



SUSTAINABLE *Development* GOALS

Mainstreaming
Environmental Agenda



DEPARTMENT OF ENVIRONMENT
MALAYSIA



KEMENTERIAN
ALAM SEKITAR DAN AIR
Ministry of Environment and Water



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Sustainable Development Goals: Mainstreaming Environmental Agenda

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ISBN 978-967-2845-28-7

Department of Environment Malaysia 2022

Published by:

Department of Environment Malaysia,
Ministry of Environment and Water (KASA),
Level 1-4, Podium 2 & 3, Wisma Sumber Asli,
No. 25, Persiaran Perdana, Presint 4,
62574 W.P. PUTRAJAYA
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FOREWORD

Assalamu'alaikum,

It is my great pleasure to be a part of the team of this glorious Department which has been enthusiastically playing its major roles towards the sustainable environment. In line with the Department's tagline; *"Environment, Our Shared Responsibility"* the Department's top management always intends to bring forth the Malaysian community which includes all industries' representatives to emphasize the importance of preserving and conserving the environment.



193 members of the United Nations signed the 2030 Agenda in 2015. The 17 Sustainable Development Goals (SDGs) that underpin this agenda that assists as a roadmap of the sustainable world. Even while present challenges to our environment, societies, and human health rule our daily headlines, we live at a moment of great opportunity to make a difference and change our

ways of living to secure a better world for everybody. The adoption of the SDGs by the all members of United Nations countries is an evidence of the international community's willingness to come together and agree on a comprehensive framework for countries to work together to identify pathways to a more sustainable and rightful future. This publication highlights the manifold

“

THE ADOPTION OF THE SUSTAINABLE DEVELOPMENT GOALS (SDG) IS AN EVIDENCE OF THE INTERNATIONAL COMMUNITY'S WILLINGNESS TO COME TOGETHER AND AGREE ON A COMPREHENSIVE FRAMEWORK FOR COUNTRIES TO WORK TOGETHER TO IDENTIFY PATHWAYS TO A MORE SUSTAINABLE AND RIGHTFUL FUTURE.

”

initiatives that The Department of Environment (DOE) has already undertaken which are designed to encourage the sustainable environment and also contribute towards the cause of various SDGs including to promote education and awareness related to environment sustainability, monitor and control of air and water pollution and waste management, promotion of affordable and clean energy, upholding peace, justice and strong institutions, and strengthening the partnerships with other agencies, organizations and individuals.

I would like to take this opportunity to express my sincere gratitude to everyone who has directly and indirectly contributed towards the successful completion of this book. It is our hope that this book would benefit the readers.

Wan Abdul Latiff bin Wan Jaffar
Director General
Department of Environment Malaysia

PREFACE



Assalamu'alaikum,

All praise belongs to Allah swt for the success of the publication "Sustainable Development Goals: Mainstreaming Environmental Agenda.

It is an incredible honour for me to collaborate with everyone involved on the projects related to Sustainable Development Goals (SDGs). We could not have done what we have accomplished today without the commitment of everyone at DOE Malaysia.

**“ I STRONGLY BELIEVE
THAT THE BATTLE WE ARE
WAGING TO PROTECT
THE ENVIRONMENT IS
CRITICAL FOR BOTH THE
PRESENT GENERATION
AND FUTURE ONES. ”**

This book provides an illustration of the DOE staff's ongoing dedication in maintaining environmental sustainability on a national and worldwide level.

The commitment of each and everyone in DOE take a pledge to make every piece of effort count, give it our all, and carry out our obligations align with the SDGs.

We truly hope that after going through this book, readers would be able to recognize the vital actions and contributions taken by our Department towards sustainable environment and society and also provide them the understanding regarding the significance of preserving and conserving the environment.

I strongly believe that the battle we are waging to protect the environment is critical for the present generation and future ones. With great determination and perseverance, God willing, we will succeed.

I would like to sincerely thank everyone involved for the success of this publication.

Dr. Norhazni binti Mat Sari

**Deputy Director General (Development)
Department of Environment Malaysia**

EXECUTIVE SUMMARY



Executive Summary

■ Introduction to SDG

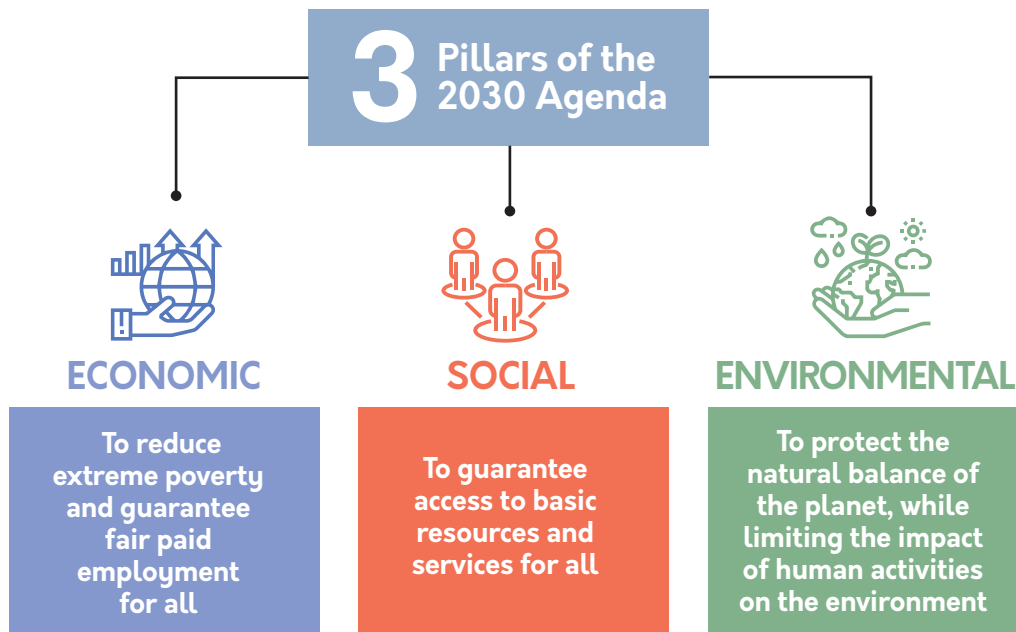
The 2030 Agenda for Sustainable Development Goals (SDGs) was adopted by Malaysia along with other countries on 25th September 2015, at the United Nations General Assembly in New York. The 17 SDGs and 169 targets, are the worldwide commitment to a more sustainable, resilient, and inclusive development. The 17 SDGs are integrated as one action will have an impact on others and sustainable development must strike a balance among social, economic, and environmental sustainability. Under this agenda, 193 countries have pledged to

prioritise sustainable development of the environment and quality of life. The SDGs aim to eradicate discrimination against women and girls, hunger, and poverty. To achieve the SDGs in every situation, all societies must contribute its creativity, knowledge, technology, and financial resources.

DOE has given specific focus to the environment sustainability. Hence, the 2030 Agenda initiative and activities will continue to be aligned with the SDGs.



The 2030 Agenda is a detailed plan that involves three (3) pillars – economic, social, and environmental.



Three (3) Pillars of the Agenda 2030

■ Agenda 2030 at a Glance

As a collective roadmap to achieving a better and more sustainable future for all, the 2030 Agenda for SDGs serves as a guide. The new goals are distinct in which they urge actions from all nations (including those with low, medium and high incomes) in order to advance prosperity and safeguard the environment. The SDGs address a range of social needs including; education, health, social protection, and employment opportunities, while addressing climate change and environmental protection. It

is difficult to implement a comprehensive and well-balanced social, economic, and environmental agenda. Therefore, governments are expected to take ownership and create national frameworks for achieving the 17 Goals even though the SDGs are not legally obligatory. Moreover, countries are primarily responsible for monitoring and evaluating the progress achieved in implementing the goals which carries out the appropriate, accurate, and high-quality gathering of data.

The initiatives taken by the Malaysian government to achieve the seventeen (17) SDGs in a systematic and measurable manner.

➤ Established a multi-stakeholder, participatory governance structure helmed by the National SDGs Council chaired by the Prime Minister

➤ Held several national SDGs symposiums and focus group sessions to promote awareness and participation of stakeholders

➤ Conducted studies on data readiness and gap analysis

➤ Undertaken a mapping exercise involving non-government, civil society organisations, and the private sectors to align SDGs with 11th Malaysia Plan (11MP) initiatives

➤ Formulated a national SDGs roadmap to guide implementation of the 2030 Agenda and the SDGs

➤ Implemented SDG's initiative under the framework of the 11th Malaysia Plan (11MP) and 12th Malaysia Plan (12MP). The means of implementation include:

- Localising SDGs at sub-national levels by replicating the national multi-stakeholder governance structure at state levels
- Mobilising resources and funding through partnerships with stakeholders including crowd sourcing, social entrepreneurship, and Corporate Social Responsibility programmes besides public sector funding under 11th Malaysia Plan (11MP)
- Strengthening data readiness and filling data gaps to develop a comprehensive dataset for SDGs implementation

The Initiatives Taken by the Malaysian Government

■ The Twelfth Malaysia Plan (National Development Plan)

Malaysia remains committed to drive progress in the SDGs as enclosed in the 12th Malaysia Plan. The Second Phase of the National Sustainable Development Goal Roadmap (2021–2025) is being drafted to identify relevant priority areas in addition to implementing the SDGs at the local level through the Malaysian Parliamentary Cross-Party Group.

THE 12TH MALAYSIA
PLAN, GREEN
GROWTH HAS
BEEN REINFORCED
TO ENSURE
SUSTAINABILITY
AND RESILIENCE

IMPLEMENT a clean, green and resilient development

ENSURE planetary health and a better quality of life

CONSERVE and protect the environment for current and future generations

INCREASE resiliency against climate change, embracing the circular economy

MAINSTREAM SDGs, share responsibilities in moving towards a low-carbon nation

EXECUTE policies and strategies under the clean, green and resilient development agenda



In 2022, the Malaysian Government has also set up a National SDGs centre placed under the Economic Planning Unit of the Prime Minister's Department aimed at empowering and accelerating programme for a better and sustainable future for the nation with the alignment of SDGs in Malaysia

National Development Plan. The government is committed to strengthen measures in achieving all 17 SDGs goals for the 2030 Agenda in the efforts to transform Malaysia into Sustainable Nation by 2030 with the involvement of all citizens.



■ The Shared Prosperity Vision (SPV) 2030

The Twelfth Malaysia Plan 2021-2030 is aligned with the Shared Prosperity Vision (SPV) covering three (3) development dimensions.



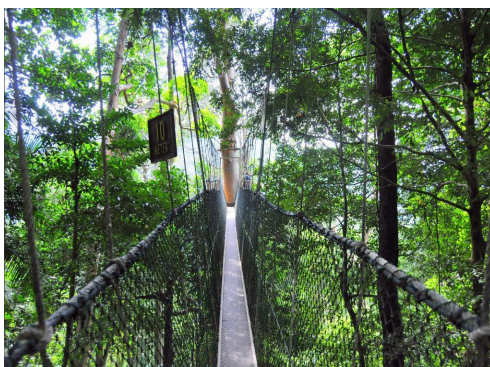


**SOCIAL
RE-ENGINEERING**

**Enhancing Social Capital, Inclusivity
and Social Cohesion**

- Cost of Living and Purchasing Power
- Diversity Sources of Income
- Towards Smart Farming/ Precision Agriculture
- Universal Basic Income
- Greater Income Equality with Focus on B40 and M40
- Social Enterprises
- Improve Poverty Measurement
- Urban Poverty
- Independent Bumiputera
- Optimising Malay Reserve Land
- Minority Groups Participation
- National Unity and Cohesion
- Community Development
- Good Ethics and Moral Values
- Affordable Housing
- Access to Quality Healthcare and Education Services
- Healthy and Active Lifestyle
- Invigorate Healthcare
- Ageing Society
- Early Childhood Education for All
- Structured Financial Support System for Students
- Regulating Industry-Academia Collaboration in TVET
- Job Creation for Local
- Managing Foreign Workers
- Work-Life Balance
- Secure Nation
- Public Safety and Security

- ▶ Nation's commitment is to achieve the **Goal of Net-Zero** emissions by the **year 2050**
- ▶ The specific details of the steps to reach this goal are based on the analysis of the **Long Term Low Carbon Development Strategy** (LT-LEDS)
- ▶ The **Mitigation of Greenhouse Gas** (GHG) emissions for the country's main economic sectors, which will be the basis for determining the direction and target year of the **country's Net-Zero emissions**

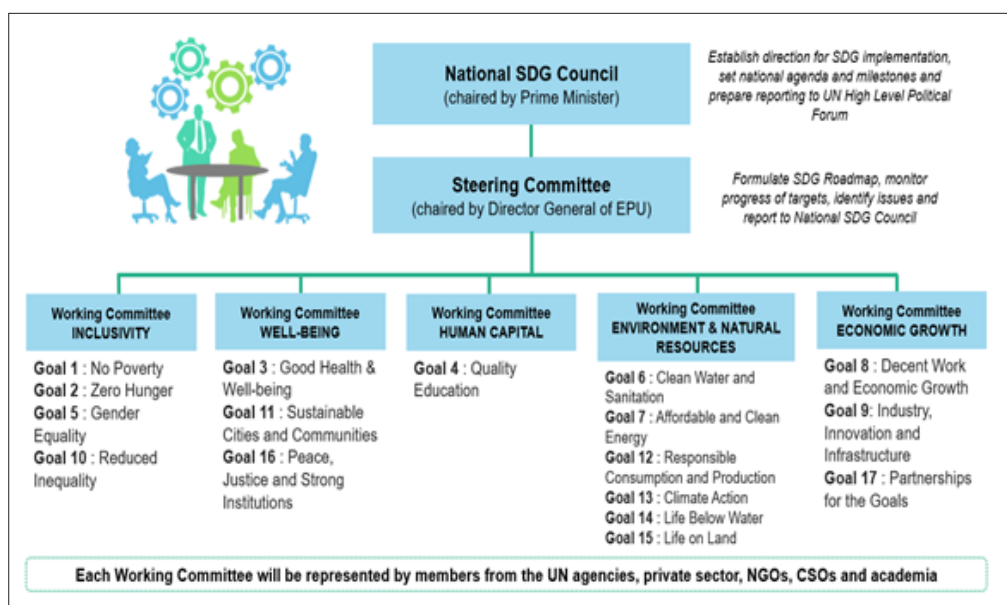


■ The SDG Governance Structure in Malaysia (National SDG Council)

The National SDG Council, which is chaired by the Malaysian Prime Minister, remains at the top of the SDG governance framework. The SDGs implementation is planned and overseen by this Council. The Director General of the Economic Planning Unit (EPU) serves as the chairman of the National Steering Committee (NSC), which supports the Council. Through the High-Level Political Forum, the National SDGs Council reports to the UN. Five SDGs Cluster Working Committees (CWCs), under which there are Task Forces for each of the Goals, make up the NSC.

CWCs are entrusted with planning and executing programmes, determining indicators for each SDGs as well as reporting progress to the NSC. Each CWC is led by a Section Head from the EPU and consists of members from government ministries/agencies, civil society, business, academia, United Nations agencies, and youth organisations.

In this context, the central agency has a broad perspective and has the ability to oversee execution. This governance structure's inclusive and participatory approach is crucial



The SDG Governance Structure in Malaysia
(Source: EPU Official Portal)

and consistent with the 11th Malaysia Plan that emphasises a paradigm change towards more participatory government by people including Non-Government Organizations

(NGOs) or Civil Society Organizations (CSOs) as partners in service design and delivery. Thus, more involvement of NGOs / CSOs is anticipated.



Department of Environment in Achieving the 2030 Agenda

Department of Environment (DOE) has taken a number of sustainable environmental initiatives. Apparently, DOE's Agenda 2030 supports most of the Sustainable Development Goals (SDGs). Many programmes have been

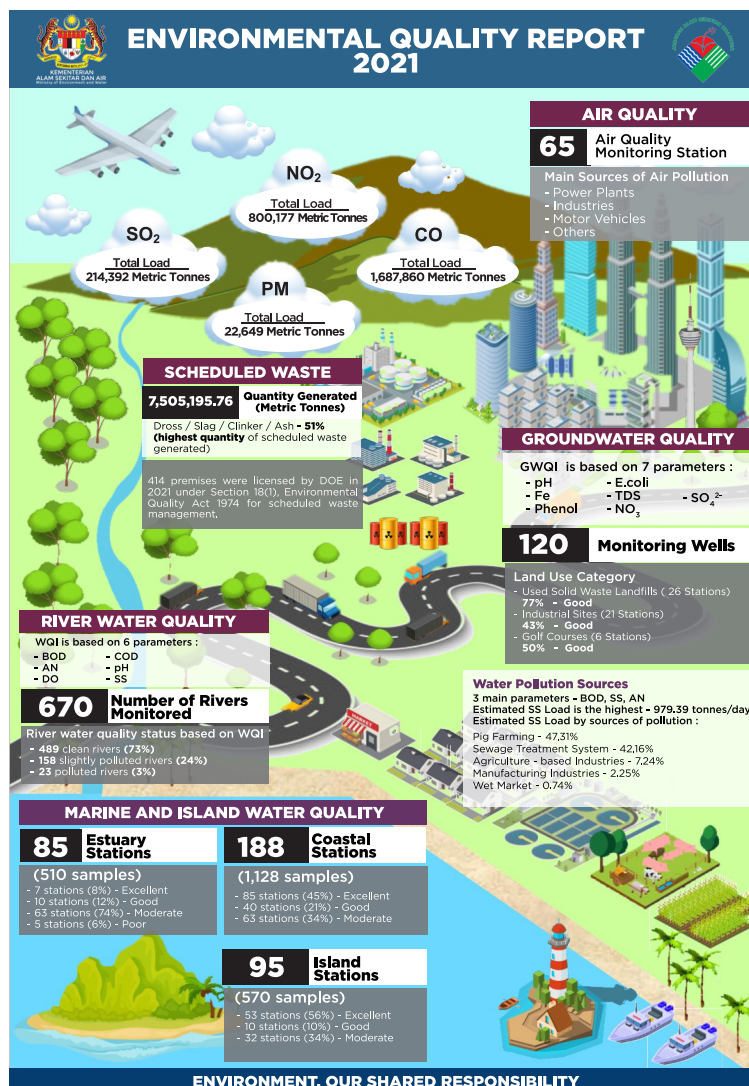
put in the action for this commitment. DOE has given specific focus to the environment sustainability. Hence, the initiative and activities will continue to be aligned to the SDGs of the 2030 Agenda.



Environmental Statistics in Malaysia

World Health Organization (WHO) declared a pandemic on March 11th, 2020, after COVID-19 spread around the world and caused more than 118,000 cases of the coronavirus infection in more than 110 nations and territories. The main measure taken by the Malaysian

government to combat the pandemic was the implementation of the Movement Control Order (MCO), which meant that all business operations (aside from essential services) were completely shut down, movement was restricted, and interstate travel was prohibited.



(Source : Environmental Quality Report 2021)

■ Air Quality

- ▶ Due to the way the COVID-19 pandemic restricted the business operations and human movement, several environmental indicators were improved. More days of "good" had "moderate" air quality status and been reported nationwide after MCO's introduction for 2020, to name a few.
- ▶ Readings from the Air Pollution Index (API) revealed a decline in the amount of air pollution, particularly in large cities like Pasir Gudang, Petaling Jaya, Shah Alam, Cheras, and Kuala Lumpur.
- ▶ The decline in the air pollution was due to the reducing number of open burning, motor vehicle smoke emissions, and industrial chimney smoke emissions.
- ▶ Air pollutant substance such as Particulate Matter (PM₁₀ and PM_{2.5}), Ground level Ozone (O₃), Carbon Monoxide (CO) and Sulphur Dioxide (SO₂) displayed a decreasing trend throughout the MCO and CMCO.
- ▶ In 2021, the Air Pollutant Index (API) parameter reading increased slightly as human activities gradually recovered from Movement Control Order (MCO) due to the Covid 19 Pandemic in the previous year.
- ▶ Among the main cause of air pollution in this country include power plants, industries, vehicle emissions, and others.

