

TITLE:ENVIRONMENTAL POLLUTION - EFFECTS ON NATIONAL DEVELOPMENT

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ABSTRACT

Environmental pollution is among the major issues high lighted in many discussion between the Government and Non-Government officials whether in the developed or developing countries. The problems becoming worsen when not many people are concerned on its detrimental effects on the future generations. The increasing number of forest activities without proper replanting will also exposed to flood problems, soil erosion, landslides and many mere as results of environmental impacts. The urbanization process, couple with the rapid industrial development, without having proper planning and inadequate pollutions control, may also create a long term disasters. Penang island territory has been experiencing the most highly physical development growth in this country. Hence, environmental problems are becoming the major issues. This paper will discuss on the various environmental problem, particularly in Penang and possible remedials to be taken by the state and federal authority to overcome the problems. The type of pollutions such as air and water pollutions, acid rain and of course the reduction of ozone layer. Besides that the increase of heat in our climate will also be of our concerned in the process of urbanization.

INTRODUCTION

The pressing need to clean up the environment and save the earth has been recognised internationally. But how far the human being realised and aware of the important of maintaining stability in every activities that involved with nature of their materialistic needs. Human activities are contributing towards pollution at tremendous speed for the world development. Therefore necessary measures need to be taken in order to control and reduce the level of pollutions.

The economic growth of every state in Malaysia are accumulations of different sectors that related to the total National Development. These sectors (industrials, housing, commercial, agricultural etc) are among the major contributors to the environmental pollution, many of which have the great potential to cause damage to the environment. A well understanding of the consequences on how pollutions get started practically and theoretically, may help us to identify the appropriate remedies to this problems especially for the National Development but not to forget the whole universe.

The danger that the public is dealing with must have a solution, since there is no possible or guarantee to control everything at once, some prioritization is required. Diagrams and explanation will be included for better understanding of our loving environment. Life is greater if the world is healthier.

The environment is divided into 2 catagories:-

- i. Built Environment and
- ii. Natural Environment

The connection between those two is very important in any development programmes. Pollution is caused by rigorous development activities which is done by human being and it's also has a relationship with both types of environment. Although there has been an effort to preserve the natural beauty in order to build a healthy environment, but there are also parties that still unaware and ignore or passivemistic about its surrounding while development project is on. The unhealthy development of a country sometimes are caused by the human negative attitude such as greediness and selfishness in gaining the wealth.

Nevertheless there is certain parties or authorities like the Department of Environment that acts and control the effects of pollutions and there are also certain Acts being established by the Ministry of Science, Technology and Environment in order to overcome the problems. The Environmental Act is one the example which were formed in 1974. There must be a definite solutions to overcome this environmental problem. Although a development is needed to gain a better economic and standard of living, it must be well balanced with the positive attitude and action of activities by individual and corporates.

It is important that the environmental pollutions should be controlled right from the beginning. Economic Development must get along with Physical Development. It will help sectors like the Management and Planning in order to achieve the effectiveness of the developed nation. We cannot run away from the negative side of development and we can't only depend on certain parties like D.O.E.

Each individual is involved in preserving the natural environment. Fundamentally this is a matter of economics. Therefore, the waste disposal from factories and many other sectors of development must be managed properly and effectively without giving harm to the environment. The degree of Naional Development will decrease if all the natural resources for development are paralyses. That is why the Natural Environment is equally important to the Physical Development. This will contribute a better growth of economic and public expenditure.

WHAT IS ENVIRONMENTAL POLLUTION

The European Commission has defined pollution as:-

"The discharge by man of substance or energy into the environment, the results which are such as to cause hazards to human health, harm to living resources and to ecosystems, damage to amenities or interference with other legitimate uses of natural resources".

(Roy M. Harrison : Pollution Causes, Effects & Control. The Royal Society of Chemistry, 1990)

Anyway, the more simplest definition known by most is that, the increase of the contaminant level such as toxic and hazardous waste disposal, bad odour, haze, sewage etc or other particular substance in an area that produces unhealthiness, uneasiness and unpleasant place to live in. Or in other word : "too much of something in the wrong place". Actually, it is because of the natural environment stability in the ecosystems are being disturbed.

Man has realized the adverse effect of development pollution. Pollution is manifested in many forms such as air, water, toxic waste, solid waste, noise and occupational health. But man must also aware that the cause of pollution can effect the growth of the National Development. It is necessary to be aware about the future impact of pollution which may create damaging effect to the world ecology. Specific health effects on human are only part of the cost of environmental degradation.

Global effects on property, weather, plants, and animals have been documented. All this relationship of level of the pollution with a wide range of degenerative conditions among populations have been clearly established by medical expert in their epidemiological studies of morbidity (abnormality and diseases) and mortality (death) rates. Some pollution incident may continue to be due to gross organic pollution frequently originating from silage effluents and slurries from farm and from sewage treatment plant effluents. Toxic chemical waste that being disposed by the industrial process and domestic disposal are also considered as major pollutants that increases human exposures to a wider range of contaminants.

The elevation of environmental concern to a theological level accords with a popular view that a pollution is a departure from some natural and intended order of things, a change brought about by man or more usually by industry etc. Therefore, if man would stop interfering with nature and exercise proper stewardship, an unpolluted world would be regained.

Type of pollution

Nowadays, the sources of pollution usually comes from toxic substances that contained some chemical which have the potential to cause environmental damage. It may also cause destructive health to the living organisme such as human, animals, insects, aquatic lifes and plants, even death and extinction of certain habitats.

However, it is wrong to say that pollution is caused entirely by human because there are also natural sources for many contaminants. Perhaps our environmental pollution can be divided into two major sources of contaminant:-

- i) Natural
- ii) Artificial

Natural Contaminant

Anaerobic decay and photochemical aerosol formation by plants are natural sources of hydrocarbons contributing to air pollution. Only about one third of sulphur oxide comes from human activities where most comes from sulphide compounds formed in decay of organic matter and from the sulphates in metals, asbestos and other pollutants in its flow over rocks, gravel and sand. Particulates causing atmospheric turbidity come from dust, forest fires and volcanoes eruption. Those are few example of contaminants that are produced through natural sources.

