in dignity, we must make the best use of these environmental resources so that sustainable development can take place and that we do not foreclose options of future generations.

To do so and to meet the rising aspirations and changing lifestyles in face of population growth, we have to place reliance on harnessing advances in science and technology in the area of environmental protection and wise resource management.

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We cannot afford to let pollution negate the hoped-for flow of benefits from development. A sensible balance has to be struck! To this end, environmental protection is best integrated as a dimension of socio-economic development since we neither desire an immaculate environment for its own sake nor all-out development at the expense of the environment and of society.

The year 1975 marked the beginning of a new emphasis on the environment in Malaysia - a turning point - a year when the quality of life became more than just a phrase. Environment and pollution have since become household words, signifying

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them being the focus of public attention and concern.

The Environmental Quality Act, 1974 has now been in force for eight years. A priority task has been to contain and deal with environmental problems that had accumulated over the years through restorative measures backed by systematic enforcement of the various Regulations under the Act while developing strategies to forestall future problems.

Logically, it would be sensible to work out a proper environmental plan to be carried out within the general 'planning' framework before any pollution

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control work is carried out. In the Malaysian context, having due regard to the necessary lead-time required to evolve a sound plan (data collection, resources, trained manpower, etc.) and the urgency of enforcing anti-pollution measures which call for immediate remedial action, the pollution control exercise has been somewhat delayed in the Environment Department's programme for environmental conservation and enhancement of environmental quality.

However, the sustained environmental improvement effort of the past 4 years has made significant inroads into the problems of the agro-based industries namely, palm oil and rubber, the most chronic sources

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of water pollution. Our experience in the implementation of the Regulations to control pollution from these industries can be regarded as most encouraging as these industries have been constructively receptive to the Regulations and have progressed satisfactorily towards meeting the desirable target of 100 parts per million B.O.D. (Biochemical Oxygen Demand).

Similarly, effluent discharges from other industries such as food, textiles, chemicals, etc. and domestic discharges are controlled by the Environmental Quality (Sewage and Industrial Effluents) Regulations 1979. About 60% of the 6,000 industrial premises in the country, i.e.

about 3,600 factories are subject to these Regulations. It is estimated that BOD generated from these industries amount to 124 tonnes per day. The enforcement of the Sewage and Industrial Effluents Regulations, has reduced the BOD load discharged from these industries to about 50 tonnes per day which amount to a 40% reduction in the BOD load from these industries.

The progress made so far is, in large measure, a reflection of the investment the nation has made in cleaning up the environment with contributions both by the Government, industry and research institutions and the universities.

Considerable improvement has been recorded in the water quality of several of our rivers, which at one time were characterized as grossly or moderately polluted.

It must be recognized particularly in the context of developing countries that environmental control regulations, however, skillfully formulated and drafted in themselves constitute no magic wand to cure environmental ills of society overnight or even in a relatively short time span. An immense amount of hard work to ensure that the standards set are realistic, in terms of protecting the environment, that the technology for treatment is either available or can be developed readily,

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and that the treatment involved is cost effective in the sense of being within the means of the industry concerned, has to be backed up by systematic and sustained enforcement to get across the message that the authorities mean business.

I think that the measure of the success to date in Malaysia in bringing environmental pollution woes to manageable proportions are in the main due to the pragmatic, systematic and business-like approach consistently adopted by the Environment Department backed up at the same time by uncompromising, firm yet fair approach in enforcing the regulations which it has a mandate to enforce in the public interest.

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The good working relationships built up over an extended period of time with the research institutions in Malaysia and all five universities along with a whole spectrum of public sector agencies, both at the Federal and State levels have stood us in good stead.

It is unfortunate that despite the good response and co-operation from the industries in general in the protection of the environment, a few have been found to be lax in complying with the standards despite repeated warnings and sufficient time being given. The Environment Department under my Ministry has therefore no alternative, but to opt for the "more

stick and less carrot" approach, and to date, a total of 66 factories have been prosecuted in Court for non-compliance with the Regulations.

It is a widely-held belief that expenditure in pollution control is non-productive, that it constitutes an investment without return and it is at best tying up capital for no good reason, and at worst a contributor to inflation. The enterprise, whether private or public, tends to regard pollution control as a major financial burden to be avoided as long as possible and then only to be under-taken reluctantly after a good deal of lip-service.

In this respect, we must applaud Ajinomoto (Malaysia) Berhad for their most innovative and far-reaching initiative in demonstrating that investment in pollution control need not necessarily be considered as money spent without any returns. On the contrary, investment in pollution control should be looked upon in the same way as research and development since, as has been shown in this case new products and new processes often emerge if pollution control is looked at positively and constructively. The goal of industry should be to use resource conservation technology where and when possible and practical. Ajinomoto (Malaysia) Berhad by applying its own ingenuity to develop its own resource conservation know-how,

has been able to convert its so-called waste into useful by-product, namely, fertilizer, fetching an annual return of approximately $500,000 a year, thus offsetting nearly half the operational cost of the treatment system.

Ladies and Gentlemen,

Essentially waste is generated by human activity and is in a sense a misplaced resource. Natural systems are generally closed systems. Man on the other hand has developed 'open' systems - ending all too often in an open sewer or an open dump.

We can no longer afford the indiscriminate waste of our natural resources. Neither should we accept as

inevitable the mounting costs of waste removal. We must move increasingly toward closed systems that recycle which now are considered wastes, back into useful and productive purposes. In this respect, Malaysia can proudly acknowledge the efforts of Ajinomoto (Malaysia) Berhad in this direction as well as those successfully being made in the palm oil industry. Of great additional importance is the question of creating non-waste and low-waste technologies reducing or excluding harmful effects for the biosphere.

The present practice based on the wasteful approach of treatment and disposal has been dictated by the need to find immediate solutions to the environmental

problems that have been accumulated over the years. In our early days of national development when resources were seemingly vast and unlimited, deliberation on the choices of development alternatives did not seem necessary. Today, it has become increasingly clear that, in our biosphere within which space and resources are limited, prudent management of our natural resources is a crying need of the time, and this should be aimed at:-

(i) Minimizing wastes in the process of resource development;

(ii) Utilization of wastes;

(iii) Material recovery and recycling;

(iv) By-product production; and

(v) Re-use of effluents.

Resource conservation should become an integral part of any waste management practice during resource development. The cycle of production-consumption-dumping is using up natural resources at an alarming rate. Seldom are dumped wastes recycled. The waste treatment practised all too often is generally regarded as a burden on the economy, but if the possibilities of the resources are exploited, wherever possible, the net cost to society will be significantly reduced.

Finally, I would exhort all concerned to give the utmost co-operation and support to my Ministry in continuing to

tackle the many problems attendant upon the whole spectrum of human activities in the wake of an accelerated tempo of development envisaged under the Fourth Malaysia Plan and succeeding five-year plans.

Dengan ini saya dengan sukacitanya meresmikan permulaan Loji Pengolahan Effluen Perindustrian Ajinomoto (Malaysia) Berhad.

UCAPAN Y.B. DATUK AMAR STEPHEN K.T. YONG, MENTERI SAINS, TEKNOLOGI DAN ALAM SEKITAR SEMASA MERASMIKAN PEMBUKAAN SEMINAR LATIHAN KEBANGSAAN MENGENAI PENILAIAN KESAN-KESAN ALAM SEKITAR (EIA) DI UNIVERSITI PERTANIAN MALAYSIA PADA HARI ISNIN, 21HB. NOVEMBER, 1983 JAM 9.30 PAGI DI SAMPAIKAN OLEH Y.B. ENCIK LAW HIENG DING, SETIAUSAHA PARLIMEN KEMENTERIAN SAINS, TEKNOLOGI DAN ALAM SEKITAR

Yang Berbahagia Prof. Mayan Ariffin,
Naib Canselor, Universiti Pertanian Malaysia;

Yang Berbahagia
Wakil Pertubuhan Kesihatan Sedunia (WHO);

Yang Berbahagia Encik S.T. Sundram,
Ketua Pengarah Alam Sekitar;

Para Pakar Perunding;

Tetamu-Tetamu Kehormat, Tuan-Tuan
dan Puan-Puan yang dihormati sekelian.

Terlebih dahulu izinkan saya menyampaikan perutusan Yang Berhormat Datuk Amar Stephen Yong, Menteri Sains, Teknologi dan Alam Sekitar, supaya Seminar Latihan Kebangsaan ini terus maju jaya. Yang Berhormat Menteri sendiri tidak dapat hadir bersama-sama pagi ini disebabkan tugas-tugas rasmi lain dan telah mengamanahkan saya untuk menyampaikan ucapannya.

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Saya amatlah berbesar hati dan berbangga kerana dijemput merasmikan Seminar Latihan Kebangsaan Mengenai Penilaian Kesan-Kesan Alam Sekitar ini. Penilaian Kesan-Kesan Alam Sekitar atau 'Environmental Impat Assessment' (EIA), adalah satu perkara yang serius disebutkan di seluruh dunia pada ketika ini sebagai peralatan pengurusan alam sekitar, dan Seminar Latihan Kebangsaan ini amatlah tepat pada masanya bagi menentukan negara kita pun terus maju dalam bidang ini. Memandangkan Seminar ini juga melibatkan pakar-pakar perunding antarabangsa, saya meneruskan ucapan saya dalam Bahasa Inggeris.

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Distinguished Participants, Ladies and Gentlemen.

As I was saying, the Honourable Minister of Science, Technology and the Environment, although unable to be in our midst today to officiate at the opening, wishes this national training seminar well and has asked me to deliver his address on his behalf.

As you are aware, EIA has been recognized as an integral part of environment management. As such, this Training Seminar is indeed timely and important in helping to ensure that Malaysia keeps abreast of the latest trends in this field. EIA can be said to be a relatively new concept coming to the fore in the 1970's, and coinciding

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with the heightening of global environmental awareness. In fact, EIA comes into its own because of the paramount need to consider the environment in terms of a holistic approach and to anticipate potential impacts thus avoiding the tendency to just drift with events and react all too late to a host of problems. Once duly integrated into the development process, EIA serves as a very important and effective planning tool, primarily because it can be used to identify alternatives and provide options whether of sites, production processes, raw materials or even beneficial economic uses of bye-products to minimize generation of wastes into the environment.

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For optimum results from the application of EIA, it should be undertaken right from the initial stage where strategies, policies and programmes are being formulated. In this respect, environmental factors would receive priority consideration when drawing up regional development plans, master plans and structure plans. We must accept the fact that environmental factors are important in evolving a national agricultural policy, energy policy or industrial development policy. Again, it is desirable that EIA should be used in the planning of development projects and not just when the stage of implementation is reached. In this context, environmental monitoring and surveillance well before the project, will become

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an integral part of the EIA procedure in providing the information needed for rational decision-making.

Ladies and Gentlemen.

It might well be that confronted with the requirement for an EIA, many a project proponent would at first take it as just another unnecessary bureaucratic encumbrance to be overcomed. The experienced and mature planner would, be on giving fuller consideration know better. Environmental impact assessment, if properly carried out, has the potential and the pay-off in the long term of conserving the environment and the various ecosystems, and at

the same time protecting the interest of the industry itself. Minimizing negative side-effects on the environment can result in sustainable development and at the same time realize savings on investment outlays. I would however, caution the assessors to refrain from the tendency to produce voluminous reports for the EIA. They are not only hard to digest by the reviewers, but may confuse the decision-makers who may miss the wood for the trees. An EIA report to the point does not necessarily have to be voluminous. In fact, to serve a useful function, EIA reports should be presented in a form readily understood by both the reviewers and the decision-makers. What is

critical is the quality of the EIA that is carried out in any given situation. To this end, it is essential that those concerned with making the assessment are experienced and well-trained in EIA.

In this connection, it is noteworthy that this particular Seminar has been devised in such a way as to provide actual training on EIA by working on a case-study. I am confident that after going through the Seminar under the guidance of the experts, all participants will be in an advantageous position not only to conduct meaningful and cost-effective Environmental Impact Assessment, but also to help smoothen the review process so that decision-

making can be accelerated. Considering that systematic and comprehensive environmental management programmes in Malaysia are of comparatively recent origin, having been developed since the coming into force of the Environmental Quality Act, 1974 and the simultaneous establishment of the Department of the Environment (DOE) in mid-April 1975, we can all take just pride in the progress and sophistication reached. During the initial years after DOE was formed, efforts were mainly directed towards solving existing environmental problems stemming chiefly from agricultural, industrial development, land settlements and urbanization. With these problems now largely curbed and contained, the DOE is able to focus

more on longer term issues related to environmental planning and management, including EIA.

Ladies and Gentlemen.

In line with the role envisaged for EIA in Malaysia as spelt out in Chapter XI of the Third Malaysia Plan, the DOE has developed a set of draft procedure and guidelines for EIA aimed at assessing the overall impacts on the environment of development projects in the public and the private sectors.

The draft procedure and guidelines and their implementation plan were approved in principle by the National Development Planning Committee in April, 1979. Subsequently, at the

beginning of 1981, an EIA Unit was set up in the DOE to be responsible for all matters related to EIA in general, and to help implement the procedure and guidelines in particular. Due to the intense efforts of this unit within the DOE, as well as good co-operation from project proponents, no less than 15 major development projects have since been subjected to EIA on a voluntary basis. However, due to the fact that EIA is still not a mandatory requirement in this country, there is unfortunately still some resistance and unwillingness on the part of some less enlightened project proponents to go along and carry out EIA, even with dogged persuasion from the DOE.

Recognizing the importance of formalizing the EIA procedure in this country as soon as possible, my Ministry is now gearing to arm itself with enabling powers that could be invoked to require an EIA to be carried out for specific categories of development projects. With the growing awareness of the need for sound environmental management for sustainable development, there can be expected an increasing demand for personnel who are well-versed in EIA, both in terms of management and technical expertise. To this end, there is a need to organize follow-up seminars of this nature, not only to provide basic training and upgrading of skills, but also to focus on specific areas of the EIA procedure such as impact prediction

techniques, report writing and the review process.

Given that EIA is basically multi-disciplinary in nature, there is a need for expertise in various field of study such as environmental health, resource management, pollution control, environmental planning, waste management, social and cultural sciences to be drawn upon. In this respect it is encouraging that this Seminar is also open to the private sector, especially those involved in consultancy work in the environmental field, apart from academicians. With this good mix of participants from various backgrounds, I am confident that the Seminar will prove both

interesting and stimulating, all the more so with the benefit of the expert guidance of the experienced consultants through the good offices of the World Health Organisation - PEPAS to conduct the Seminar.

Ladies and Gentlemen.

I would like to express my sincere thanks and deep appreciation to Universiti Pertanian Malaysia and WHO-PEPAS for co-sponsoring this Seminar with my Ministry. UPM, particularly through its Faculty of Science and Environmental Studies, has been working actively and closely with my Ministry for the promotion of better environmental

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management and planning in this country, while WHO-PEPAS since its establishment in 1979 has been continuously providing invaluable technical inputs through consultancy services and seminars to my Ministry not only in EIA, but also on a whole spectrum of other activities such as solid waste management, air and water quality monitoring and data processing. Let me take this opportunity to record our deep gratitude for their continued support and assistance in programmes related to environmental protection in Malaysia.

Dengan ini, saya dengan sukacitanya mengisytihaskan Seminar Latihan mengenai Penilaian Kesan-Kesan Alam Sekitar ini dibuka dengan rasminya.

Terima kasih.

ADDRESS BY MR. S.T.SUNDRAM, J.S.M., DIRECTOR-GENERAL OF ENVIRONMENT AT THE OFFICIAL OPENING OF THE COURSE ON "MANAGEMENT AND TREATMENT OF WASTES" ON 26TH MARCH, 1984 AT 8.15 A.M. AT THE RUBBER RESEARCH INSTITUTE OF MALAYSIA, KUALA LUMPUR

Yang Berbahagia Tan Sri Dr. B.C.Sekhar,
Yang Di Pertua,
Institut Kimia Malaysia (IKM),

Dr. P.V.R. Subramaniam,
Head, Industrial Wastes Division,
National Environment Engineering Research Institute,

Distinguished Guests and Participants,

Ladies and Gentlemen.