■ River Water Quality

- ▶ In ensuring more accurate river water quality reporting, improvements on reporting technique had been done in Environmental Quality Report (EQR) 2021. During previous years, river water quality reporting was done by rivers, but starting from 2021, the reporting is done based on river stations throughout Malaysia.
- ▶ Apart from that, instead of providing information on Water Quality Index (WQI), the reporting now also reports on classification of each river station for 5 years timeline so as to ensure full coverage of the reporting in all river stations.
- ▶ The new reporting also includes heavy metals by state of collection whereby the report consists of samples according to river monitoring stations.
- ▶ Based on EQR 2021, river water quality was assessed based on 8,059 samples collected from 1,351 manual monitoring stations which cover 670 rivers in the country. Out of all the rivers being monitored, 489 (73%) showed clean WQI, 158 (24%) were slightly polluted, while 23 (3%) were found to be polluted.



■ Marine Water Quality

- ▶ As reported in EQR 2021, 1128 samples were collected from 188 coastal stations, 510 samples were collected from 85 estuary stations, and 570 samples from 95 island stations throughout Malaysia.
- ▶ Malaysian Marine Water Quality Standards (MMWQS) focuses on the protection and the sustainability of the aquatic ecosystem; the importance of the ecosystem for society; and to accomplish it in an economical, practical, and socially relevant manner.

■ Scheduled Waste

- ▶ A total of 7.5 million MT of scheduled waste was generated in 2021 according to EQR 2021. This waste is reused as raw material for production use in the manufacturing sector.
- ▶ Scheduled waste categories were sent to the licensed premises (Kualiti Alam Sdn Bhd and Trienekens (Sarawak) Sdn Bhd) for final disposal. The sludge contained one or several heavy metals, mixed wastes, dust/ slag/dross or ash containing arsenic/ mercury and spent inorganic acid.
- ▶ As stated in EQR 2021, types of scheduled waste treatment and disposal in 2021 were landfilled (55%), incineration (37%), solidification (6%) as well as physical and chemical treatment (2%).

■ Clinical Waste

- ▶ According to EQR 2021, there is an increase in the clinical waste figure of

57,378 metric tons. This change is due to various factors including the increase in the number of patients due to COVID-19.

- ▶ Through a statement on the official website of the Ministry of Environment, the clinical waste management system under the responsibility of the DOE is very comprehensive to ensure the best clinical waste management where clinical waste will be disposed of in 12 incinerator facilities across the country.

■ Recycling Rate

- ▶ As a result of the government's initiative to separate solid waste at the source, the percentage of recycling rate increased from 24.6% in 2018 to 28.1% in 2019.
- ▶ National Solid Waste Management Policy 2016 set the national recycling rate as 22.0 percent in 2020. The result however showed higher recycling rate at 30.7% in the same year.

■ Population and Water Supply

- ▶ The population of the country was recorded as 32.7 million in 2021 whereas, it was 32.6 in 2020. In line with population increase and the economic development, there is an increasing demand for water supplies.
- ▶ 19,662 million liters per day (MLD) were supplied in 2020. It was reported to be 18,670 MLD in 2019, and 16,955 MLD in 2015.

» DOE and the 10 SDGs Targets



To promote awareness on environment



To enhance quality of water by reducing pollution



To promote and ensure the affordable and renewable and clean energy



To build safe, pollution free and sustainable cities and communities



To maximize the reuse, repair, refurbish, and recycle the existing material and waste



To strengthen resilience and adaptive capacity to mitigate climate change threats



To prevent and reduce marine pollution



To promote and enforce non-discriminatory laws and policies for sustainable development



To encourage the partnership with all stakeholders for sustainable development



To promote and enforce non-discriminatory laws and policies for sustainable development

CHAPTER 01

SDG



**Ensure Inclusive and
Equitable Quality
Education and Promote
Lifelong Learning
Opportunities for All**

A close-up photograph of a mossy rock. The foreground is filled with vibrant green moss, some of which is growing on a grey, textured rock surface. The background is a soft, out-of-focus bokeh of sunlight filtering through trees, creating a warm, natural atmosphere.

SDG 4 AIMS TO provide quality education to the young generation all over the globe. It also adheres to the belief that every child around the world deserves easy access to education and various other educational opportunities. Therefore, more educational opportunities need to be provided to give everyone the chance for an inclusive education in effective educational environment. SDG 4 has 10 targets which are measured by 11 indicators.



Ensure Inclusive and Equitable Quality Education and Promote Lifelong Learning Opportunities for All



SDG 4 Target & Where We are in Achieving the Target



TARGET 4.7

2030

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of cultures contribution to sustainable development.

DOE has played a role in providing educational opportunities related to the importance of the environment through educational programs that have been arranged in accordance with the goals of SDG 4. The role of DOE in providing environmental education starts as early as preschool, which is then expanded to primary, secondary and tertiary levels. Apart from that, DOE also plays a role in strengthening the implementation of environmental protection through various activities at the tertiary education level. DOE also educates the community by organizing programmes that involve the public.



Preschool Level

Preschool in Malaysia provides initial preparation for children aged 4 to 6 years to enter primary school. The aim of preschool education is to nurture children's potential in all aspects of development, master basic skills, and foster positive attitudes. As such, in line with SDG 4, the Sustainable Preschool Environmental Awareness Module is published by DOE to introduce environmental education and to inculcate its importance to preschool children.

This module is divided into 2 sets, namely TASKA and TADIKAs. The Sustainable

Preschool Environmental Awareness Module has 5 main components of the environment which are air, water, plants, animals, and recycling.

DOE has been actively conducting seminars and workshops to the officials involved in preschool education such as Community Development Department (Jabatan Kemajuan Masyarakat - KEMAS), Department of National Unity and Integration (*Jabatan Perpaduan Negara dan Integrasi Nasional - JPNIN*), Ministry of Education, educators, and the preschoolers.

Primary and Secondary School Level

As for the primary and secondary school levels, DOE has implemented several activities involving school students throughout Malaysia to foster awareness of the environment. Among the activities carried out every year are:

a. Sustainable School Environmental Award Programme (*Sekolah Lestari Anugerah Alam Sekitar - SLAAS*)

The primary and secondary school level Sustainable School Environmental Award Programme (*Sekolah Lestari Anugerah Alam*

Sekitar - SLAAS) was launched during the Environmental Education Symposium for National Level School Principals in Malacca on 27 – 30 August 2001, which was co-organized by DOE (then under the Ministry of Science, Technology and Environment (MOSTE)) and



Minister of Water & Environment, presented a replica of the cheque to the winner of the SLAAS programme 2022



Activities Conducted by the Teachers and Students for SLAAS Programme



College of Technical Education, Ministry of Education (MOE). Implementation of the SLAAS programme is also supported by of the Institute of Environment and Development (*Institut Alam Sekitar dan Pembangunan – LESTARI*), Universiti Kebangsaan Malaysia. In 2005, the programme was implemented by schools throughout Malaysia.

SLAAS is an initiative to implement National Environmental Policy which consists of 8 principles and 7 green strategies. The first strategy focuses on education and awareness to foster a deep understanding of the well-being of the environment in order to achieve sustainable development in line with the SDGs. The formation of this program is constructed based on the aim to improve existing environmental education in Malaysian schools. The elements of environmental skills, values, and knowledge have been implemented in curriculum as well as co-curriculum to ensure understanding among teachers, students and the surrounding community.

COMPONENTS OF SLAAS

The purpose of primary and secondary level Sustainable School- Environmental Award Programme is to create a school environment that underlines the preservation and conservation of the environment which advances the schools in 5 Sustainable School Components including management, curriculum, co-curriculum, greening, and special elements.

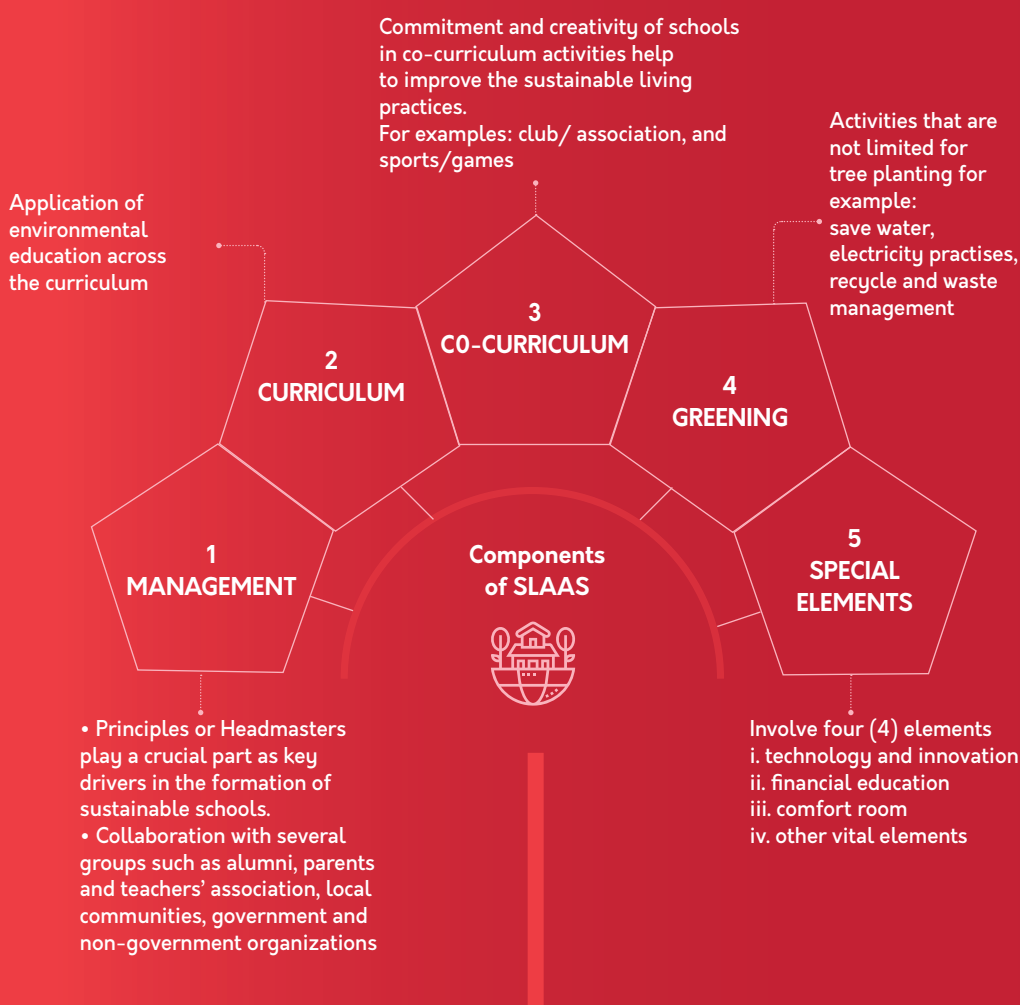


Figure 1.1: Components of SLAAS

(Source: DOE Official Portal)

Logo of SLAAS

The SLAAS logo depicts the importance of this program to national education. The hibiscus symbolizes Malaysia's identity and the honorable teaching profession. The 5 pieces of leaves mean the 5 objectives of the establishment of SLAAS, while the blue and green colors used in this logo indicate cheerfulness, harmony, and environmental sustainability.



Figure 1.2 Logo of Sustainable School-Environmental Award Programme at Primary Level (Source: DOE Official Portal)

b. Environmental Awareness Camp (Kem Kesedaran Alam Sekitar - KeKAS)

Environmental Awareness Camp or better known as KeKAS is aimed to provide environmental awareness among school students as well as

exposing the students to current issues related to the environment around them. This program has been successfully implemented throughout the country.

c. School Environmental Club (Kelab Alam Sekitar Sekolah - KASS)

The purpose of establishing the School Environment Club (Kelab Alam Sekitar Sekolah-KASS) is to help schools throughout Malaysia to strengthen environmental education implementation process. Through KASS, the element of environmental education can be applied directly among educators and the local community.

KASS aims to shape school environment that emphasizes on preservation and conservation of the environment which can add value to the school in 5 Sustainable School components that include management, curriculum, co-curriculum, greening, and special elements. This module has 5 objectives which is shown in **Figure 1.3** and contains 11 main activities as illustrated in **Figure 1.4**.



DOE Officers and The Winner of SLAAS programme during National Environment Day Celebration 2022 that organized by DOE Malaysia

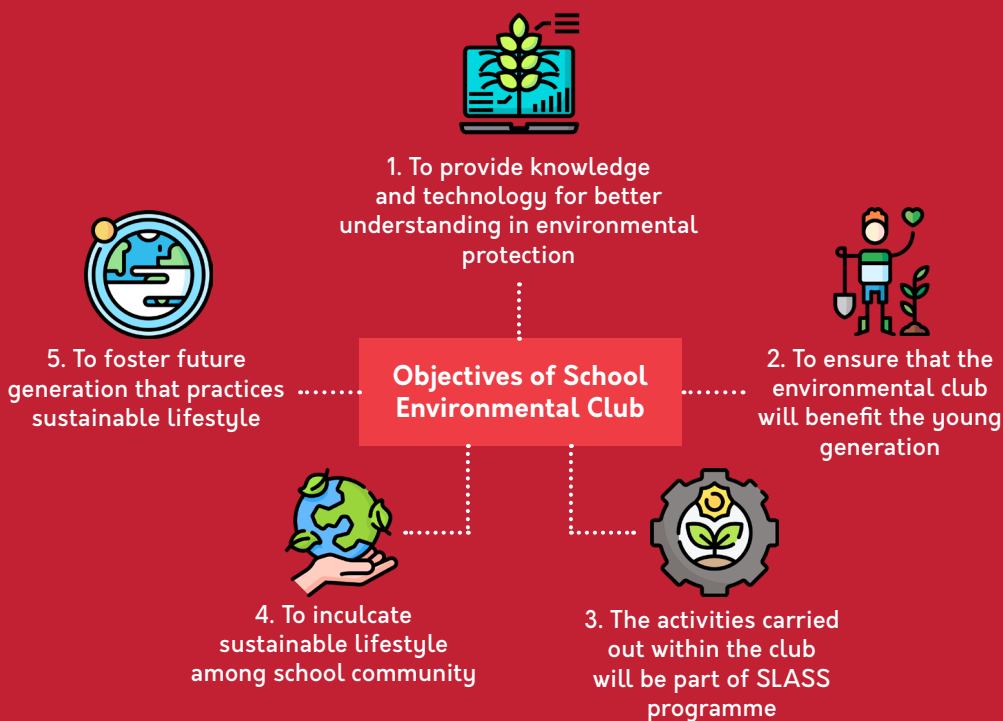


Figure 1.3: Objectives of KASS



Figure 1.4: Main Activities of KASS

(Source: Enviro Knowledge Management Centre)

d. National Level Environmental Speech Competition

In 2018, DOE (then under the Ministry of Energy, Science, Technology, Environment and Climate Change (MESTECC)), Hengyuan Refining Company Berhad, Dewan Bahasa dan Pustaka (DBP), Ministry of Education (MOE), and the Ministry of Communications and Multimedia (K-KOMM) collaborated to conduct National Level Environmental Speech Competition. This programme gives students the opportunity to voice their opinions and views on current issues related to the environment. Indirectly, it also increases students' knowledge about environmental preservation and conservation. The

programme was held online through Facebook with the initial screening stage on 10 August to 15 November 2018. The semi final took place on 25 September to 4 October 2018, while the final stage was held on 21 October 2018 which was organized in conjunction with the 2018 National Environment Day Celebration.

Apart from the efforts mentioned above, DOE also plays an important role in spreading environmental education to school students by organizing various related activities such as briefings, talks, public speaking, essay writing, and choral speaking. Such activities are carried out either through the school or community events.



Figure 1.5: Key Objectives of National Level Environmental Speech Competition

(Source: DOE Official Portal)

Tertiary Level

At the tertiary education level, DOE also organizes various programmes specially designed to foster a high level of understanding among students at higher educational institution towards the environment. DOE also collaborates with higher educational institution to ensure that the undergraduates are able to understand the importance of the environment. Among the activities conducted by DOE at tertiary education level are Sustainable Campus (Kampus Lestari), Environmental Debate (Debat Alam Sekitar – DAS), 3 Minutes Thesis, briefing and talk.

a. Sustainable Campus (*Kampus Lestari*)

Sustainable Campus, known as *Kampus Lestari* is a programme that was proposed by DOE under the 12th Malaysian Plan (RMK-12).

In general, the Sustainable Campus is a continuation of the Environmental Award Sustainable School (SLAAS). It is important for DOE to ensure that students at the tertiary level play their role to ensure environmental sustainability. In addition, this program also aims to promote a green lifestyle among future leaders.

The first Green Strategy in the National Environmental Policy (2002) focuses on the aspects of education and awareness that provide an understanding of the environmental conservation and sustainable development in line with the principles of SDG 2030.

The 4th Strategic Core of RMK-12 which is towards the green growth in enhancing sustainability and competitiveness, Malaysian government has already approved the allocations for the Communication, Education, and Public

Three Main Pillars of Kampus Lestari



Environment



Lifestyle & Community



Governance & Management

Awareness on Environment Projects.

b. Environmental Debate (*Debat Alam Sekitar - DAS*)

The Environmental Debate competition, also known as Debat Alam Sekitar (DAS) is a programme introduced by DOE, Malaysian Universities Debate Council, Dewan Bahasa dan Pustaka (DBP), and Ministry of Education (MOE) in 1986. This program has been made an annual event starting in 1991 after the Malaysian government declared the month of October as Malaysian Environment Month which has been

celebrated every year since then.

Through this beneficial program, students at higher learning institutes can enhance their awareness and knowledge about current environmental issues. It also encourages critical thinking when students participate in debates on environmental issues. DAS is one of the earliest debate competitions established in this country at the national level. This program has produced great debaters across generations since its establishment.

The objective of DAS is shown in **Figure 1.6**.

Objective of Environmental Debate Competition at Tertiary Level

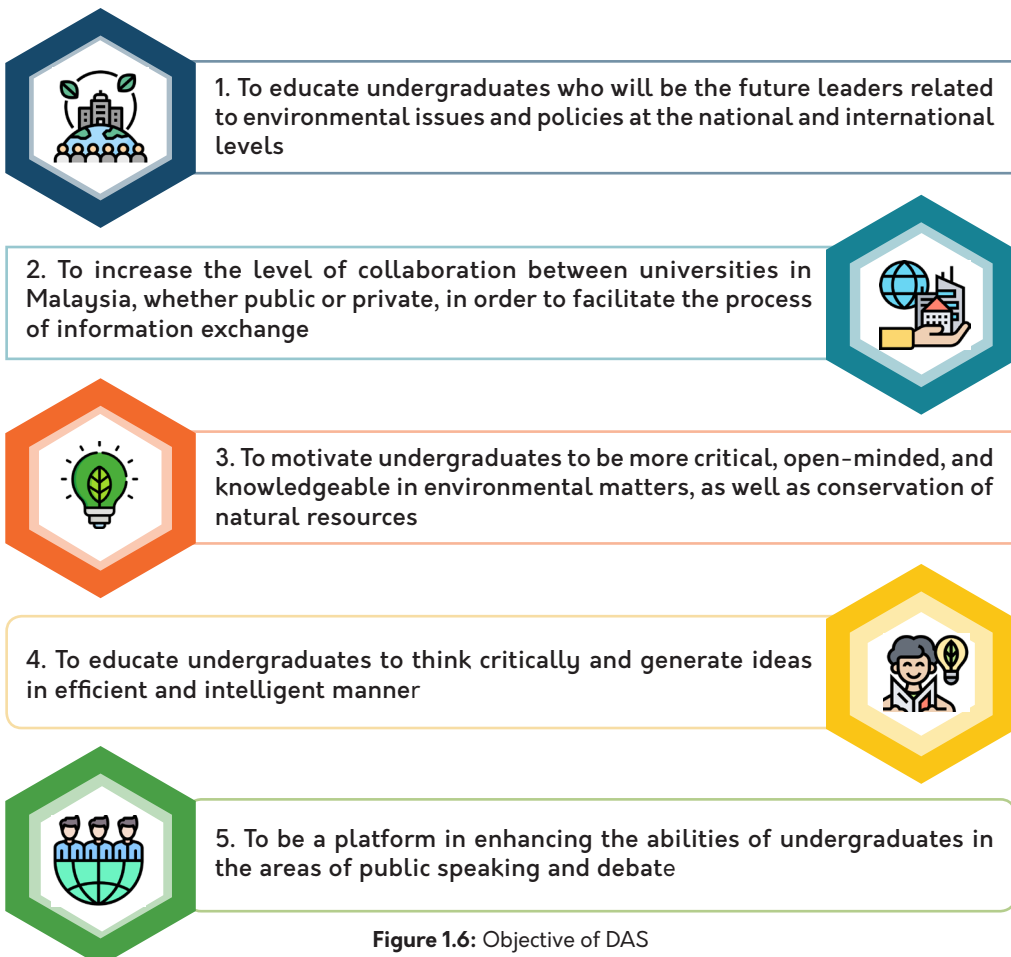


Figure 1.6: Objective of DAS

(Source: Rakan Alam Sekitar (RAS) Official Portal)

DAS is the parliamentary debate method which teaches the participants to present their information and argue with the opposition in a focused manner. The debate method used in DAS provides a platform for productive discussion and allows the debaters to defend the argument through analysis and interjections.