Artificial Contaminant

Mostly every single human activities that causes pollution are known as artificial sources of contaminants. There must be a sustainable development of healthy and vigorous industrial activities by human in order to provide the goods and services required by modern civilization. Among the activities are housing projects, public utilities, recreational areas, physical infrastructure, transportation and processing industries etc. All this built environment are the major causes of pollutions.

Widespread fossil fuel combustion has led to a "Greenhouse Effect" which could change the earth climate and has also contributed acid rain. This in return, create damaging effect to plant life and lowering the agricultural yeilds. Depletion of the ozone layer by chemical reaction with fluorocarbon molecules may expose the earth to accustomed doses of cosmic rays. Examples of such contaminants are chlorinated hydrocarbon pesticides such as DDT, fluorocarbon aerosols and other chemicals.

Thus, leads, hydrocarbons, ionizing radiation and other naturally occuring pollutants may artificially reach dangerous indices level for individuals in affected population. The types of artificially and added to naturally sources of contaminant are as listed:-

- i) Combustion process
- ii) Unsystematically disposed of solid waste
- iii) Depletion of ozone layer
- iv) Landslides and erosion of soil and building materials
- v) Haze and dust that cause irritation to eyes
- vi) Extinction of natural environment such as wild lifes, flora and fauna
- vii) Flooding
- viii) Increase the level of sulphur oxides, nitrogen dioxide, carbon monoxide, photochemical oxidants, suspended particulates and hydrocarbon in the air.

AIR POLLUTION

In Malaysia, there are several sources of contaminant that causes air pollution. Air pollution may exist in gaseous and particulate form. Combustion activities by industries, motor vehicles and dumping site together with forest fires and volcanic eruptions are definite examples of air pollution. It happened when the natural cycle such as the carbon dioxide and nitrogen, are not capable of handling or recycling the load effectively because carbon dioxide returning rate produce by the human activities into the air is greater. Referring to the emission rate of carbon dioxide nowadays, it is expected that it will reach 600 ppm. Increasingly, carbon dioxide is viewed as an air pollutant because of its importance as a "Greenhouse Gas".

Its sources lie in animal and plant respiration, and anoxic decomposition processes and the main source is in photosynthesis. It may be both absorbed or released by oceans, which contain

an appreciable concentration of bicarbonate. The source drawing most attention, fossil fuel combustion but a small imbalance in the carbon dioxide cycle is leading to a steady increase in atmospheric concentration. Major sources of hydrocarbons in air are the evaporation of solvents and fuels and the partial combustion of fuels. Because of the great diversity of hydrocarbon compounds in polluted air, it is not possible to make a clear statement on toxic levels. Some individual compounds such as benzene are of concern to human toxicity, whilst others, particularly ethene which is a plant growth hormone may affect the development of crops.

Carbon monoxide is very much associated with petrol-engined vehicles. The adverse effect of CO is due to reaction with haemoglobin to form carboxyhaemoglobin which is relatively stable, causing a reduction in the oxygen-carrying capacity of the blood. The pollutant nitrogen oxides of concern are nitric oxide, and nitrogen dioxide. The direct effects of exposure to oxides of nitrogen include human respiratory tract irritation and damage to plants. Indirect effects arise from the essential role of nitrogen dioxide in photochemical reactions and its oxidation to nitric acid contributing to acid rain problems.

DEPLETION OF OZONE LAYER

Atmospheric reactions involving oxides of nitrogen and hydrocarbons cause the formation of a wide range of secondary products. The most important of these is ozone. Naturally ozone layer can be found at the stratosphere and troposphere, which involve the reaction of hydrocarbon during winter. Moreover, the thickness of ozone layer is getting decrease despite of the emergence of nitrogen monoxide in the air. The chemical reactions as follows:-



With the usage of aerosol and drastic development in aviation will caused the depletion of ozone layer by high combination of atmospheric nitrogen and oxygen in combustion processes and lesser contribution from combustion of nitrogen contained in the fuel. In nature, ozone layer is produced by the absorbance of solar ultraviolet radiation by oxygen molecules which then photodissociate to form oxygen atoms. These atom then react with oxygen molecules via three body reaction to form ozone. The ozone produced is subsequently photodissociated by both ultraviolet and visible light. The destruction of ozone layer is a prime example of a serious environmental problem of global extent. Depletion of it can cause an epidemic of skin cancer and to exterminate living cells, (human and plants) increase in climate temperature and exposed to more harmful cosmic radiation.

WATER POLLUTION

Water pollution means that the equilibrium of fresh water content is being polluted with the existence of organic matters, toxic substances and reduction of oxygen level in it, which causes bad effect to its user and living organism. Water is the most important natural sources because it is the agents for all kind of human activities including basic need for the living organism in the whole universe. Like air pollution, water pollution has existed for centuries and it has resulted in mass deaths because of water borne diseases such as typhoid. Direct pollutants are sewage, suspended solid, infectious agents such as bacteria, viruses, parasites, plant nutrients, exotic chemicals, radioactive disposal, heat and oil. Other sources of pollutant are such as detergent, farming sewage disposal and pesticides. Natural water resources that are effected by pollutant are rain fall, rivers, lakes, underground water and sea water. Most of the time, water contamination produces bad odour, resulted in lowering fertility rates in general health (social aspects) and even causing death

SOLID WASTE

Our modern society mostly depends on a staggering array of chemicals which are released into the environment by manufacturing process and use of cleaners, paints, plastics, dyes, preservatives, drugs and other common products. This may result in the irreversible and additive effects on human system. Solid waste is also the detritus of production and consumption. It includes sludge from waste water treatment, domestic disposal or garbage, waste from agricultural, animal, mining and industrial process, construction and commercial activities.

Solid waste made from those soluble materials will form a polluted liquid called leachate when it comes into contact with water. Leachate may contain toxic and carcinogenic chemicals, viruses, metals, bacteria and decaying organic matter. A leachate plume may form if water is present and will move underground, entering the ground aquifer and pollute it. Its solution is massive and costly.