It is indeed a great pleasure and singular honour for me to be in your midst this morning to officiate at the opening of this Course on "Management and Treatment of Wastes" jointly organised by the Federation of Asian Chemical Societies (FACS) and the Malaysian Institute of Chemistry (IKM) to dovetail into and form part of the Second Asian Chemistry Conference on "Priorities in Chemistry in the Development of Asia" (PRIOCHEM ASIA 1984).

The FACS Working Group on Chemistry and the Environment are to be heartily commended on this forward-look ahead and for taking the initiative in organising this Course for environmental managers and executives drawn from the Asian countries. I notice that the primary focus of the Course is on management and treatment of wastes and accordingly the papers presented will cover such subject areas as principles of waste management and treatment technology as well as waste utilisation and low or non-waste technology appropriate to the Asian situation. I must congratulate the organisers for their timely and praise-worthy efforts in bringing about this first ever comprehensive course on waste management which comes none too soon. The countries of the Asian region are poised to carry through an accelerated programme of industrialisation and modernisation with a number of them holding prospects of being regarded as developed nations before long while at the same time a dynamic movement is afoot to restore, protect and improve

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our environment in the framework of making the optimal use of natural resources in the quest for a better quality of life for our peoples. In short, we must act resolutely today to build a better tomorrow for us and succeeding generations through sustainable development and sensitivity to the environment.

I understand that the basic thrust of the Course is towards providing those entrusted with responsibility for environmental management comprehensive information on waste management practices with a view to helping them to make correct choices and decisions in implementing waste treatment systems. As one numbered among those directly involved in environmental management I heartily welcome the holding of this Course which holds fair promise of proving to be of enduring benefit to participants.

I view this Course as something of a pacesetter in environmental cooperation among the Asian countries, providing yet another dimension of cohesion and solidarity. The wealth of experience and knowledge about the scientific, technical and economic aspects of waste management that will be exchanged at this Course leavened by the expertise of several eminent persons who have so readily agreed to contibute to the success of this Course by presenting papers will, I am confident, contribute positively to the continued development and progress of environmental management in the Asian region.

Ladies and Gentlemen, we in the developing countries have little choice but to forge ahead with rapid economic growth in order to provide for the material conditions of an acceptable standard of living for our peoples. In this respect industrialisation is of vital importance to nations seeking to improve the standard of living as it holds out promise of boosting incomes, employment, productivity and output. However, poorly planned or uncontrolled industrialisation or even the one-sided or haphazard application of technology can result in serious environmental problems as experience has proved all too often. We can ill afford to let the hoped-for gains from development to be eroded in this fashion given the limited resources at our disposal and the need to optimise returns.

It is a rather widely-held belief among all too many industrialists that expenditure in pollution control is non-productive, that it constitutes an investment without tangible return and it is at best tieing up scarce capital for no good reason, and at worst even a contributor to inflation. Industrial establishments, whether private or public, tend to regard pollution control all too often as a major financial burden to be avoided as long as possible and then only to be undertaken reluctantly in piece-meal fashion under pressure of public opinion or faced with the clout of the regulatory agencies. Hence the "too-little too-late" syndrome as though wracked by pains and costly delays, not counting the burden thrown on society.

On the contrary, investment in pollution control should be looked upon as analogous to outlays on research and development since it happens that new products and new processes often emerge when pollution control is viewed in its proper perspective and positive and constructive actions are taken in good time in line with such enlightened thinking.

The goal of industry should be to adopt a rational approach to pollution control with resolute steps taken firstly to minimise the amount of waste generated in any given industrial process through proper in-plant measures, then applications of resource conservation technology and through to enlightened waste utilisation practices. Of even greater significance is the need to develop non-waste and low-waste technologies which can help curb drastically wastes discharged into the environment and head off harmful effects on the biosphere. Even after all these approaches, it is still necessary to treat a waste prior to ultimate disposal, hence appropriate technology suitable to the local situation should be developed. The choice of treatment processes has great influence on costs of treatment and it is important to opt for those processes which minimise capital and maintenance costs and continuing reliance on sophisticated skills not readily available in developing country situation.

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In the Malaysian context it can be said that positive efforts are being made by industries to shift from the conventional pollution-control approach to systems using oxidation ponds, and closed systems that recycle what was once considered wastes, into useful products, in short, resource recovery of sorts. In this respect, Malaysia can claim due credit by acknowledging the successful efforts of the palm oil and rubber industries in tackling vigorously and overcoming pollution problems and in the process shedding the once public image of being the worst polluters of the Malaysian environment.

However in the early days, the enforcement of control regulations in the palm oil and rubber industries was not without trials and tribulations caused by the lack of economically viable technology. The difficulty was further compounded by the fact that these twin industries which once constituted chronic sources of pollution are also important as being the mainstay of the Malaysian economy. Great care had to be taken, therefore, in the formulation of standards as these had to be not only environmentally sound but also sensible within the framework of economics and available technology. Hence the 4-year time span to develop economically viable technology to reduce the biochemical oxygen demand of palm oil mill effluent from 25,000 ppm to the current standard of 100 ppm.

Even after the technology had been developed there has been insufficient dissemination of knowledge of the technology and understanding of the functioning of the treatment systems at the level of plant operators and this has resulted in inefficient operation of the treatment systems leading to malfunction.

With the buoyant prospects for further industrialisation already on the horizon, so to speak, it is high time that the laggards among our industrial establishments do some soul-searching and set their sights firmly upon acting responsibly by harnessing the exciting findings of scientists and researchers into innovative approaches to waste treatment and environmental management. Resource recovery, reuse and recycling so that wastes are reduced to negligible proportions should be the order of the day.

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We live in exciting times yet we should not through inertia, wanton neglect and indifference forego opportunities which open up before our very eyes through the myriad advances of science and technology. We do have our own breed of scientists and researchers of calibre who, given encouragement incentives and the right environment, can truly serve as a tremendous reservoir of talent to set us securely on the path of sensible, sustainable and sensitive development.

To optimise our prospects, the need of the hour is for intensive interaction stimulated by pooling of experiences and expertise, including the establishment of suitable clearing house mechanisms. To this end, a meeting such as this can provide stimulus and function as a pacesetter.

As the countries of the Asian region get more and more involved in a whole gamut of industrial activities another area that has emerged fraught with serious consequences is the matter of safe disposal of toxic and hazardous wastes. Lack of appropriate technology and in depth expertise in this area has resulted all too often in the indiscriminate disposal of these wastes. In Malaysia alone, there are an estimated 600 industrial establishments who generate toxic and hazardous wastes and as a first step the Department of Environment is presently compiling a comprehensive register of such establishments with details of such wastes generated by them and how disposed of.

I am confident that this Course for managers and executives will serve admirably to update and upgrade the knowledge of technology for the treatment of wastes in Asian countries.

On this note, I once again record deep appreciation to FACS and the organising committee and it is my fervent hope that this Course will be but the forerunner of more courses in related fields not only here in Malaysia but also elsewhere in this region and declare this Course officially opened.

DEPARTMENT OF ENVIRONMENT,
MINISTRY OF SCIENCE, TECHNOLOGY AND ENVIRONMENT.
MARCH, 1984.

SPEECH BY Y.B. DATUK AMAR STEPHEN YONG, THE MINISTER OF SCIENCE, TECHNOLOGY AND THE ENVIRONMENT, AT THE OPENING CEREMONY OF THE KUALA LUMPUR ECOVILLE SEMINAR ON URBANIZATION AND ECODEVELOPMENT (KUALA LUMPUR CASE STUDY) AT THE LANGUAGE CENTRE (PUSAT BAHASA), UNIVERSITY OF MALAYA, PANTAI VALLEY, ON MONDAY, 21 NOVEMBER, 1983 AT 8.30 A.M.

Yang Mulia Prof. DiRaja Ungku A. Aziz
Vice-Chancellor,
University of Malaya;

Yang Berbahagia Prof. Yip Yat Hoong,
Chairman of the Organizing Committee
and Dean of the Institute of Advanced
Studies,
University of Malaya;

Honoured Guests;

Distinguished Participants;

Ladies and Gentlemen.

I feel greatly honoured to be here this morning and wish to thank the Organizers for having invited me to declare open this Kuala Lumpur Ecoville Seminar on Urbanization and Ecodevelopment (Kuala Lumpur Case Study).

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The word 'Ecoville' may sound strange to many. It really stands for "Ecology and Economy of Cities". I understand that it is the aim of Ecoville to find a new approach to managing the development of cities utilizing all human, natural and financial resources available with emphasis on preventive rather than curative measures, based on its ecologically sound development principle. In particular, such an approach would be designed:

(a) to minimize the impact of urbanization on the environment;

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(b) to gradually improve its living conditions of the population, thereby to improve the quality of life;

(c) to provide a productive economic base that will help its overall societal development process within the country.

To undertake such a purposeful and tremendous task, it requires breadth of vision, foresight and determination. The organizers and participants therefore deserve our respect and gratitude. The least we can do is to give them our encouragement and support.

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As you all know, Project Ecoville in Malaysia is initiated by the Institute of Advanced Studies, University of Malaya under Professor Yip Yat Hoong, Dean of the Institute and Chairman of the Study Group in Kuala Lumpur. The Study Group at present consists of a team of multi-disciplinary researchers from the University of Malaya, University of Science Malaysia, Universiti Pertanian Malaysia and Universiti Kebangsaan Malaysia. This Study Group will be working in collaboration with the School of Pacific Studies of the Australian National University and the Institute of Environmental Studies in the University of Toronto, Canada.

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It is evident that all cities, particularly those in developing countries which lack facilities and amenities, do face tremendous natural and environmental problems arising from the concentration of population, resulting in a falling of the standard of living. The bigger the city, the more complex are the problems which may not be effectively studied in isolation by any single group. As such, I understand that the Organizers therefore decided to choose a smaller city as a case study. Hence, the choice of Kuala Lumpur, since it has all the symptoms of over-urbanization, yet small enough in terms of population and physical size for detailed analysis to be carried

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out. I note that a number of specific study areas have been identified and proposed for discussion in this Seminar. Among these are:-

(a) Demographic characteristics of the urban population of Kuala Lumpur;

(b) Structure and process of societal developments and quality of life;

(c) Health and hygiene within the socio-cultural system;

(d) Environmental change as reflected in its disruptions; and

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(e) The overall form and morphology of city as a habitat.

This Seminar will, I hope, produce a draft of a formal research proposal to study Kuala Lumpur using an ecosystem approach to understand the relationship between its population and the environment aimed at achieving a better quality of life in the city. In this respect, may I suggest that emphasis be placed on preventive measures. The Government's policy of dispersal of industrial estates, setting up of satellite towns (e.g. under the Kuala Lumpur Master Plan)

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and establishment of new townships in less populated areas (as in the Jengka Triangle) which may entail certain movement of people, sufficient to be the preventive measure in halting the migration flow to the city? What effective steps ought to be taken to induce the rural folks to stay in the rural areas? What are the effective measures that should be taken to prevent the appearance of slums or shanty towns in the city? What conditions should be created in urban areas for the urban inhabitants?

You may find time to examine these areas or include them as part of the Study.

The Seminar is concerned with Environment as a whole. As the Minister of Science, Technology and the Environment, I therefore have a keen interest in it. It is my fervent hope that what will transpire from this Seminar would not merely be an academic exercise or treatise, but would evolve practical and viable recommendations for action. I shall therefore follow your Study closely and look forward to receive a report of your recommendations.

On this note, I now have the pleasure to declare this Seminar officially open.

UCAPAN Y.B. MENTERI SAINS, TEKNOLOGI DAN ALAM SEKITAR, DATUK AMAR STEPHEN K.T. YONG SEMASA MERESMIKAN PERMULAAN LOJI PENGOLAHAN EFFLUEN DI KILANG AJINOMOTO (MALAYSIA) BERHAD PADA 6HB MEI, 1983.

Yang Berhormat Mulia
Tan Sri Tunku Mohamed bin Tunku Besar
Burhanuddin,
Pengerusi,
Ajinomoto (Malaysia) Berhad;

Mr. Matsumoto,
Pengurus Besar,
Ajinomoto (Malaysia) Berhad;

Tan Sri-Tan Sri;

Datuk-Datuk;

Dzif-Dzif yang dihormati;

dan seterusnya para hadirin sekalian.

Saya berasa amat berbesar hati dan bertuah kerana dijemput merasmikan permulaan Loji Pengolahan Effluen Kilang Ajinomoto (Malaysia) Berhad.

As I was saying, it is both a great pleasure and honour to have been invited

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to officiate at the commissioning of the industrial effluent treatment plant of Ajinomoto (Malaysia) Berhad. The management of this Company must be commended for their forward-looking attitude and sensitivity to environmental concerns. That Ajinomoto (Malaysia) Berhad has put up an outlay of no less than 5 million ringgit on this industrial effluent treatment system, is eloquent testimony both to their willing and ready acceptance of responsibility to the environment in which the Company operates and to their unflagging confidence in the resilience and growth prospects of the Malaysian economy. This is significant indeed when we consider that this effluent treatment plant is put up at a time when

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the economy is experiencing a slow down.

Malaysia as a developing country has to pursue actively a policy of economic growth, in order to meet our New Economic Policy objectives by 1990. What is of great concern to us is that such pursuit of development paying scant attention to environmental impact has brought to the fore many problems of damage and disruption to the human environment.

Environmental disruption and pollution of the biosphere have grown in scale and become more complex in this modern world of ours. In the quest for improvement of our standard of living, the chosen path is that of rapid economic

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development.

The economic activities have reached such a level that the residual flows of materials and energy have begun to alter the physical, chemical and biological quality of the human environment in certain regions. It is timely to take stock of the price paid by society at large for haphazard and ill-planned economic activities. For example, deforestation and attendant denudation of the forest cover can destablize water flows, leading to siltation of rivers, reservoirs, hydro-electric dams and irrigation works, resulting in severe flooding and water shortages and stress situations during periods of drought such

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as the present one. Other negative aspects of ill-planned economic development and industrialization without adequate environmental safeguards include: crop damage due to increasing air and water pollution, loss of fisheries down-stream due to water pollution and dam and highway construction, loss of good quality farmland to urban sprawl, pollution of coastal waters caused by wastewater discharges from communal and industrial sources and oil pollution from passing ships, loss of wildlife habitat due to deforestation and to reservoir construction, increased health risks due to discharge of toxic and hazardous wastes and to accumulation of persistent chemicals in the environment.

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It is a sobering thought, once we reflect that there is only one land mass, one atmosphere and a finite supply of water for us to share - and the seas are by no means a bottomless sewer. To survive, let alone maintain life in dignity, we must make the best use of these environmental resources so that sustainable development can take place and that we do not foreclose options of future generations.

To do so and to meet the rising aspirations and changing lifestyles in face of population growth, we have to place reliance on harnessing advances in science and technology in the area of environmental protection and wise resource management.

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We cannot afford to let pollution negate the hoped-for flow of benefits from development. A sensible balance has to be struck! To this end, environmental protection is best integrated as a dimension of socio-economic development since we neither desire an immaculate environment for its own sake nor all-out development at the expense of the environment and of society.

The year 1975 marked the beginning of a new emphasis on the environment in Malaysia - a turning point - a year when the quality of life became more than just a phrase. Environment and pollution have since become household words, signifying

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them being the focus of public attention and concern.

The Environmental Quality Act, 1974 has now been in force for eight years. A priority task has been to contain and deal with environmental problems that had accumulated over the years through restorative measures backed by systematic enforcement of the various Regulations under the Act while developing strategies to forestall future problems.