Deputy Director General DOE Malaysia as one of the judges DAS 2022 in Sabah.



The Debate Team from Universiti Islam Antarabangsa Malaysia receiving the Grand Prize of DAS 2022 in Sabah.

Institute of Higher Educational Higher Educational Institutional - (IPT) participation

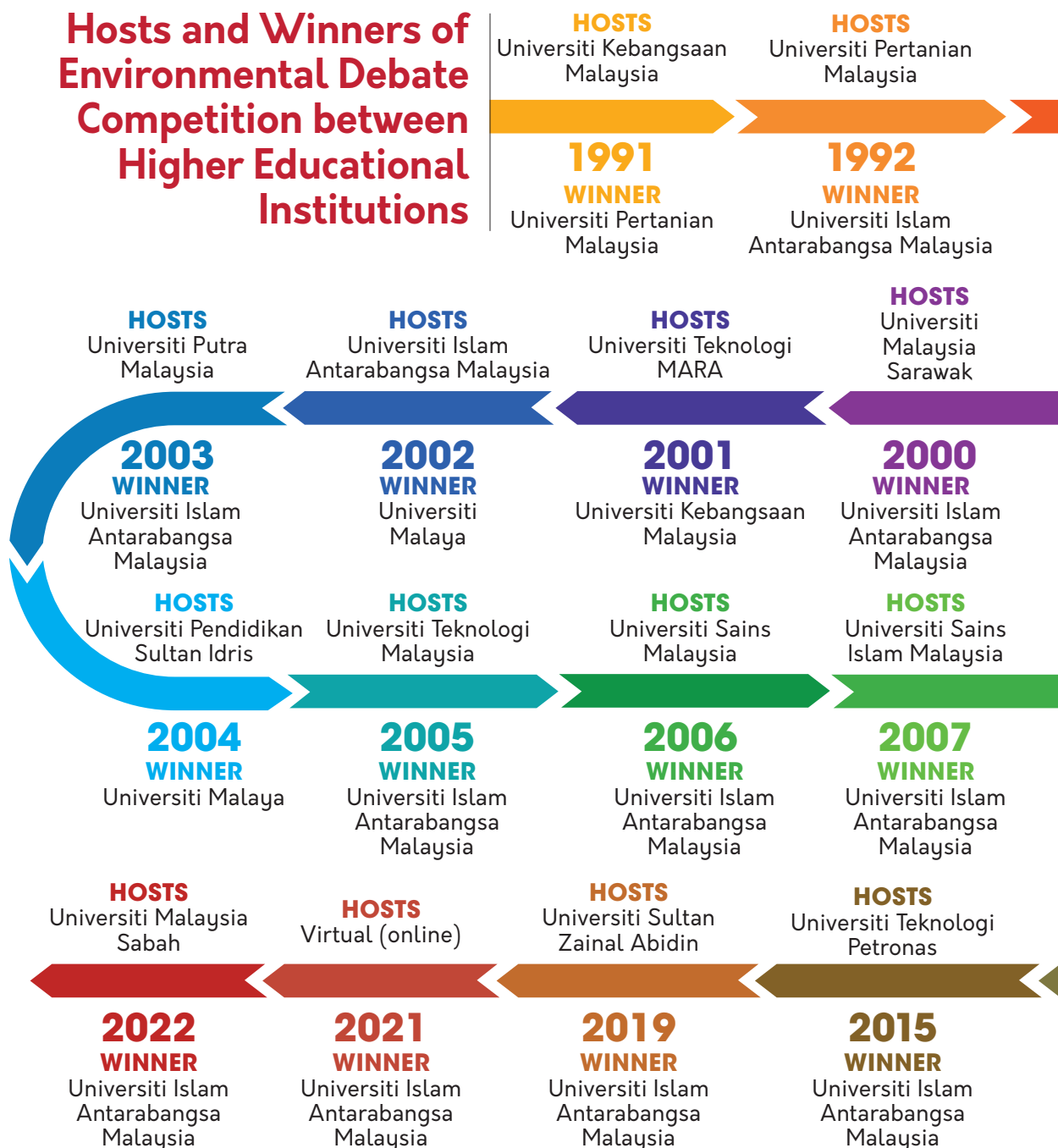
Higher Educational Institutional (*Institut Pengajian Tinggi* - IPT)'s participation in the Environmental Debate Competition proves the commitment of students and IPT management in dealing with environmental issues and the environmental matters. With this competition, various new and brilliant

ideas can be expressed and debated. Since it started in 1992 with only 8 IPTs participating, this participation increased year after year until the Department of Environment limit the quota to 30 IPTs participation.

The organising of this competitions will be continue as part of the Government's initiative and commitment in building up the future generation on environmental awareness.



Hosts and Winners of Environmental Debate Competition between Higher Educational Institutions



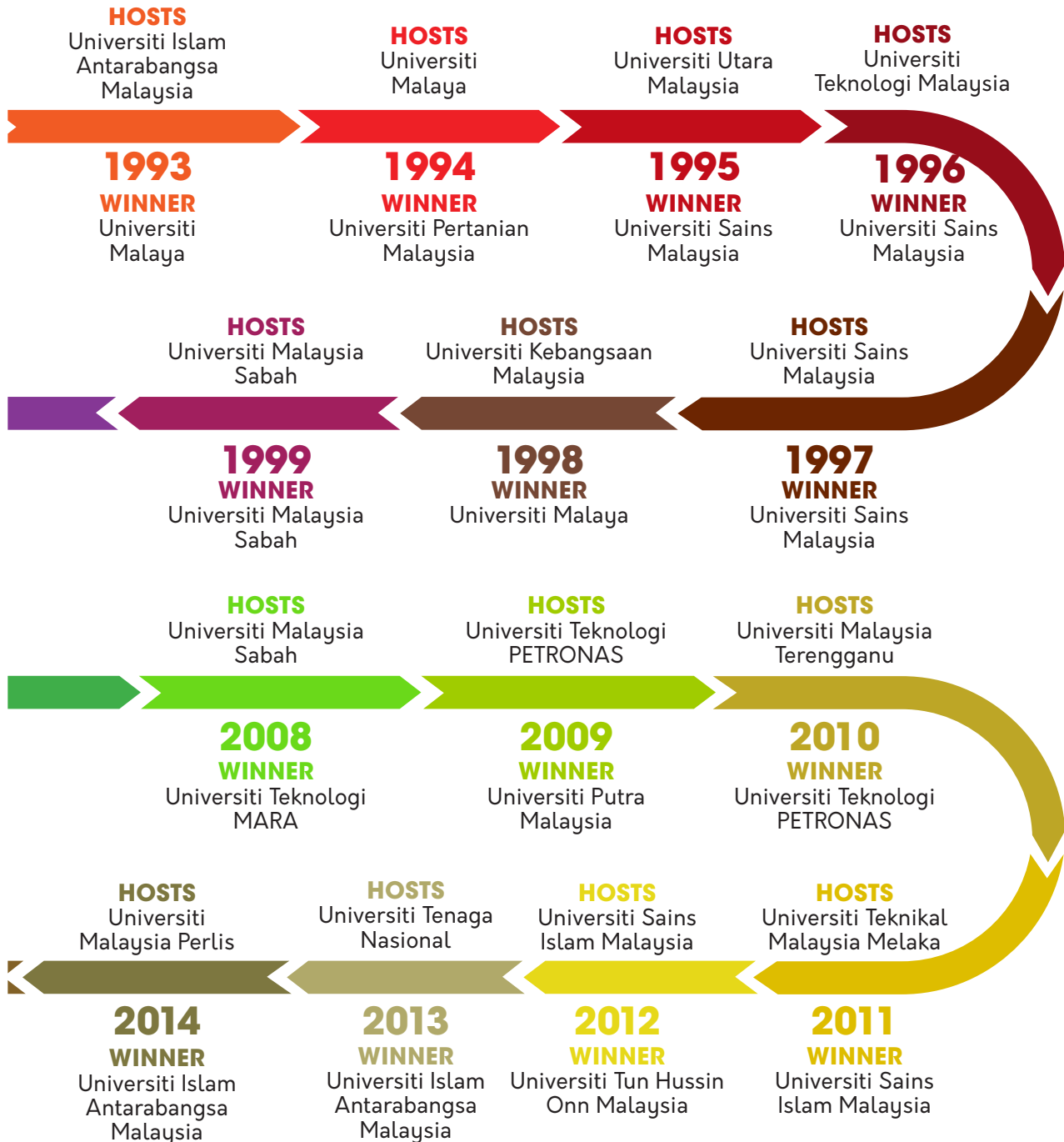


Figure 1.7 Hosts and Winners of Environmental Debate Competition between Higher Educational Institutions

Logo of DAS



Figure 1.8 The Logo of Environmental Debate Competition at Tertiary Level
(Source: Rakan Alam Sekitar (RAS) Official Portal)

The logo of DAS was introduced in 2011 in conjunction of 21st Environmental Debate Competition. This logo is designed incorporating important elements which “DEBAT ALAM SEKITAR ANTARA INSTITUSI PENDIDIKAN TINGGI” with colors that carry different meanings and a hibiscus as a symbol of the environment.

THE WORD DEBAT – the white color on the letter D represents cleanliness and to describe the personality of the debater with clean soul and noble character as undergraduate of a higher educational institution. The black colour means strength and confidence in debating.

THE WORD ALAM SEKITAR – the green colour symbolizes fertility, growth, and harmony which is commonly associated with life and the environment. Apart from that, green is also the corporate color of DOE as the organizer of this competition.

RED HIBISCUS – the hibiscus is the National Flower of Malaysia and in the context of this logo it represents a symbol of courage, strength and aggressive while in arguing and debating.

c. 3 Minute Environment Thesis Competition (T3MAS)

3 Minute Environment Thesis Competition, also known as T3MAS is a programme organized by DOE in collaboration with the Ministry of Higher Education (MOHE), Dewan Bahasa dan Pustaka (DBP), and LESTARI Universiti Kebangsaan Malaysia. The programme been held in conjunction with the National Environment Day (*Hari Alam Sekitar Negara* - HASN) celebration. T3MAS is a medium for students at higher educational institutions to present their final year thesis with their own creativity.



DOE Officers, Dewan Bahasa Pustaka (DBP) and Department of Higher Educational Institution as the Judges for T3MAS Competition

Then, the finalist are required to compete live on the final stage. The judges of T3MAS competition are appointed from DOE, DBP, and Department of Higher Education. The objectives of T3MAS competition are shown in **Figure 1.9**.



T3MAS Competition was Remotely Online during Movement Control Order (MCO) 2020

Objectives of The 3 Minutes Thesis on Environment Competition at Tertiary Level

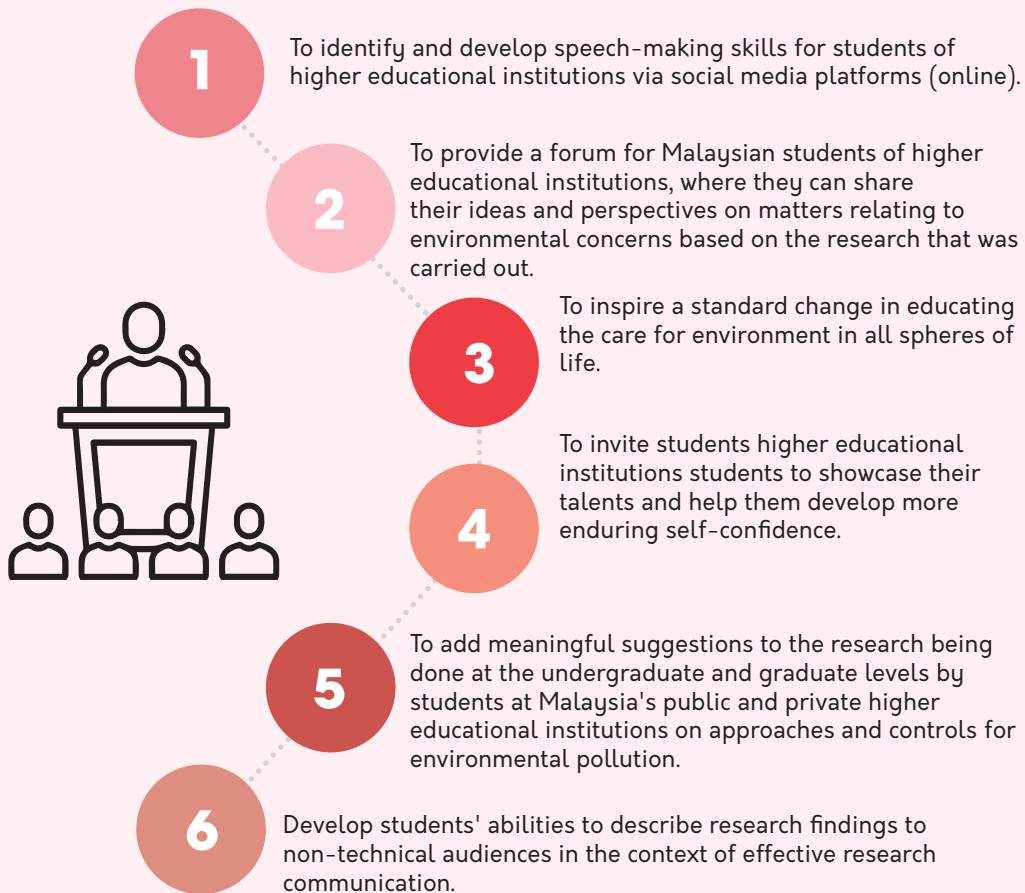


Figure 1.9: Objectives of T3MAS Competition
(Source: Rakan Alam Sekitar (RAS) Official Portal)

Public/Others

Apart from efforts to promote environmental awareness in educational institutions from preschool, primary, secondary and tertiary levels, DOE also plays a role in providing education to the public through relevant institutions and centres.

a. ASEAN Working Group on Environmental Education (AWGEE)

The ASEAN Working Group on Environmental Education (AWGEE) is a subsidiary body under the ASEAN Senior Officials on The Environment (ASOEN). AWGEE was established as a consultative forum aimed to promote coordination and collaboration among ASEAN sectoral bodies.

Apart from that, it also serves as dialogue platform to ensure a well-coordinated and integrated approach in promoting environmental education among the ASEAN Member States (AMS) and ASEAN Dialogue Partners which consists of Australia, Canada, China, European Union, India, Japan, Republic of Korea, New Zealand, Russia, and the United States. The ASEAN Working Group on Environmental Education (AWGEE) was established on 7 July 2009.

The ASEAN Environmental Education Action Plan is aimed to contribute to the implementation of the ASEAN Socio-Cultural Community (ASCC) Blueprint 2010-2025 and the attainment of the SDG4. It also complements the implementation of the ASEAN Work Plan on Education 2016-2020.

b. Environment Institute of Malaysia (EiMAS)

EiMAS' establishment is an important development for DOE to cater the need in enhancing knowledge and skills in the public and private sector staff in dealing with environmental management. The institute was officiated on 2 April 2002 by Dato' Seri Law Hieng Ding, who was then the Minister of Science, Technology and Environment, Malaysia. EiMAS provides competency programme to produce competent officers in performing their duties in environmental field.

The establishment of EiMAS proves the government's effort to equip public and industrial player with the necessary knowledge and skills through courses offered by EiMAS. The institute is aimed to be a Centre of Excellence for capacity building in environmental management in Malaysia.



ASEAN Seminar on Environment for Future Generations: Eco-schools and Youth Champions



EiMAS Building, Bangi, Selangor



Competency Training Conducted in EiMAS

c. DOE Official Portal

As a government department that is aware of current technological developments, DOE also has an official portal at <https://www.doe.gov.my>. This official portal is frequently updated to ensure that the announcements displayed on the website are the latest versions to educate the public virtually about current issues related to the environment. Focusing on obtaining knowledge at your fingertips, the official DOE portal displays current information such as departmental program announcements, as well as the latest news related to the public and indus



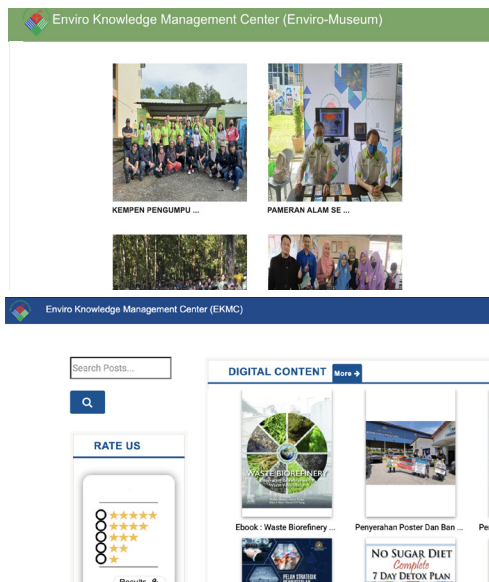
DOE portal: <https://www.doe.gov.my>

d. Enviro Knowledge Management Centre (EKMC)

Enviro Knowledge Management Center or known as EKMC was first launched on 28 January 2014, two years after the initial planning to set up the repository. It was inaugurated by YBhg. Dato' Halimah Hasan who was at the time YBhg. Director General of DOE.

EKMC is a repository for all publications by DOE. The idea to establish EKMC started with a study related to digital libraries in government offices around Putrajaya. The questionnaire was distributed via email to all librarians in Putrajaya. The results of the study found that there was a lack of repositories in library management and publications, which resulted in the establishment of EKMC under the management of the DOE.

This EKMC implementation covers a variety of digital materials that have been converted from hardcopy to softcopy. EKMC participated in Library Boulevard at the Word Library Information Congress in 2018. Till today, EKMC continues to benefit more than 20,000 users a year in the country and abroad.



EKMC and Enviro Museum Website

e. Enviro Museum (EMUSEUM)

Enviro Museum, also known as EMUSEUM was first launched on 15 September 2015. It was inaugurated by YBhg. Dato Dr. Ahmad Kamarulnajib bin Che Ibrahim, the Deputy Director General of Management of DOE at that time. EMUSEUM is the second repository published by DOE after EKMC in the Library Unit. Prior to the establishment of EMUSEUM, the DOE library team gathered the information from Malaysian Museum Department to get input, advice and views on the implementation of EMUSEUM.

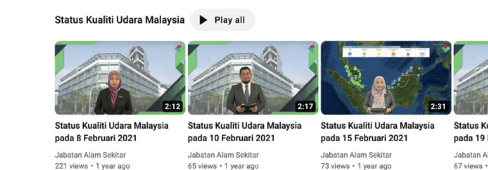
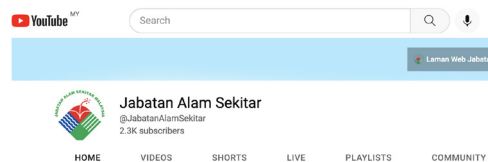
At the beginning of its establishment, EMUSEUM focused more on the history of the department's activities, from the establishment of DOE to the present day. After the input from Malaysian Museum Department, EMUSEUM started to compile photos of activities held in Headquarters Division, State DOE and branches.