ACID RAIN

Acid rain is formed when there are too much of gaseous such as sulphur dioxide, carbon dioxide, carbon monoxide and other hydrocarbon that react with the present of water through a chemical reaction. It can produce nitric acid, sulphuric acid, HCL and methyl sulphuric acid, which then fall on to the earth as an acid rain. It causes damages to buildings, plants, crops, impact on health, effects on aquatic ecosystems and fish and of course the fresh water. Actually most of the pollutions are interdependent on each other.

INCREASE IN CLIMATE TEMPRATURE

Man activities has contributed to a great change in the climate temprature. The heat gain from air-conditioning unit, vehicles on the road and other combustion processes will increase the rate of depletion of ozone layer resulting to the increase in climate temprature. A second problem is the so-called greenhouse effect. Carbon dioxide in the atmosphere funtions like the glass in a greenhouse, screening out excessive infrared rays and acting as an insulator to prevent heat from escaping at night. Without the protection of the atmosphere, temperature on the earth could reach the extremes they do on the moon. If we continue to burn fossil fuels, the level of carbon dioxide in the air may increase to the point where it will blanket the earth and cause it to warm to a dangerous level.

NATIONAL DEVELOPMENT

Development of technologies and modernization process are drastically develop in most of the country in the world. The needs to improve human standards of living and stronger economic growth is the major aspect to ensure that everyone will benefited from it. The development are such as housing, physical infrastructured industrialization, urbanization, agricultural etc. However, it was argued that continued economic growth will irritability exhaust all natural resources which are in definite supply. True, an action taken to protect and improve the environment has its price. But reaction is more costly. Therefore, the idea of sustainable development that imposed by the Malaysian Governments must in line with growth in concert with efforts to protect and improve the environment for a healthy and better living. Sustainable development means that continuation of economic growth must not consume and damage the environment to an extend that the basis for long term survival is destroyed.

It shows that the development is a necessity of an adequate guaranteed annual income for all and the need to protect and save our environment is also no doubt. In ensuring balanced development, an efficient management of the environment and natural resources is an essential condition. Now, the Malaysian Government in the Sixth Malaysia Plan period will develop better techniques for integrating environmental consideration in formulating of development programmes and projects. An effective implementation of environmental programmes will ensure that the poor are not adversely affected by environmental degradation since they are the most vulnerable and least capable of protecting themselves.

In addition, to sustain the development of scarce and depletable natural resources, the Government will progressively control pollution and enhance the natural beauty of national landscapes and physical surroundings through the conservation of natural resources and the preservation of the environment. There are actually two kinds of environment; that should be consider in building up the nation:-

- i; Built Environment, and
- ii; Natural Environment.

Natural Environment

Balanced development can be achieved by considering both built and natural environment. Example of natural environment are such as forest, plants, lakes, river, (recreational area), jungle, garden, playground, animals and birds. The jungle or forest is very important as a protected rain forest area. The plants can really reduced the land and as a buffer to noises and smokes or strong wind. Even, it helps to give shades during hot day. It also produces fresh oxygen during photosynthesis process and keeping the balanced amount of carbon dioxide in the air

The natural recreational area, like the waterfall, lakes and sea- shores are among important aspects in human life because it reduces boredom, tension and built new life for human internal and external development, souilly and physically.

Built Environment

Built environment is no less than natural environment. It comprises of different sectors such as industrialization, urbanization, transportation, road, commercials administrative buildings, built recreational centre like swimming pool, stadium and other public utility etc. It also includes services, electricity and other physical infrastructural. Built environment can also be anything else that we considered as man-made. This part of environment needs to be in line with nature for a better standard of living and health.

Malaysian development has been nominated to be among the highest economic growth, compare it growth rates to others developing countries which was announced by the World Bank. The growth rate is between 8% to 12% yearly. Therefore, the land use area are getting wider and larger especially by industrialization sectors and housing project etc. As the development is getting advanced, the pollution level will also growing. Seen in this perspective, zero pollution cannot be the objective of environmental economics. Rather, environmental protection should be targetted at some optimal state of pollution. The problem facing the policy-makers is a question of trade-off. In other words, it is in society's interest to divert productive resources from current goods and services for the sake of cleaner environment only up to a point beyond which environmental quality is reduced less than the goods and services that will have to be sacrificed.

The Malaysian economy continued to sustain its high growth in 1989 with the Gross Domestic Product (GDP) reaching \$71.9 billion as compared to \$66.3 billion in 1988. This was mainly due to strong expansion in domestic demand, although the external sector was affected by an increase in demand for imports during the year. Real Gross Domestic Product grew slightly lower at an annual rate of 8.5% as compared to 8.7% in 1988. The national economy was sustained with increasing growth in all major sectors except for a decrease in the growth of the manufacturing sector. However, the main source of growth still emanated from the manufacturing sector and this was followed by the services, construction and mining sectors.

INDUSTRIAL DEVELOPMENT

The upsurge of industrial activity of the Nation has led to an increase in the demand for land. To meet this pressing and growing demand, the local government has taken necessary steps to ensure sufficient land stock. For example, The Penang Development Corporation is working on the reclamation of land about 198 hectares in Bayan Lepas for industrial use. The Corporation also acquired 261 hectares of land to extend the Prai Industrial Estate and opened up another 24 hectares in Subang Jaya for industrial development.

The Corporation also continued to play host to several foreign missions and groups visiting the State and act as the One Stop Agency for investors. A remarkable progress made in the manufacturing sector has also resulted in creating a positive impact on other sectors such as trade and commerce, housing, construction and services. The improved industrial investment climate has brought about an integrated growth in nearly all sectors.

For the Sixth Malaysia Plan period the continued acceleration in the growth of the manufacturing sector is envisaged to contribute significantly to the overall expansion of the economy. The Federal Government Development allocation for industrial development during the Sixth Malaysia Plan will amount to \$3,187 million which is 13.34% higher than the allocation for the Fifth Malaysia Plan. The allocation is in line with the emphasis and strategies of the Government for industrial development in the Plan period. It is aimed at providing the necessary physical, social and scientific infrastructural support to enhance the involvement of the private sector in industrial development. This will include the development of industrial estates, improving energy and water supplies as well as transportation and communication facilities and the provision of the necessary adjoining social and communal amenities to the workers in industrial areas. The manufacturing sector is targeted to grow by 11.5% per annum during the Sixth Plan period, contributing 45.8% of the increase in the total GDP. As a result of this expansion, the sector will account for almost one third of GDP by 1995.