Logically, it would be sensible to work out a proper environmental plan to be carried out within the general 'planning' framework before any pollution

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control work is carried out. In the Malaysian context, having due regard to the necessary lead-time required to evolve a sound plan (data collection, resources, trained manpower, etc.) and the urgency of enforcing anti-pollution measures which call for immediate remedial action, the pollution control exercise has been somewhat delayed in the Environment Department's programme for environmental conservation and enhancement of environmental quality.

However, the sustained environmental improvement effort of the past 4 years has made significant inroads into the problems of the agro-based industries namely, palm oil and rubber, the most chronic sources

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of water pollution. Our experience in the implementation of the Regulations to control pollution from these industries can be regarded as most encouraging as these industries have been constructively receptive to the Regulations and have progressed satisfactorily towards meeting the desirable target of 100 parts per million B.O.D. (Biochemical Oxygen Demand).

Similarly, effluent discharges from other industries such as food, textiles, chemicals, etc. and domestic discharges are controlled by the Environmental Quality (Sewage and Industrial Effluents) Regulations 1979. About 60% of the 6,000 industrial premises in the country, i.e.

about 3,600 factories are subject to these Regulations. It is estimated that BOD generated from these industries amount to 124 tonnes per day. The enforcement of the Sewage and Industrial Effluents Regulations, has reduced the BOD load discharged from these industries to about 50 tonnes per day which amount to a 40% reduction in the BOD load from these industries.

The progress made so far is, in large measure, a reflection of the investment the nation has made in cleaning up the environment with contributions both by the Government, industry and research institutions and the universities.

Considerable improvement has been recorded in the water quality of several of our rivers, which at one time were characterized as grossly or moderately polluted.

It must be recognized particularly in the context of developing countries that environmental control regulations, however, skillfully formulated and drafted in themselves constitute no magic wand to cure environmental ills of society overnight or even in a relatively short time span. An immense amount of hard work to ensure that the standards set are realistic, in terms of protecting the environment, that the technology for treatment is either available or can be developed readily,

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and that the treatment involved is cost effective in the sense of being within the means of the industry concerned, has to be backed up by systematic and sustained enforcement to get across the message that the authorities mean business.

I think that the measure of the success to date in Malaysia in bringing environmental pollution woes to manageable proportions are in the main due to the pragmatic, systematic and business-like approach consistently adopted by the Environment Department backed up at the same time by uncompromising, firm yet fair approach in enforcing the regulations which it has a mandate to enforce in the public interest.

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The good working relationships built up over an extended period of time with the research institutions in Malaysia and all five universities along with a whole spectrum of public sector agencies, both at the Federal and State levels have stood us in good stead.

It is unfortunate that despite the good response and co-operation from the industries in general in the protection of the environment, a few have been found to be lax in complying with the standards despite repeated warnings and sufficient time being given. The Environment Department under my Ministry has therefore no alternative, but to opt for the "more

stick and less carrot" approach, and to date, a total of 66 factories have been prosecuted in Court for non-compliance with the Regulations.

It is a widely-held belief that expenditure in pollution control is non-productive, that it constitutes an investment without return and it is at best tying up capital for no good reason, and at worst a contributor to inflation. The enterprise, whether private or public, tends to regard pollution control as a major financial burden to be avoided as long as possible and then only to be undertaken reluctantly after a good deal of lip-service.

In this respect, we must applaud Ajinomoto (Malaysia) Berhad for their most innovative and far-reaching initiative in demonstrating that investment in pollution control need not necessarily be considered as money spent without any returns. On the contrary, investment in pollution control should be looked upon in the same way as research and development since, as has been shown in this case new products and new processes often emerge if pollution control is looked at positively and constructively. The goal of industry should be to use resource conservation technology where and when possible and practical. Ajinomoto (Malaysia) Berhad by applying its own ingenuity to develop its own resource conservation know-how,

has been able to convert its so-called waste into useful by-product, namely, fertilizer, fetching an annual return of approximately $500,000 a year, thus offsetting nearly half the operational cost of the treatment system.

Ladies and Gentlemen,

Essentially waste is generated by human activity and is in a sense a misplaced resource. Natural systems are generally closed systems. Man on the other hand has developed 'open' systems - ending all too often in an open sewer or an open dump.

We can no longer afford the indiscriminate waste of our natural resources. Neither should we accept as

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CATITAN MENGENAI LAWATAN Y.B. MENTERI SAINS,
TEKNOLOGI DAN ALAM SEKITAR KE NEGERI SELANGOR
PADA HARI ISNIN, 5HB. SEPTEMBER, 1983

Menteri Besar Selangor, Y.A.B. Datuk Haji Ahmad Razali bin Mohd. Ali mengalu-alukan Y.B. Menteri Sains, Teknologi dan Alam Sekitar dan rombongan Y.B. Pegawai-Pegawai Kerajaan Negeri Selangor yang ditemui ialah :

En. Rusli Hussein	-	Timbalan S.U.K.
Dato Ishak Ariff	-	Pegawai Perancang
En. Murad		

Dalam taklimat permulaan, Y.A.B. menegaskan bahawa dalam perancangan dan kemajuan Negeri Selangor pertimbangan yang berat patut diberikan kepada alam sekitar. Sebagai contoh YAB memberitahu bahawa Kerajaan Negeri telah memutuskan bahawa kesalahan seperti yang berlaku di Batu Caves harus di-elakkan dan sekiranya satu tempat ditetapkan sebagai kawasan perindustrian, maka kemajuan perumahan sepatutnya tidak dibenarkan di sekeliling kawasan itu yang dikatakan 'Zone of impact of residual pollution'. Seterusnya YAB menyentoh perkara-perkara berikut :-

C.C.M

1. Kawasan CCM telah ditetapkan sebagai kawasan perindustrian dan projek perumahan tidak dibenarkan di sekeliling kawasan itu.

2. Cadangan untuk membina rumah pangsa di seksyen 16 telah dibatalkan. Projek ini akan dipindahkan ke Seksyen 21.

3. CCM tidak dibenarkan untuk menambahkan pengeluarannya.

4. Penguatkuasaan Peraturan-Peraturan Alam Sekitar harus dipertingkatkan.

5. Penduduk-penduduk di sekeliling CCM yang sedia ada tidak akan dipindahkan.

6. Pertimbangan sedang diberi untuk menukar kawasan di sekeliling CCM sebagai 'light industrial estate'.

Selain daripada itu, YAB juga menarik perhatian mesyuarat mengenai kemungkinan besar masalah pencemaran dari projek-projek Hicom, perternakan babi di Sg. Buluh dan Sepang, bunyi bising di jalan raya, Pan Malaysian

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Cement di Rawang, dan meminta kerjasama pihak Y.B. menteri Sains, Teknologi dan Alam Sekitar untuk menjaga dan mengatasi masalah-masalah tersebut.

Mengenai Sg. Kelang YAB Menteri Besar menegaskan bahawa satu usaha sama antara pihak Wilayah Persekutuan Kerajaan Negeri Selangor dan Kementerian Sains, Teknologi dan Alam Sekitar adalah perlu.

Y.B. Menteri Sains, Teknologi dan Alam Sekitar mengucapkan ribuan terima kasih kepada YAB Menteri Besar di atas sambutan baik lawatan beliau dan rombongannya. Y.B. amat bersukacita kerana strategi pembangunan Kerajaan Negeri Selangor adalah selaras dengan matlamat Kementerian beliau dan yakin bahawa Negeri Selangor boleh menjadi sebagai satu tauladan bagi negeri-negera lain dalam memberi pertimbangan terhadap alam sekeliling di samping menjalankan projek-rojek pembangunan.

Y.B. Menteri seterusnya membangkitkan isu-isu seperti berikut:-

1. Kerajaan Negeri Selangor patut memberi kepentingan kepada pelaksanaan 'Central Sewerage System' khususnya bagi bandar-bandar baru supaya sistem yang digunakan pada masa ini seperti tangki septik, dam 'pour-flush' yang tidak memuaskan dapat dihapuskan.

2. Tapak untuk melupuskan bahan toksik dan merbahaya.

Y.B. Menteri menegaskan bahawa dengan penguatkuasaan peraturan-peraturan alam sekitar banyak bahan toksik dan membahayakan akan dikeluarkan dari kilang-kilang yang mempunyai sistem pengolahan effluen. Selain daripada itu bahan toksik dan membahayakan juga akan dikeluarkan dari punca-punca lain seperti racun serangga yang telah diharamkan. Satu tapak khas harus diperuntukkan bagi melupuskan bahan-bahan yang tersebut di atas. YAB Menteri Besar adalah diminta untuk memberi pertimbangan berat dalam perkara ini.

Y.B. Menteri juga membangkitkan perkara mengenai Templer Park. Y.B. menyatakan bahawa dalam kawasan tersebut terdapat 6 buah rumah setinggan dan meminta kerjasama YAB Menteri Besar untuk mengeluarkan keluarga tersebut supaya Taman Templer dapat dimajukan selanjutnya.

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Adalah juga dipersetujui satu jawatankuasa ditubuhkan untuk menguruskan taman tersebut.

Y.B. Menteri juga menyatakan bahawa SIRIM di bawah Kementeriannya pada masa ini adalah dalam proses membina 3 bangunan baru dan permohonan berkenaan bangunan-bangunan ini telah dihantar ke PKNS untuk mendapat kelulusan. Oleh kerana kelewatan mendapat kelulusan ini, kerja-kerja piling tidak dapat dimulakan, oleh itu sebanyak $1,000/- sehari terpaksa diberikan kepada pihak kontraktor sebagai gantirugi. Oleh itu Y.B. Menteri meminta untuk mencepatkan pertimbangan kes ini.

Sebagai penutup, YAB Menteri Besar sekali lagi mengucapkan berbanyak terima kasih atas lawatan Y.B. Menteri ke Negeri Selangor dan menyatakan bahawa lawatan ini adalah sangat berguna dalam mengujudkan hubungan kerja yang rapat di antara pihak Kementerian Y.B. dan Kerajaan Negeri Selangor.

AM/cls.

UCAPAN Y.B. DATUK AMAR STEPHEN
K.T. YONG, MENTERI SAINS, TEKNOLOGI
DAN ALAM SEKITAR SEMPENA UPACARA
PERASMIAN PEMBUKAAN SEMINAR
MENGENAI KAWALAN PENCEMARAN DAN
PENGURUSAN ALAM SEKITAR ANJURAN
PERSATUAN DAYA PENGELUARAN MALAYSIA
CAWANGAN JOHOR BAHRU PADA HARI SELASA,
8HB NOVEMBER, 1983 DI Merlin Tower
JOHOR BAHRU, JOHOR JAM 9.30 PAGI.

Yang Berbahagia En. Mohd Nor bin Wazir,
Pengerusi, Persatuan Daya Pengeluaran
Malaysia (Cawangan Johor);

Yang Berusaha, En. R. Rasalingam,
Pengerusi Jawatankuasa Penganjur;

Yang Berbahagia En. S.T. Sundram,
Ketua Pengarah Alam Sekitar;

Para peserta, tuan-tuan dan puan-puan yang
dihormati sekalian.

Saya berasa amat sukacita dan mengucapkan berbanyak terima kasih di atas jemputan untuk merasmikan pembukaan Seminar mengenai Kawalan Pencemaran dan Pengurusan Alam Sekitar. Setinggi-tinggi tahniah ingin saya ucapkan kepada Jawatankuasa Penganjur yang telah berusaha dengan bertungkus-lumus untuk menjayakan penganjuran seminar ini.

Seminar ini ialah yang ke-2 yang dianjurkan oleh Persatuan Daya Pengeluaran Malaysia dengan kerjasama Jabatan Alam Sekitar Kementerian saya. Seminar ini adalah berikutan daripada seminar yang pertama yang berlangsung

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di Ipoh dalam bulan September, 1982 yang telah mendatangkan banyak faedah dari segi mengwujudkan kesedaran terhadap kepentingan melindungi alam sekeliling dan khususnya pada mereka yang ada di peringkat operasi di-dalam bidang perindustrian. Pada hemat saya, kerjasama dan hubungan rapat di antara M.A.P. dengan Jabatan Alam Sekitar merupakan suatu sumber penggalakan. Saya yakin bahawa kerja-sama seumpama ini akan menentukan supaya sumber-sumber kita yang terhad dapat digunakan secara optimum demi kebaikan alam sekeliling kita.

A point of view has been expressed that industrialization as a means to economic growth is the common aspiration of most of the developing countries and, therefore, has been given priority. The concern for protection of the environment has to be regarded as of

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secondary importance, particularly because such infrastructures and facilities for control of pollution would require more funding and capital investments which are scarce commodity in developing countries.

Experience has shown however that industrial pollution, until recently considered a problem of a lesser order in many developing countries, has now come to be recognized for what it is - a major health hazard which, if not tackled properly, can soon assume serious proportion.

It has now become urgent for developing countries to recognize the rapid deterioration of the environment that can occur, particularly in terms of the quality of the water in our rivers and streams which in turn influences the quality of life in rural as well as urban areas. It will not be possible to sustain long-term growth, development and improvement in the standard of living if the watercourse carries

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toxic chemicals and other pollutants with the capacity to imperil human, animal and plant life.

This brings us to a broader plane and the question: how much and how long can the earth's ecosystem and environment withstand the onslaught of disruption, degradation and pollution? Can we afford the wanton depletion of our earth's resources through wasteful exploitation?

In recent years, the public has come increasingly to appreciate that our well-being, health, welfare and safety, including that of future generations, depend on conserving a wholesome environment and on how we treat our earth today. It is now more widely accepted that our resources are both fragile and finite; and development cannot confer lasting benefits on any nation unless environmental considerations of man and his related ecosystem become part and parcel to development planning and decision-making.

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Therefore, our pursuit of accelerated economic growth and social betterment should best be within the framework of environmentally sound and sustainable development. Maintaining environmental quality on one hand and development on the other need not be incompatible or mutually exclusive, if viewed in proper prospective.

Indeed, our strategy in Malaysia has been to protect its environment, whilst forging ahead with economic growth and development. Our approach, therefore, is to consider environment as an integral part of development and to forestall and head-off environmental degradation rather than resort to costly and time-consuming remedial measures after suffering damage, disruption and degradation. This approach places a premium on advanced planning in environmentally-related activities geared to the long-term conservation of environmental assets.

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As you know the Environmental Quality Act, was enacted in 1974. In looking back, I note with satisfaction at the increasing awareness and interest among the general public, government agencies, voluntary organizations, State Governments and the private sector which have contributed considerably to the environmental and conservation mandate of my Ministry. The spectrum of activities that we are engaged in today to restore, protect and enhance the environment, while at the same time making the most effective use of our natural resources, can be considered a fair reflection of how we are action-oriented, yet with a positive concern and approach to the quality of life.

The provisions of the Environmental Quality Act, 1974 are rather wide in scope and for this reason, a strategy providing for systematic and selective implementation has been adopted.

Priority has been given to the control of pollution through the enforcement of the

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following Regulations:-

(i) Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations, 1977.

(ii) Environmental Quality (Clean Air) Regulations, 1978.

(iii) Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations, 1978.

(iv) Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979.

(v) The Motor Vehicles (Control of Smoke and Gas Emission) Rules, 1977.

All these sets of Regulations have now been in force for all industries well over three years and it may be the time to have some sort of stock-taking to evaluate progress, identify problem areas and constraints and to chart the course for the future in line with the Malaysia

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Incorporated concept.

Thus, this Seminar has a valuable role to play as a forum for recommending necessary remedial and purposeful actions to be taken in the years ahead.

Since it is organized on a regional basis, this is a well-placed venue in having a built-in advantage to focus squarely on problems relevant to the State of Johore. For this reason, the Southern Region has been rightly chosen as it has a set of environmental problems and it is one of the areas identified by the DOE for priority action in terms of pollution control strategies. In addition, the Office here having been established in early 1981, was one of its earliest branch offices.

