Clean Air Action Plan

DEPARTMENT OF ENVIRONMENT
MINISTRY OF NATURAL RESOURCES & ENVIRONMENT

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Clean Air Action Plan

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FOREWORD

I am pleased to present the Department of Environment's Clean Air Action Plan (CAAP) that summarizes the major strategies and activities towards contributing for better air quality in Malaysia.

The CAAP only gives emphasis to activities within the jurisdiction of the Department of Environment and focuses on the implementation of the following strategies:

- Motor vehicles emission reductions;
- Industrial emission reductions;
- Prevention and control of haze due to land and forest fires and open burning activities at local and regional levels;
- Knowledge enhancement; and
- Public awareness and participation.

The Plan is a cooperative effort of the government and private sector and it is envisaged that with improved education, planning and coordination among all stakeholders, the goal of improved air quality in Malaysia is possible without much adverse economic burden on the related sectors.

I would like to take this opportunity to record my appreciation to everyone who has contributed in drafting this Action Plan. I believe that the commitment from all parties in implementing the CAAP will result in a better air quality for now and in the future.

With Best Wishes,

Director General
Department of Environment

ACKNOWLEDGEMENTS

The Clean Air Action Plan (CAAP) is an outcome of cooperative efforts between the Department of Environment and stakeholders of air quality management in Malaysia that includes the public and private sectors.

The Department is indeed grateful to the following individuals for their invaluable input to the CAAP :

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Last but not least, the Department would like to extend its gratitude to each and everyone comprising representatives from government agencies, academia and research institutions, professional bodies, non-governmental organizations, industries and the private sector for their active involvement and support in producing the CAAP.

EXECUTIVE SUMMARY

The Clean Air Action Plan (CAAP) is drawn up in line with the “7th Green Strategy” in the National Policy on the Environment. The CAAP presents a set of strategies and indicators that together provide a roadmap to achieve better air quality by reducing the frequency, severity and duration of poor air quality episodes.

The strategies and measures listed in this Plan are aimed at managing air quality through close cooperation between government, private sectors and non-governmental organisations. This Plan is a living document, as new technologies and approaches become available, they would be incorporated into the Plan.

In the implementation of the CAAP, apart from achieving good air quality it also generates co-benefit in terms of reduction in greenhouse gas emissions. Major contributors of greenhouse gas emissions that are addressed in the Plan include emissions from motor vehicles and industries and haze due to land and forest fires and open burning activities.

CLEAN AIR ACTION PLAN

Pangkor Island Fisherman's Village

Penang Island Skyline

1.0 INTRODUCTION

The National Policy on the Environment aims at continued economic, social, and cultural progress of Malaysia and enhancement of the quality of life. The National Policy on the Environment describes in its "Green Strategy" the objectives and principles. The strategy aims at:-

i) Education and Awareness;
ii) Effective Management of Natural Resources and the Environment;
iii) Integrated Development Planning and Implementation;
iv) Prevention and Control of Pollution and Environmental Degradation;
v) Strengthening of Administrative and Institutional Mechanisms;
vi) Proactive Approach to Regional and Global Environmental Issues; and
vii) Formulation and Implementation of Action Plans.

Therefore, in line with the 7th "Green Strategy" in the National Policy on the Environment, this Clean Air Action Plan (CAAP) is developed to ensure that the air quality in Malaysia is good and healthy for all living being. The CAAP can be viewed as a "roadmap" to cleaner air. It represents a solid and considered strategy for moving forward on the implementation of a range of programmes and activities that will provide Malaysians with not only cleaner air to breathe, but also a better quality of life

In the implementation of the CAAP, whilst achieving better air quality, it also generates co-benefits in terms of reducing greenhouse gas emissions (GHGs) and combating global warming.

The time frame of this CAAP is categorised based on its priorities i.e. short term (immediate or less than 2 years), medium term (2-5 years) and long term (5-10 years). This CAAP is a living document that will be updated as and when necessary to include any new commitments that are secured.

2.0 ISSUES AND CHALLENGES

Clean air is a prerequisite for good quality of life and the avoidance of damage to plants, soils and buildings.