Industrial development in future will continue to be spearheaded by the manufacturing sector which is also to be the largest contribution to value added growth and export earnings as well as a major source of employment creation. The main thrust of industrial development will be to broaden, deepen and modernize the industrial structure through the development of export-oriented, high value added and high technology industries. This will also be supported by a strong human resource development programme. The Government will provide a supportive role in terms of improving the infrastructural facilities and ensuring a conducive environment for investments and industrial development.

AGRICULTURAL DEVELOPMENT

The decade of the nineties will present greater challenges in the development of the agricultural sector, even though the performance of this sector during the Fifth Malaysia Plan period was crucial to the nation's economic development. This sector has contributed significantly to the expansion of the Gross Domestic Product (GDP), employment and export earning as well as improvements in rural development, particularly towards poverty eradication and preservation of the ecological system and environment. In 1990, the sector contributed more than a quarter of total export earnings, one fifth of GDP and nearly one third of total employment. The rapid growth in the manufacturing and services and the rising importance of agro based industries will require complementary growth in agriculture to ensure a reliable and sufficient supply of agricultural inputs to these sectors. The main sources of growth came from cocoa, palm oil, timber, fisheries and livestock. However, the production of padi, coconut and rubber declined during the Fifth Plan period.

Other crops are such as pepper, coconut, padi, tobacco, vegetables and fruits. In the Fifth Malaysia Plan, greater emphasis was placed on domestic production of food, given the high import bill which amounted to some \$4000 million annually, as well as to find new sources of growth. As such, the cultivation of fruits, vegetables, flowers and the production of animal feeds were encouraged. The production of vegetables increased by 4.0% per annum to 224,00 tonnes in 1990 and it came from the greater intensity of cultivation rather than increase in hectareage.

The Forestry Products annual felling rate of logs increased by 5.8% annually during the Fifth Plan to 41 million cubic metres in 1990 inspite of the consciosic policy to sustain yield levels. Consequently, sawlog exports from Sabah and Sarawak remained high at 20.3 million cubic metres in 1990. The major markets were Japan, Taiwan and Korea. Of the total log production of 41 million cubic metres in 1990, 20.6 million cubic metres were converted into sawn timber while another 7.7 million cubic metres into veneer and plywood.

Fisheries production increased by 7.6 % for marine landings and 7.9 % for aquaculture in 1990. Deep sea fishing and aquaculture contributed largely to the increase in production as a result of the promotional efforts under the Promotion of Investment Act (PIA), 1986. Landings from deep-sea fishing rose to 100,000 tonnes in 1990 from 18,300 tonnes in 1985, while the number of fresh water ponds rose to 20,900 from 18,600. At the same time, 125 artificial reefs to propagate fish concentration were established as part of the overall programme to conserve and enhance inshore resources.

For the Livestock Development, total value added increased by 6.1% per annum during the Fifth Plan to \$606 million with the non-ruminants being the major contributor to growth. The integration of ruminant animals with permanent crops in plantation continued to progress, involving an estimated 60,000 cattle. Poultry and pork were the main sources of increase of livestock output, rising by 7.9% and 5.1% per annum to reach 368000 tonnes and 211000 tonnes in 1990, respectively. The production of eggs for which Malaysia is already self-sufficient, increased by 6.8 % annually to reach 4,700 million units in 1990.

In order to preserve the ecological balance and ensure continuing contributing of agriculture in the future, appropriate policies will be required to promote sustainable development and improvements in income for those remaining in the agriculture sector. The growth in agriculture will have to come from a more commercial approach that emphasizes efficient utilization of resources. Such an approach will have to be based on private sector initiatives rather than through large-scale involvement of the public sector.

URBANIZATION AND URBAN GROWTH

By the end of the Sixth Plan period, an estimated 45% of Malaysians will be living in the urban areas. With increasing employment and income opportunities in the expanding industrial and services sectors, and increased educational levels, further out-migration from the rural areas is expected. Besides housing, additional urban facilities and amenities will have to be provided and existing ones improved so that dangers of pollution due to inadequate urban sanitation, and unorganized disposal of domestic sewage, solid wastes and waste water are minimized. This is to ensure that water supply for domestic, industrial and recreational uses is not endangered.

Housing as a basic social need will continue to be given emphasis by the Government during the Sixth Malaysia Plan to ensure that prices are within the affordability of various income group particularly those in the low-income group, and to provide accessibility to adequate and affordable shelter. The development of housing is also aimed at providing a reasonable standard of living as well as promoting social integration for the community in the long term. Towards this end, housing development programmes were implemented based on the human settlement concept, whereby housing areas were provided with various social facilities and amenities which included schools, clinics, sports facilities, recreation and religious worship as well as commercial facilities, such as shop houses and markets.

Increased urbanization and expanding industries can also exacerbate environmental degradation due to smoke, gas emission, lead concentration as well as noise pollution. With increased income and expanding urban population, the number of vehicular traffic is expected to expand rapidly. The development of transportation and communication sectors during the Sixth Malaysia Plan will be in line with the changes in demand in the sector arising from the transformation of the economy and shifts in the relative importance of the various modes. It will also be undertaken in an integrated manner to promote multimodalism and complementarity among the modes. Communications facilities and services will be further expanded and modernized to meet the growing domestic and international demand.

Development in the subsector will seek to improve inter-urban linkages and alleviate transport-related problems arising from continued concentration of people and economic activities in the urban centers. The strategies will also address the need to disperse growth through the expansion of the road network. Improving urban transportation will continue to be emphasized to overcome the congestion problems in the most urban areas in the country. Therefore, new measures will be introduced to increase ridership of high occupancy vehicles such as the light rail transit system, buses and train. Accessibility to rural areas through improvements in the infrastructure network will be enhanced to promote economic and social activities of the rural population as well as to facilitate the implementation of other sectoral programmes.