Let me now turn the focus briefly on environmental problems pertinent to this part of Malaysia.

Johore has a total of 12 industrial estates

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and another 361 industrial establishments outside the industrial estates, accounting for about 722 point sources. In addition, there are 51 palm oil mills and 52 rubber factories located within the State of Johore and these together with other industrial sources, ranging from factories producing foodstuffs, animal feed, rubber products plastics, textiles to those manufacturing electronics components, machinery and a motor vehicle assembly plant, discharge a variety of pollutants ranging from highly organic to toxic inorganic substances, including heavy metals into the watercourses causing considerable water pollution problems.

Water Quality Monitoring data for the period of 1979 - 1981 showed that some tributaries of the rivers in Johore are polluted. These include Sungai Simpang Kiri and Sungai Simpang Kanan of Sungai Batu Pahat downstream point of Sungai Benut, Sungai Beragan of Sungai Johor and Sungai Samberong of Sungai Endau. Water pollution

problems in the State stem mainly form palm oil mills. As of 1 January 1984, all palm oil mills will have to comply to the BOD level of 100 ppm. as compared to the permitted level of 250 ppm at present.

The other sources of pollution are the sewage discharges from homes and siltation due to development of land and other natural resources.

The discharge of sewage is now emerging as a significant source of pollution. Inadequate sanitation and sewage treatment continue to contribute to the prevalence of water-borne communicable diseases, such as cholera, dysentry, diarrhoea and so on, and the pollution of the coastal waters of the recreational beaches with considerable impact on the tourist industry.

Pollution due to sewage can only be overcomed through the provision of a centralized sewerage system. A total of 14 Sewerage Master Plan Studies for sewerage systems have been

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carried out for the major towns in the country, and I hope that top priority could be given for the implementation of these systems so that problems due to sewage discharge can be averted.

The air, noise and odour pollution problems emanate mainly ~~form~~ from wood-working industries, chemical industries, quarries and rubber factories. Apart from industrial sources, smoke and obnoxious gases from about 516,383 motor vehicles, (6.4% of them diesel-powered), have contributed significantly to air pollution problems.

Johore has continued to account for many complaints both with regard to water and air pollution. For example, the State alone accounted for 24% of the total water pollution complaints and 12% of the total air pollution complaints handled by the DOE in 1982.

The task of environmental management is both so vast and complex that to accomplish it

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effectively, the responsibility must be shared. This is all the more necessary in the Malaysian context as Malaysia has a three-tier system of Government - they are the Federal Government, the State Governments and the Local Authorities with each level having legislative and administrative competence in specific fields. This implies taking into account division of responsibilities among the three levels of Governments in our approach to solving environmental problems through effective co-ordination and willing co-operation so that available resources of manpower and funds are deployed to good purpose, avoiding both duplication of efforts and resources being spread too thinly to be effective.

As matters pertaining to land-use such as housing development, sewerage, siting of industrial estates, location of industries and approval of industrial applications which are fundamentally important in environmental

management, fall explicitly under the jurisdiction of the State Governments, either directly or through authorities subordinate to them such as municipalities and other local authorities, they have a definite role in the successful management of the environment.

The Environmental Quality Act, 1974 and the various Regulations under it are directed principally towards controlling pollution from point sources, such as industrial pollution in the form of discharges and emissions and sewage from domestic sources which damage our common resources, namely, land, air and water. However, they by no means provide the complete answer in tackling the broad gamut of environmental issues emanating from the development of land and natural resources. These problems can only be overcomed through proper environmental planning and measures taken right from the initial planning stage of a development project. This is another area where

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the State Governments have an important role to play in ensuring that the imperatives of sound environmental management are integrated into development projects to avoid environmental degradation, and costly and time-consuming remedial measures.

In this respect, the DOE has responded to this task positively by preparing several guidelines which are intended to help State Governments and other agencies to incorporate environmental considerations into their development plans. Among the more important guidelines are:-

a) Guidelines for Zoning and Siting Industries

b) Guidelines for Environmental Impact Assessment

c) Guidelines for Selection of Sites for Solid Waste Disposal and Management of Site; and

d) Guidelines for Prevention of Erosion and Siltation.

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With the establishment of Regional Offices throughout Malaysia including Sabah and Sarawak, the DOE is better placed to continue to apply our strategy for environmental management and enhance our effectiveness still further.

I notice from the programme that this Seminar will deal with all aspects of environmental management. This Seminar is therefore most opportune as it would greatly help the industries in taking appropriate measures to safeguard the environment because without such co-operation it would be an impossible task to protect our environment.

Let me draw the attention of this Seminar to the question of resource conservation which should become an integral part of an effective pollution control strategy. The present wasteful approach of production, consumption and dumping is using up natural resources at an unprecendented rate. Ideally, industries should convert their

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wastes into useful products through a programme of waste utilization and recycling as well as the use of low-waste and non-waste technology for production. Resolute efforts are required in this area, drawing upon local expertise as well as foreign assistance, to develop cost-effective technology appropriate to our environment.

At this juncture, may I point out that another source of great concern to my Ministry is the discharge of toxic and hazardous wastes from industries into the environment. These wastes are becoming a threat and will severely affect our environment. The industrialized nations have already employed different methods of disposal for these types of wastes. They have set up special units or plants to deal with them.

In our case, the ~~measures~~ initial step we are going to take would be in the form of drawing up a register of industries generating toxic and hazardous

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wastes; classifying the categories of the wastes; studying the types of receptacles for such wastes according to their classification; and ~~determining~~ to be followed by adopting the suitable ~~methods~~ measures of disposal so that lives and the surrounding environment would not be endangered. ~~A~~ An Inter-agency Committee has already been established by my ministry to look into these matters and some draft guidelines should be formulated soon.

Tuan-tuan dan puan-puan,

Saya berharap Seminar ini akan menghasilkan perbincangan yang menarik serta memberikan peluang untuk bertukar fikiran dan pengalaman di antara satu sama lain demi kebaikan kita semua. Saya akan mengikuti perbincangan yang akan diadakan serta mengharapkan ringkasan hasil-hasil Seminar ini.

Dengan ini, saya dengan sukacitanya meng-isytiharkan Seminar ini dibuka dengan rasminya.

SPEECH BY Y.B. DATUK AMAR STEPHEN YONG, THE MINISTER OF SCIENCE, TECHNOLOGY AND THE ENVIRONMENT, AT THE OPENING CEREMONY OF THE KUALA LUMPUR ECOVILLE SEMINAR ON URBANIZATION AND ECODEVELOPMENT (KUALA LUMPUR CASE STUDY) AT THE LANGUAGE CENTRE (PUSAT BAHASA), UNIVERSITY OF MALAYA, PANTAI VALLEY, ON MONDAY, 21 NOVEMBER, 1983 AT 8.30 A.M.

Yang Mulia Prof. DiRaja Ungku A. Aziz
Vice-Chancellor,
University of Malaya;

Yang Berbahagia Prof. Yip Yat Hoong,
Chairman of the Organizing Committee
and Dean of the Institute of Advanced
Studies,
University of Malaya;

Honoured Guests;

Distinguished Participants;

Ladies and Gentlemen.

I feel greatly honoured to be here this morning and wish to thank the Organizers for having invited me to declare open this Kuala Lumpur Ecoville Seminar on Urbanization and Ecodevelopment (Kuala Lumpur Case Study).

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The word 'Ecoville' may sound strange to many. It really stands for "Ecology and Economy of Cities". I understand that it is the aim of Ecoville to find a new approach to managing the development of cities utilizing all human, natural and financial resources available with emphasis on preventive rather than curative measures, based on its ecologically sound development principle. In particular, such an approach would be designed:

(a) to minimize the impact of urbanization on the environment;

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(b) to gradually improve its living conditions of the population, thereby to improve the quality of life;

(c) to provide a productive economic base that will help its overall societal development process within the country.

To undertake such a purposeful and tremendous task, it requires breadth of vision, foresight and determination. The organizers and participants therefore deserve our respect and gratitude. The least we can do is to give them our encouragement and support.

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As you all know, Project Ecoville in Malaysia is initiated by the Institute of Advanced Studies, University of Malaya under Professor Yip Yat Hoong, Dean of the Institute and Chairman of the Study Group in Kuala Lumpur. The Study Group at present consists of a team of multi-disciplinary researchers from the University of Malaya, University of Science Malaysia, Universiti Pertanian Malaysia and Universiti Kebangsaan Malaysia. This Study Group will be working in collaboration with the School of Pacific Studies of the Australian National University and the Institute of Environmental Studies in the University of Toronto, Canada.

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It is evident that all cities, particularly those in developing countries which lack facilities and amenities, do face tremendous natural and environmental problems arising from the concentration of population, resulting in a falling of the standard of living. The bigger the city, the more complex are the problems which may not be effectively studied in isolation by any single group. As such, I understand that the Organizers therefore decided to choose a smaller city as a case study. Hence, the choice of Kuala Lumpur, since it has all the symptoms of over-urbanization, yet small enough in terms of population and physical size for detailed analysis to be carried

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out. I note that a number of specific study areas have been identified and proposed for discussion in this Seminar. Among these are:-

(a) Demographic characteristics of the urban population of Kuala Lumpur;

(b) Structure and process of societal developments and quality of life;

(c) Health and hygiene within the socio-cultural system;

(d) Environmental change as reflected in its disruptions; and

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(e) The overall form and morphology of city as a habitat.

This Seminar will, I hope, produce a draft of a formal research proposal to study Kuala Lumpur using an ecosystem approach to understand the relationship between its population and the environment aimed at achieving a better quality of life in the city. In this respect, may I suggest that emphasis be placed on preventive measures. The Government's policy of dispersal of industrial estates, setting up of satellite towns (e.g. under the Kuala Lumpur Master Plan)

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and establishment of new townships in less populated areas (as in the Jengka Triangle) which may entail certain movement of people, sufficient to be the preventive measure in halting the migration flow to the city? What effective steps ought to be taken to induce the rural folks to stay in the rural areas? What are the effective measures that should be taken to prevent the appearance of slums or shanty towns in the city? What conditions should be created in urban areas for the urban inhabitants?

You may find time to examine these areas or include them as part of the Study.

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The Seminar is concerned with Environment as a whole. As the Minister of Science, Technology and the Environment, I therefore have a keen interest in it. It is my fervent hope that what will transpire from this Seminar would not merely be an academic exercise or treatise, but would evolve practical and viable recommendations for action. I shall therefore follow your Study closely and look forward to receive a report of your recommendations.

On this note, I now have the pleasure to declare this Seminar officially open.

Rep. (M)

PRESS RELEASE

STATEMENT BY YB. ENCIK LAW HIENG DING, PARLIAMENTARY SECRETARY, MINISTRY OF SCIENCE, TECHNOLOGY & ENVIRONMENT MALAYSIA, LEADER OF THE MALAYSIAN DELEGATION AT THE SESSION OF A SPECIAL CHARACTER OF THE GOVERNING COUNCIL OF THE UNITED NATIONS ENVIRONMENT PROGRAMME IN NAIROBI, KENYA ON 12TH. MAY, 1982

Mr. President,

Thank you for giving me the floor.

On behalf of the Malaysian delegation, please allow me at the outset to extend my heartiest congratulations to you on your election to the highly esteemed office of the President. In so doing, I would also like to congratulate the other members of the Bureau on their election. I am confident that with your able leadership and distinguished experience, this session will come to a successful conclusion. Let me also take this opportunity to join other members of the delegations in extending our deep appreciation to the Government and the people of Kenya for their warm hospitality.

Mr. President,

For centuries mankind has lived seemingly confident of the permanence and nurturing capacity of nature. The tendency has therefore, developed to equate development with the more narrowly conceived objective of economic growth as measured by increases in gross national product from year to year. In essence, development and growth were measured by physical indicators only. Since the epochal Stockholm Conference on Human Environment in 1972, it has become increasingly recognised that nature is by no means an infinite asset to be exploited at will but rather a fragile and finite resource in need of comprehensive protection and environmentally sound management. Though the major environmental problems in developing countries stemmed predominantly from the relative lack of development and inadequate infrastructure, in short poverty itself seemed polluting, it was increasingly recognised that the high rates of economic growth necessary and desirable

as they were, particularly to developing countries did not in themselves guarantee the easing or urgent social and human problems and that environment must be considered as an integral part of development. This has served to provide new dimensions to the development concept itself and developing countries today in the light of many advances in science and technology can be said to have better access to the means and the 'know-how' to effectively deal with environmental issues before they assume crises proportions. In this respect, it can be said that UNEP has indeed achieved substantial success over the years through its catalytic and coordinating role in bringing about public awareness and heightened perceptions particularly in the developing countries of a wide range of environmental issues. Today, a number of developing countries, while forging ahead with economic growth to eradicate poverty and provide their people a better standard of living, have evolved policies for environmental management and are currently in the midst of a dynamic programme aimed at assuring their people the full benefits from projects by forestalling negative side-effects through careful planning which takes due account of environmental factors.

Mr. President,

The review of the major achievements gives a picture that the Stockholm Action Plan was not fully implemented. In this connection it can be said that the shortfalls in terms of achieving the lofty objectives enshrined in the Action Plan are largely due to overly ambitious targets set in the first instance often without clear ranking of priorities as well as lack of political will in the ensuing years.

However, despite the shortcomings, it is evident that UNEP over the years has emerged as a significant and important institution to be reckoned with on the world environment scene imbued with a deep sense of commitment towards system-wide environmental concerns. In this regard my delegation notes with satisfaction that considerable progress has been achieved by UNEP in galvanising the efforts of

other UN organisations through its thematic joint programming meetings and the preparation of system - wide medium term environment programme. In addition, there are several other areas where UNEP can be said to have made useful contributions which have helped developing countries considerably in the management of their environment. Foremost amongst UNEP's activities that have been most beneficial are:-

(i) the successful regional seas programme;

(ii) In corporation of environmental considerations into development policies, programmes and projects by multilateral development funding agencies;

(iii) Development of global plan for the wise utilisation of tropical forests;

(iv) Development of environmental information systems, namely, INFOTERRA and the IRPTC (International Register of Potentially Toxic Chemicals) for effective decision making;

(v) Environmental assessment through the Global Monitoring System (GEMS);

(vi) Development of environmental impact assessment guidelines for providing decision makers policy guidelines and insights for achieving better economic and social progress through rational use of resources and sustained productivity from the environment;

(vii) Launching of the World Conservation Strategy;

(viii) Technical assistance through Regional Advisory Services.

"From the Malaysian experience, it is crucial for developing countries, particularly those not richly endowed with a variety of resources, to pay particular attention to the negative side-effects of development. This is important with a view to ensuring that development does not impose an undue strain upon their own limited social, medical, and other services. These countries need to protect their resources, both currently available and future, on the principle that renewable resources can best be husbanded on a sustained basis from a healthy environment. In addition, these countries must be constantly aware that because of their limited size their most basis resources are finite, and thus far-sighted resource.

Accordingly, Malaysia's strategy has been to protect its environment while forging ahead with economic growth and development. For example, the forest sector of Malaysia contributed significantly to the implementation of socio-economic development programmes designed to achieve the objectives of the new economic policy launched in 1971 to eradicate poverty and to restructure society. Paradoxically, while the programmes generated substantial socio-economic benefits, they also created serious environmental problems and generally had adverse impacts on the natural as well as human environment because many of the programmes were based on the extensive exploitation and processing of the natural forest resource and the ultimate conversion of the land to agricultural uses. Malaysia has initiated several necessary measures for the sound development of forestry in the country. A development strategy for the forest sector of Peninsular Malaysia has been formulated and a national forestry policy has been approved.

The tropical rainforest has been recognised as a vital component of the global environment. Unless urgent appropriate and effective action is taken not only to conserve the rapidly depleting tropical rainforest but also to manage it as a renewable resource, the ultimate impact on the human environment could be disastrous. It is, therefore, imperative that concerted efforts be directed at all levels to save the tropical rainforest, not only for the socio-economic benefits of the respective countries concerned but also for the greater benefit of all mankind.