Poor air quality in urban areas is mainly caused by combustion of fossil and other fuels by industries, motor vehicles and households, by forest fires and dust. Pollutants and hazardous matters are either emitted directly or are the result of chemical reactions of emissions such as ground level ozone.

The main pollutants are carbon monoxide, sulphur dioxide, nitrogen dioxide, volatile organic compounds, particulate matter and ozone that will post a wide range of negative health impacts such as lung and heart malfunctions, bronchitis and asthma.

Inadequate urban planning, the establishment of satellite cities and the preference of individual over public transport result in increasing motor vehicle usage which in turn increases the level of air pollution in urban areas. Low quality of fuel and outdated emission standards further exacerbate the problem.

Transportation is important to the economic development of a country but it is also a major source of GHGs emission. The International Energy Agency estimated that in 2008 the transport sector is responsible for 13% of the world greenhouse gas emission and 23% of carbon dioxide emission is from fuel combustion. The challenge is to move towards environmentally sustainable transport. Environmentally sustainable transport could result in a number of co-benefits such as reduced air pollution, traffic congestion and oil usage that improves environmental quality and human health.

Industries without adequate control measures, the use of poor quality fuel and the lack of land-use planning, thus allowing heavy polluting industries to be sited in urban dwelling centres also contribute to poor air quality.

Large scale and uncontrolled fires resulting from open burning of biomass release significant amount of pollutants into the atmosphere including fine dusts, carbon monoxide, carbon dioxide, etc. Such fires could result in haze episodes, thus affecting public health and the environment.

2.1 EMISSIONS FROM MOTOR VEHICLES

The automotive fleet in Malaysia has grown more than two-fold in the past 10 years, from 8.9 million vehicles in 1998 to more than 18.5 million vehicles in 2009 (MOT, 2009). Car ownership also increased rapidly from approximately 94 per 1000 people in 1990 to 216 per 1000 people in 2003 (MOT, 2006). The rise in private car ownership and use has been influenced by increasing income levels, and the need to improve mobility for economic development.

The usage of public transport in Klang Valley, measured as a percentage of total vehicular trips, has decreased from 34% in 1985 to 16% in 2003 (Ninth Malaysia Plan Report). Currently, the transport sector is the main contributor of nitrogen oxides (28%) and carbon monoxide (95%), as well as a major contributor of particulate matter (10%) emissions. (DOE, 2009).

The Department of Environment has introduced legislations in 2007 for both diesel and petrol fuel quality to meet EURO 2M standards. Sulphur content for both diesel and petrol was significantly reduced from 3,000 ppm to 500 ppm and from 1,500 ppm to 500 ppm, respectively. The use of unleaded petrol was introduced voluntarily by the oil companies since 1991 and the total phase-out of leaded petrol in 1998. Regulations to control gaseous and black smoke emissions from diesel and petrol vehicles were enforced since 1996.

2.2 EMISSIONS FROM INDUSTRIES

The total number of industrial sources identified in 2009 which were subjected to the Environmental Quality (Clean Air) Regulations 1978 was 20,604.

Johor reported the highest number of stationary pollution sources (5,791 : 28.5%), followed by Selangor (4,127 : 20.3%) and Perak (2,956 : 14.6%) (DOE 2009)(Figure 1).