For example in Penang Island, the urbanization process is growing tremendously which comprises an increase in housing development activities, commercial project and administration buildings. The Penang Development Corporation, being the principal development agency responsible for urbanization and urban redevelopment in the State, launched a series of medium and high-cost housing units, commercial centre and constructing high-rise flats specially for the factory workers in response to the improved property market situation and to cater the needs of the increasing population. Bandar Bayan Baru and Bandar Seberang Jaya are two areas that being developed into urban and commercial centre. It will consist of an integral part of the commercial centre of the township such as supermarket or departmental store, bank, commercial-cum-office blocks, shops and housing schemes. The Corporation also provided civic social and recreational amenities for the residents in the new townships. The Kompleks Tun Abdul Razak Project is the Corporation's major urban redevelopment programme in Penang, and it is on the promotion of the complex as the premier shopping centre in the region.

TOURISM DEVELOPMENT

Tourism has become an important economic activity in the overall development of the economy. In the Sixth Malaysia Plan, the development thrust will be to expand and diversify the tourism base to reduce its dependence on a narrow range of activities and markets. The overall strategy will be to mobilize and channel investments to selected regions and activities having tourism potential leading to increase employment, incomes, value added and linkages with other sectors of the economy. This will provide the necessary support for the promotion of international as well as local tourism. A national tourism long-term policies and strategies will focus on the efficient development of the sector, while concurrently enhancing the quality of life of the local people and minimizing possible detrimental socio-cultural and environmental effects. It will also identify specific programmes that increases the participation of the local population and maximize the economic opportunities from tourism.

In terms of development of basic infrastructural facilities, a number of projects were completed including various improvements at the Kuala Lumpur International Airport, upgrading the Pulau Langkawi Airport, rebuilding jetties at major tourism areas, such as Kuala Tahan, Pulau Langkawi, Pulau Pinang and Pulau Tioman as well as improvements to major stretches of road and rail routes. Growth in tourism also help increasing the employment opportunities, generated largely by the new hotels and related services which came into operation during the Fifth Plan period.

EFFECTS ON NATIONAL DEVELOPMENT

Introduction

There are all kind of development going on in this world. Development involves many sectors such as settlement, socio-economic, physical infrastructural, social, etc which consist of industrialization, construction, domestic, agricultural, tourism, urbanization, public utility and other kind of services. It is proved that the percentage of pollutions on natural environment is increasing every year and it worries most parties involved concerning the decreased of the natural environment quality. Therefore, numerous talks and seminar has been conducted to built the awareness in our population on the negative effects of pollutions that caused by the development.

It is very important to understand the causes and effects of pollution in order to search for solutions and try to decrease the problems that are face resulted by the pollutions. In this case; The environment is our concerned and we must keep it clean and free from contaminants for a better living. Environment is limited and it will always be the part that created this whole world or ecosystem (earth). Eventhough, man have changed it into different outlook or make it up with new built environment such as cities, buildings, roads, services, artificial landscapes, etc, it is still remain in the same atmosphere. Therefore, we must notify it's causes and effects of pollutions on our environment in order to sustain our natural environment and to provide a balanced development for our near future.

SOURCES OF POLLUTION AND ITS EFFECTS

Domestic, industrialization, transportation, agricultural, construction and urbanization are among major activities of development which is contributing towards pollutions. The causes of pollutions such as water and air pollutions, acid rain, depletion of ozone layer, solid and toxic waste and increase in climate temperature, has already being explained in the earlier stage, which most of it are formed through human activities for future development. But then, we are

now looking towards pollutions effects on national development. Therefore, the steps that should be considered in order to prevent and stop the increasing of contaminants will be notify and solutions for this problem can be discussed or determined for our future development.

INDUSTRY

There are three kind of major industries that involved in producing contaminant into the environment. Firstly, the Agricultural Base Industry which using most of the natural resources to produce its products. Besides, this industry is also using few synthetics materials to help in its production. Secondly, is the Electronic and Metal Base Industry, that are divided into big scale and small scale industries. It contributing towards employments for most of the population in this country. Thirdly is the Domestic Industry which involved activities in housing projects, shop houses, urban and rural areas.

(1) Agricultural Base Industry

Oil Palm industry has been contributing toxic chemical and a layer of oil on the water surface, together with the solid waste disposal. Timber cutting and deforestation has causes tremendous soil erosion and flooding event which may occur frequently despite of unproper control on the logging activities. Such activities will also change the colour of water with suspended soil particulate and precipitation process will continue to cause the river bed covered with silt and mud which results in the depletion of inhabitats underneath and the water ecosystem to become dead river. Most of organisme and fish will die and lowered the productivity of the river for fisheries basis. Other source of water contaminant through the agricultural base industry comes from the poultry and paste which produces bad odour and social conflict that is happening now in farm areas such as Sungai Paloh (Selangor), Sungai Perai and Sungai Pinang (Penang Island). Pesticides, herbicides and other poisonous chemical that are used in agriculture to kill insects and rats also causes fresh water to be polluted with toxic chemical. All this has decreased the fisheries development especially those the local fishermen and has cut down the linkage in food chain. Some rivers that are being used for drinking and washing are no more useable, even fish breeding in fresh-water ponds is effected or even killed. This contaminant will affect until the sea and cause polluted coastal area which lowered the tourist attraction venues and to some extent reduces the tourism sector.

The poor drainage and sewerage system and no proper method for waste disposal system in most of this agricultural base industry are some of the sources that contributing towards the water pollution, and this worsen the problems. The air is also being polluted through the spraying of pesticides and herbicides process and movement of the machines or vehicles during logging activities in dry season including hot temperature. Besides that, combustion process in the furnace or factories also producing smokes and particulate into the air which then are responsible for the polluted air such as haze and smog. This affects the social and health of the population and more money will have to be spent on drugs for medication purposes.