Malaysian wildlife continues to attract interest both by reason of dwindling numbers and economic impact on development consequent

on lost of habitat. While elephants have caused extensive damage to plantation crops, this problem is being overcome both by electric fensing and translocation schemes. In addition more areas are being designated as sanctuaries and wildlife reserves."

The environmental mandate as empowered by the Malaysian Environmental Quality Act, 1974 is nothing less than improving the quality of life of the people to which the Government is totally committed. In this respect the Act is wide in scope and a strategy providing for systematic and selective implementation has been adopted. A priority task has therefore been to contain and deal with existing environmental problems that has accumulated over the years.

In accordance with the above strategy, pollution control has been the punch-line activity and efforts of the Ministry of Science, Technology and the Environment were concentrated on the development of administrative procedure and regulations for pollution control. However these Regulations are in themselves not sufficient to meet the increasing demands of environmental management as, with time, problems become more complex.

Basically therefore, the most effective methods of controlling environmental problem lie in the advance or forward planning in environmentally-related activities in terms of the long-term conservation of environmental assets. To this end, it is therefore necessary to ensure that the imperative of environmental protection are integrated into development projects to avoid environmental degradation and costly and time consuming remedial measures.

In view of this new approach to be adopted for the 1980s giving emphasis on integration of environmental protection into development planning, Malaysia while continuing with the task of pollu-

tion control, will be channelling its efforts into the development and application of new methodologies such as (i) environmental impact assessment procedure (ii) environmental information system; (iii) cost benefit analysis; (iv) criteria for resource use and conservation; (v) alternative patterns of development and life styles which are in harmony and give due consideration to the protection and enhancement of the quality of environment.

In addition, environmental education will also be given considerable importance as this has a vital role to play in reforming our society. We need new knowledge, new perceptions and new attitudes not only at all levels of the government but also throughout the private sector and individuals. What is needed is a basic rethinking of the way our society looks at problems and makes decisions especially as regards the management and development of our natural resources.

In line with the above objectives, a comprehensive environmental management programme has been evolved which encompasses among others the following elements:-

(1) Resource management and ecosystem preservation;

(2) Research into land use management;

(3) Forestry management;

(4) Wildlife management;

(5) Pollution monitoring;

(6) Ecosystem conservation;

(7) Environmental pollution control;

(8) Pollution of the marine and coastal environment;

(9) Contingency Plan to Combat Oil Pollution;

(10) Dispersal of industries;

(ii) Environmental Impact Assessment;

(12) Environmental education.

The environmental perceptions principles and approaches evolved by UNEP are therefore in reasonable agreement with the environmental approaches and objectives in Malaysia for the 1980s.

Turning to the future environmental trends my delegation is of the view that the major trends have been predicted with reasonable accuracy which are definitely helpful for Governments in planning their environmental activities effectively.

Mr. President,

Of all the social, political and economic changes, perhaps none is more important to the future of planet earth and the survival of succeeding generations than the change that is needed in the way we look at the Biosphere and its finite resources. Our well-being and the health, the safety - indeed the very survival of succeeding generations-depends on the outer limits and the carrying capacity of the environment not being transgressed.

57% of the world population are still to be found in the developing countries and their hopes for the future are increasingly pinned on national development. Accelerated development continuous as a global phenomenon of our times.

The new decade of 1980s is full of challenges caused by population pressures, energy crisis as well as the depletion of resources and other environmental concerns in the light of accelerated development. Therefore, there is a need to revive the sense of urgency and commitment by Governments for national, regional and global cooperation action to protect and enhance the environment. In this respect, UNEP has a formidable task of working towards a programme aimed at promoting a renewed commitment from all sectors of society to safeguard and enhance the quality of the environment for the present and future generations of man.

This Session of a Special Character is indeed a unique opportunity for Governments to review the progress made and reaffirm their support to the cause of the environment and to the United Nations Environment Programme.

I on behalf of the Government of Malaysia reaffirm the Malaysian Government's support to the United Nations Environment Programme and to the cause of the environment. In conclusion the Malaysian Government will increase its voluntary contribution to the UNEP Fund from US$10,000 to US$15,000 per annum up to the year 1985.

Embargo: Not for publication or
broadcast before 9.30 a.m.
on 11/1/82.

Inaugural Address by Tan Sri Ong Kee Hui, The Hon'ble Minister of Science, Technology and the Environment, Malaysia on the occasion of the Regional Symposium on the Environmental Assessment of Development Projects, Conference Room, APDC, on 11hb January, 1982 at 9.00 a.m.

Yang Berbahagia Dato' Wan Sidek bin Haji Wan Abdul Rahman,
Secretary General,
Ministry of Science, Technology and the Environment;

Mr. Aftab Ahmad Khan,
Director, APDC;

Mr. Suriyakumaran,
Regional Director, UNEP, Bangkok;

Mr. S.T. Sundram,
Director General of Environment;

Distinguished Guests; Participants in the Symposium;

Ladies and Gentlemen:

It gives me great pleasure to associate myself with this Symposium. I feel that the subject of the Symposium is ripe for national and international discussion. I would, therefore, commend the sponsors of this activity for their forward-looking initiative and apt enterprise in organising discussions in this new and innovative area of environmental assessment of development projects.

As you are doubtless aware, concern with the subject of environment itself is of recent origin, owing its articulation mainly to the epochal Stockholm Conference on the Human Environment in 1972. Within the ten years since Stockholm, a great many things have happened to pin-point and underscore the close links between environment and development. Chief among these happenings is the energy crisis of 1973 and thereafter; the food problem of 1974; the resurgence of starvation phenomenon in some drought-prone countries, particularly in the Sahelian region; the rising costs of resource inputs of development; certain biological barriers like the peaking of anchovy production; and as an end-result of all these scarcities of differential magnitude, and the planetary inflation.

Although it is well appreciated that environment and development are closely linked, the nature of the linkages is differentially interpreted in the developed and developing countries. One view which prevails in the developed countries comprises three elements. First, there is a general impression that environment is largely

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concerned with pollution and conservation. Secondly, taking environment into account in making production and consumption-oriented decisions will only add to the costs of development. Thirdly, the problems thrown up by environment can be regarded in general as an 'add-on' to development and not necessarily as an integral element of development. The other view which has been gaining ground in the developing countries considers environment decisions as organically linked to development decisions. While pollution and conservation are not unimportant from the point of view of environmental amangement, its major concern is with optimal resource use, resource maintenance and enhancement. In point of fact, efficient environmental management is conducive to mitigating the costs of development.

From the point of view of the technology of decision making in development planning, the latter view, espoused by the developing countries, seems more acceptable and more amenable to policy analysis. For development planning and its associated policies are not entirely predicated on the efficiency of the market mechanism. Should volitional and conscious re-planning of the market mechanism be presumed as the basis for decision making, the integration of the environmental dimension into development would highlight several strategy and planning approaches.

Foremost among these meriting consideration is how to evolve a system of national accounts and budgetary framework which would incorporate relevant provisions for resource replacement, maintenance and enhancement. Though providing the depreciation of capital is a common practice both in industries and other sectors where durable machinery is used, the concept has not been extended, as it should have been, to cover the need for making a depreciation provision for the maintenance of natural resources which are of a renewable character.

Secondly, the environment-development integration will require a study of the environmental under-lay of inflation and the related changes in relative prices. Probably one of the main reasons for our rather modest success in dealing with inflation is our neglect of the principle of diminishing returns which seems to operate relentlessly, bringing with it an inexorable decline in long-term productivity, barring technological changes.

Thirdly, making an effective use of local resources for the production of goods to be consumed locally will add to the productive outputs of the economy far more than is generally realised. With a centrally organised process of production, it is doubtful if local resources would get to be fully utilised for satisfying the basic needs of the local people. Quite often the use of local resources will generate employment at the local level which otherwise would not materialise. The positive relationship between environmental enhancement and development is underscored by a prudent use of the local resources, for unutilised resources everywhere would denote an inefficient use of the environment for purposes of development.

Fourthly, the development and use of appropriate technology can maximize the possibilities of substituting reproducible capital and human ingenuity for the natural resources. Such a substitution will

improve the efficiency-use of natural resources. Moreover, the growing variety and volume of the goods and services which comprise national income will themselves enlarge the possibilities of the substitution of reproducible capital for natural resources.

Fifthly, the environment-development nexus will get strengthened through a programme of an effective re-use and re-cycling of wastes in production. It is not often recognised that the so-called wastes could be converted into efficient inputs as valued resources, for instance, rice bran after the oil is extracted could become the feedstock of chickens.

Lastly, it should be possible to evolve criteria for optimal allocation of investment between physical capital formation, human capital formation, institutional capital formation and augmentation of renewable resources and economical use of non-renewable resources. Such a view of investment allocation will provide both a methodological and an operational basis for a unified approach to the problems of both environment and development.

In the Malaysian context, it can be said that the objectives of environmental management in developing countries perforce have to be pursued within the context of generating economic growth and employment opportunities and a fairer distribution of income to all within the framework of improving the quality of life. The major objective of most projects has been economic improvement, and assessments of their desirability have centered on comparisons of the economic costs and measurable benefits expected from them.

There has been a rapid evolution of methods to evaluate these costs and benefits, and choices have no doubt improved as a result. With greater experience, more thorough investigations of past projects and increased understanding of natural systems, it is now apparent that many development projects can and do have significant, and often unanticipated, effects on the natural environment and the use made of it, and that these effects can add to the real costs or real benefits of the undertaking.

Increasingly, it is now being recognised that, even if the direct and measurable economic costs and benefits of projects remain of prime importance for the majority of proposals, the effects on the natural environment which are not included in the economic sums cannot be ignored if allocative efficiency is to be maximised. It is therefore crucial for developing countries to protect the source of their wealth, both that currently available and of the future on the principle that renewable resources can best be extracted from a healthy environment. In addition, these countries must be constantly aware that because of their limited size their most basic resources are finite and thus farsighted resource husbandry is of paramount importance. It is also important for developing countries to pay particular attention to social costs of development.

If this concept of environment and development were to become the starting point of policy analysis for planning, two things become clear: one is that the developmental action should explore the environmental implications fully and provide for he required ameliorative or reinforcing action; the other is when environmental problems are

tackled their impact on development should be assessed. It is in this context the subject matter of this Symposium comes into its own as one of great relevance. As I see it, development projects give rise to both favourable and unfavourable impacts on the environment. It is an empirical matter whether the favourable impact is more or less than the unfavourable impact in any given situation. However, if I may venture a guess, maybe the unfavourable impact of development on environment will increase with the onward stages of development so much so in the developing countries, where we come from, the impact of development on environment is perhaps more positive than negative. People at the margins of existence who are given to spoilation of the environment to eke out their very livelihood would cease to perpetrate those ravages when once employment opportunities are provided to them. Indeed, one silver lining to the cloud of poverty as pointed out by the Founnex report is that no matter where action is taken, either on environment or on development, that action would start a process of favourable chain reaction between environment and development.

The micro-level analysis of the relationship between environment and development is embodied in the environmental assessment of development projects. Quite often this analysis tends to get carried out within the framework of traditional cost-benefit calculus. The need of the hour, however, is to transcend the limits imposed by the traditional framework and strike out new paths which would lead to an appreciation of the important input-output relationships between environment and development. From this point of view the Test Model that has been developed by the UNEP and APDC provides opportunities to re-think the logic of project appraisal and to re-order the priorities for investment. Though this is not the time or place for an extended digression on techniques of project appraisal, I must observe that there was never a totally adequate body of knowledge to take stock of the variety of problems that decision-makers face in practice in either appraising or implementing development projects. Almost universally, the difficulties of project analysis are compounded by the fact that investment is a continuous activity. There are never clear-cut, identifiable projects on which exact amounts of investment are made. What with time and cost over-runs and re-designing of projects, investment is made on a continuing basis. The appraisal mechanisms do not take this point into account.

Another area of uncertainty dogging the steps of project analysts is the use of the discount rate. Though from a neo-classical economic point of view the rate of interest is the price of capital, I wonder how much of a true reflector of the price of capital the rate of interest is in the context of double-digit inflation and rising real values of the natural resources in the future let alone the dualistic structure of the developing economies. Similarly, the use of accounting or shadow prices which are expected to be the true under-lying prices of the resources is suspect because it appears to my mind that the existing prices are a reflection of the under-lying supply/demand relationships together with the existing institutional machinery within which those relationships prevail.

In view of the above difficulties, the simplicity and the comprehensiveness of the Test Model become rather important considerations that should get adequate time for discussion in the Symposium. While it is true that the Test Model format is experimental, I believe it has reached the stage where it can be tested empirically and in relation to

live development projects. In one sense the case studies that would come up for your discussion are themselves an indication of the degree of success with which the Test Model could be applied in practice. At the end of the Symposium, I do hope, you will be able to reach a decision regarding the applicability of the Test Model in actual practice. The combined efforts of the authors of the Test Model and the participants in the Symposium should lead to some positive conclusions in regard to the viability of this technique of project appraisal.

In conclusion, let me once again express my sincere appreciation to UN APDC and UNEP. I envisage there would be continued collaborative activities in the future. I wish the overseas participants a pleasant stay in Malaysia and a safe journey home carrying with them happy memories.

Meanwhile, I look forward with interest to the outcome of the Symposium having due regard to the innovativeness of the Test Model and the interesting theme that it constitutes for this Symposium. I wish you all success and have much pleasure in formally inaugurating your deliberations.

Embargo: Not for publication or broadcast before 10.00 a.m. on 2/11/81.

Speech by Y.B. Tan Sri Ong Kee Hui, Minister of Science, Technology and the Environment, at the official opening of the Workshop on Education Through Environmental Journalism on 2nd November, 1981 at 9.30 a.m. at the Conference Hall, Asia-Pacific Development Centre, Persiaran Duta, Kuala Lumpur.

Yang Berbahagia Pengerusi Majlis;

Yang Berbahagia Encik Yusof Bador,
Pengerusi Institut Akhbar Malaysia;

Yang Berbahagia Encik Ahmad Aktar Khan,
Director, Asia-Pacific Development Centre;

Yang Berbahagia Encik Donatus deSilva,
Wakil UNEP, Pejabat Serantau bagi Asia dan Pasifik;

Yang Berbahagia Encik Gurmit Singh,
Yang DiPertua EPSM;

Tetamu-tetamu Kehormat dan seterusnya
Tuan-Tuan dan Puan-Puan sekelian.

Saya berasa bangga dan bertuah atas kesudian Institut Akhbar Malaysia menjemput saya untuk merasmikan pembukaan "Bengkel Pendidikan Issu Alam Sekitar Dalam Kewartawanan" atau "Workshop on Education Through Environmental Journalism". Tema Wokshop ini amatlah tepat pada masanya, memandangkan masalah-masalah alam sekitar yang kini menjadi topik pokok perbincangan dikalangan orang ramai. Oleh kerana penyertaan bengkel ini bercorak antarabangsa, izinkan saya meneruskan ucapan saya dalam Bahasa Inggeris.

Ladies and Gentlemen, and distinguished participants:

As I was saying, I am indeed very happy to be in your midst this morning to officiate at the opening of the Workshop on Education Through Environmental Journalism. I like to take this opportunity to congratulate the MPI or Malaysian Press Institute for organising this workshop, which I understand, is part of the MPI's training activity for journalists and communicators. The holding of this workshop here in Malaysia is timely, in view of environmental problems being the focus of continuing attention in Malaysia and the important role that the mass media can play in bringing about increased awareness of

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environmental problems among the general public.

The workshop which is regional in nature has rightly attracted journalists and communicators from other countries of the Asian Pacific Region as well. As developing countries of the same region we tend to have rather similar environmental problems. This workshop will no doubt provide an excellent opportunity for the participants to exchange ideas and experiences on how best to disseminate environmental information to key target groups and to sensitize the public on various environmental issues inorder to involve them in simple environmental tasks.