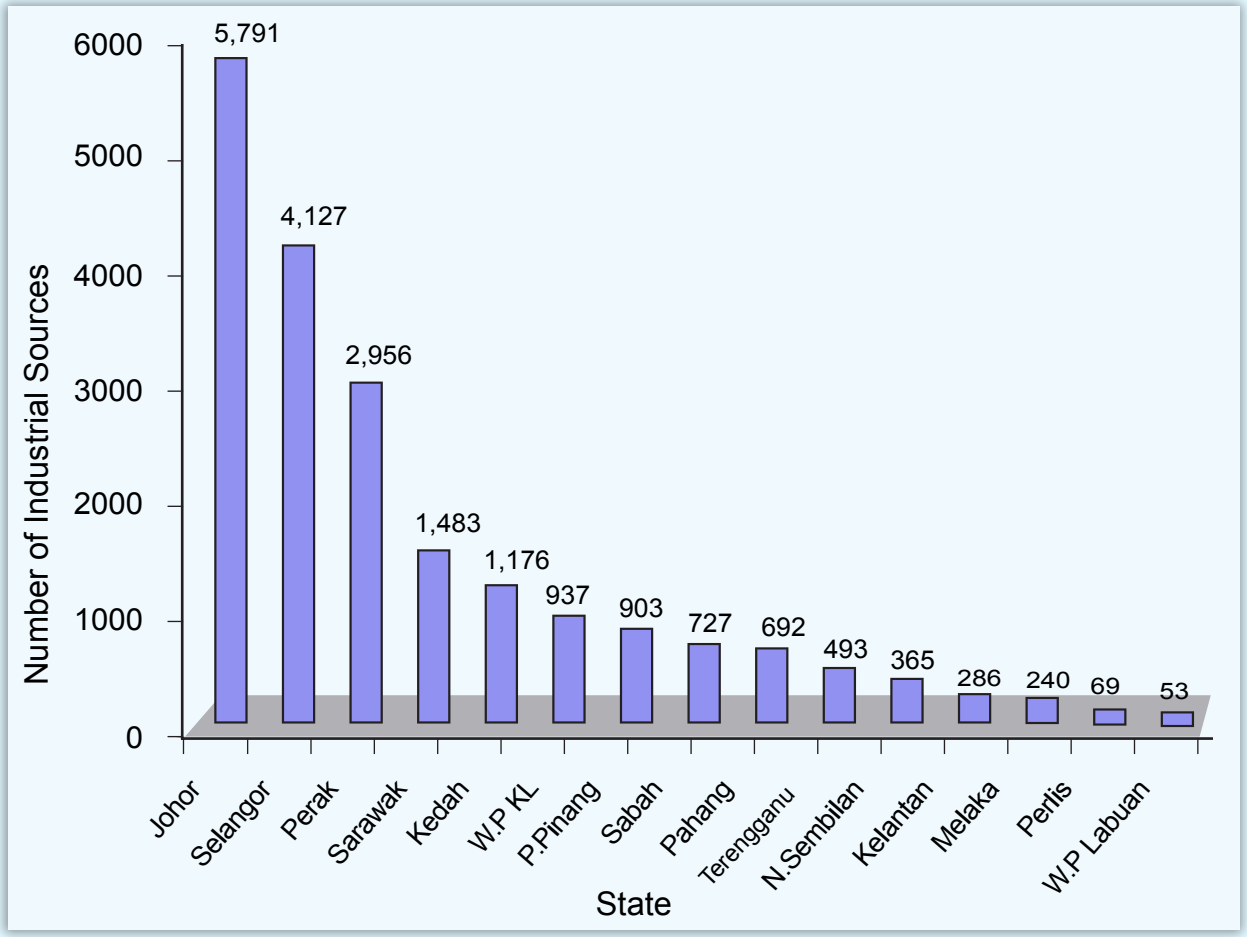

Figure 1 Malaysia: Industrial Air Pollution Sources by State, 2009

Emission load from industries including power plants contributed 47 percent of the total SO_2 emission load and 25 percent of the total particulate matter (PM) emission load (DOE 2009) (Figures 2 and 3).

The Department is currently drafting a new Clean Air Regulations that encompasses holistic approach underlining new emission standards for specific industries. The new Clean Air Regulations is supported by guidance documents on Best Available Techniques (BAT).