Logging activities has been criticise by most developing countries and blames are upon the Third World Countries which is not fair. Forest damage in Tropical Country which causes air pollution for example Malaysia, can be considered at a very low stage. This is due to the fast recycle of natural gaseous like carbon dioxide, oxygen, carbon monoxide and sulphur dioxide. It is because our country has such a vast and thick forest to overcome this problem, eventhough the effects are still bad. This phenomena is totally different and worst comparing with the Non- Tropical Country or Industrialized Country.

ii) Electronic And Metal Base Industry

Industrialization is one of the most important sectors in economic development. Such types of industries are electrical appliances, textiles, heavy metal and machineries, food processing wooden and steel furniture, chemical and agriculture products. Most industry effluents are being directly disposed into the drains, rivers and also into the sea. The effluent from the industries usually consists of toxic chemical, oil, heavy metal and also bad odours which causes contamination to the water. Anyway, combustion process through industrial estate is contributing towards air pollutions.

When the air is polluted with sulphur monoxide, carbon dioxide and hydrocarbon, it will form into acid rain as they react with the rain water and falls on the earth. The acidic rain falls will caused some surfaces of metal or buildings to decay or erode. As the water flows down into the river or any soakways and even through into the underground water level, it will bring together the toxic metal or liquid waste and causes the water to be polluted. There will be no more drinking water and for agriculture. If this combustion kept on going without any steps to prevent it, the whole national development will be effected and involved higher cost for maintenance, research and development, even it will also lower the productivity. This is resulted from failure of growing crops, extinction of natural habitats or food chain, causes many kind of diseases to the animals and human being, need more allocation for building up health centres, facing lack of food and can bring to death. If the human health is affected, the whole activities of development will be hindered and we will start to suffer from the negative effects cause by pollution. Therefore, a proper management is needed to gain a balanced in our development.

It is quoted that:-

"In the organization of human beings it is necessary for the manager to realize that improvements in the worker's physical and social conditions, together with the sharing of a science of participating in the enterprise, are the two prime movers of effective performance", and "Success comes to an organization only as the result of sound decisions being made by management both in the technological and commercial sense. Such decisions cannot be made by consideration of the natural factors alone, but human factors must always be taken into account".

(Roy Pilcher, 1976. Principal of construction management". Second Edition. McGraw - Hill Book Company (UK) Limited, page 4)

iii) Domestic Industry

As a result of the untreated liquid waste which contains chemical, solid waste, detergent and oil from the domestic disposal system such as drainage, sewage and commercial activities, will causes the detrimental effect of water pollutions. The waste water usually has a higher temprature that comes from food processing and cooking activities, motor workshops, car wash and etc. All the dust (water or mudd), lubrication oil, detergent and solid waste combined together to form a layer of substance that preventing the absorption of oxygen into the water. Hence, it reduces the oxygen level in the water and causes bad odour or even kill almost all aquatic lifes such as fish, algae and weeds. Human being that depending on fresh water from the natural sources which has been polluted will suffer of chronic diseases such as Minamata, cancer (skin and internal body), heart attack, cholera, typhoid, dengue fever, enteric and a lot more others. Even by using chlorin during water treatment process in order to kill bacteria reduces clogging, but yet, chlorination also contributing harmful disease or sickness to many individuals, such as bone decay, irritation to the eyes and causes oxidize(rust) to pipe supply.

Besides producing bad view to the surrounding area with all the unsystematic solid and liquid waste disposal, domestic waste also creating unhealthy way of living to the human being and this affected the productivity of the whole community. An example to the bad social development is the squatters areas which can be considered as one of the pollutions contributors because of it inadequate utility and sewerage services facilities. There is no proper disposal system, water supply, sewerage plant and drainage and the population is living in an over crowded area.

CONSTRUCTION

This sector is in need as long as the development is still exist for the next coming generation to gain a better way of living. Construction activities involving clearing sites, buildings, physical infrastructure and transportation. During the whole process of construction, the soil erosion is one of the major aspects of contaminant towards water pollutions. It dangers the river bed ecosystem, blocking up the drainage system and soakways, killing a lot of aquatic lifes and produces massive amount of sludge and suspended solid which will prevent the growth of aquatic weeds and other aquatic lifes when the level of sun light penetration is being reduced into the water. If reclamation of land is done near the coastal area without proper control and prevention steps, depletion of coral reef and great loss of aquatic or sea world will be the result; eg: in Penang Island it is hardly to find any more coral reef in its coastal territory. Reclamation activities also resulting the extinction of mangroove forest and its habitats. Mangroove needed in construction for piling will no more exist in future.

The growth of E.Coli bacteria will keep on increasing and beach will be contaminated badly. The national tourist development will also be affected due to the polluted coastal area. There won't be anymore water sports or games and we will never got the chance to enjoy snoorkling or scuba diving in search of the other 3/4 of the world in the near future. Fisheries department will have to proceed with "deep sea fishing" and spend more money to subsidise the poor fishermen in buying bigger boat and setting up training centre and even caused unemployment to certain fishing villages.

Construction is among the major noise pollution contributor in line with the transportation and heavy industries. Besides, contributing noise pollutions, it also produces smoke, oil and dust particulate in the air. This causes air pollutions. Therefore, it will cause the human being to do more cleaning and washing. More health centre and specialist concerning particular parts of the bodies function is needed to cater the problem caused by air, noise and water pollution.

During rainy season, flood always occurred at places which are lower than the water level and this lives a thick layer of mud or sludge covering the whole area and resulting difficulties for other development activities to go on such as blocking up traffics, stopping the growth of crops, maintenance of the drainage system, road and produces bad view and smell to the affected area with rubbish and other solid waste which scattered all over the places.

Usually the squatters area are the places that affected badly by the pollution which caused by over crowded, improper disposal system or lack of buildings services such as sewerage and water supply piping system, drainage and also no specific dumping site for rubbish and other waste. This areas has connection with political parties and issues in the country and it must be understand that without any steps to improve or demolished this squatters area will produce more pollutions to the area or its surroundings. Thus, in the end, it will effect the population to live in such an unhealthy living condition, miserable and non-aggressive and caused agitation to the development of particular area.

The problem with soil erosion in construction is that sometimes causing landslides and reducing the amount of energy generated by the electric-hydro power station. For example the Cameron Highlands hydro power station, has not been working effectively because the whole reservoir is filled up with mud and causing destruction to turbine and generator. The output capacity of electricity energy from the dam is lower, even now the water level is reducing and the maintenance cost is getting greater which resulting a decrease in the energy development and productivity for the whole country.