DOE Information Technology Department and the Library Unit work together to provide an online platform in the form of a repository

to facilitate the storage of EMUSEUM information and systematically manage the access of the information. To date, EMUSEUM has more than 2 thousand photos of activities that have been uploaded by EMUSEUM coordinators. All of these photo materials are used as promotional materials for DOE activities on Facebook, Instagram and Twitter for public education and knowledge sharing.

f. Social Media (Facebook, Instagram, Twitter, and YouTube)

DOE also has an official page on social media such as Facebook, Instagram, Twitter and YouTube. The use of social media is very helpful for the DOE to deliver fast and up-to-date information to the public, not only in Malaysia but around the world. Because the latest trend of information delivery is very popular through the use of social media, the DOE also takes the opportunity to disseminate information on current issues related to the environment via these platforms.



DOE'S Official Youtube and Facebook Page

Way Forward

As a department that is determined to achieve SDG 4 through fair distribution of information and education to all sections of society, DOE has various plans in the future so that the set targets can be successfully achieved.

The following are plans that have been in the framework of the DOE in the future.

- Core module of institute of higher learning (Tertiary Education Level)
- Digitalisation of SLAAS



Future Plan for Improving Education on Environmental Sustainability by Department of Environment (DOE)

Plan 2021-2023

To Implement program called "*Alam Sekitar Tanggungjawab bersama*" (Environment, Our Shared Responsibility) in achieving objectivity of Education for Sustainable Development (ESD)

To conduct a study on the establishment of environmental sustainable campus

To Provide input to the country's environmental policy

Plan 2024-2026

To enhance a school environment club module for environmental sustainability

Development of documents for the formation and guidelines of sustainable campus in Malaysia

To develop and establish the guidelines for sustainable campus in Malaysia

Plan 2027-2030

Empowerment program for Sustainable School Environmental Award via IR4.0

To Implement the sustainable campus programs in higher educational institutes throughout the country and joint engagement with the higher educational institutes as well

Planning and implementation of corporate communication strategy activity as well as advisory for DOE on strategic collaboration with media and NGOs in every states

Initiative:
Transformation of Mindset and Positive Attitude of People in Environment Sustainability through Nudge Approach

Upgrade digital library and expanding online usage by diversifying access to online data such as lawnet, press reader, e-book and etc.



Future Plan for Promoting Quality Environmental Sustainability via Education by Department of Environment (DOE)

Plan 2021-2023

Review and present the guideline documents / modules for the formation of sustainable campuses – Environmental Awards in Malaysia

Provide sustainable campus pioneer project documents

Plan 2024-2026

Implementation of sustainable campus pioneer project

Plan 2027-2030

Expand sustainable campus programs to all higher education institutes in Malaysia

To broaden the usage of Malaysian guideline with other Asean Countries which has been formed through sharing inside and outside countries (ASEAN platform/AWGEE.)

Share success story of sustainable campus pioneer project

Broaden the implementation of the school environmental club module and to be extended at all type of schools in Malaysia

Initiative:
To build a Generation that Cultivates Environmental Sustainability Practices in Life

CHAPTER 02



Ensure Availability and Sustainable Management of Water and Sanitation for All



THE 6TH GOAL OF SDGs is to ensure access to clean water and sanitation for all. The objective of SDG 6 is to improve quality of water by reducing pollution, eliminating the dumping of dangerous chemicals and other materials, treating untreated wastewater, and significantly increase the recycle of water. Water demand all over the world has outpaced the population growth, resulting to water scarcity for at least one month in a year to half of the world's population. This situation causes various issues not only in terms of health, but also poverty, food security problems, and also interference with the ecosystem and education. Clean water sources are also part of peace and human rights.

Ensure Availability and Sustainable Management of Water and Sanitation for All



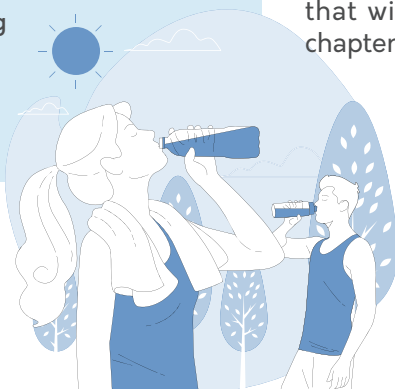
SDG 6 Target & Where We are in Achieving the Target



TARGET 6.1

By 2030, achieve universal and equitable access to safe and affordable drinking water for all

For target 6.1, DOE has succeeded in various activities and has aggressively taken related measures to ensure that all parties in Malaysia have access to safe and affordable drinking water. DOE's efforts are evidenced through activities that will be described further in this chapter.



a. Water Quality Index (WQI)

The Water Quality Index (WQI) introduced by the DOE has been used to measure the quality of water resources in Malaysia for the past 37 years. The domestic water supply, fisheries and aquatic propagation, livestock drinking, recreation, and agriculture are the main focus of WQI. The goal of WQI is to summarize the vast amount of water quality information into simple terms of range of classifications for a particular river. This is to ensure that the classification of water can be easily understood by the communities living near the watershed area as well as those responsible for managing the watershed.

The WQI formula takes 6 water quality parameters into account namely

- Dissolved Oxygen (DO)
- Biochemical Oxygen Demand (BOD)
- Total Suspended Solids (TSS)
- Chemical Oxygen Demand (COD)
- Ammonia Nitrogen (NH₃-N)
- pH

As illustrated in **Figure 2.1**, WQI is divided into 3 categories which are good, slightly polluted, and polluted. Meanwhile, the water quality is also segregated into pollution value of Class I, II, III, IV, and V. Class I stipulates natural level of water quality, while Class II, III and IV indicate that the water content is polluted with certain amount of pollutant, and Class V shows highly polluted water. Through this monitoring method, the content of polluted

water in some areas will receive the attention of the DOE where the DOE will carry out further investigations and take appropriate measures to curb the level of pollution that occurs.

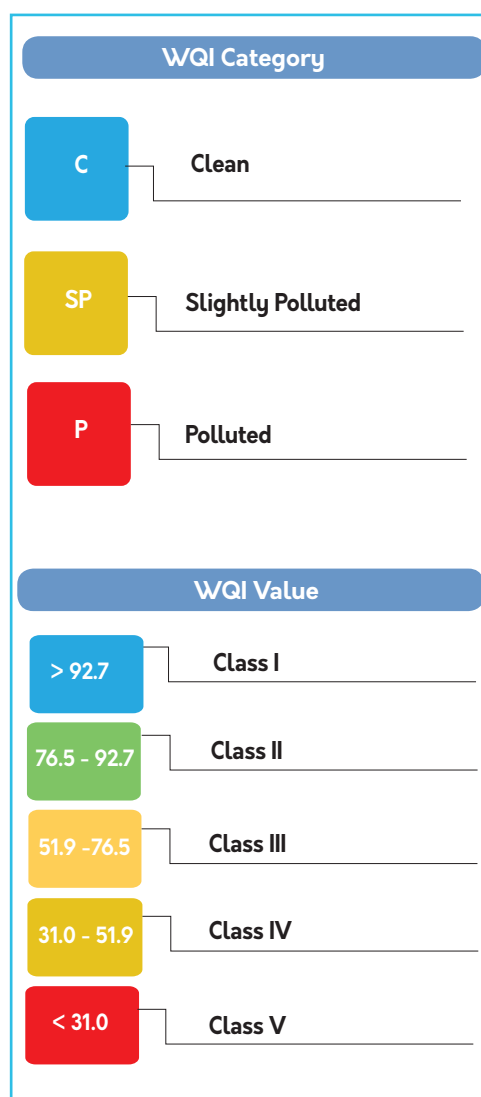


Figure 2.1 Category and Classification of WQI
(Source: Environmental Quality Report 2021)



b. National Water Quality Standards (NWQS)

The National Water Quality Standard (NWQS) for Malaysia categorizes the beneficial uses of the watercourse based on

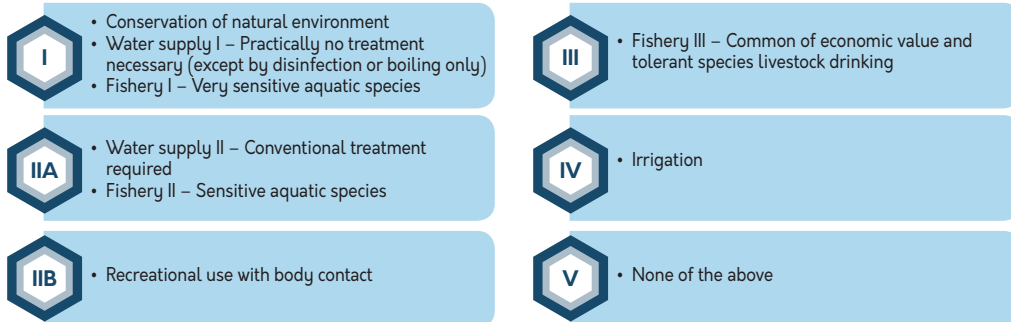


Figure 2.2 Classification of NWQS. (Source: Environmental Quality Report 2021)

The importance of quality of water resources is also expressed in the Ministry of Natural resources, Environment and Climate Change

(KASA)'s Roadmap of Environmental Sustainability in Malaysia 2020 – 2030 as shown in Figure 2.3.

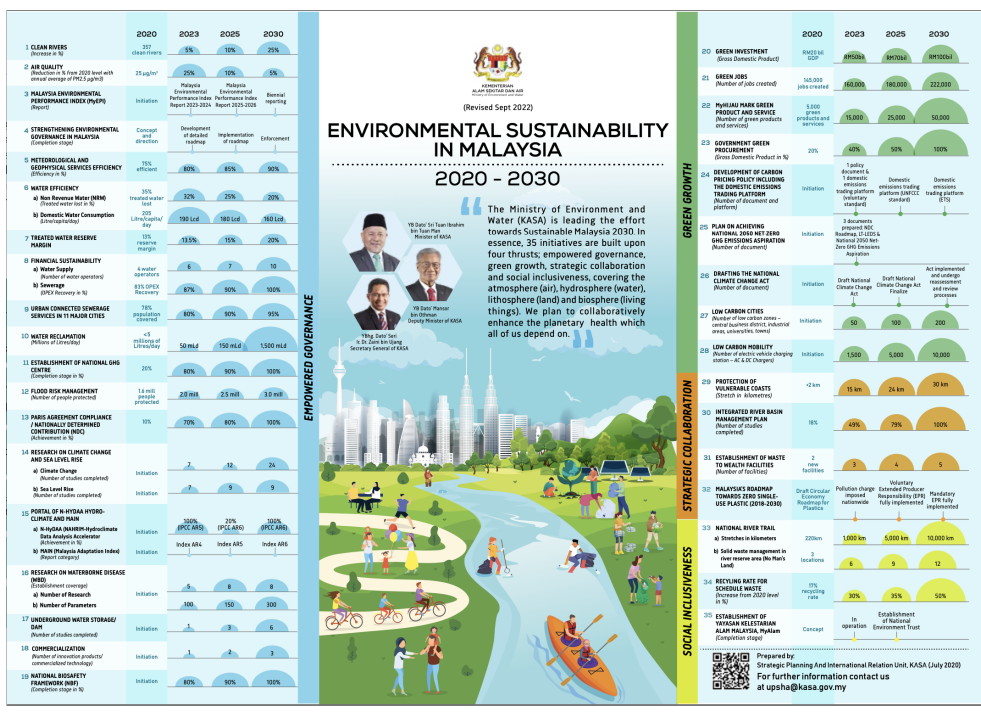


Figure 2.3 Roadmap of KASA (Source: Ministry of Environment and Water)



TARGET 6.3

2030 Improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally

DOE through efforts such as river water monitoring station and industrial wastewater monitoring has carried out appropriate activities to achieve Target 6.3. Among the programmes for pollution control are environmental monitoring programmes to monitor river, groundwater, and marine water quality.

a. River Water Quality Monitoring

Manual River Water Quality Monitoring

River water quality monitoring programme is conducted by DOE to determine the status of river water quality. Through this implementation, DOE is able to detect changes in river water quality. At every river water monitoring station, water samples are collected to which the samples are sent for laboratory analysis to determine physical, chemical and biological characteristics. WQI is used to indicate pollution level based on NWQS.

Starting from 2021, river water quality reporting is done according to the monitoring station compared to reporting according to the river that has been done in previous years. In

addition, reporting is not only limited to WQI, but the classification of each river station for a period of 5 years is also detailed to ensure that no station location is missed to be monitored. In fact, reporting for heavy metals is also been carried out where the number of samples is reported according to the number of river monitoring stations.

In 2021, river water quality was monitored from 8,059 samples taken from 1,351 manual monitoring stations which cover 670 rivers throughout Malaysia.

Continuous River Water Quality Monitoring

The Continuous River Water Quality Monitoring (CRWQM) network collects and transmits data of river water quality to the Environmental Data Centre (EDC) on a scheduled basis. The network comprises monitoring stations which are located upstream of intake points in major river systems in Malaysia. To date, there are 30 locations of continuous river monitoring stations all over the country as illustrated in **Figure 2.4**.

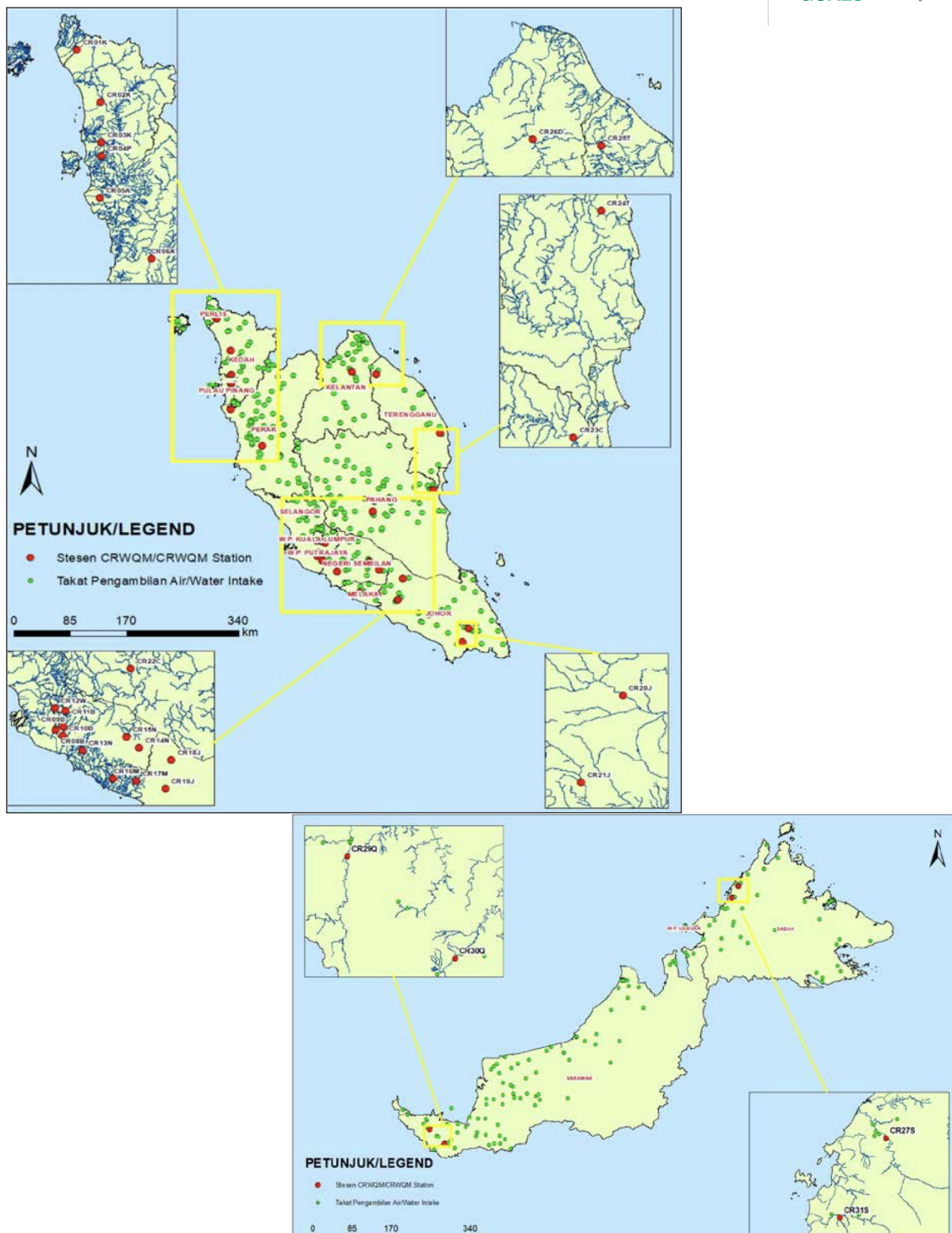


Figure 2.4 Continuous River Water Quality Stations and Water Intakes
(Source: Environmental Quality Report 2021)

b. Groundwater Quality Monitoring

The National Groundwater Quality Monitoring Programme was introduced by DOE since 1997. The 120 groundwater quality monitoring stations (wells) throughout the country represent specific land use types. However, there were only 114 stations that can be sampled as there were several groundwater quality monitoring stations that no longer contained water discharge due to development factors that cause rock cracks in the station (groundwater wells). **Figure 2.5** shows the distribution of groundwater quality monitoring stations (wells) throughout the state in Malaysia by land use category. For

example, in year 2021 346 sample were collected and analyzed for volatile organic compounds (VOCs), pesticides, heavy metals, anions, bacteria (coliform), phenolic compounds, total hardness, total dissolved solids (TDS), pH, temperature, conductivity, and dissolved oxygen (DO). To determine the groundwater quality status and its category, the Malaysia Groundwater Quality Index (GWQI) is used. GWQI was developed based on 7 main parameters which are pH, iron, total dissolved solids, nitrate, E-coli, phenol and sulphate. GWQI with a scale quality ranging from 0 to 100 will identify the quality of groundwater from excellent to very poor as illustrated in **Figure 2.6**.

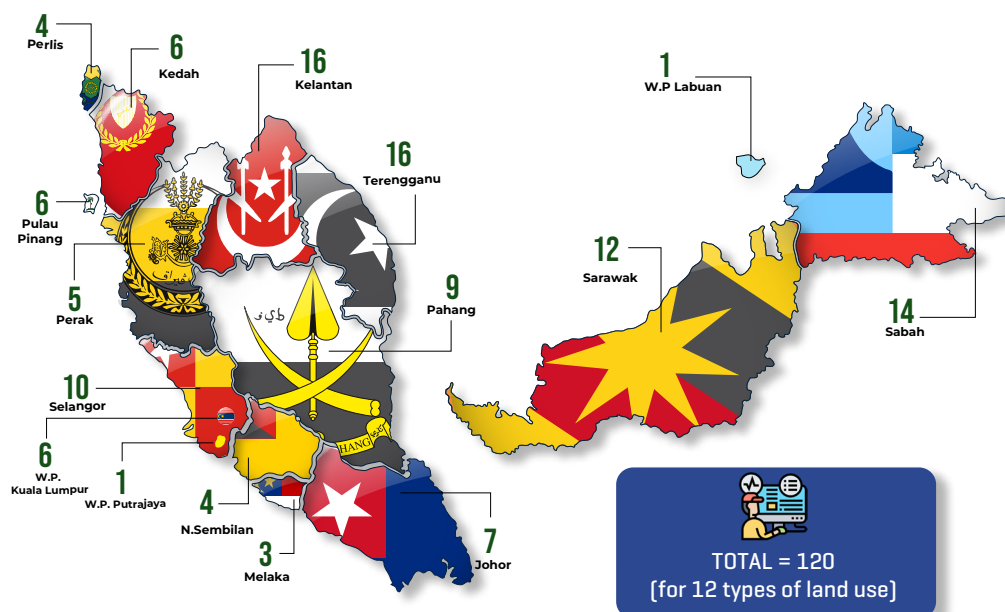


Figure 2.5 Groundwater Quality Monitoring Station in Malaysia.
(Source: Environmental Quality Report 2021)

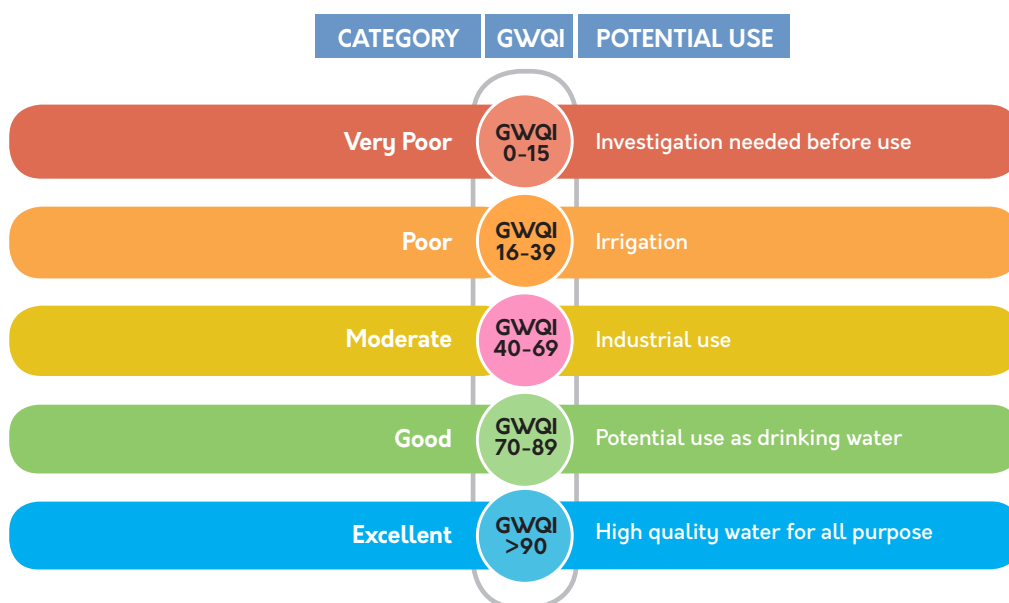


Figure 2.6 Groundwater Quality Index Classification
(Source: Environmental Quality Report 2021)



Through Indicator 6.1, there are several compliance methods that are strictly monitored by the DOE to ensure that SDG 6 can be achieved.