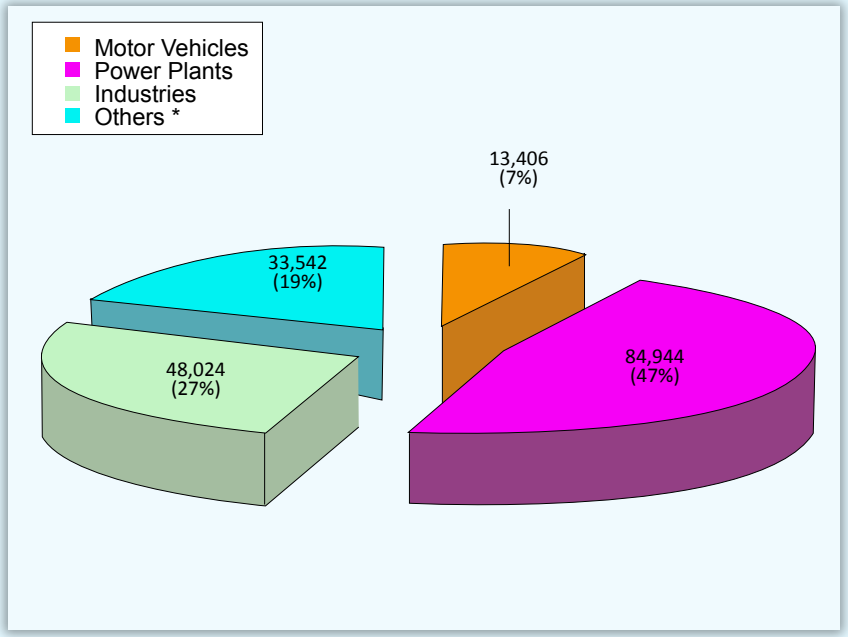

Figure 2 Malaysia: SO_2 Emission by Surces (Metric Tonnes), 2009

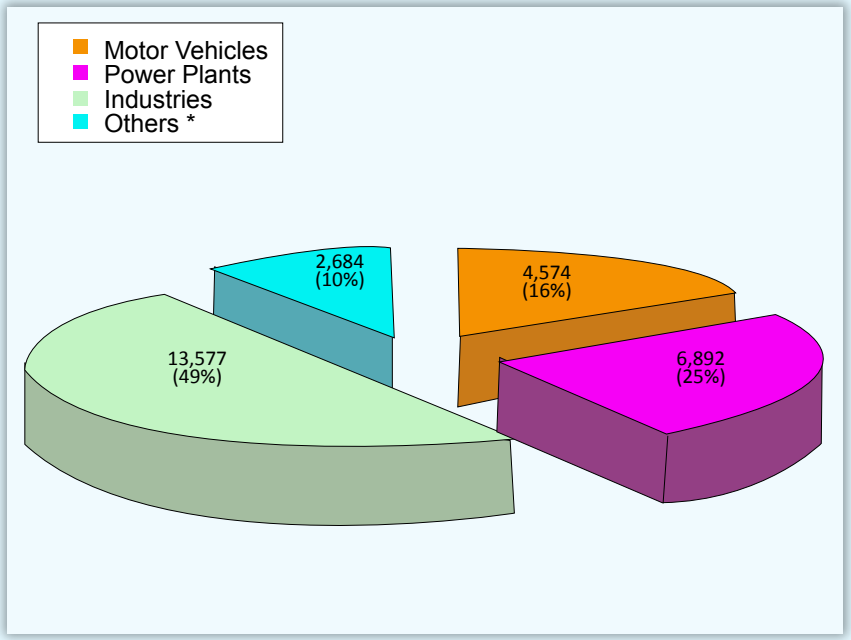

Figure 3 Malaysia: Particulate Matter (PM) Emission Load by Sources (Metric Tonnes), 2009

* Others :

1. Agricultural 2. Residential 3. Commercial 4. Non-energy use

2.3 HAZE DUE TO LAND AND FOREST FIRES AND OPEN BURNING ACTIVITIES

Major haze episodes in the country were due to transboundary air pollution. However, local sources such as open burning activities also contribute to the situation especially during the dry and hot season.

Legislations to prevent and control open burning are already in place such as the Environmental Quality Act 1974 (Amendment 1998 and 2001), Environmental Quality (Declared Activities) (Open Burning) Order 2003 and the Environmental Quality (Delegation of Powers)(Investigation of Open Burning) Order 2000.

The Environmental Quality Act 1974 was amended in 1998 to provide a more stringent penalty for open burning offences. To enhance the enforcement capacity, the Department of Environment, the agency entrusted to enforce the law against open burning, has delegated powers to officers of the Fire and Rescue Services Department, Police, Ministry of Health and Local Authorities to assist in the investigation of open burning activities.

At the regional level, the ASEAN Agreement on Transboundary Haze Pollution came into force on 25 November 2003. This Agreement is the first of such regional arrangement in the world that binds a group of countries in a region to tackle transboundary haze pollution resulting from land and forest fires.