URBANIZATION

Urbanization process has long been contributing many sources of contaminant towards water and air pollution. Air pollution phenomena has already been proved by some research done in Japan, whereby most of the tall buildings which produces heat by reflecting the direct sun light will raise the wind to blow only at the upper level but not near to the ground surface nor at the middle level. This increases the temperature level and causes draught in most of the urban development area. As a result, not many plant can grow easily in reacting as a shade or a buffer to noise and air pollution in town. It's affecting the plant and human activities by the effects of feeling tired, hot, dry and sleepy including the retardation in growth of plants, human health and other development programmes.

Sleepiness is actually caused by the respiration process that involved the circulation of gaseous and smoke in the polluted air which produced through combustion processes such as motor vehicles, factories, domestics and commercials activities; thus when the gaseous gets colder, it returns down to the level where human being will inhale during their respiration process. This led to insufficient absorption of oxygen into the blood system which caused brain blockage and we will be in an unconscious condition or sleepy. Hence, the output of the workers and productivities will be decreased because they can't stand for longer working hours, feeling hot, dry and exhausted in a short period of time. Therefore, the national GDP will also be affected and the economic growth is slowing down.

Some of the drainage systems in urban area are still in bad condition and not capable to cater the increasing volume of running water and liquid waste from various sectors. Most existing drainage and sewerage systems in urban area are inadequate and need reconstruction to be in line with the future expansion development. Maintenance of some public utilities and services including transportation are usually being ignored in the earlier stage, therefore it causes to flood, living scattered rubbish and sludge on the affected area and even landslides. It produces bad odour and view which resulting social and physical problems to the community.

Sometimes it is not to blame the authorities involved, for not reconstructing the physical infrastructure facilities but to blame the politician for not allowing any redevelopment projects on the particular congested area for an improvement. As a result, any expansion of road and demolishing of an old buildings for new projects has caused delay and obstruction for any future development such as traffic jam and road accidents during peaks hour in the town area. The wider access road, tall buildings, pavements and many other built environment causing the water flows becoming greater on its surfaces but reducing the penetration of water from getting into the underground soil strata. Hence, fresh water from the underground will be reduced and caused the land to become drier. The effects on future generation is lost of crops, decreased in human health and plants and no more pleasant environment.

All this urbanization processes are contributing more towards air and water pollution which have a greater chance to form an acidic rain and greenhouse effects. It also causes heat to increase, reducing the formation of cloud especially in urban area and resulting desert effect. Besides the acid rain can also cause erosion process to all the buildings materials. Therefore, the government will have to allocate its expenditure more on maintenance, health programme and saving the natural environment

SOLUTIONS

Our environment has been widely exposed to all kinds of pollutions. Therefore, it is our responsible to reduce the contaminants, resulting from our own sources of development activities programme. Participation from all agencies including individual, community groups, institutions of higher learning, private and public sectors and government in preventing the causes of pollution are very much needed to enforce the implementation of the law, regulations and acts concerning the conservation of natural environmental and saving the earth.

There has been so many discussion, seminars and talks on the prevention strategies and way of improving our environment from being polluted which involved with setting up policies for all kind of society in order to overcome this environmental problems. We really hope that through all the hard work in emphasizing awareness among the individual and responsibility on every citizen in this country and world wide in the prevention strategies will definitely be implemented and hence minimizing the effects of environmental pollution in this country and elsewhere for the next coming generation. Therefore, a balanced development involving the natural and built environment in our national development programmes for the future can be maintained forever

There are four major groups that can really help in implementing and enforcing the control and prevention strategies of pollutions in our country:-

- (a) Individual
- (b) Community society, private and public organization
- (c) Research and education institutions
- (d) Government

INDIVIDUAL

This involves the school children, teachers, parents, head of department or organization in the community and the individuals whom representing themselves for the public. They need to be taught and well educated with civic knowledge about caring, saving and reducing the contamination level in their surroundings environment where it seems to fade among the Malaysian citizen

The steps to emphasize on every individual regarding the matter concerned are such as:-

- 1 A compulsory civic lesson to any school children in building up the awareness and sense of responsible on the importance of clean environment. The lack of awareness among the general public may due to insufficient understanding of the long-term consequences of pollution and environmental deterioration.
- 2 Providing information on environmental and pollutions issues to the rural and urban population through Expo and Information Department by:
 - a) Showing slides and videos or even posters about the proper way of disposing solid and liquid waste including the effects of pollutions
 - b) Setting up campaign and cleanliness gathering (gotong-royong)
 - c) Distributing brochures or pamphlets and also through the mass media which can assists the government to enforce its policies and actions to be taken against any individuals or parties that contributing towards the environmental pollutions and ignore the notices given by the authorities

- 3 Spot checking and regular visits to the dwelling area or any other particular commercial and industrial area by the authorities. And notices of fine will be given on the spot if any faulty is found.
- 4 Held some courses on safety, health and self responsibility on cleanliness to the top management level in order to be an example to their employees
- 5 Encourage the public to use less detergent for washing or cleaning purposes and avoid throwing cooking oil directly into the drainage system which kills the aquatic lifes
- 6 Send in notices on government policies, regulations and Acts regarding environmental issues to all individuals in order to implement it without further questions

Environmental degradation requires not only laws, regulations, strict compliance and enforcement but also dissmination of knowledge to the general public so that they are adequately informed. Greater exposure, increased the knowledge and better scientific understanding of the environment is therefore, essential. Knowledge and awareness influence attitudes and values towards caring more for the environment

COMMUNITY SOCIETY, PUBLIC AND PRIVATE ORGANIZATION

Society or any other volunteer bodies either from the private or public sectors can contribute a major role in preventing the pollution effects. They could voice out the public and majority ideas in a stronger stand. For example the Penang Consumer Society has been functioning as the community body in proposing ideas and steps to control the pollution problems that should be done by the Local and State Government:-