The Industrial Effluent and Sewage Compliance

The Environmental Quality (Industrial Effluent) Regulations 2009 apply to premises that release industrial effluents. There are 42 types of industrial sectors and other premises in Malaysia. DOE plan and conducts a total of 5,722 field inspections and desktop inspections on those premises annually.

Prior to any installation of sewage or industrial effluent treatment system, written notice under the Environmental Quality (Sewage) Regulations 2009 and the Environmental Quality (Industrial Effluent) Regulations 2009 must be submitted and notify Director General of Environmental Quality. There are 331 written notifications for the construction of effluent treatment plants, and 238 written notifications for new or altered sources of industrial effluent or mixed effluent discharges in year 2021.

Illegal Chemical Waste Dumping

River pollution will lead to a lot of harm to water resources. It will affect the quality of

water sources where various other problems such as water source pollution, health problems of the local community and many other problems will occur. Among the causes of river pollution in Malaysia is the illegal dumping of industrial waste. Pollution in rivers occurs as a result of the dumping of industrial waste into the river that exceeds the carrying capacity of the river.

However, out of the river pollution cases in Malaysia, only 20% - 30% of them were under the jurisdiction of DOE, while the remaining fell within other agencies' responsibility. Due to this, DOE needs to enhance its enforcement on the water sources to improve the quality of polluted river water. Control methods based on the concentration of effluent pollutants or wastewater from individual sources that enter the river are no longer able to control the river pollution as this method cannot take into account the cumulative impact of various sources of pollution whether point sources and non-point sources such as livestock activities plantations and mining. For that reason, encouraging Total Maximum Daily Load (TMDL) approach at the state government level is considered as the best solution at this point as a comprehensive river water pollution control measure.



Figures on several river water pollution cases that caught the attention of Malaysians happened in Sungai Kim Kim, Pasir Gudang, Johore in 2019, and Taman Velox, Rawang, Selangor in 2020 are as shown in **Figure 2.7** and **2.8**.

Water pollution incident at Kim Kim River Toxic Pollution in Pasir Gudang, Johor cases.



Toxic gases from the illegal dumping hospitalised **2,775** individuals and affected **6,000** others



Second wave affected **106-207** individuals and **1,000** sufferers and **8** ICU patients

Figure 2.7 Sungai Kim Kim, Pasir Gudang Toxic Waste Pollution



40 barrels of chemical waste illegally dumped and polluted Sungai Selangor



1,139,008 accounts in 1,279 areas in Kuala Lumpur, Petaling, Klang, Shah Alam, Kuala Selangor, Hulu Selangor, Gombak and Kuala Langat were affected by water supply disruptions.

Figure 2.8 Taman Velox, Rawang Chemical Waste Dumping





INDICATOR 6.6.1

Change in the extent of water-related ecosystems over time



INDICATOR 6.B.1

Proportion of local administrative units with established and operational policies and procedures for participation of local communities in water and sanitation management

Achievements for Indicators 6.3.2, 6.6.1, and 6.b.1 have been revealed by the use of the Environmental Quality Monitoring Program (EQMP) by DOE. EQMP monitoring system is a significant nationwide network of environment quality stations assessment for river water quality. This system serves as a tool for an early warning when environmental pollution,

such as, oil spills, industrial accidents, and illegal dumping of hazardous wastes, occurs. This will also help the policy and decision makers in providing input to the enforcement of activities by DOE and associated agencies' operated The objectives of EQMP are shown in **Figure 2.9**.

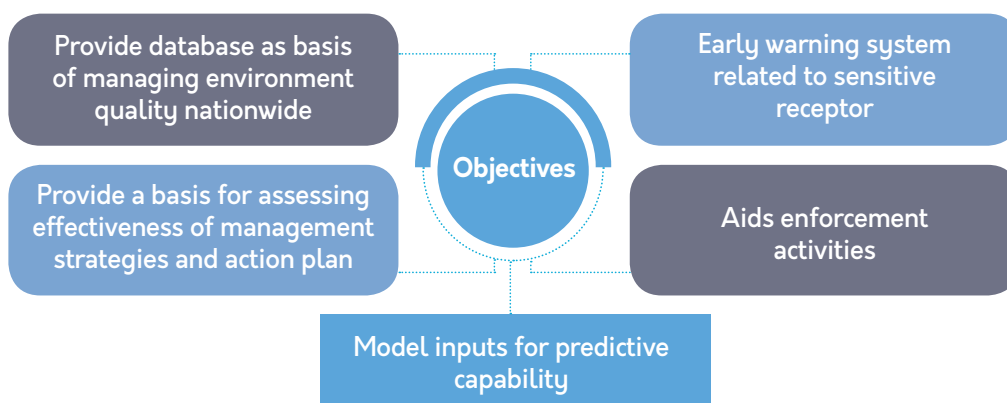


Figure 2.9 Objectives of Environmental Quality Monitoring Programme

Figure 2.10 illustrates the framework of EQMP Program.

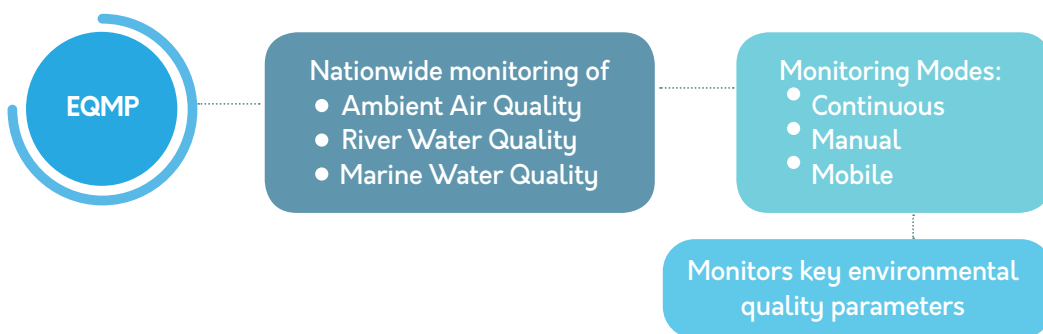
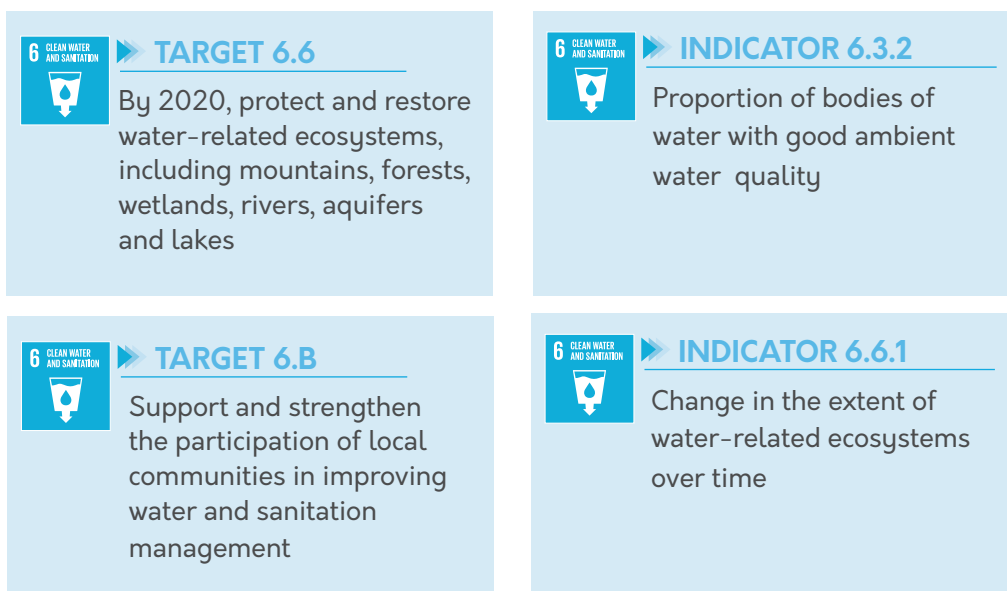


Figure 2.10 EQMP Framework



In achieving Target 6.6 as well as 6.b, DOE has been conducting monitoring and assessment of river water quality throughout the country. There are manual river water quality monitoring and continuous river water quality

monitoring that have been implemented conscientiously. It is also done through awareness activities with local communities such as beach plogging, river trail which is elaborated in Chapter 10.

Environment Impact Assessment

DOE initiated the Environmental Impact Assessment (EIA) as a planning tool and indicator to achieve sustainable development in Malaysia. Development activities in this country can be managed in a sustainable manner by preventing, limiting, and minimising the environmental impact with EIA approach. A comprehensive EIA report offers options from different angles for carrying out a development project in terms of the proposed premises, project implementation techniques, use of technology, resources, and mitigation measures integrated at each stage from planning to implementation to project decommissioning. EIA is a system

that identifies, forecasts, evaluates, and communicates information regarding the environmental effects of a proposed project. It also outlines the mitigation actions.

Various initiatives have been introduced over the years by the department in order to strengthen the EIA procedures in Malaysia since the beginning of its implementation 37 years ago, as depicted in **Figure 2.11**. Achieving sustainable development in Malaysia is possible with collaborative efforts from various stakeholders, apart from continuous improvement of the EIA procedures and requirements.

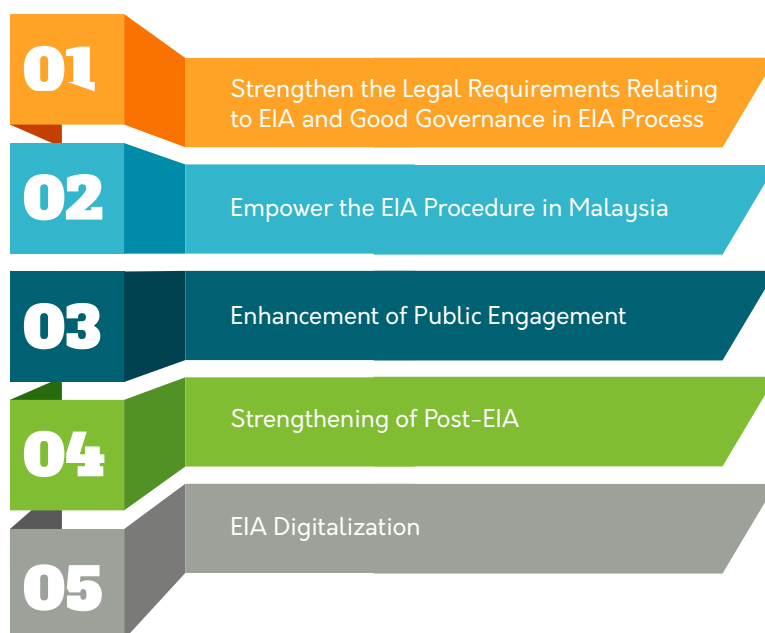


Figure 2.11 Main Scopes for Improvement Initiatives

EIA Guidelines

The Environmental Impact Assessment (EIA) has been made as mandatory in Malaysia since 1988 as a measurement tool in achieving the country's sustainable development. Prior to any development projects, project developer must submit the EIA report to DOE for evaluation.

The comprehensive report which is required to be submitted to DOE before the commencement of any projects consists of Introduction, Terms of Reference, Statement of Need, Project Option, Project Description, Existing Environment, Evaluation of Impacts, Mitigation Measures, Environmental Management Plan, Study Findings, Reference, and Appendices which is shown in **Figure 2.12**.

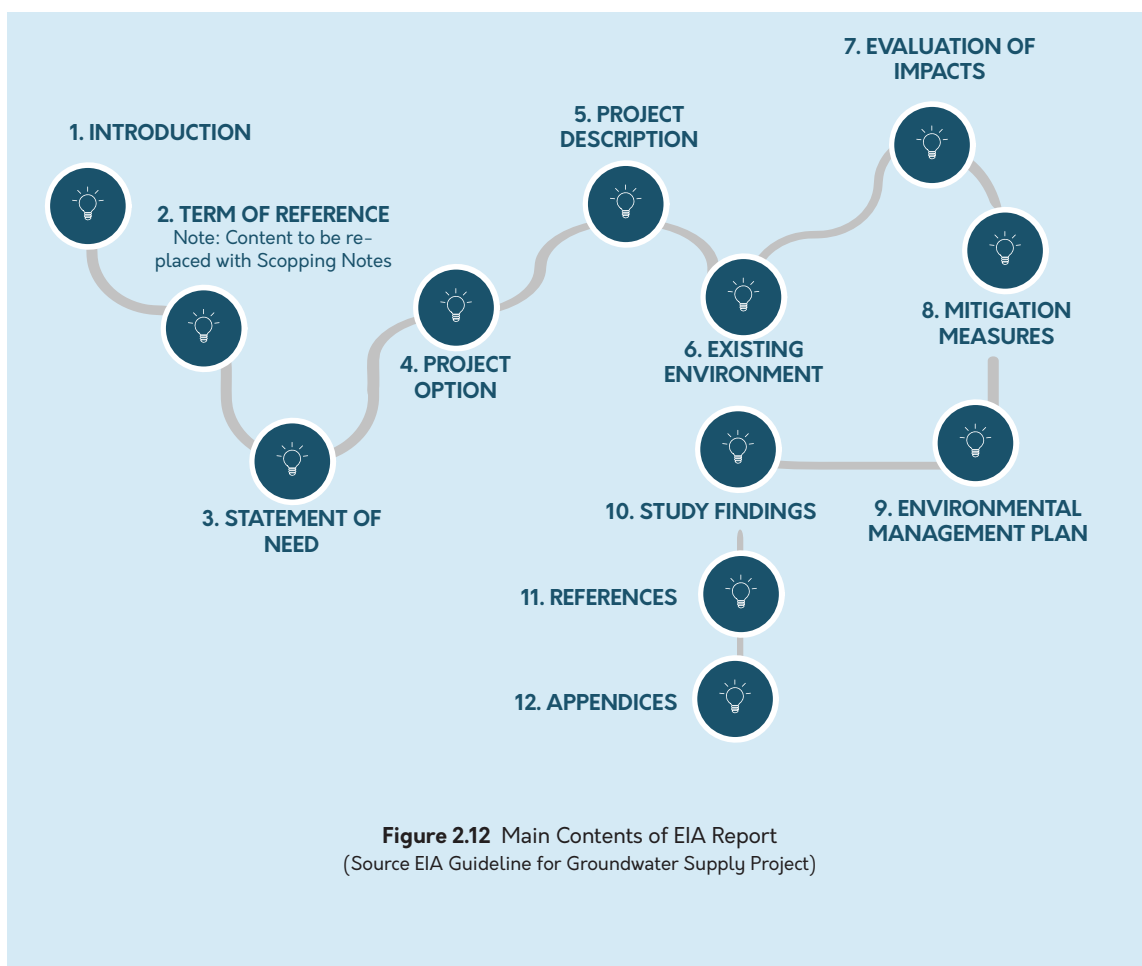


Figure 2.12 Main Contents of EIA Report
(Source EIA Guideline for Groundwater Supply Project)

There are several EIA Guidelines being published by DOE namely :-



1. Groundwater Supply Projects



2. Construction of Dams



3. Waste Treatment and Disposal Projects - Sewage



Way Forward

Apart from the persistent efforts by the DOE to regulate water resources in Malaysia, there are various plans in the future to facilitate the DOE to continue to achieve the objectives set by the department and the ministry, as well as to achieve SDG 6. Among the plans being initiated are:



Encourage zero discharge among industries (Strategic Plan)



Improve online monitoring system



Strengthening existing Acts and Regulations related to water quality



Focus on Digitalization Plan



Encouraging the Total Maximum Daily Load (TMDL) approach at the state government level in protecting water resources (Strategic Plan)

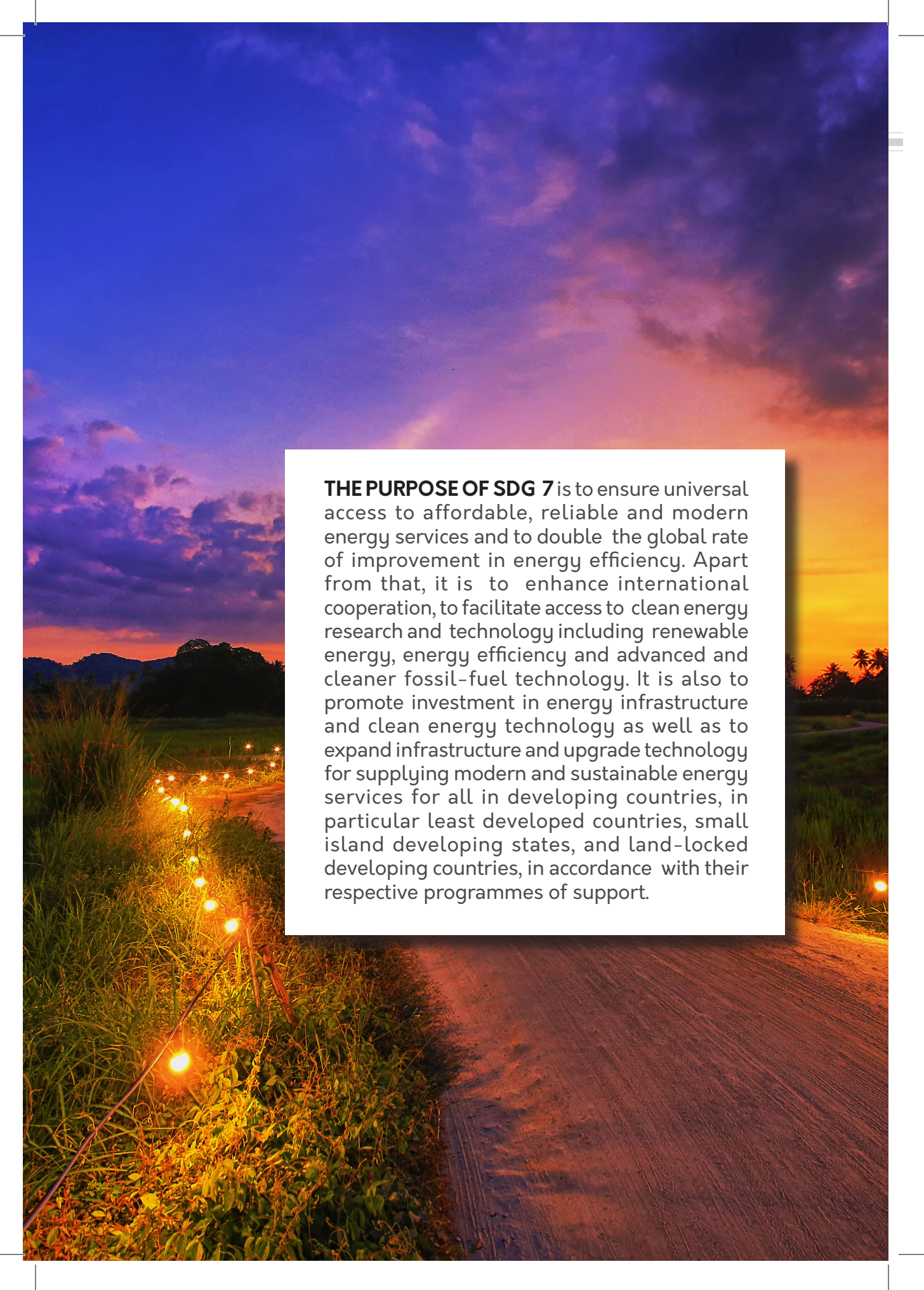
CHAPTER 03

SDG

7 AFFORDABLE AND
CLEAN ENERGY



**Ensure Access to
Affordable, Reliable,
Sustainable and
Modern Energy
for All**

The background image is a landscape at dusk. A dirt road with tire tracks leads from the bottom center towards the horizon. To the left of the road is a field of tall grass and some low-lying plants. A string of warm, yellow-orange lights is strung along the edge of the field, with some lights resting on the ground. The sky is a mix of deep blue, purple, and orange, with scattered clouds. In the distance, there are silhouettes of trees and hills. The overall mood is peaceful and serene.