3.0 STRATEGIES

3.1 MOTOR VEHICLES EMISSION REDUCTIONS

Motor vehicle is one of the main contributors to the air pollution in the country, particularly in urban areas. Several strategies to reduce emission from these sources are:

- To reduce travel demand through integrated land-use planning that focuses on densification of urban areas, promoting e-business transaction and telecommuting.
- To provide varieties of modal choice by promoting the use of public transports that will reduce use of private vehicles and promoting use of non-motorized transport with zero emissions.
- To encourage wider usage of cleaner or green fuels.
- To introduce stricter emission standards through regulatory measures by improving engine technology and fuel quality.
- To increase in-use vehicles inspection and maintenance programme covering all types of vehicles through regulatory measures.
- To improve traffic management by encouraging mass transit options that have low emissions rate per passenger, effective traffic management that reduces congestions and shorten vehicles running times.

3.2 INDUSTRIAL EMISSION REDUCTIONS

The air pollution emitted from the industrial sector comes from various sources such as power plants, industrial energy use, large scale industries such as iron and steel plants and cement industries. The pollution emitted from these sources can affect air quality in many ways and particularly impacts on health of the surrounding population. Several strategies to reduce emission from these sources are:

- To review and improve existing emission standards by specifying emission standards for specific type of industries.
- To encourage 'cleaner production practices', use of the latest air pollution control technology, energy efficient equipment and cleaner fuel.

- To promote self-regulation by the industries through performance monitoring of air pollution control equipment, online Continuous Emission Monitoring System (CEMS) and environmental audits.
- To promote Environmentally Sound Technology (EST) and Cleaner Production (CP) through education and awareness programmes.

3.3 PREVENTION AND CONTROL OF HAZE DUE TO LAND AND FOREST FIRES AND OPEN BURNING ACTIVITIES

Haze originates from a variety of sources that could be local or transboundary, the largest source being biomass burning. Secondary sources are motor vehicles and industrial emissions. Haze pollution due to land and forest fires seriously affect the health of the people, particularly causing respiratory ailments as well as affecting their livelihood. Forest fires have also resulted in degradation of peat soils, erosion of biodiversity, loss of wildlife and habitat, and contributed to global climate change. Several strategies to prevent and control haze pollution are:

At Local level

- To carry out stringent enforcement actions against illegal open burning activities.
- To encourage plantation industries and farmers to practice zero-burning techniques as an alternative to slash-and-burn practices during land clearing or replanting.
- To promote 'waste to wealth' concept through reuse of biomass waste to produce useful products such as compost, furniture, feedmeals, briquettes and generation of energy.
- To enhance awareness among the public on impacts of haze on health and socio-economic activities.

At Regional level

- To continually support the implementation of the ASEAN Agreement on Transboundary Haze Polllution.
- To participate actively in international and regional programmes and activities to mitigate haze pollution.

3.4 KNOWLEDGE ENHANCEMENT

Vision 2020 launched on 28th February 1991 identified strategic challenges in pursuant of the target of achieving the status of a fully developed nation by the year 2020. Among them is to establish a scientific and progressive society, a society that is innovative and forward looking, one that is not only a consumer of technology but a contributor to the scientific and technological civilization of the future. In other words, a knowledge based society that is capable and advanced. Several strategies to achieve knowledge based society in relation to improvement of air quality are:

- To review and improve the national air quality monitoring network, monitoring of additional air pollutants and enhancing quality assurance programme.
- To improve air quality reporting to the public through effective media which includes criteria pollutants and its associated health effects as well as advice to their daily activities.
- To broaden the use of air quality data so as to seek out opportunities for emission reduction in all sectors of the economy and to assist decision making in development planning.
- To collaborate in air pollution and atmospheric science R&D activities in universities, research institutions, government agencies, NGOs, private sectors and international organisations.
- To develop expertise in air quality prediction and modelling to address national and global air quality issues.
- To establish in-house air quality expert group to review existing ambient air quality guidelines and to develop new ambient air quality standards.