- 1 Form a commission that is indipendent to investigate and doing research for cases which involving serious disaster on the environmental pollution effects produced by industries and other activities. This is to ensure that the responsible bodies to pay for the compensate of those community whom facing the impact from the pollution such as The Kuala Juru case.
- 2 Enforcing the control steps that have been set by the Environmental Acts and also to create a programme on protecting the environment in the affected area in order to return to its original state.
- 3 Set up a minimum boundary level for the disposing of waste in to the environment to all industries and force them to close down until they provides or proof that a proper treatment plant or machine for minimizing the pollution effects is built
- 4 The government will also need to build more monitoring stations at every river and industrial estate.
- 5 The regulations and Acts on preventing poliution should be legislate for more effective action especially involves the allocation and punishment.
- 6 The Department and Ministry of Environment should be given more power to dominate any resembly punishment against pollutors in order to save and maintain the balanced environment.
- 7 The owner of factories, houses and commercials building including the public that run businesses should cooperate with the authority and allowed them to do any checking and investigation on the disposal and drainage systems for an improvement and actions to be taken into consideration

RESEARCH AND EDUCATIONAL INSTITUTIONS

To control the land use in developing of an area and to minimize the pollution effects is through having discussion and consultation with the respective Research & Development Department or any other research institutions such as the universities, SIRIM, Malaysia Agriculture Research & Development Institution (MARDI) and also by having their own research and development department which established by the firms. This is important before any approval is being made by the Department of Environment or by other authorities for the development activities.

The universities and other higher learning institutions should conduct more scientific research on the waste and other toxic substances which being produced through the development activities in finding the solutions and trying to minimize the effects of environmental pollution. They also should create a new method or treatment system for the disposal of waste. Usually this institutions will work together with the government bodies, private sectors and of course the community, for example the Universiti Sains Malaysia in Penang is working very close with the local government of Penang Territory and the northern area in every aspects of development. Surveys and studies will be conducted in order to find the best solutions for any steps taken for the development programmes including saving the environment.

Some of the findings from this research and development bodies are such as recycling of waste especially involving the chemical substances in liquid or solid form and also other reusable products like the tin cans, paper and metals. Besides, the spilled oil on the sea can also be recycle and any combustion processes, the heat produced will be used for other activities as a source of energy before it gets into the atmosphere. Even, some of the product is produced with such a technology that can be recycle without being waste because the consumer can sell it back to the manufacturer for money or better exchange. All this findings will reduced the level of contamination to the environment.

GOVERNMENT

There are several department in the ministries which responsible in providing allocations and maintaining the cleanliness of the environment. The most responsible body is the Department of Environment in the Ministry of Science, Technology and Environment (DOE).

DOE function is to make sure that the Environmental Quality Acts 1974 requirements are strictly followed such as:-

- a) Concerning the steps for preventing and controlling the pollution problems that are now exist in the water, air, coastal area etc
- b) Monitoring, planning and managing the environment according to the aspects of land use, natural resources (plants, wild lifes, coral reef, metals etc) zoning for the sectors such as the industrial estate, agricultural, forestry, mining, urban, etc. One of the objective is to achieve the balance development of the whole country in economic and better standard of living especially involving physical or built and natural environment. DOE is acting as the principal agency entrusted with the responsibility to monitor the state of the environment and effectively enforce laws, rules and regulations governing the environment

In order to enable DOE and other public sector agencies to effectively and consistantly monitor and evaluate the state of the environment and take steps to enforce the required measures the environmental role of these agencies will be given priority. Therefore, all public

institution will be required to collaborate and cooperate with DOE and effectively integrate environmental considerations in the planning and implementation of their programmes and projects. DOE will also be strengthened to enable it to play a development role as well as to be more effective and efficiently in enforcement. These measures are to ensure that in the exercise of their respective designated functions, the environment is seen as an integral component of the strategies and programmes of public sector agencies.

Apart from DOE, other relevant ministries are such as the Ministry of Agriculture, the Ministry of International Trade and Industry, the Ministry of Rural Development and their agencies will also incorporate with the environmental aspects into their programmes and projects wherever relevant, in order to help sustain a clean and healthy environment. Towards this end, some of the major programmes to be implemented under the Sixth Plan period will be

- a) Promoting the development of waste disposal facilities for industries and the adoption of environmentally-sound technologies and processes;
- b) Sustaining 12.73 million hectares of land area as permanent forests and 1.16 million hectares as national parks, nature reserves, habitats and wildlife sanctuaries;
- c) Rehabilitation of 101,300 hectares of logged-over areas annually and sustaining 1.65 million hectares of rehabilitated areas as permanent forests as well as enforcing rules on the destruction of mangroves and control of rivers and water quality standards;
- d) Implementing agro-forestry projects, involving some 90,000 hectares of land, and planting trees in unused agricultural lands and beautifying the natural surroundings of urban areas;
- e) Minimizing the adverse impacts of pollution, erosion and sedimentation from development activities;
- f) Enforcing fully the Environment Impact Assessment (EIA) requirement for projects which have potential of damaging the environment.

CONCLUSION

Through all the lines mentioned earlier, preventive care is one of those core actions that seems inherent in all living species because it is a survival skill. Anyway it also seems to be learned behavior for humans. With increasing intelligence and cognitive functioning, acting preventively could increase. Personally, socially and politically, preventive measures are shortchanged, even though prevention is a necessity. The simple truth is that growing population, consumerism, urbanization and industrialization cripple current environment efforts in this country. This makes prevention more critical than ever before. Ignoring the preventive care, wait for imminent danger and then react just in time with great technologies fails to achieve victory. In defense of pollution prevention, we and many others say: better to be safe than sorry. We content that changes in the behavior of many progressive people in the marketplace and workplace must occur first. Once enough people have shown their values, preferences and skills, then industries, environmental organizations and governments will follow. Therefore, it is best that we sit together in a round table discussing the circumstances that we could react towards the environmental pollution effect on the national development in order to have the balance in built and natural environment. The effectiveness of environmental education, as a preventive strategy in environmental management, hinges upon careful planning, effective coordination and willingness and commitment among all environment-related agencies and organizations, both in and outside the Government. Malaysians must cooperate and complement efforts of the Government in creating a pollution-free environment and promoting sustainable resource development. Focus will be given to conservation, environment and ecological balance within the context of sustainable development. And we are hoping that, when comprehensive preventive planet care are shown to be practical by an active, vocal minority, it will be demanded and implemented by the majority.

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