THE PURPOSE OF SDG 7 is to ensure universal access to affordable, reliable and modern energy services and to double the global rate of improvement in energy efficiency. Apart from that, it is to enhance international cooperation, to facilitate access to clean energy research and technology including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology. It is also to promote investment in energy infrastructure and clean energy technology as well as to expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing states, and land-locked developing countries, in accordance with their respective programmes of support.

Ensure Access to Affordable, Reliable, Sustainable and Modern Energy for All



SDG 7 Target & Where We are in Achieving the Target



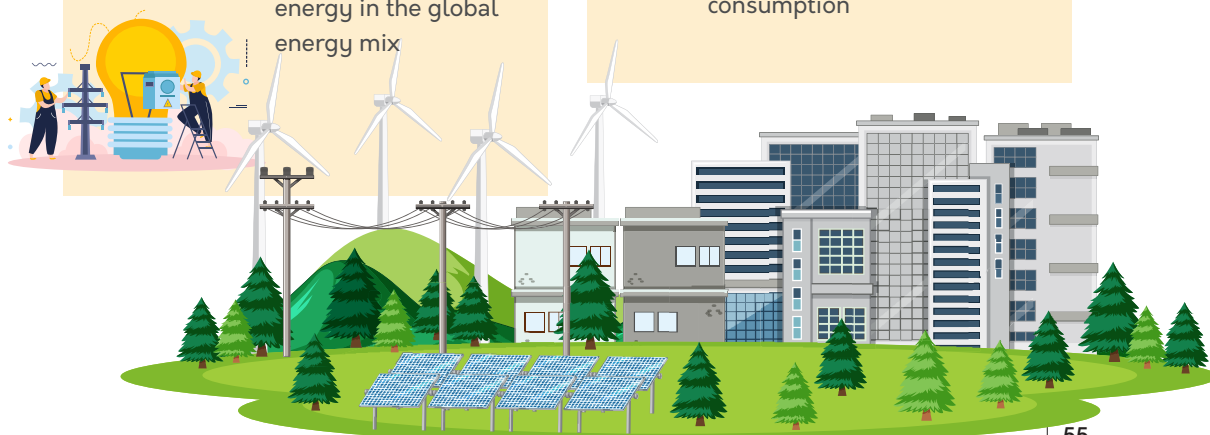
TARGET 7.2

2030 Increase substantially the share of renewable energy in the global energy mix



INDICATOR 7.2.1

Renewable energy share in the total final energy consumption



Renewable energy sources like solar, wind, biomass, biogas, mini hydro are anticipated to meet local energy needs while at the same time help to safeguard the environment. Energy security, environmental protection, economy, mechanical manufacturing, building and construction, transportation, and industry are all benefits from the development and usage of renewable energy.

Green industry is an economic activity that seeks to minimize the damaging impact on environment. For the sustainable and economically viable future, DOE encourages all types of industries to move forward to green industry by using clean, renewable and affordable energy which reduce the carbon growth. The use of renewable sources of energy can assist our country in reducing the effects of climate change, increase their resistance to price volatility, and bring down overall energy costs.

Although the DOE's involvement in the government's efforts to strengthen clean

energy or renewable energy is in collaboration with committees from other government agencies, DOE does not underestimate the importance of this department's involvement. The following is a list of DOE's involvement in committees in ensuring the achievement of Target 7.2 and Indicator 7.2.1.

a. Waste to Energy (WTE)

As a fast-developing nation, energy demand in Malaysia has also increased over the years. At the same time, wastes produced by residential, commercial, institutions and public areas are also increasing and predicted to reach 49,670 tons per day by 2030. The ideal approach is to recover the energy using waste to energy (WTE) technology. DOE has been part of the Waste to Energy (WTE) and Leachate Treatment Plan (LTP) Project Evaluation Committee that discussed the idea of implementing WTE technologies in Malaysia. Thus far, there are 2 WTE technologies being used in this country which are:



The process of conversion of the waste to energy is depicted in **Figure 3.1**.

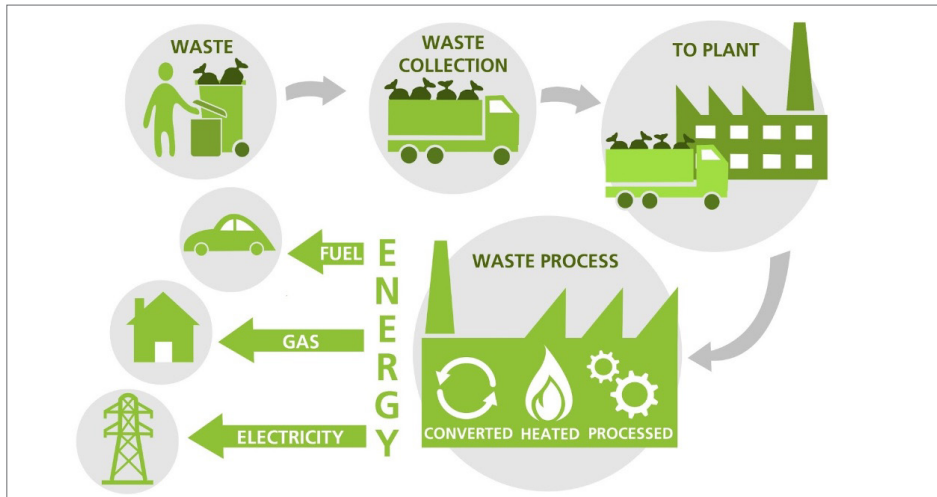


Figure 3.1 Conversion of WTE

b. National Energy Policy

In National Energy Policy 2022 – 2024, Strategic Core 3 states the government's commitment to increase the energy sector's contribution to environmental sustainability.

c. National Policy on the Environment

National Policy on the Environment 2002 states the Malaysian government commitment to ensure environmental sustainability.

d. Promotion of Clean Energy

DOE promotes clean energy for the Cleaner Production implementation in industry and consistently spread awareness on reduction of energy consumption in Malaysian manufacturing industry and household consumption.



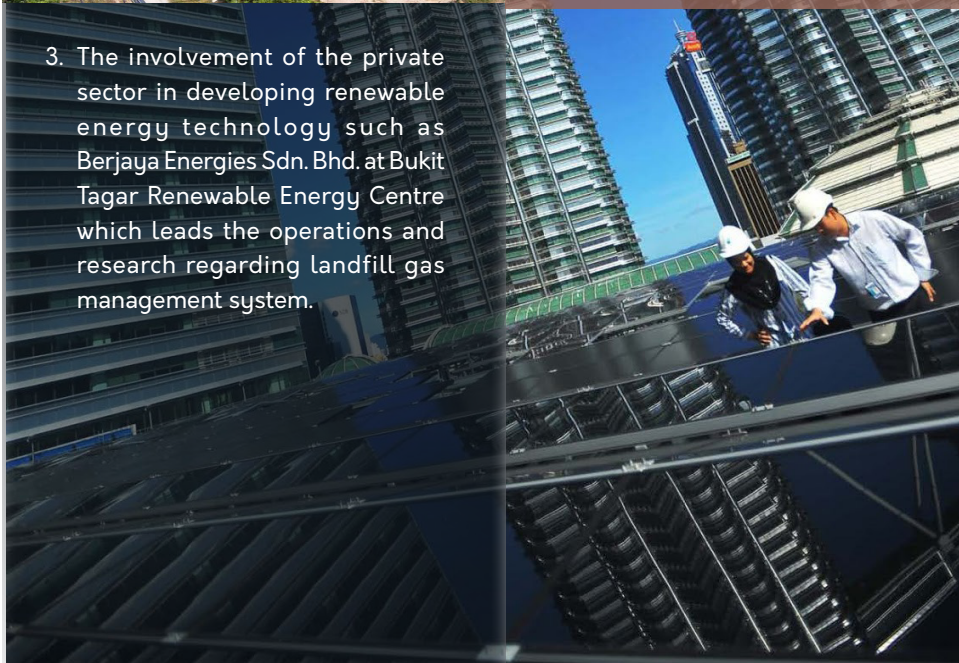
Way Forward

1. Compliance to current standards, guideline, and regulations



2. End-of-life solar panel has to be managed in environmentally sound manner. Solar energy in homes and commercial buildings are increasingly used due to public awareness about protecting the environment, however end-of-life solar panel needs to be managed efficiently for proper disposal according to DOE regulation.

3. The involvement of the private sector in developing renewable energy technology such as Berjaya Energies Sdn. Bhd. at Bukit Tagar Renewable Energy Centre which leads the operations and research regarding landfill gas management system.



CHAPTER 04

SDG



**Make Cities and Human
Settlements Inclusive,
Safe, Resilient and
Sustainable**



THE AIM OF SDG 11 is to build safe, affordable, and sustainable cities and communities by 2030. This goal also emphasizes to provide the pollution free, accessible, and sustainable public transport system. It also encourages to reduce the number of trips in private transport to eliminate the air pollution. The World Health Organization (WHO) defines air pollution as "any chemical, physical, or biological factor that alters the inherent properties of the atmosphere and contaminates the indoor or outdoor environment." According to WHO (2022), the combined effects of air pollution is associated with 7 million premature deaths annually.

Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable



SDG 11 Target & Where We are in Achieving the Target



TARGET 11.6

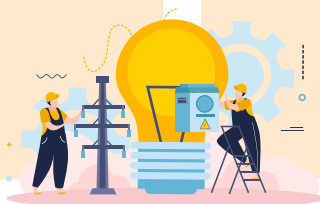
2030

Reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management



INDICATOR 11.6.2

Annual mean levels of fine particulate matter (e.g., $PM_{2.5}$ and PM_{10}) in cities (population weighted)



The protection of air quality has grown to be of the utmost significance for nations throughout the world including Malaysia, necessitating the establishment of a policy and legislative framework on the subject.

In order to meet the requirements set by Target 11.6 as well as Indicator 11.6.2, DOE has taken appropriate measures in monitoring and controlling air pollutions across Malaysia.

a. Air Quality Monitoring Network

The air quality in Malaysia is monitored by the DOE continuously and manually to detect and control any changes in the ambient air quality status that may pollute the environment and endanger human health. In Air Quality Monitoring Network, DOE comprehensively monitors the country's air quality through Continuous Air Quality Monitoring, Manual Air Quality Monitoring as well as Mobile Continuous Air Quality Monitoring.

Continuous Air Quality Monitoring (CAQM)

There are 51 continuous air quality monitoring stations throughout the country as shown in **Figure 4.1**. These stations are placed in strategic places so that comprehensive monitoring can be done by DOE. There are 5 monitoring categories namely Industrial, Residential, Traffic, Background, and PM_{10} . These stations measure air content parameters such as sulfur dioxide, nitrogen oxides, carbon monoxide, ozone, hydrocarbon, PM_{10} , and UV.



Figure 4.1 Continuous Air Quality Monitoring Stations in Malaysia (Source: DOE Official Portal)

Manual Air Quality Monitoring (MAQM)

Apart from the CAQM monitoring method, there is also a Manual Air Quality Monitoring (MAQM) method using High Volume Sampler equipment which is carried out by the DOE at 19 stations located in different areas. At MAQM stations, materials such as total suspended particulates, particulate matter (PM_{10}), and other heavy metals namely lead, mercury, iron, sodium, copper, and others are measured in a 6-day timeline. DOE will collect the measurements manually and deliver the results to the laboratory for further analysis.



Mobile Air Quality Monitoring Stations

Mobile Continuous Air Quality Monitoring (MCAQM)

Besides commitment to monitor and control air quality by CAQM and MAQM, Mobile Continuous Air Quality Monitoring (MCAQM) is also implemented by DOE. This is effectuated to fulfil the purpose of placing air quality monitoring stations in all parts of the country. Hence, 3 mobile environmental ambient air quality stations are provided in the Peninsular, Sabah, and Sarawak.

Air Pollutant Index Management System (APIMS)

Air Pollutant Index (API) was introduced by DOE as one of the aspects of Air Pollution Index Management System (APIMS) which reflects the current state of air quality. API is measured based on 24 hours data collected from the Air Quality Monitoring Network at all monitoring stations throughout the country. The data are also updated on hourly basis. To retrieve the data, a complete cycle of 1 hour is needed before obtaining API readings. The classification of API is as illustrated in **Figure 4.2**.

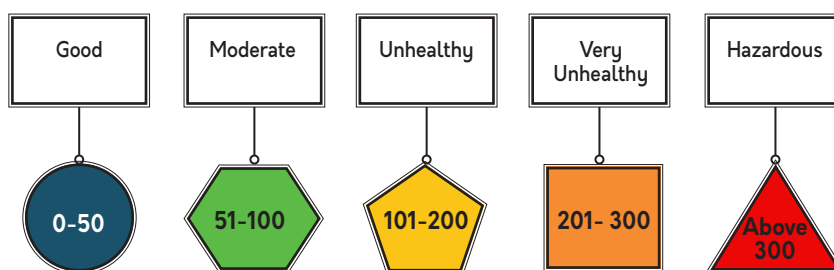


Figure 4.2 Classification of API (Source: Air Pollutant Index Management System (APIMS) Official Portal)

Mobile apps MyIPU

MyIPU is a mobile application that have the same objectives with APIMS. Mobile users are able to view the current status of API and receive information and latest status of Malaysian air quality by using MyIPU. The apps can be downloaded in App Store or Google Store on individual's mobile device.



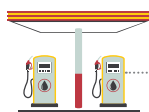
MyIPU Mobile Application

b. Enforcement on Emission from Motor Vehicles

Motor vehicles are the biggest generator of carbon monoxide and is regarded as the main cause of air pollution in Malaysia, particularly in urban areas. DOE has also given accreditation to a number of workshops that have fulfilled the criteria for “Approved Testing Facilities” to assist the public in sending their vehicles for emission testing. These facilities also provide testing and repair services for the non-complying vehicles, to ensure that they are always in compliance with the emission limits stipulated in the government regulations such as Environmental Quality (Control of Emissions and Diesel Engines) Regulations 1996 and the Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996.

► Initiatives and Activities to Monitor Carbon Emission from Motor Vehicles

Petrol Vehicles



DOE has enforced the Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996 to monitor emission limits for petrol vehicles in accordance with United Nation's standards

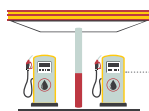


Any new model motor vehicle that is commissioned on or after 1 January 2000 is required to comply with emission standards prescribed in the Third Schedule of the Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996



Petrol Engine vehicles are inspected using the Carbon Monoxide-Hydrocarbon (CO-HC) gas analyzer via the idling test method

Diesel Vehicles



DOE has enforced the Environmental Quality (Control of Emissions and Diesel Engines) Regulations 1996 to monitor emission limits for diesel vehicles in accordance with United Nation's standards

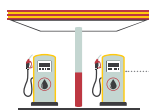


To control of extreme black smoke emission released from diesel vehicle exhausts which is monitored through the curbside operation in cooperation with other enforcement agencies



Camera video surveillance, and the AWAS (Area Watch and Sanction Inspection) Programme are placed so that DOE's mobile squad would enforce by observing while patrolling as well as stopping and testing diesel vehicles that release excessive smoke

Motorcycles



DOE has enforced the Environmental Quality (Control of Emission from Motorcycles) Regulations 2003 to regulate emissions from motorcycles as another mobile source of pollution under this Act



Manufacturer has to comply with the international standards EURO3, in accordance with the United Nations' European Economic Committee Council Directive

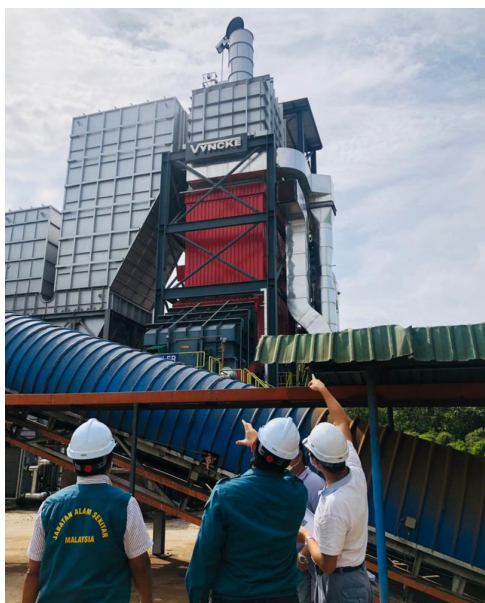


Any manufacturer who violates these standards or fabricates the test and proven guilty of the offence will face a maximum fine of RM100,000, a maximum sentence of five years in prison, or both

c. Enforcement on Emission from Industries

The monitoring programme is carried out by DOE in industrial areas with the purpose of determining the level of ambient air quality, in particular Total Volatile Organic Compounds (TVOC) and Volatile Organic Compounds (VOCs) gases. DOE which is in charge of enforcing the environmental pollution regulations that are emitted by

industries, is completely dedicated to achieve this goal. This commitment is demonstrated by the expertise, resources, workforce, and time given by the entire department to ensure that the industrial pollution does not negatively impact public health while also carrying out enforcement actions to fine and prosecute offenders in accordance with the Environmental Quality Act (EQA) 1974.



Site Inspection Conducted by DOE Officers

d. Prevention and Control of Haze due to Open Burning Activities

Open burning incidents were discovered during routine ground surveillance carried out by DOE State Offices in fire prone area and areas numerous public complaints. In addition, there are also hotspots detected from satellites data conveyed by the ASEAN Specialised Meteorological Centre (ASMC) based in Singapore.

The annual average open burning incidents detected and reported by DOE state offices are 5827 cases. As reported in EQR 2021, the most frequent open burning cases (52%) are found to be in the categories as other activities that include, burning of garbage in residential areas, garbage burning by the roadside and burning of any articles as part of religious rites or worshipping activities. This is followed by agricultural activities (15%), bushes (11%) and forest 8%.

Out of 5,924 open burning incidents, on average more than 8% cases issued compounds amounting to RM377,750. However, the year 2020 had the highest number of hotspot and open burning cases.

Among others, DOE has taken effort to conduct peatland fire prevention programme to overcome and reduce haze.



Surveillance from watch tower in the North Kuala Langat Forest Reserve, Selangor

e. Clean Air Action Plan (CAAP)

The Clean Air Action Plan (CAAP) was drafted by DOE in line with the "7th Green Strategy" in the National Environmental Policy. The CAAP outlines a set of strategies and indicators that provide a roadmap to attain the required air quality by diminishing the frequency, severity, and duration of poor air quality episodes.