Malaysia has undergone accelerated development over the past decade as a result of which many environmental problems have arisen. Many of these issues such as environmental pollution of air, water, noise and land as well as damage and disruption to the environment had been highlighted by the press from time to time. The press is also fully aware of the various measures both statutory and non-statutory that have been taken by the Government and the Environment Division of my Ministry in particular to overcome these problems. My Ministry has in the past provided information through Press Conference and Press Releases and through its publications. You will probably be hearing more about this at the Workshop itself.

The Malaysian press today is faced with a tremendous responsibility. In Malaysia, environment has become such a topical subject that publications which carry news on pollution issues will attract wide readership. However, authoritative reports on pollution are difficult to come by because of the lack of published information and research findings from local sources. On the other hand, non government organisations active in the environmental field are more disposed to come out with press statements on a whole spectrum concerning topics ranging from the environment and pollution to effect of sonic booms from Concorde flights on the fish, other aquatic life and even livestock. Unfortunately due to lack of local environmental data, these statements are of a generalised nature without any attempt to make qualification on the underlying issues in the context of our own environment such as period of exposure and level of concentration. Furthermore, there is a tendency to resort to sensationalism to gain impact. Such tactics may have effect in the past in grabbing the headlines, but considering that the public today is better informed about environmental issues such tactics may backfire and erode the credibility of the organisation concerned as well the press which indulges in such sensationalism.

To promote good environmental journalism, there is a need for public sector agencies to provide accurate and ready information. In this respect, under the Environmental Quality Act 1974, the Director General of Environmental Quality is obliged to publish an annual report on environmental quality. The Division of Environment in my Ministry although somewhat tardily because of other heavy work pressures has finalised the 1979 Annual Report on Environmental Quality which is being sent to printers and will soon be available for sale to the general public. I have also directed the Division of Environment to expedite the preparation of the 1980 annual report. In the interest of environmental journalism, the mass media is urged to educate the public on environmental issues based on the many leads that can be picked up from the Report for investigative reporting.

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My Ministry is well aware of the importance of environmental information in the development of environmental journalism. In this respect, the Division of Environment has already established a special unit on environmental education and information. The unit which is presently staffed by two officers will be doubled in strength in 1982. In addition to this, the Division of Environment has had recently the benefit of the service of a WHO consultant to look into the development of an environmental information system which will meet the growing demand on quick and accurate environmental information. The finding of the study has been that in the light of the growing workload of the Division of Environment, there is an immediate need for automation. The study recommended the expansion of the environmental education and information unit within the Division of Environment to manage the processing, storage and retrieval as well as dissemination of environmental information. The study also recommended that automation of environmental information systems be initiated utilising the Computer Centre housed in the National Operations Room. It also recommended the purchase of a mini computer as a step towards the establishment of a computerised environmental information system. As a matter of fact, I am pleased to announce that the Implementation and Co-ordination Unit of the Prime Minister's Department has agreed to the Division of Environment to have two terminals linked up to the computer at the Computer Centre by June 1982.

I am confident that once the computerised information system has been established, not only will the information be more accurate but the dissemination of environmental information will also be greatly speeded up. This should help the Press immensely, and help us to play our role more effectively as the National Focal Point for INFOTERRA.

The basic causes of our environmental problems are complex and deeply rooted. They include our past tendency to emphasise quantitative growth without due account of qualitative aspects; the social costs of environmental pollution being hidden by not being made explicit by industrialists who are not prepared to absorb such costs but externalise these by pushing the burden on society in effect. Another important factor has been the failure to take environmental factors sufficiently into account in the planning and decision-making process our dependence on conveniences and the pursuit of an extravagent lifestyle, without regard for the resulting impact on the environment; and more fundamentally, our failure to perceive the environment in its totality and to understand and recognise the fundamental interdependence of all its components, and ecosystems including man himself.

It is difficult if not impossible to correct such deep rooted causes overnight nor are the Regulations made under the Environmental Quality Act 1974 and environmental guidelines by any means the total answer in terms of environmental management. We need new knowledge, improved perceptions, sound attitudes and these must extend to all levels of government, and industry as well as all levels of society, including those in key professions and indeed extending to the man in the street who should be educated to care for the environment. Ultimately it is for man himself to determine the quality of his own environment. This certainly applies to refuse disposal.

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In short, we should aim at a basic rethinking of the way our society views at problems and makes decisions, in particular on the management and development of our resources, and disposal of wastes generated by all human activities.

It is here that the mass media can play a key role in bringing about this change in attitude of our entire society and help develop a heightened awareness of the people on the importance of man's activities being in harmony with nature.

General environmental education needs to be provided for all whether through the formal, non-formal and informal systems of education. An environmentally literate community must have the basic knowledge on environmental matters to make them self-reliant in terms of simple environmental tasks. It must be made aware of the implications of environmental mismanagement.

It is in this context that the mass media assumes crucial importance in heightening environmental awareness of our people. On the mass media falls the heavy responsibility in the environmental field of sifting and separating fact from fiction and motivating the public towards environmentally sound behaviour which rejects wasteful lifestyles in the interest of resource conservation and environmentally sound development.

Our environmental problems are indeed of increasing concern, indeed urgent, but they by no means justify either panic or sensationalism. As the problems are complex, their effective resolution will require a strategy involving systematic and coordinated approaches, hard work and a degree of patience. This is a national concern and it requires a national commitment and total effort by one and all.

The newly aroused concern over the environment embraces every citizen whether he is young or old. Fro the young it has a special urgency since theirs is the generation to shape our future environment. For their parents, it has a special poignancy - because ours is the generation which began to feel the pangs of concern for the type of environment that forms our legacy to our children.

At the heart of this concern for the environment lies our hope for the betterment of human helath and welfare, now and in the future. As we look ahead to a new decade of heightened environmental awareness, we should set ourselves an achievable goal than merely remedying the damage of the past. We should strive for an environment that not only sustains life but enriches life, harmonising the works of man and nature for the greater good of all concerned.

It is my hope that this workshop will provide the setting for stimulating discussions and exchange of experience geared to educating the public on environmental matters through responsible journalism. I shall be following the proceedings of the Wrokshop with keen interest.

Seterusnya saya dengan sukacitanya membuka Woksyop ini dengan resminya.

Speech by Tun Tan Siew Sin at the
UNESCO/RIHED Regional Conference
On Environmental Education and Its
Transfer in ASEAN Universities Held
at Universiti Pertanian Malaysia
On 18th August, 1981

"Environmental Information For Decision Making"

At the outset let me congratulate the organisers of this Conference on their foresight in organising this timely Conference on an aspect of environmental education which should make some contribution to the future of this region in the years ahead.

The basic causes of the environmental woes besetting us are complex and structural and they cannot simply be removed by legislation. To enhance the prospects for coping with them meaningfully, environmental education for all ages, at all levels and both within the formal school system and without, is indispensable. Indeed, for this environmental education to be sound and effective in terms of impact, it has perforce to draw upon a whole array of environmental information.

In the course of the long evolution of the human race on this planet, a stage has been reached where by dint of the rapid pace of scientific and technological progress, man has acquired the power to transform and influence his environment in countless ways and on an unprecendented scale. Both aspects

of man's environment - the natural and the man-made - are essential to his well-being and to the enjoyment of basic human needs. The protection and improvement of the human environment has increasingly become, therefore, a major and compelling issue of our times, insistently demanding due priority.

The growing realisation that man has but one planet on which to live, work and enjoy his leisure, the realisation that the biosphere which surrounds it is fragile and vulnerable to damage and disruption has, particularly since the 1972 United Nations Conference on the Human Environment held in Stockholm, which can be regarded as a major breakthrough in this field, pointed to the need for harmony between man and nature. The earlier concept of the environment as comprising air, water, soil and wildlife and as something quite apart from man has given way to a broader and more enlightened understanding of the 'human environment' as an environment in which man and his basic needs become the focus of attention. In satisfying these needs, through sound environmental management, there can be few, if any, easy answers or simple overnight solutions. Conscious choices based on a clear cut ordering of priorities must be made, taking into account the needs to be satisfied and the ways and means of satisfying those needs, and in all cases bearing in mind the environmental and other deleterious side effects that can flow from these decisions. In effect, a premium has to be placed on timely and adequate environmental information.

Here, a note of caution is in order. As the 17th century British philoscpher, John Locke, observed:-

"New opinions are always suspected and usually opposed, without any other reason but because they are not already common." The environment - defined as that other physical and biological system in which man and other organisms live - is a whole, albeit a complicated one with many interacting components. The wise management of that environment draws upon an informed understanding of its many components, viz., rocks, minerals, soils, water, land, and their present and potential productivity, vegetation and climatic factors, and critical habitats and key ecosystems. It demands positive and realistic planning that balances human needs against the carrying capacity of the environment which tends to set the outer limits for man's transgressing them.

It involves forging a vision of society, central to which is the framework of ideas by which we connect accepted values to the real world of production and technology and set the priorities and criteria which influence the allocation of resources. In effect, it calls for an approach transcending individualistic notions, being rather concerned with the community as a whole and with the interlocking web of forces and interests which compose or wreck it. In essence, given the present and emerging world scenario - of an energy crunch and a situation of nearly full utilisation of non-renewable resources - the intelligent response might well lie in developing compatible life styles sustainable over time.

The developing countries in particular have to take a close and hard look at their resource limitations, especially

non-renewable resources, and tailor their development efforts in the light of the choices which they make. This is not to suggest that they forego development and growth. What it does imply, however, is that increasingly, resource development and allocation of resources have to be in line with policies of resource management which are innovative and imaginative, with the focus on environmentally sound and sustainable development.

In this sense, the concern with the human environment in developing countries can only serve to reinforce and underpin the commitment to development and growth. In the process, it provides new dimensions to the development concept itself. In the past, there has been a tendency to equate the development goal with the more narrowly conceived objective of economic growth as measured by the rise in gross national product. In a reference to the ecological crisis, Lewis Mumford writes:- "Ours is an age in which the increasingly automatic processes of production and urban expansion have displaced the human goals they are supposed to serve. Quantitative production has become .... the only imperative goal."

It is increasingly recognised today that high rates of economic growth, necessary and desirable as they are, do not by themselves guarantee the easing of urgent social and human problems. Indeed, in many countries high growth rates have been accompanied by increasing unemployment and alienation, rising disparities in incomes and the deterioration of social and cultural well-being. A new emphasis is being placed on the attainment of social and cultural goals as part of the development process. The

emergence of environmental issues in developing countries as part and parcel of the quality of life to be improved is an aspect of this widening of the development concept. It signifies the move towards a more integrated or unified approach to the attainment of development objectives. Such enlightened perceptions of the role of environmental management in the context of nation building is particularly relevant to developing countries like Malaysia which continues to depend on natural resources for the generation of economic activities and exports generally as the engine of growth.

It is nevertheless true that in practice it is difficult, if not impossible, to make inroads into the traditional methodology and approach of project evaluation adopted by development planners and decision makers. More important, our failure to perceive the environment as a totality and to understand and recognise the fundamental interdependence of all its parts including man himself, the lack of systematic studies to demonstrate clearly in a comprehensive and measurable manner the assessment of benefits accruing from environmental measures and the constraints imposed by competing policy priorities and alternative claims on resources, have led to the tendency, all too often, of ignoring environmental effects in resource management. The developing countries in particular need some assurance and perhaps conclusive proof that environmental management, far from being a handicap, can be actually a plus factor in helping to ensure sound resource management, and hence boost the prospects of successful plan implementation. It should in fact be evident that the environmental protection approach is a resource management concept while economic development as generally

pursued in the past is a resource use concept and the underlying objective of integrating the environment factor into development is to harness resource management for sustained development.

It is, however, one thing to lay down broad and basic principles, and another to implement them in specific situations. It is, therefore, vital to strike a balance between giving adequate recognition to environmental consequences on the one hand, and also giving adequate emphasis on realistic factors on the other, because there are occasions when there could well be a conflict of interest between the two. I well remember an incident which occurred at a Cabinet meeting when I was in the Government. We were discussing this issue of environmental pollution and the late Tun Dr. Ismail interjected with this comment:-
"If I have to choose between dying of starvation and dying from pollution, I would rather die from pollution." Briefly, Tun Ismail wanted to emphasise that as a developing country, Malaysia cannot afford to be too rigid on anti-pollution measures because this might adversely affect our economic growth. I must admit that I am inclined to agree with him, though I fully accept that in some areas, both inside Malaysia and outside it, we can do more to preserve our environment. I will come to this subject later.

We must clearly base our decision making on adequate information. For this purpose, we therefore require more information, new attitudes and values, and this must extend to all levels of government and throughout the private sector as well - to industry, to the professions, indeed to every individual citizen. It calls for nothing less than a basic change in the way our society looks

at problems and makes decisions.

In this respect, the educational system has a key role to play. Education utilising the findings of science and technology could play a catalytic role in promoting awareness and a better understanding of environmental concerns. It must foster positive attitudes towards the environment and help countries to make better use of their resources. Professional environmental managers must be trained to deal with pollution, land planning and all the other technical requirements of a high quality environment.

I will now cite a few examples to indicate the direction in which we should go. Some years back, purely by chance, I discovered that the rainfall on many Sime Darby estates, and these stretch from Kedah in the north to Johore in the south was steadily declining during a period of 10 years. The rainfall in every year on every estate during that ten-year period was significantly less than that in the previous year. It would not have been so bad if there were ups and downs, but a steadily declining rainfall in a ten-year period clearly has ominous implications, and it is reasonable to assume that this pattern must have prevailed throughout the entire western sector of Peninsular Malaysia, as the estates from which the figures were obtained are situated in every State in that area. As a result, I sent these figures to the senior members of the Government.

My feeling is that this state of affairs is due to our too rapid rate of deforestation, because any planter will tell you

that if you cut down, say, a 500-acre area of old rubber in the midst of a 2000-acre estate, it is quite common to find that rain will fall around the new clearing but not on the new clearing itself. Fortunately, this trend has been reversed during the last two to three years, but if it were to continue, the consequences could be devastating. Indeed, if our rainfall were to decline below certain levels, the rubber trees and oil palms in this country would literally have to be abandoned as they would nc longer be productive, and the rubber and oil palm industry in this country, as you all know, still plays a major role in our economy.

Outside Malaysia, I understand that deforestation of enormous areas in the Amazon Basin in Brazil has been carried out so recklessly in recent years that it could adversely affect not only the ecology and environment of Brazil, it could well change the world climate itself for the worse, and this is the view not of amateur enthusiasts but of hard-headed scientists.

West Asia, or the Middle East as it is known in the Western world, was at one time, one of the cradles of human civilisation. In my view, it could not have achieved what it did if it was as arid then as it is now. In other words, I feel that when that area gave birth to the civilisation of Sumeria, it must have been a lush and green area, not the desert or semi-desert which it is now. It could well be that the Sahara Desert did not start off as such, and that many years ago, it was a lush and green area also. It is, therefore, imperative that we should try to find out how such areas can be turned into desert over a period of time through mismanagement.

Another factor which I feel has not been given sufficient consideration is the effect of population growth on our environment. In the last analysis, it is too rapid population growth which is the root cause of most of our troubles. Under such circumstances, governments sometimes have no option but to cut down forests in order to provide an adequate means of livelihood for its peoples. Further, they have to use some chemicals in fertilisers, pesticides and herbicides to increase the food supply, again, as a result of rapidly growing populations, and let us remember that we have now discovered that some of the chemicals used in these new products of science and technology are not all that safe and have side effects which were not foreseeable, in the sense that they pollute the environment. In short, if population growth can be kept to manageable limits, or better still, reduced to zero, many of our problems in this field would automatically disappear.