3.5 PUBLIC AWARENESS AND PARTICIPATION

Environmental management strategies and programmes can become effective only if there is enough support from all federal government agencies, state and local governments, the private sector and above all the public. No legislation and no conservation programme, however good it may be designed, could be successful without public support. And this could only come from well-informed citizens who are aware and fully committed. Several strategies to enhance public awareness and participation are:

- To enhance education and awareness programmes to cater to specific target groups at different levels.
- To improve air quality data dissemination and provide feedback mechanism to the government and its regulatory agencies on the effectiveness of the programme implementation.
- To establish close partnership among the private sector, the Non-Governmental Organisations (NGOs), Commmunity Based Organisations (CBOs) and other stakeholders in order to facilitate environmental education programmes and public participation.
- To inculcate environmental responsibilities among corporate bodies through corporate social responsibility programmes.
- To initiate a working group to develop framework on compulsory environmental curriculum at tertiary level.
- To provide sufficient materials and enhance campaigns on air quality and health to the public through mass media.
- To widen outreach programmes on solving air pollution issues involving politicians (Members of State Assembly and Parliament), decision makers, local government and other relevant agencies.
- To introduce one day in a year as ‘Hari Udara Bersih’ to remind ourselves about the significance of clean air to our health and well-being.

APPENDIX

SCHEDULE OF IMPLEMENTATION:

The Department of Environment's Clean Air Action Plan

KL MONORAIL

an intracity public transit system

KTM KOMUTER

Malaysia first electrified commuter train service

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
1.0	EMISSIONS FROM MOTOR VEHICLES	MOTOR VEHICLES EMISSION REDUCTIONS				
		1.1	Vehicle technology, fuel quality, inspection and maintenance	a) Introduce progressive plan for implementing more stringent vehicle emissions standards for all new vehicles type (new models) through Type Approval procedures. b) Review and upgrade existing fuel quality (specifications). c) Promote and support conversion to NGV d) Promote and support the use of environment-friendly fuel such as biofuel.	Short-term Long-term Short-term Short-term	2011 2015 - 2017 Immediate & on-going Immediate & on-going
		1.2	Enforcement	a) Review existing emissions standards. b) Carry out stringent enforcement actions against smoky vehicles on the roads.	Short-term Short-term	2011 Immediate & on-going
		1.3	Off-road vehicles and fugitive emissions	a) Inclusion of 'Off Road Vehicles' emissions into the existing Diesel Regulations (Regulation 5). b) Include emission from off-road vehicle and fugitive emission due to fuel evaporation into the existing emission load inventory. c) Introduce the use of benzene recovery system at petrol stations.	Short-term Medium-term Medium-term	On-going 2014 2014

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
		1.4	Public Awareness/ Education	a) Hold an education/awareness campaign on the health, social and environmental benefits of utilizing non-motorised transport	Short-term	Immediate & on-going
				b) Organize campaign on 'no private car day'.	Short-term	Immediate & on-going
				c) Educate vehicle owners on proper maintenance to prevent smoke emissions.	Short-term	Immediate & on-going
				d) Support establishment of sustainable transport clubs in schools as part of environmental education programme.	Short-term	Immediate & on-going

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
2	EMISSIONS FROM INDUSTRIES					
		INDUSTRIAL EMISSION REDUCTIONS				
		2.1	Improve emission inventory	a) Improve and expand the present emission inventory database into one that is complete, dynamic and flexible. b) Enhance emission inventory data capture, collection and archives. c) Review current regulations that require major and new emitters to report their emission loads. d) Introduce quality assurance and control programme for emission inventories. e) Incorporate the on-going greenhouse gases emission inventory into the existing emission inventory database.	Short-term Short-term Short-term Short-term Short-term	Immediate & on-going Immediate & on-going Immediate & on-going Immediate & on-going Immediate & on-going
		2.2	Review of existing emission standard	a) Review of existing emission standards. b) Information & documentation of Best Available Techniques (BAT). e.g. more efficient equipment, cleaner fuel. c) Review polluter pays principle and charges based on emission load	Short-term Short-term Long-term	2011 2011 2015
		2.3	Concept of self-regulation – ISO 14000	Life cycle assessment promotion i.e. from the production to the disposal stage done in an environmentally friendly manner can reduce emissions of GHG and pollution.	Long-term	2015