CAAP's strategies and measures are directed at managing air quality by way of collaboration between government, private sectors, and non-governmental organisations. DOE aspires to treat CAAP as a living document, where new technologies and approaches will be incorporated into the Plan from time to time. Not only the Plan is aimed at achieving the required air quality, but it also guides DOE to ensure greenhouse gas emissions from motor vehicles and industries,

as well as haze due to land and forest fires, and open burning activities.

f. National Clean Air Master Plan (NCAMP) Towards Blue Sky

DOE also strengthened the implementation of the existing CAAP by making it more inclusive. Among the important strengthening elements that were given attention are efforts to improve the action plan to include current air pollution issues. In this regard, holistic prevention and recovery measures are designed to include the roles of all stakeholders. Taking into account the importance of the agenda, the government through RMK12 has approved an allocation of RM1,000,000, to implement the National Clean Air Master Plan Formation Study project towards Blue Sky for a period of two years (2021 to 2022). The main output of this study is the National Clean Air Master Plan (NCAMP) which is comprehensive and holistic to be implemented until 2030. The implementation of this plan will involve the role of all stakeholders, such as government institutions, industry players, NGOs, educational institutions, and several others. Through NCAMP, efforts to reduce the concentration of PM_{2.5} in the air will be able to be used as a vision to be shared in an effort to achieve sustainable development, thus ensuring common well-being.



TARGET 11.A

2030

Support positive economic, social, and environmental links between urban, peri-urban, and rural areas by strengthening national and regional development planning



In achieving Target 11.a, DOE is also actively involved to ensure that local authorities and state governments can implement more effective planning regarding matters related to development in their respective states without compromising on development that results in adverse effects to the environment. The next section explains in more detail the DOE's involvement in such matters.

a. Environmental Impact Assessment (EIA)

The Environmental Impact Assessment (EIA) is used in Malaysia as a planning tool to help local authority and state governments for better planning of their environmental related issues. EIA consists of the updated guidelines authorized by the Director General of Environmental Quality in order to meet the requirements under the provision of Section 34A (2c) of the Environmental Quality Act 1974 and Environmental Quality (Prescribed Activities) (Environmental Impact

Assessment) Order 2015 which has been gazetted since 2015. EIA is aimed to guide the project management and qualified person or known as registered consultants by DOE to prepare EIA reports. Prior to any development projects, during project identification stage, the project management is required to appoint registered consultants and submit the project proposal to DOE.

The EIA guideline comprises two schedules. As for the First Schedule, EIA report is to be submitted to DOE State Offices to review and approve. The Second Schedule report must be submitted to DOE headquarters. DOE also provides guidance at pre, during as well as post stages of EIA Report submission.

b. Involvement in District Local Plan and State Structure Plan

DOE advises and provides input in sustainable development based on District Local Plan (*Rancangan Tempatan Daerah*) and State Structure Plan (*Rancangan Struktur Negeri*) in terms of development of new cities,

infrastructure, and facilities so as to ensure that every development carried out complies with the regulations set and will not have a negative impact on the environment.

c. Best Available Techniques (BAT)

The Best Available Techniques (BAT) is a principle measure to prevent pollution. It is mostly used to reduce emissions into the air from industrial activities and their impact on the environment. With BAT the industrial sector may undertake an integrated and through assessment of their installation's potential for consumption and pollution. Taking into consideration various forms of environmental effect, it is also intended to limit industrial discharges and provide a high degree of environmental protection.

The industrial premises are subject to regulation through BAT to limit their emission which places more emphasis on pollution control methods than end-of-pipe treatment. In addition, as part of sustainable development, the Environmental Quality Act 1974 encourages the premises to create and



implement advanced technologies that adhere to BAT standards. It also seeks to continuously improve the overall environmental performance of the premises' operations.

In this regards, the regulations impose a number of obligations on the owner or occupier of such premises including compliance with specific parameters, concentrations, or levels as stated in **Figure 4.3**. Furthermore, it is a requirement that the owner or occupier of a given property to implement steps to decrease the emission of air pollutants in compliance

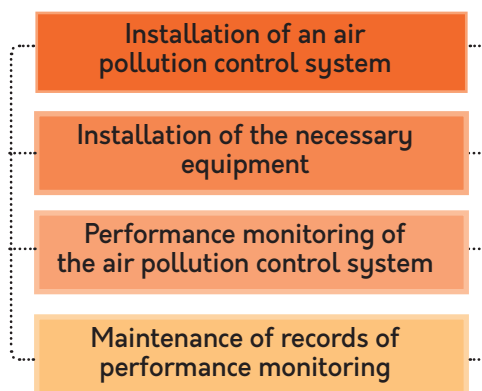


Figure 4.3 BAT Compliance Procedures by Industry

Way Forward

DOE has been monitoring and controlling air quality in Malaysia through various methods that have been actively implemented. Nevertheless, in order to further tighten enforcement related to air quality and the environment in Malaysia, there are various future plans that have been planned and will be carried out to continue the existing efforts.



1. The future air quality monitoring locations will be reviewed based on the location and number of current monitoring stations as proposed in Strategic Plan, Core 2, Strategy 2, Initiative 3



2. At the planning stage, current environmental issues must be taken into account



3. Improve the quality of life through DOE Strategic Plan – DOE Function 1, Core 2, Strategy 2, Initiative 4



4. Empowering environmental governance at the state government level during the planning stage of District Local Plan and State Structure Plan



5. Review current CAAP document



6. To improve policy, legislation, and guidelines to enhance environmental enforcement



7. To review standard and regulation related to air emissions to be at par with international standards e.g., Vehicle Emission Standard and Fuel Quality

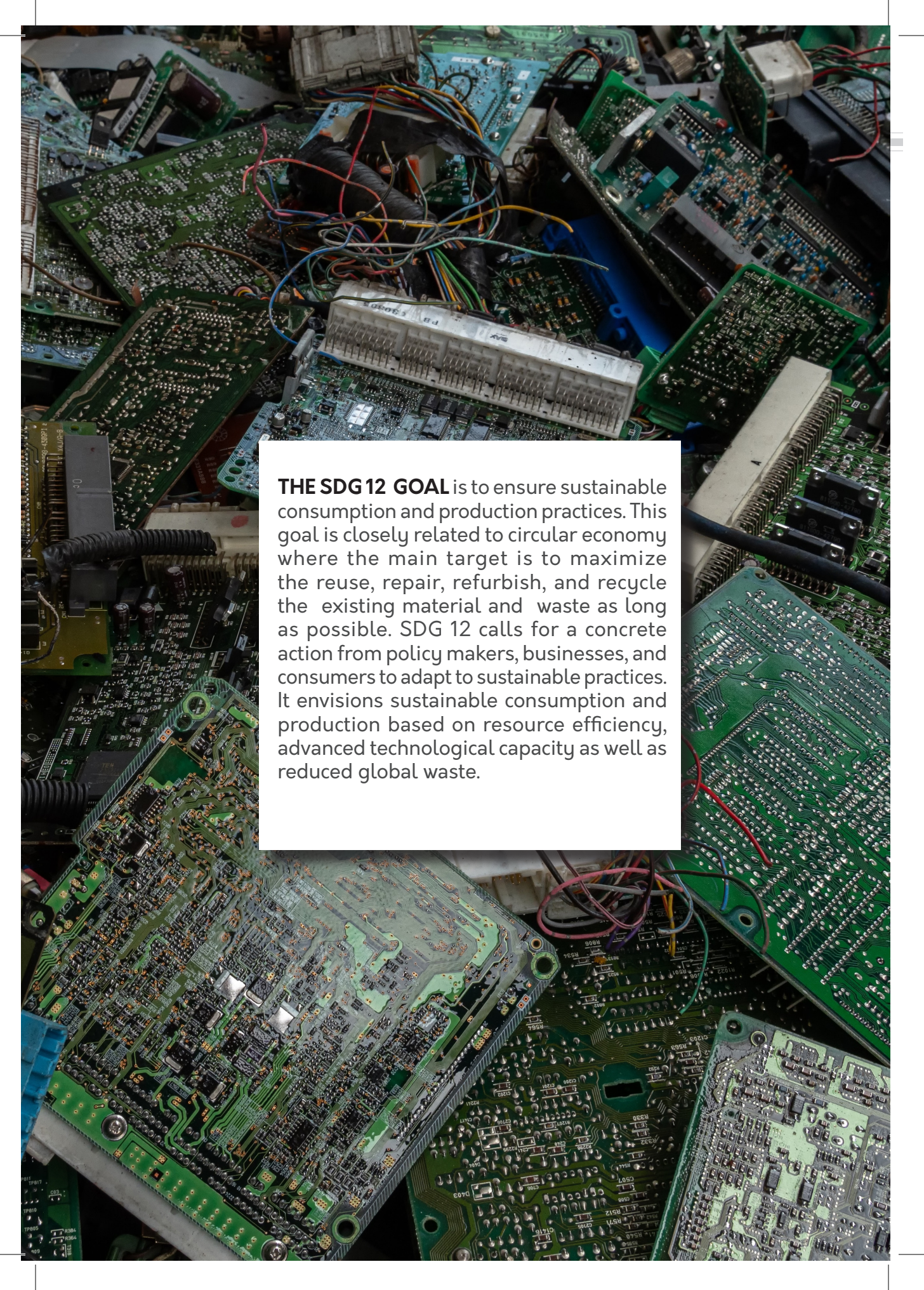


CHAPTER 05

SDG

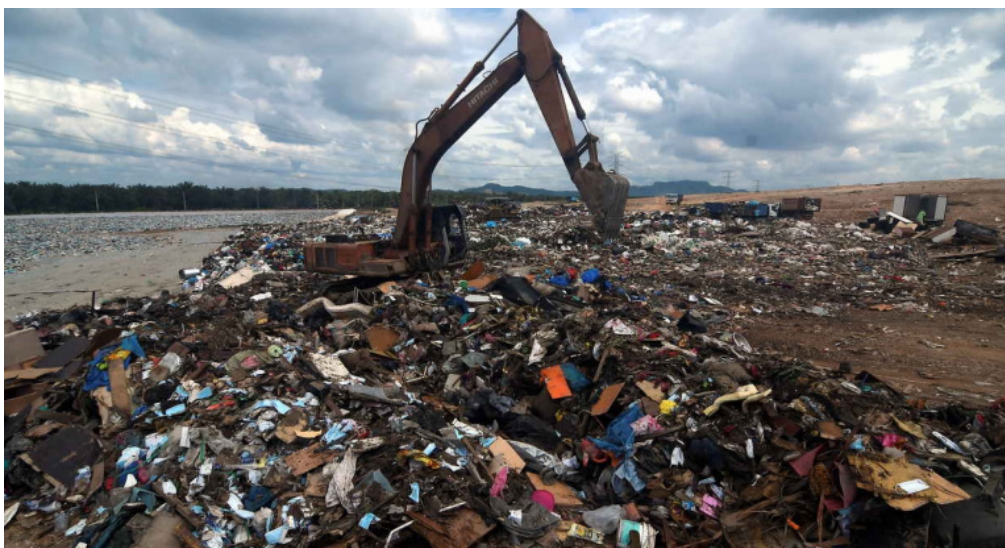


**Ensure Sustainable
Consumption and
Production Patterns**



THE SDG 12 GOAL is to ensure sustainable consumption and production practices. This goal is closely related to circular economy where the main target is to maximize the reuse, repair, refurbish, and recycle the existing material and waste as long as possible. SDG 12 calls for a concrete action from policy makers, businesses, and consumers to adapt to sustainable practices. It envisions sustainable consumption and production based on resource efficiency, advanced technological capacity as well as reduced global waste.

Ensure Sustainable Consumption and Production Patterns



SDG 12 Target & Where We are in Achieving the Target



TARGET 12.1

Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries

The contributions of DOE towards initiatives in the country are waste management, household E-Waste management, waste to energy, and roadmap towards zero single-use plastic 2018-2030. The process and actions essential to manage waste from its generation to its final disposal are referred to as waste management.



E-waste is a term used to describe electronic products that have reached the end of their "useful life". Among the examples of E-waste are common electronic products such as mobile phones, televisions, computers, stereos, fax machines, copiers and many more. Through good e-waste management, these damaged products can be reused, refurbished or recycled

E-waste management is the process of gathering e-waste, recovering and recycling material safely, and disposing of E-waste properly to lessen any negative effects on the environment. The term waste-to-energy refers to the process of turning waste into a fuel source or power and/or heat from the first treatment of waste. The objective of roadmap towards zero single-use plastic 2018-2030 programme is to prevent the use of plastic for clear and healthy environment.

National Policy on the Environment, 2022

The National Policy on the Environment, 2022 is aimed to achieve continued economic, social, and cultural progress among Malaysians, as well as to enhance quality of life through environmentally sound and sustainable development. The Policy supports sustainable development through its Principle 4 - Sustainable Use of Natural Resources. It has 7 Green Strategies to which the 2nd Strategy outlines the effective management of natural resources and the environment.

The third Objective of the National Policy on the Environment also states the government's

commitment to achieve sustainable lifestyles and patterns of consumption and production.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

TARGET 12.2
2030 Achieve the sustainable management and efficient use of natural resources



DOE does various ways to curb environmental damage caused by unsustainable consumption and production. Among the actions taken to achieve Target 12.2 is through law enforcement and the circular economy.

Implementation of Best Practise in Environment Through EIA.

Logging

- Implementation of Best Practise in EIA as according to EQA, 1974 activities such as logging, or cutting or taking of timber for the purpose of conversion from forest to other land use covering an area of 100 hectares or more but less than 500 hectares.
- Logging, or cutting or taking of timber from forest at less than 300 meters above mean sea level covering an area of 100 hectares or more, outside permanent reserved forest.



Mining:

- Ore processing outside mineral tenement area, including concentrating of aluminium, copper, gold, iron, tantalum or rare earth element.
- Sand mining on land or river or in coastal area or in territorial waters not exceeding 3 nautical miles measured from the low-water line, involving an area of 20 hectares or more.
- Sand mining in continental shelf area.

CIRCULAR ECONOMY

Malaysian government shows commitment through RMK12 to shift the country from practising the conventional linear economy to circular economy which is more sustainable. The circular economy is designed based on waste management, reuse, recycle and recovery of products and materials as well as regenerating natural resources.

Circular economy of e-waste does not only revolve around waste management, but at the same time supports new industry's development and opens up opportunities for job seekers, apart from reducing pollution and increase the efficient use of natural resources as stated in National Policy of Environment.

E-waste contains hazardous and toxic materials such as lead, cadmium, mercury, arsenic, bromine and many others that will be absorbed into the earth when they are disposed at the landfills. After some time, the accumulation of e-waste in landfills will cause the discharge of these toxic substances into water sources. This will cause threats to aquatics and humans if e-waste is not reused, recycled, and recovered in environmental sound manner. Hence, to avoid these problems in the future, DOE takes measures to implement e-waste management and promote circular economy in Malaysia.



TARGET 12.4

2020 Achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment



INDICATOR 12.4.1

Number of parties to international multilateral environmental agreements on hazardous waste, and other chemicals that meet their commitments and obligations in transmitting information as required by each relevant agreement.

In achieving Target 12.4 and Indicator 12.4.1, DOE has represented Malaysia in several international agreements and conventions. Among them are Basel Convention, Stockholm Convention, Rotterdam Convention, Minamata Convention, and Montreal Protocol.

a. Basel Convention

The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal was adopted by the Conference of Plenipotentiaries in Basel, Switzerland, after the discoveries of toxic waste being dumped in developing world from abroad in 1980s.

In 1989, 116 countries adopted Basel Convention to control the movement and dumping of hazardous waste from developed countries to developing countries. The Convention was reinstated in Rio Declaration on 5 May 1992. A year after, in October 1993, Malaysia pledges its commitment as a part of Basel Convention party after taking measures in the country's internal control mechanisms are in place as Basel Convention is important to Malaysia's environmental and economic well-being.

b. Stockholm Convention

The Stockholm Convention on Persistent Organic Pollutants (POPs) is a global treaty signed by over 152 countries in order to protect human health as well as the environment from chemicals that remain intact in the environment for a long period of time. The Convention entered into force in 2004 as all parties were required to eliminate or reduce the release of POPs into the environment. Malaysia signed the Stockholm Convention on POPs on 16 May 2002 however it has yet to ratify the convention as there are still requirements that have not been completed.

DOE has been actively involved in the implementation of Stockholm Convention.

List of meeting of Basel Convention that chaired by DOE Malaysia:

23-28 February 1998
Kuching, Sarawak,
Malaysia

The Conference of the Parties (COP) to the Basel Convention Fourth Meeting of the Conference of the Parties to the Basel Convention

20-22 January 2009
Kuala Lumpur

Workshop of the Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes

12-14 November 2019
Kuala Lumpur

Workshop of the Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes



DOE also initiated research on 'Strategy Development Studies for the Management of Persistent Organic Pollutants (POPs) Industrial Chemicals Consistent with the Stockholm Convention' to bridge the existing implementation gap focusing on industrial chemicals and the objectives that should be achieved based on the Stockholm Convention.

c. Rotterdam Convention

Rotterdam Convention's objective is to promote shared cooperation and responsibility among its Parties in the international trade of hazardous chemical to safeguard human health as well as the environment. Malaysia became a party to the Rotterdam Convention on 4 September 2002, and it came into force in the country on 24 February 2004. Since then, Malaysia participated in many meetings and negotiations of the Rotterdam Convention. The country also served in the Interim Chemical Review Committee (ICRC) and the Chemical Review Committee (CRC) of the convention. Apart from that, the country also actively participates in every Conference of the Parties (COP) meeting as its commitment to share knowledge among Parties of the Conventions.

d. Minamata Convention on Mercury

The Minamata Convention on Mercury aims to abstain the hazardous effects of mercury on human health and environment by controlling emissions and releases of mercury and its compounds from anthropogenic sources. The Convention is named after the Japanese city,

Minamata as a symbolic on the Minamata tragedy of mercury poisoning incident that happened around 1950 - 1960s which caused massive environment pollution and human health deterioration. On 10 October 2011, the agreement of Minamata Convention was adopted. A year after, Malaysian government established the National Steering Committee on Mercury as a commitment to Minamata Convention. On 24 September 2014, Malaysia signed the Minamata Convention on Mercury, but thus far have yet to ratify the convention.

Law and regulations related to Minamata Conventioned being practised in Malaysia:

- Environmental Quality Act 1974
- Environmental Quality (Clean Air) Regulations 2014
- Environmental Quality (Scheduled Wastes) Regulations 2005
- Environmental Quality (Industrial Effluent) Regulations 2009

e. Montreal Protocol

The Montreal Protocol on Substances that Deplete the Ozone Layer is a multilateral environmental treaty that regulates the production and consumption of 100 chemicals identified as ozone depleting substances (ODS).

DOE Malaysia act as National Focal Point (NFP) under Montreal Protocol. Meanwhile, the Focal Point for Licensing Systems (FPLS) is the Director of Air Division.

The timeline of Malaysia's implementation of Montreal Protocol is as shown in **Figure 5.1**.