On top of this, we are now living in an age of rising expectations. In the industrial world in particular, the demand for higher and higher standards of living which translates itself into a demand for things like motor cars adds to the problem of environmental management. A good example of this can be found even in Malaysia. If one were to fly above Kuala Lumpur in the early morning, one would see a pall of what looks like a combination of dust and smoke covering the whole city. This is clear evidence of pollution. I do not think that one is likely to see this phenomenon when flying over the smaller towns on the east coast of Peninsular Malaysia in the morning. Such is the price of so-called progress.

It is worth remembering that pollution was not a problem in the early years of this century, when the world population was much lower. At that time, natural causes such as disease and higher rates of infant mortality kept population growth to much lower levels. Now, thanks to the rapid advancement of science and technology, diseases which once took a heavy toll of the human population, are kept in check. Infant mortality has also been drastically reduced, and a combination of these two factors has raised age expectations dramatically almost everywhere. One result of this is that population growth in the second half of this century has probably been greater than in the previous one million years of man's existence on this planet. Herein lies the real problem of fighting pollution and preserving our environment. I agree that we can take other measures but we have to be realistic and accept that such measures do not really strike at the root of the problem and are little more than palliatives which might give us only a temporary respite.

Unless we can curb population growth to such an extent before it is too late to ensure the survival of not only homo sapiens but also the survival of other living things on this earth, including trees and plants, some of which have been wantonly destroyed in the past in our quest for material progress, the time may yet come, though many of us here might not be around then, when this planet will be reduced to an uninhabitable land mass for all living things. It could then well resemble some planets in the universe where conditions are so harsh that no living organism can possibly survive.

Ucapan Y.B. Tan Sri Yaacob Abdul Latiff, Datuk Bandar, Kuala Lumpur, di upacara pembukaan Seminar Mengenai "Citizen Participation in Planning and Housing" anjoran Malaysian Organisation for Housing Settlements di Hotel Hilton pada 15hb, Januari, 1979 jam 9.00 pagi

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Mr. Chairman, Ladies and Gentlemen,

"Public Participation" is a relevant, exciting and immensely useful subject for discussion. It is currently relevant because of our concept of "People-Inspired Government" and also because we at the City Hall are in the midst of preparing a Master Plan for the Federal Territory and we are also on the threshold in the preparation of the Fourth Malaysia Plan. It is exciting, especially, to me, because there is a growing number of the city elite, like all of you who are becoming increasingly concerned and have a lot to offer to the well being of the city. It is immensely useful because it strikes at the very foundation of our society, our system of government and our way of life. We are discussing democracy, and more specifically grassroot democracy.

INTRODUCTION

First of all, I would like to make some brief points about public participation in general. In the developed countries a great deal has been said or written about the importance of public or citizens participating in the activities of local authorities. Some have relevance to the functioning of local authorities while others tended towards being theoretical and academic. In essence, there seems to be a wide gap in which the citizens do really participate in the affairs of local authorities and the manner in which the administrators and the professionals would like them to participate.

At this juncture I would attempt to make some general comments so as to clarify the term 'Public Participation' as I understand it.

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URBAN GROWTH

Public participation has for the most part emerged as an emperical process adopted to give the population an opportunity to express their views during the actual planning and implementing of projects and facilities which affect them. In the City Council of Kuala Lumpur this statement has to be viewed within the context of the steady expansion of public sector spending on housing, transportation, infrastructure development, etc. and the corresponding increase in the range of activities of the administration. For instance, before 1974 the administrative area covered by the local government was only 36 square miles. How it has increased to 94 square miles. In 1970 the total population that the then Municipal Council had to service was only 451,728 people. To-day the population that the City Council has to cater for has increased to about 960,000 people. In 1970 the then Municipal Council's operational and development budget was about $30 million whereas for this year (1979) the estimated figure for operational and development expenditure will be in the region of $265 million. To put it in a more dramatic way the then Municipal Council spent about $66/- per head of population. To-day the amount spent per head of population is $276/-. This shows an increase of $210/- per head of population in nine years.

NEED FOR PARTICIPATION

The big increase in the spending of the City Council and the corresponding increase in its activities has been accompanied by rapid economic growth and social change. As the role of the City Council has expanded so also has the importance of decision-making. There is therefore an emergence of more committees, each charged through its chairman with the responsibility for the administration of a given task. The need for public participation can therefore be viewed as part of a process of adaptation in the Council's system to deal with problems presented by the growth of the City generally.

OBJECTIVE

What is the spirit and purpose of public participation?

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It has been said that the hall-mark of genuine public participation is that it must involve a deliberate and voluntary influence over the local authority's Conference on Human Settlement held in Vancouver in 1976 stated that public participation is an integral part of the political process of decision-making. Hence the planning process must be designed to allow for maximum public participation.

To be meaningful public participation must respond to existing social, economic and cultural needs. In order to facilitate this action it is important that the public must be well-informed. As such the development of research capabilities and the acquisition and dissemination of knowledge and information should receive high priority as an integral part of the development process.

For information the recommendations of the Conference are as follows:

(I) The role of public participation is to influence all levels of government in the decision-making process to further the political, social and economic growth of human settlements.

(2) There should be maximum public participation in the planning process.

(3) There should be free flow of information among all parties concerned and it should be based on mutual understanding, trust and co-operation.

(4) There should be integration of the various sectors of the population including those that traditionally have not participated either in the planning or in the decision-making process.

(5) The people and their government should establish mechanisms for participations that contribute to development awareness of people's role in transforming society.

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(6) Public participation should influence all decisions concerning management of human settlement and should focus on the application of resources to improvement of the standard of living and the quality of life.

DEVELOPED COUNTRIES

Before examining the above-mentioned recommendations against our system of administration in City Hall it would be of interest to examine how public participation is practised in the developed countries with long traditions of local government.

In the United States and many of the European countries public participation in the shaping of local government policies is an accepted norm. Periodic meetings are held between the public and the officials of the local government to discuss and initiate action. The meetings and forums are not only confined to making comments and objections but they provide facilities for collaboration and involment of the citizens in preparing development plans and programes. Participation is so highly organised that businessmen, industrialists, labour leaders, educationalists and others from societies and associations and they work closely with the local authority. These citizens societies are backed by top people of the City like bankers, marchents and others who exert enormous influence on city affairs by virtue of their position and power so that they become pressure groups in shaping government policies.

Organised public participation on this scale does look fascinating, but the question is whether or not we could adopt a similar approach in our system of government bearing in mind the different social, cultural, educational and economic background of our people.

LOCAL CONSTRAINT

However, in the Kuala Lumpur context it is important to note that overall national objectives sometimes overide local goals. As such it does not necessarily mean that what is good in the European countries and the United States is practicable

or necessarily good for Kuala Lumpur. No matter how desirable public participation may appear to be in theory, Kuala Lumpur cannot afford to adopt any procedure which is likely to slow down the rate of implementing development projects for the people. Furthermore, the general background, the local government structure and the population in the developed countries are so different to ours that it is doubtful that this form of participation would benefit us as a developing country with our urgent task of meeting the basic needs of our people.

MODIFICATION

What is needed in my opinion is participation with modification to suit the present social, economic and political climate of Kuala Lumpur and its multi-racial population. In short our Malaysian way of making decisions and getting things should be through the informed and direct, two-way communication between the local authority and the people. My experience in Kuala Lumpur indicates that what matters most to the community are subjects such as public health, water supply, education, housing, drainage and sanitation. As most of these problems cannot be solved with any degree of permanency, they tend to remain in the minds of the people for a long time. However, as the level of public participation moves from simple to more complex form, technical and administrative knowledge in dealing with problems of participation will be necessary. In other words, problem-solving techniques will have to be devised on a more comprehensive basis (not ad hoc) with definite long-term results to be achieved. This would involve topics such as survey and analysis techniques, feasibility and cost-benefit studies, project design and of course project implementation. In the Kuala Lumpur situation where plans and projects are drawn up on the basis of priority needs with limited budgeting and strict time-schedule, it would be a drawback to allow public participation especially when the basic needs of the inhabitants have still to be overcome let alone having to keep pace with the growing problems of the City.

PARTICIPATION

As I have mentioned in the beginning of this paper, the massive investment by City Hall to finance development projects and provide services to the population of Kuala Lumpur has been accompained by rapid economic and social change. This has led to a situation whereby City Hall sometimes tends to become more remote from the population it is meant to serve. As the Dato Bandar it is my responsibility to

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create a favourable climate for a two-way process in which there is a free flow of information between City Hall and the population. This has to be done on the basis of mutual understanding, respect and trust. For Kuala Lumpur this has to be done within the context of the New Economic Policy objectives of the government and the multi-racial characteristics of the population.

As far as Kuala Lumpur is concerned, the major theme in the development of the City has been and always will be the continuing emphasis upon its role as a National Capital, a City which is the political, administrative and cultural centre fot the nation. In other words City Hall has a definite role to play in determining priorities for development while at the same time having to press ahead with the job it is entrusted to carry out. We therefore cannot afford to adopt any procedure which is likely to slow down development.

The socio-economic imbalance of the population, its economic and ethnic composition and concentrations coupled with the increasing volume of rural-urban migration has been a great concern to us in City Hall. Of the 960,000 people living in the City about 200,000 are squatters. Ethnically about 57% of the population are Chinese, 24% Malays and approximately 17% Indians and others. I quote these figures to indicate that Kuala Lumpur has not only to act as an economic and administrative centre of the nation but it also has to play a role of a cultural mixing bowl in which old values have to give way to new ones reflecting national aims and objectives.

LEVELS OF PARTICIPATION

It must be borne in mind that when we speak of public participation we have to ask ourselves to what extent and at what level public participation should take place. I have indicated previously that the level at which public participation is realistic is when it is limited to basic subjects such as sanitation, drainage, housing, public health and the like. I feel public participation at this juncture has to a large degree to be confined to local level taking the form of community development exercise. By this I infer that public participation in Kuala Lumpur would be most effective when the residents living in an area organise themselves with the aim of understanding their needs and undertaking initiatives while at the same time collaborating with the authorities for guidance and follow-up action as and when necessary. It is understood that community development programmes are being introduced in Kuala Lumpur through the National Unity Board.

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GRASS-ROOT LEVEL

To achieve active participation with the inhabitants in Kuala Lumpur, City Hall in collaboration with the National Unity Board has divided the 94 square miles of the City into 22 feofraphical units serving 159 community associations to implement the community relation programmes. The aim here is to unite the multi-racial urban communities and to strengthen relations between the government and the people based on feelings of mutual respect, trust and confidence. The underlying rationale is that the more the individuals who make up the community know and understand each other, the greater will be the link between them an the authorities. By emphasising on activities which would bring them together, the inhabitants would be able to draw the attention of the authorities to be needs and problems of their area. The Community Relations Council of the Federal Territory of which I am the chairman is taking the initiative with sime measure of success. It can be seen that citizens participation at the grass-root level does exist in Kuala Lumpur and that it is being strengthened to enable the community, government agencies and voluntary organisations to work closely together towards the improvement of their welfare.

JOBPICC

Participation is also being practised by City Hall at the professional level. This is being achieved through the Joint Dewan Bandaraya - Professional Institutes Consultative Committee more popularly referred to as JOBPICC. The establishment of JOBPICC was to achieve participation of the architects, engineers, town planners and other professionals practising in Kuala Lumpur. Many joint meetings were held from time to time to discouss common issues hetween the staff of Dewan Bandaraya and the practising professionals. This from of group participation seems to me to be more realistic and meaningful as against total participation of every inhabitant in the City.

PEOPLE'S REPRESENTATIVES AND ASSOCIATIONS

At the political level the Federal Territory has five members of parliment who have acted as a link between that City Counsil and the inhabitants of the City. As the Mayor I have had meetings and discussions with the members of parliment in the Federal Territory to resolve problems in their constituencies. In the same way City Hall officers are also required to make regular site visits and discuss problems and solutions with the local residents of the City.

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Other levels of participation are also being maintained by City Hall through frequent dialogue sessions and group discussions with members of associations such as the Housing Developers Association, the Residents Association, Service associations community groups, etc.

DECENTRALISATION

As I have pointed out earlier in this paper thera has been a significant increase in City Council's expenditure over the years. The three-fold increase in the administrative area of the City from 36 square miles to 94 square miles and the corresponding increase in the budget allocation, staffing and greater specialisation of functions have resulted in a situation whereby City Hall tends to become more remote from the public it is supposed to serve. To avoid losing touch with the masses steps are being taken the decentralise the Council's functions by setting up sub-offices in areas where there are population concentrations. The first of such an office was established in Jinjang in 1977, This experiment has shown that there is good reasin to have more such sub-offices in other parts of the City. Such offices will not obly being the local authority and the inhabitents closer together but they also act as a sounding board for the people concerned.

CONCLUSION

In conclusion it is pertinent to state that when discussing public participation it is incomplete without mentioning public participation as required by law. Here I am referring to the objections from rate-payers resulting from the imposition of revised property assessment of objections made by property owners under the City Planning Act. I did not highlight this aspect carlier on in my paper because I do not want to confuse genuine public participation whith the kind of participation as provided by the law. However within the broader context of the term public participation, the objection meeting and hearing can also be considered as participation involving a two-way exchange of views and opinions. This form of participation even trough having no direct contribution towards the improvement of our encironment and social welfare, has nevertheless a very important part to play in the understanding and strengthening of relations between the City Council and the property owners.

Mr. Chairman, in this paper I have attemted to look at public participation from many angles based on my working experience in City Hall. In doing so I have tried to put forward arguments on the disirability of public participation leaving as many questions unanswered. However I hope this concerence would come up with some useful recommendations which could be applied not only to Kuala Lumpur but also to other local authorities in the country.

UCAPAN PENGERUSI MAJLIS PENYELIDIKAN DAN KEMAJUAN SAINS NEGARA, Y.B. TAN SRI ABDULLAH BIN MOHD. SALLEH, KETUA SETIAUSAHA NEGARA SEMASA UPACARA PEMBUKAAN RESMI SEMINAR KEBANGSAAN DASAR-DASAR DAN STRATEJI-STRATEJI NEGARA MENGENAI SAINS DAN TEKNOLOJI UNTUK PEMBANGUNAN PADA 13HB JULAI, 1978 JAM 9.30 PAGI

Terlebih dahulu saya suka mengucapkan terima kasih kepada Jawatankuasa Pengelola Seminar Kebangsaan Mengenai Dasar-dasar dan Strateji mengenai Sains dan Teknoloji untuk Pembangunan kerana telah memberi penghormatan kepada saya untuk meresmikan pembukaan Seminar ini. Bagi pihak Ahli-ahli MPKSN ini saya mengucapkan selamat datang kepada peserta-peserta sekelian.

2. I am glad to note that in response to the call of the National Council for Scientific Research and Development to prepare a national paper on Science and Technology for Development the Ministry of Science, Technology and Environment has taken the initiative in arranging a series of five Seminars. I also wish to record my appreciation and that of the National Council for Scientific Research and Development for the invaluable assistance and support that the Scientific Community and the professional bodies have given in sharing the responsibility for organizing these seminars. The Government looks to the Scientific Community and professional bodies for continuing support and advice in the task of accelerating socio-economic development of the nation.

3. The Government is aware of the pre-eminent role of Science and Technology as a vital tool in accelerating industrial development of the nation and consequently the socio-economic condition of the country. That the preamble to Rukun Negara itself refers to this era of modern science and technology reflects our national commitment to Science and Technology in our quest for a dynamic and progressive society.

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4. I cannot but agree that a fair description of the economic and social progress hitherto of many developing countries, including our own, is dependant development, one aspect of which is the heavy reliance on external sources of technology to increase productive capacity. The matter of finding an alternative to dependant development is therefore both timely and critical. The imbalance in global distribution of scientific and technological potential is still extreme with only 5% concentrated in developing countries and the rest in developed countries whether measured in terms of patent holdings or expenditure on Research and Development. The industrial development efforts in developing countries can at best be termed as imitative industrialization. Formal Science and Technology systems in developing countries have been modelled after similar system in developed countries and these imitative industrialization have little impact on a vast majority of people. The technology transferred to the developing countries are by and large a dependence perpetuating one. The change to autonomous capacity for technological development or technological a tonomy in short seems to be the logical answer.