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
		2.4	Promotion of the latest air pollution control technology	a) Promote latest air pollution control technology by conducting seminars, dialogues, exhibitions and demonstration projects.	Short-term	Immediate & on-going
				b) Develop institutional arrangements and capacity building by reviewing the responsibilities for the promotion of good air quality management.	Short-term	Immediate & on-going
				c) Organize training programmes at local, national and regional levels in terms of seminars, dialogues, exhibitions and demonstration projects.	Short-term	On-going
				d) Develop air pollution control technology demonstration centre to acquire better understanding of latest technology available among industries and DOE officers.	Long-term	2016
		2.5	Establish and Review Existing Guidelines	a) Establish and review guidelines on Best Available Techniques (BAT) in air pollution control.	Short-term	On-going
				b) Form a Working Group consisting of multi stakeholders to review existing guidelines such as Siting and Zoning of Industries, etc.	Short-term	2011

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
3.0	HAZE DUE TO LAND AND FOREST FIRES, AND OPEN BURNING ACTIVITIES					
		3.1	Prevention and control at local level	a) Strengthen enforcement actions against illegal open burning activities.	Short-term	Immediate & on-going
				b) Review Plan of Action to prevent open burning activities.	Short-term	on-going
				c) Enhance capacity building among enforcement officers.	Short-term	Immediate & on-going
				d) Promote Zero Burning Techniques in agricultural sector.	Short-term	Immediate & on-going
				e) Implementation of the Fire Prevention Programme at peatlands	Short-term	Immediate & on-going
		3.2	Prevention and control at regional level	a) Continuous support and contribution to the implementation of the ASEAN Agreement on Transboundary Haze Pollution.	Short-term	Immediate & on-going
				b) Joint collaboration on air quality monitoring and data sharing.	Short-term	on-going
				c) Knowledge and technology transfer on control (zero burning) practices and sustainable peatland management.	Short-term	on-going
				d) Participate in forum that promotes the understanding and dissemination of information on air quality management.	Short-term	on-going

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
4.0	KNOWLEDGE ENHANCEMENT	4.1	Review of air quality monitoring network	a) Review of present stations classification and monitoring network through continuous assessment of the status and projects associated with it, preferably on a biennial basis due to changes in surrounding environment.	Short-term	on-going
				b) Establish more stations in critical / sensitive areas (e.g. new industrial zones and township).	Medium-term	on-going
				c) Implement vertical measurements of air pollution and meteorological parameters to facilitate modelling and forecasts, and develop management strategies.	Medium-term	2015
				d) Initiate a 3-dimensional national monitoring network through an integration of surface based and remote sensing observations for better assessment of atmospheric changes.	Medium-term	2015
		4.2	Monitoring of additional air pollutants	a) Incorporate $PM_{2.5}$ monitoring system at the existing and future air quality monitoring stations.	Long-term	2016
				b) Set up new sites for monitoring air toxics such as volatile organic compounds and heavy metals in suspended matter and to set priorities for the collection of additional air toxic data to improve estimates of air toxics concentrations. Use data to evaluate potential public health impacts.	Long-term	2016

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIMEFRAME	TARGET YEARS
		4.3	Quality Assurance (QA) programme	a) Strengthen QA programme which covers sampling, monitoring, network design, site selection and standard operating procedures for all processes related to internal and external audits.	Short-term	Immediate & on-going
				b) Strengthen training and capacity building in quality control and assurance.	Short-term	Immediate & on-going
				c) Achieve ISO certification in air quality monitoring programme.	Medium-term	2012
		4.4	Review of ambient air quality guidelines	a) Establish experts group to study national and international ambient air quality guidelines and to determine and recommend the most appropriate ambient air quality standards to be adopted.	Medium-term	2012
				b) Adoption and compliance to the new ambient air quality standards proposed.	Medium-term	2014
		4.5	Improve air quality reporting	a) Improve daily air quality reporting that includes not only the Air Pollutant Index (API) but concentration of the criteria pollutants.	Short-term	Immediate
				b) Upgrade websites to be interactive to improve reporting of air quality status.	Short-term	On-going
				c) Utilize Geographical Information System (GIS) as an analytical and display tool for better visualization and understanding of air quality status and prediction.	Short-term	On-going
				d) Incorporate air quality status and forecast into the print and electronic media.	Medium-term	2012

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
		4.6	Development of expertise in air quality prediction and modelling	a) Identification and assessment of available resources.	Short-term	Immediate & on-going
				b) Accelerate lifelong learning for continuous professional development.	Short-term	Immediate & on-going
				c) Determine national level priorities and needs for capacity building to address national air quality issues and global environmental issues.	Short-term	Immediate & on-going
				d) Strengthen capacity building by actively engaging experts where possible in all activities relating to capacity buildings.	Short-term	Immediate & on-going
				e) Encourage collaboration and cooperation between local and foreign experts in order to facilitate exchange and transfer of technology and to tackle transboundary and global environmental issues.	Short-term	Immediate & on-going
				f) Integrate air quality assessment and modelling activities with air quality observations, quality assurance and data management in air quality forecasting systems.	Short-term	On-going
				g) Formulate a succession plan to prevent the loss of intellectual capacity and expertise.	Short-term	On-going
		4.7	Research and development	Recognition of research and development initiatives in air quality management.	Short-term	2010

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Aciton Plan

	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
5.0	PUBLIC AWARENESS & PARTICIPATION	5.1	Continuous Professional Training for Environmental Practitioners	a) Provide assistance in the form of smart partnership and 'accredited' training centres. b) Identify expertise in specific areas of interest relating to air quality management.	Short-term Short-term	Immediate & on-going Immediate & on-going
		5.2	Student Involvement in Environmental Programmes	Broaden the scope of assistance to secondary schools and students in implementing environmental awareness projects and programmes.	Short-term	Immediate & on-going
		5.3	Train the Trainers Programme in Environmental Education (EEdu)	a) Prepare specific curriculum on EEdu for different target groups. b) Plan a series of pilot workshops to see how well the EEdu programmes run and identify gaps. Revise and improve these programmes. c) Implement the programme nationwide with the cooperation of NGOs, CBOs, DOE, LA, the private sector, government agencies (especially Ministry of Higher Education and the Ministry of Education) and other relevant stakeholders. d) Evaluate the programme for effectiveness and gap identification. Continue to improve the programme and keep implementing it.	Short-term Medium-term Short-term Short-term	On-going 2012 Immediate & on-going Immediate & on-going

SCHEDULE OF IMPLEMENTATION:
The Department of Environment's Clean Air Action Plan

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
		5.4	EEdu as Compulsory Course at Tertiary Level	Initiate a working group to develop framework on compulsory environmental curriculum at tertiary level.	Short-term	On-going
		5.5	Promote 'Sustainable School Concept' (Sekolah Lestari)	Expand participation of schools in 'Sustainable School Concept' (Sekolah Lestari).	Short-term	On-going
		5.6	Promote and enhance 'Rakan Alam Sekitar' Programme	Widen outreach programmes on solving air pollution issues involving politicians (Members of State Assembly and Parliament), decision makers, local government and other relevant agencies.	Short-term	On-going
		5.7	Development of Information Materials on Clean Air and Health	Provide sufficient materials and enhance campaigns on air quality and health to the public through mass media.	Short-term	Immediate & on-going
		5.8	Enhancement of Air Quality and Health Dimensions in "Bandar Lestari" Programme	Form a group for the current set of sustainability indicators used and the best way in which air quality and health dimensions can be incorporated into the existing indicator set. In reviewing the existing set of sustainability indicators, include some original members who developed the indicators.	Short-term	on-going

NO.	ISSUES	STRATEGIES		ACTIONS	TIME-FRAME	TARGET YEARS
		5.9	Development of Emergency Response Plan (ERP) at Local Level When Air Pollution Level Reaches Critical Limit	a) Review and assess air pollution situation in Malaysia and identify areas experiencing high frequency of high pollution level. b) Develop ERP which can be used at local level when air pollution reaches critical limit.	Short-term Short-term	on-going on-going
		5.10	Designate and Declare one day as "Hari Udara Bersih"	Introduce one day in a year as 'Hari Udara Bersih' to remind ourselves about the significance of clean air to our health and well-being.	Short-term	2012
		5.11	Corporate Social Responsibility In Promoting Environmental Awareness	Inculcate environmental responsibilities among corporate bodies through corporate social responsibility programmes.	Short-term	On-going

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