5. In a developing country like ours scientific and technological capabilities is in the final analysis the crux of development. To what extent the society aquires the capacity to produce and create what it needs and achieve modernization will be dependant on Science and Technology.

6. Yet, fundamental though this may be it is all too often forgotten in the plans and schemes of developing countries to lay stress and exploit the role of Science and Technology in the process of making changes. Because of the enormous diversity of the developing nations there is no blueprint which can be transferred to our situation and which can give the desired results.

In short in most situation our indigenous capabilities have to be developed with ingenuity and innovations.

7. The steps we adopted in the past 4 years to correct the state of Science and Technology development has contributed virtually to a complete overhaul of our look and approach with the establishment of the National Council for Scientific Research and Development in 1975. The first landmark was made to coordinate and direct research and development activities in the fields of science and technology for the betterment of the nation.

8. The main objective of the Council is to ensure that scientific research activities are geared to national development needs and goals and that its basic functions will be to advice the Government on scientific and technological matters and to co-ordinate all scientific research activities within the country. The Council will promote research and utilise our scientific facilities and skills and bring about greater productivity and advance the quality of life of our people.

9. The task involved in strengthening the autonomous technological capacity to contribute more effectively to increasing productive capacity will necessitate, redefining priorities and reallocating resource. To be effective in the undertakings the Council requires monetary control, and to this end, actions are afoot to launch a Trust Fund where funds both from external and internal sources can be directed. This once again manifests the Government's intention to put the Council on its proper footing for effective participation in national development.

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10. It is timely therefore that the current Seminar should further analyse the country's science policy and strategy and define the role of the NSCRD. A cross-section of the different type of organizations and institutions are delivering their papers and it is hoped that we can formulate the nation's science policies and chart strategies to implement the findings so that we can stimulate new efforts in scientific research and technological development to achieve further accelerated development in the country.

11. I shall be following the discussion with keen interest and await your findings with eagerness.

12. Dengan ini saya dengan sukacitanya meresmikan pembukaan Seminar Kebangsaan Dasar-dasar dan Strategi-strategi Sains Negara mengenai Sains dan Teknologi untuk Pembangunan dengan harapan bahawa dari perbincangan yang tuan-tuan akan adakan selama tiga hari ini akan dapat dirumuskan dasar dan strategi negara dalam bidang sains dan teknologi.

Embargo: Tidak boleh disiarkan sebelum 9.30 pagi pada 26hb. September, 1977.

Speech by the Minister of Science, Technology and Environment, Y.B. Tan Sri Ong Kee Hui, at the Seminar on Environmental Impact Assessment at the ASEAN Room, Holiday Inn, Kuala Lumpur, On 26th September 1977, at 9.00 a.m.

It gives me great pleasure to be with you this morning to declare open the Seminar on Environment Impact Assessment, the second seminar organised by the Environment Division of my Ministry. The first seminar 6 months ago was of an introductory nature and was concerned with environmental management. This second seminar, a follow-up on the last one, will focus on an important element of environmental management i.e. environmental impact assessment. I welcome once again Dr. Michael Royston of the C.E.I.A (Centre for Education in International management) who gave us so much support and assistance at the last seminar. I am glad also to welcome a number of experts who will also be delivering papers and leading discussions at this seminar, some of whom have come from other countries, particularly representatives from United Nations Agencies, ESCAP and Universities. The last seminar was a success due to both the interest of the participants as well as the energetic support of Dr. Michael Royston.

In this seminar we have with us representatives from 14 Ministries, 43 Federal Departments, State Departments, local authorities, associations and professional organisations. This breadth of representation attests to the wide scope ramification of the field of environmental management, and the sustained interest it generates. I am confident therefore that with the active participation of such an array of administrators, professional men and experts, this seminar will prove equally useful and successful.

The numerous articles and correspondence in the local newspapers, and public discussion on environmental issues attest to the fact that the people of Malaysia are becoming increasingly aware of the importance of the environment. Malaysia as a rapidly developing country will be faced with the problems of pollution

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consequent upon development, unless such development is properly planned beforehand taking into account environmental considerations. In this respect it is important that not only that development should be properly planned but also as part of the planning process, environment impact assessment should be made. This is best done in the planning stage because it is at this point that some of these environmental problems which could arise be anticipated and measures devised to cope with them. It is easier to do this in the planning stage than at the implementation stage when one could be restricted by a master plan for development or other constraints and money may have been spent on infrastructural development.

It is unfortunate for us in Malaysia that with the rapid development which has taken place in the past, we are now faced with many problems of environmental pollution, which we have to diligently overcome. For instance the rapid development of our oil-palm industry has led to serious pollution of many of our rivers, the effect of which is now being felt in various parts of the country. Similarly, the rubber industry has also been a source of pollution and with the increasing agricultural development and greater use of both fertilizers and pesticides in agriculture our rivers are carrying an increasing load of pollutants. Our efforts at industrial development have also given rise to problem of pollution, both water and air, and this is of increasing concern as each individual State vies to accelerate the tempo of industrial development to provide greater job opportunities.

Since the last seminar was held, the Environment Division has submitted to the Environmental Quality Council rules and regulations prescribing standards of effluents for oil-palm factories. Clean air regulations have also been submitted and approved by the Environmental Quality Council and are soon to be gazetted. Work is going on apace in the preparation of other regulations for controlling discharge of effluents and other pollutants from various industries. Apart from preparing all these base-lines studies and standards which are necessary to control pollution, the Environment Division has been called upon by various State Governments to deal with specific problems which they face such as kampung Kuala Juru in Penang, Mamut Copper Mine and the Tawau catchment area in Sabah, and problems of the Batu Caves in Selangor, to name a few. Besides all these, complaints form individuals or groups of citizens or organisations including those aired in the Press have been attended

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to and measures prescribed for overcoming nuisances of pollution which are caused by individual factories located here and there throughout the country. With its presently limited personnel Environment Division is fully stretched and I am glad we shall soon have additional staff which are required in order to enforce the various regulations which will come into force shortly.

In formulating the National Environmental policy the following factors have been taken into consideration:-

"(i) the impact that population growth and man's activities in resource development, industrialization and urbanization have on the environment;

(ii) the critical importance of maintaining the quality of the environment relative to the needs of the population, particularly in regard to the productive capacity of the country's land resources in agriculture, forestry, fisheries and water;

(iii) the need to maintain a healthy environment for human habitation;

(iv) the need to preserve the country's unique and diverse natural heritage, all of which contribute to the quality of life; and

(v) the interdependence of social, cultural, economic, biological and physical factors in determining the ecology of man."

The ultimate aim of the Federal Government working in close co-operation with the State Governments is to ensure as far as possible that all man's activities are in balance with his environment. In the attainment of these objectives, the Government recognizes the need to balance the goals for economic and social development, on the one hand, against those for maintaining sound environmental conditions, through the conduct of regular environment impact assessment studies which will seek to identify and quantify the relevant trade-offs.

The success will depend on the close co-operation of the States, which must at all times be conscious of the important role they have to play in this respect, as land is under the control of the States. Therefore it is fitting that in this Seminar we have with us representatives from not only Federal but also States Departments and agencies and representatives from local authorities, on whom we depend for effective enforcement and follow-up operations.

The aim of development is not only to raise the standard of living of our people but also to improve the quality of life and, therefore the objective of the Third Malaysia Plan is to ensure that development projects do not through inadvertance negative these aims. In this respect the living condition and well-being of the people are affected by two all-important elements namely water and air. Both of these are not only essential to life itself but they are indispensable to all economic activities. I have stated earlier that we are facing serious pollution of both water and air and have already set in train vigorous steps to overcome these. However, it should be remembered that restoration of the environment to a healthy state is a complex and gradual process. Control measures are necessary to reduce effectively the pollutant load, discharged into both air and water. In the long-term it is better to adopt a far-sighted policy to take preventive measures in advance. It is far more desirable, practical, convenient and cheaper to plan ahead to manage our environment and its resources with foresight than to deal with the consequences of haphazard development. This, in essence, is what the Environmental Impact Assessment is all about.

There are two major aspects to be considered under the Environmental Impact Assessment process - administrative and technical. Administratively, the environment impact assessment has very wide implications and its broad repercussions will extend to many Government agencies, particularly those environmentally related ones. It goes to the heart of economic planning, administration and decision making procedures. It touches on the examination of projects, the allocation of the funds for carrying out projects and also on the terms and conditions of project approval.

Technically, the Environmental Impact Assessment process is a thorough procedure. It involves examination into the scope of projects and all their technical details. It involves assessment

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of the environmental consequences posed by the project activities and evaluating the various alternatives available for project implementation; aiming at finding an alternative that best satisfies the environmental objectives. Malaysia among developing countries can be said to be quite advanced in the field of environmental management. This Environmental Impact Assessment Seminar demonstrates the seriousness of purpose and foresight with which we are tackling our environment problems. The interest and support that it has attracted from such a wide range of governmental quasi-governmental and non-governmental agencies demonstrate tangibly our care for the environment of our country.

Before I conclude, may I wish all the foreign participants and friends from other countries a pleasant stay in Malaysia.

I shall follow the proceedings of this Seminar with great interest, and it gives me great pleasure to declare this Seminar officially open.

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SPECIAL MESSAGE BY Y.B.MINISTER OF SCIENCE, TECHNOLOGY AND ENVIRONMENT ON THE OCCASION OF THE WORLD ENVIRONMENT DAY

On the occasion of the anniversary of the United Nations Conference on the Human Environment held in Stockholm in June, 1972, today again we celebrate the World Environment Day. This year also marks the completion of a Decade of Environmental Management in Malaysia which is being observed with an elaborate programme of activities commencing with the launching by the Honourable Deputy Prime Minister on the 10th of May, 1985.

Our country has undergone rapid development in many modern economic sectors for example in agriculture, industrialisation, land development, housing projects, forestry, manpower development for infrastructure projects like highway construction and of ports. Such rapid developments has resulted in many side-effects especially in the destruction of the environment thus threatening the quality of life and the livelihood of various sectors of the general population. As the years go by, these problems increase in magnitude in line with the rapid development in certain areas and States throughout the country. Beginning 1975, the Government has taken steps in planning the appropriate policies and programmes to ensure that economic development goes hand in hand with sound management of the environment. The Environmental Quality Act was passed in September 1974 and implemented in the middle of April, 1975 with the establishment of the Division of Environment and now the Department of Environment under the Ministry of Science, Technology and Environment. It has grown rapidly since its establishment in 1975 from a manpower strength of 45

to 370 in 1984. Since 1st January, 1981 a number of regional offices has been set up to have a closer liaison with the State Government Authorities especially development and local authorities who will decide on what actions to take before pollution becomes conspicuous. On 1st September, 1983 the Division Status has been upgraded to Federal Department. The Environmental Quality Act, 1974 is wide in scope and strategy providing for systematic and selective implementation has been adopted. A priority task has therefore been to contain and deal with existing environmental problems that had accumulated over the years.

In accordance with the above strategy, pollution control has been the punch line activity and efforts of the Department of the Environment were concentrated on the development of administrative procedures and regulations for pollution control. The oil palm and rubber industries were identified to be the most chronic sources of water pollution and priority was given to the control of pollution from these sources. It took the Department of Environment nearly 2 years of preparatory work and consultations before establishing suitable standards for oil palm and rubber effluent discharges and formulating appropriate regulations for their control. Finally, the two important regulations namely, Environmental Quality (Prescribed Premises)(Crude Palm Oil) Regulations and Environmental Quality (Prescribed Premises)(Raw Natural Rubber) Regulations were enforced on 1.7.1978 and 1.4.1979 respectively. About 220 palm oil mills and 227 rubber factories throughout Malaysia have been brought under control under these Regulations.

Similarly air pollution in the main town centres and suburbs are becoming widespread through smoke, particulates and gaseous emissions from factories and industrial activities generally and from the fast growing motor vehicle population. In addition effluent dis charges from these factories and noise pollution were serious hazards to health and well-being. Three other Regulations, namely, Environmental Quality (Clean Air) Regulations, 1978, Environmental Quality (Sewage and Industrial Effluents) Regulations, 1979 and Motor Vehicles (Control of Smoke and Gas Emission) Rules,1977 have been enforced to alleviate these problems. Another set of Regulations directed at control of noise pollution is being developed. Another area of environmental concern which has been given immediate attention is marine pollution where a 'National Contingency Plan for the Mitigation and Control of Oil Spills' has been developed in co-operation with Marine Department and other related agencies. A sum of $35 million has already been allocated to obtain the necessary equipment, boats, fast petrol crafts etc. Also regulations to control marine pollution due to discharges from ships and dumpings into the seas are currently being developed. In addition, Regulations to control the disposal of toxic and hazardous wastes and to reduce lead in petrol are expected to be gazetted shortly.

Nevertheless, inspite of these achievements, the environmental situation as at today is bleak in a number of respects. While the environmental problems identified in 1975 may be perceived as less serious, others hve persisted, some have worsened and new ones have emerged. The continued degradation of land and water resources resulting from very extensive deforestation, denudation,

soil erosion, flooding, siltation of rivers, toxic and hazardous wastes do pose as serious threats.

While adequate measures have so far been taken to control pollution from industries, the Environmental Quality Act and the Regulations are by no means adequate, if we are to sufficiently address ourselves to the challenges ahead such as:-

(a) The web of environmental issues stemming from the development of land and other natural resources;

(b) Toxic and hazardous wastes generated in the light of the accelerated tempo of growth and development of the manufacturing sector;

(c) Inadequate sanitation and sewage treatment which continues to contribute to the prevalence of water-borne communicable diseases and pollution of the coastal waters of the recreational beaches with considerable impact on the tourist industry;

(d) Safe drinking water for all by the year 1990 in line with the International Drinking Water Supply and Sanitation Decade;

(e) Enlargement of the existing machinery for planning to incorporate environmental dimension in an integrated way in development planning.

Under the Fifth Malaysia Plan, my Ministry will focus its efforts on proper environmental planning to incorporate environmental dimension in an integrated way in development planning right at base level. Basically, the most effective method of controlling environmental problems lies in the advance or forward planning in environmentally related activities in terms of long-term conservation of environmental assets. To this end, it is necessary to ensure that imperatives of environmental protection are integrated into development projects to avoid environmental degradation and costly time consuming remedial measures.

A number of potentially polluting industries and projects under the Fifth Malaysia Plan will be required to have environmental impact assessments done in order that the various environmental and ecological impacts can be foreseen and pinpointed and effective steps can be taken in advance to take account of and mitigate their environmental consequences.

In addition to proper environmental planning, the Department of Environment is active in the area of environmental education with a view to developing new perceptions and awareness at all levels in society towards the environment.

For the purpose of carrying out the above tasks efficiently, three new functional units, namely, Environmental Impact Assessment Unit, Resource Management Monitoring Unit and Education and Information Unit have

been established within the Department of Environment and an effective restructuring of the organisational set up is being planned.

In conclusion, therefore, I would reiterate that there is a need for a new approach to economic and social progress, based on careful stewardship of the earth's resources and a concern for the interests of future generations. The guiding principle of such development should be the achievement of sustainable economic and social progress, not only within the limits imposed by nature, but also and above all, in the context of respect for and protection of mankind. It should have man as the focus to operate in harmony with the environment. A strategy for sustainable development should be formulated as soon as possible which, while respecting human needs, should ensure a balance between man and the environment.

In the long term, environmental protection and enhancement are best organized on a preventive basis, necessarily calling for interdisciplinary planning by all parties concerned as well as the integration of environmental consideration at all stages of development planning.

lhb.Jun, 1985.

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