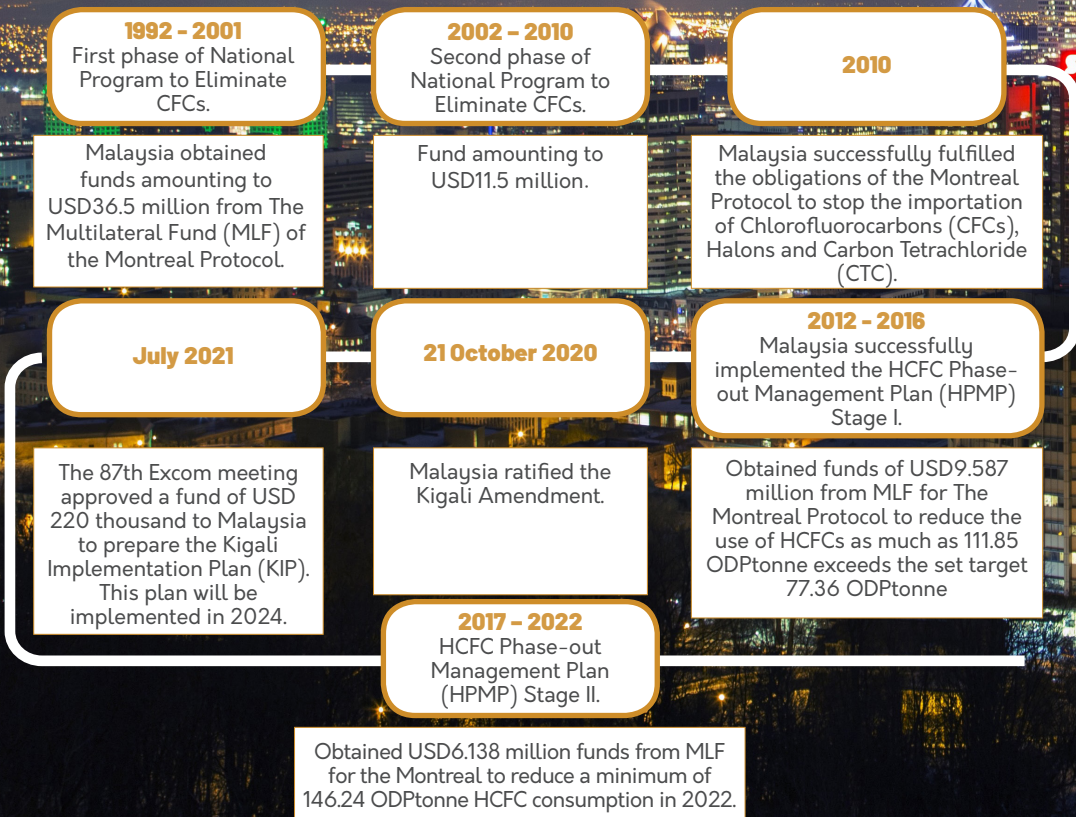
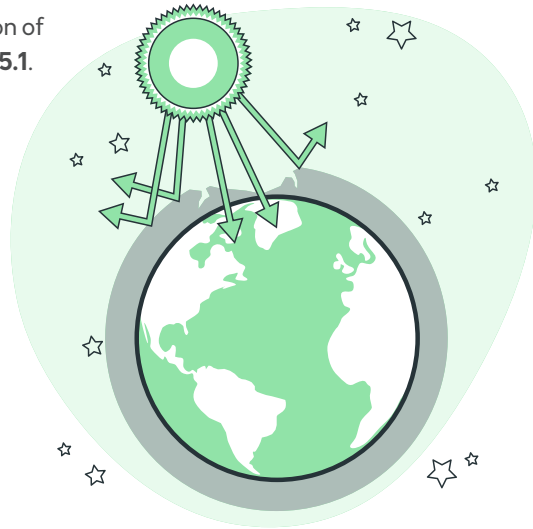


Figure 5.1 Malaysia's Implementation of Montreal Protocol

DOE's commitment in Montreal protocol's implementation is clearly shown by various prestigious awards won by the country as shown in **Figure 5.2**.

29 August 1989

Recognition Award to Malaysia in conjunction with ratifying the Vienna Convention and the Montreal Protocol on 29 August 1989 during the 21st Party Meeting

1997

United Nations Environment Program (UNEP) Award for extraordinary contribution by Malaysia in protecting the ozone layer

1987 - 1997

Outstanding National Ozone Unit Award from the United Nation Environment Program (UNEP) for Malaysia's outstanding efforts in implementing the Montreal Protocol

2007

Certificate of Recognition by the Montreal Protocol on Malaysia's global efforts to protect the ozone layer

2010

Certificate of Recognition by the Montreal Protocol to Malaysia in complying with the 2010 obligation to eliminate importation Chlorofluorocarbons (CFCs), Halons and Carbon Tetrachloride (CTCs)

2012

Recognition Award from the United Nation Environment Program (UNEP) for Malaysia's important role in protecting the ozone layer for future generations

2018

National Ozone Unit Environmental Sustainability Award from United Nations Malaysia

Figure 5.2 Awards won by Malaysia in Montreal Protocol.



INDICATOR 12.4.2

(a) Hazardous waste generated per capita; and (b) proportion of hazardous waste treated, by type of treatment

In this regard, the DOE has practiced scheduled waste management and co-processing to strengthen the 4R Principles (Reduce, Reuse, Recycle, Recovery).

a. Scheduled Waste Management

DOE adheres to the concept of 'cradle to cradle' in its waste management schedule to increase the recycling rate in Malaysia. The department integrates and promotes cleaner production practices by emphasizing on environmentally friendly technology in scheduled waste management. To achieve the scheduled waste sustainable management, Co-Processing method is introduced and has started to be adopted among industries in this country.

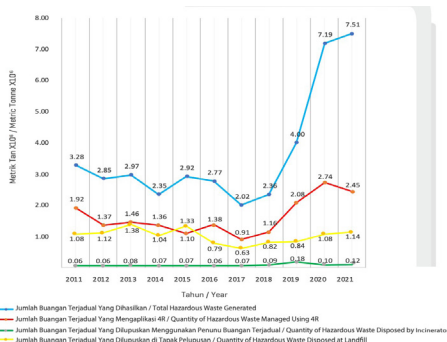


Figure 5.3 Scheduled Waste Management Trend, 2011–2021 (Source: DOE Annual Report 2021)

b. Co-Processing

Co-processing refers to the process of recycling scheduled wastes to become alternative raw materials or alternative fuels.

In cement factories, it is used to replace conventional raw materials or fuels. By doing so, it contributes to 'Zero Waste Future'. The concept of co-processing reduces waste quantity that is sent to the final landfill which indirectly reduces the impact of pollution on land and water sources as well as decreasing the greenhouse gas emissions. In 2018, DOE managed to increase recycling limit of scheduled waste as a substitute raw material in cement factories from 3% to 10%.

Figure 5.4 shows the quantity of scheduled wastes which were converted to alternative raw materials by cement plants in this country.

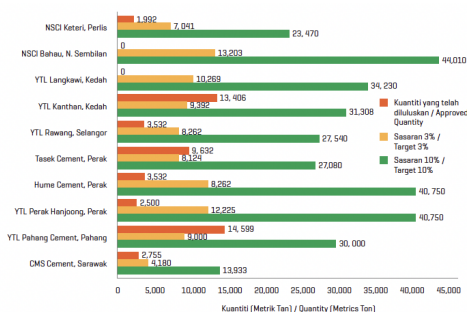


Figure 5.4. Quantity of Scheduled Wastes Used as Alternative Raw Materials by Cement Plants in Malaysia (Source: DOE Annual Report 2021)



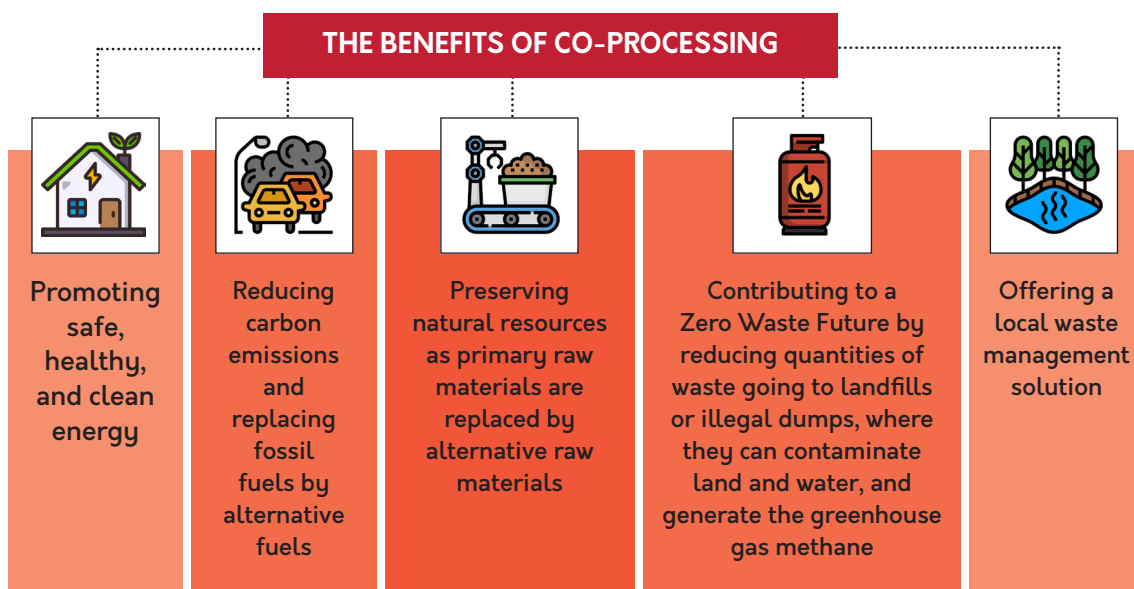


Figure 5.5 Co-Processing Benefits to the Environment

Figure 5.5 illustrates the benefits of co-processing to the environment.

In 2021, DOE issued 16 approvals in principle to cement factories to receive scheduled waste from waste producers with an additional

consumption quantity of 176,610 metric tons per year as raw materials for the production of cement clinker, as much as 5,400 metric tons per year as replacement fuels in cement factories and as much as 408,000 metric tons per year as cement additives.

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

▶ **TARGET 12.5**

2030 Substantially reduce waste generation through prevention, reduction, recycling and reuse

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

▶ **INDICATOR 12.5.1**

National recycling rate, tons of material recycled.

DOE conscientiously made efforts to assist in reducing waste generation in this country. This can be seen through DOE's engagement in e-waste management, waste management, as well as involvement to achieve Green Industry status in Malaysia.

a. E-Waste Management

E-waste is referred to damaged electrical and electronic equipment that is old and obsolete. It is categorized as scheduled waste with code SW110 under the First Schedule, Environmental Quality (Scheduled Wastes) Regulations 2005, Environmental Quality Act 1974. E-waste contains heavy metals such as lead, mercury, cadmium, polychlorinated biphenyl, arsenic and other hazardous substances that can cause damage to human health and environment.

DOE's objective in e-waste management is to achieve circular economy in Malaysian household. E-waste management focuses on the concept of Extended Producer's Responsibility (EPR) where producers are the responsible party to ensure that electrical and electronic equipment products are managed in an environmentally friendly manner until the end of their useful life. It also emphasizes the concept of shared responsibility among stakeholders.

The e-waste management mechanism framework is shown in **Figure 5.6**.

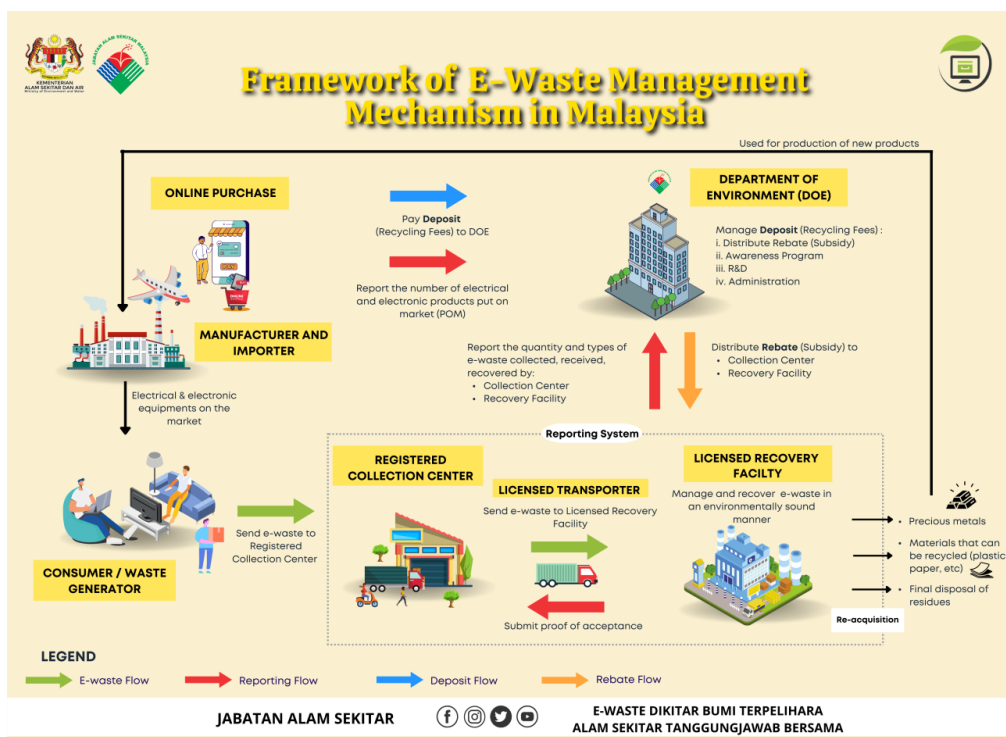


Figure 5.6 E-waste Management Mechanism Framework in Malaysia
(Source: E-waste Management in Malaysia Official Portal)

The e-waste collection program is carried out continuously throughout the nation by the State DOE on the last Saturday of every month starting from January 2021.

In order to create awareness of e-waste management in Malaysia, DOE has developed a website to deliver information related to e-waste management mechanisms. The website can be accessed through the link: <https://ewaste.doe.gov.my/>. Apart from that, DOE also developed MyEwaste application for mobile usage to make it easier for the public to know the registered collection center.



Website on e-waste Management

In addition to that, DOE also published a Public Service Announcement video to spread knowledge about e-waste to all Malaysians as well as a CEPA video publication related to e-waste.

b. Waste Management

Protecting human health and maintaining a clean environment are the main goals of pollution control and waste management. The majority of Malaysia's environmental protection and waste management legislation

are based on the EQA 1974. The Environmental Quality Act (EQA) was adopted into law in 1974 and then took effect in 1975. This Act was later updated in 1976, 1985, and 1996 to match to new technology and global standards. There were no comprehensive hazardous waste treatment facilities in Malaysia throughout the expansion in the industrial sectors since there was no legislation in place until 1989. Industrial wastes were easily disposed of in refuse disposal areas that were not designed to receive hazardous trash without sufficient treatment. The inappropriate disposal caused



MyEwaste Mobile Application

poor air quality around the disposal locations, contaminating chemical and biological agents from the trash dumps / disposal sites, and which produce negative impacts on human health and the environment.

DOE also intensified its efforts to render all scheduled waste harmless by enacting regulations requiring that they be treated at the premises where they were generated or in treatment facilities that were specifically created to handle them in accordance with

the National Policy on the Environment. This strategy was introduced in 2002 which aims to balance environmental concerns with economic growth objectives in accordance with the Eight Malaysia Plan's directives. The industries became active participants in waste reduction and recycling as a result of the legislation' implementation, which included certain tax incentives to encourage compliance and penalties for non-compliance.

The major goals of Malaysia's hazardous waste management law, as outlined in the Environment Quality Act 1974 are to reduce waste generation and enhance waste management practises. The waste management process, including generation, storage, processing, treatment, and ultimate disposal, is described in the legislation. The EQA 1974 is the main legislation on which all other subsidiary environmental laws and regulations are based. DOE does not support the importation of hazardous waste into the nation. To prevent exploitation of other countries' rights, waste producers are permitted to export waste for recycling, recovery, or treatment with prior written consent from the importing state.

The DOE conducts inspections of waste management facilities as part of the procedures for granting licenses to operators or waste management facility license renewals. The inspections include pre-license inspections as well as schedules of compliance for written approval. One of the important inspections is the yearly inspection of each functioning facility that has its license renewed. This regular inspection assists the DOE in keeping track of and monitoring the numerous functioning facilities.

When there is evidence or information that an operator is violating the regulation of the EQA 1974 an unscheduled inspection is also conducted by DOE. Inspections of hazardous waste management facilities during the pre-licensing phase and throughout operations vary according to the type of facility for which the operator applied.

c. Green Industry Towards Cleaner Production

In accordance with the Eleventh Malaysia Plan (RMK-11), the Green Industry Section of the DOE intends to introduce a number of initiatives and programmes that would assist Malaysia to achieve sustainable environment. The Section of Green Industry at DOE is dedicated to carry out its purpose to develop green industry practises among SMEs in the direction of sustainable production and to minimise emissions of greenhouse gases (GHG).

The Cleaner Production Audit Assistance projects for SMEs are being conducted by appointed training consultants for Small and Medium Enterprises (SMEs) towards Development of Green Industry Demonstration Site programme. Comprehensive reports on Cleaner Production auditing include the information related to profiles of the business activities of SMEs as well as recommended Cleaner Production solutions presented by SMEs and their respective implementation. As a result, these SMEs will be able to determine which Cleaner Production substitutes may be put into place to cut down on the amount of carbon footprint in their operations. Participants from SMEs will gain both experience and information regarding

Cleaner Production. The participants in this programme are also given the opportunity to gain information and experience about the implementation of Cleaner Production before the audit is carried out.



TARGET 12.6 2030

Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle

DOE plays a role in guiding companies, especially large and transnational companies, to take into account sustainability factors in their company reports through Environmental, Social and Governance (ESG) reporting, Environmental Mainstreaming Tools (EMT), and the Green Industry Institutional Mechanism.

a. Environmental, Social and Governance (ESG)

Environmental, Social and Governance (ESG) is one of the major themes in the 12th Malaysia Plan (RMK12) which is on advancing sustainability, as the country is committed to achieve carbon-neutral status by 2050. Companies in Malaysia use ESG to measure sustainability in their businesses. Among common areas for review in ESG reporting includes the company's waste management process and pollution prevention measures.

b. Environmental Mainstreaming Tools (EMT)

Effective 1 June 2017, DOE has implemented the use of Environmental Mainstreaming Tools (EMT) which refers to the absorption of the environmental agenda at all levels of the organizational structure in the industrial sector. This is to ensure that effective environmental management decisions come from the collaborative efforts of all key personnel within an industrial organization (from top management to general workers) in carrying out their tasks and roles related to environmental management successfully.

The components of EMT include Environmental Policy (EP), Environmental Budgeting (EB), Environmental Monitoring Committee (EMC), Environmental Facility (EF), Environmental Competency (EC), Environmental Reporting and Communication (ERC), and Environmental Transparency (ET).

During planning stage of a project, the project proponent must incorporate the EMT. The selection of process method, project layout, equipment selection and personnel appointments has to be in line with approach listed by Guided Self Regulation (GSR). Prior to starting a project, EMT implementation by industries is to be presented in EMT Compliance Report which needs to be submitted to DOE at a latest 30 days before the commencement of industrial operation. DOE can make the report as a part of EIA approval conditions.

c. Green Industry Institutional Mechanism

Strengthening Green Industry institutional mechanisms is one of the scopes under

Mainstreaming Green Industry Practices among Small and Medium Enterprises (SMEs) towards green growth. In this regard, various activities have been conducted which are briefing and hands-on activities on Green Industry Practises and Standard Operating Procedure (SOP) of Cleaner Production, workshops and discussions with DOE Subject Matter Expert on Green Industry for the revision of “Guidelines for Green Industry Auditor”, and sharing information on Green Industry Practise in crude palm oil mill for DOE officers and industry.

The implementation of this Green Industry practice helps premises towards compliance with the Regulations under the Environmental Quality Act 1974. In addition, this Green Industry practice also has significant benefits in financial and economic aspects as well as the environment at global level. The implementation of Green Industry practices is aimed at reducing greenhouse gas emissions at the global level in order to reduce the negative effects of climate change. This target is in line with Malaysia's statement to reduce carbon intensity up to 40% by the year 2020 compared to the value in 2005 which was announced at the 2009 United Nations Climate Change Conference in Copenhagen by the Malaysian Prime Minister.

► TARGET 12.8



2030

Ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature

► INDICATOR 12.8.1



Extent to which (i) global citizenship education and (ii) education for sustainable development are mainstreamed in (a) national education policies; (b) curricula; (c) teacher education; and (d) student assessment.

a. National Policy on the Environment 2002

The national commitment is shown in National Policy on the Environment 2002 which aims for continued economic, social, and cultural progress among Malaysians. The Policy also targets to enhance quality of life through environmentally sound and sustainable development.

b. Sustainable School Environmental Award Programme (*Sekolah Lestari Anugerah Alam Sekitar - SLAAS*)

In August 2001, the primary and secondary school level Sustainable School Environmental Award Programme (*Sekolah Lestari Anugerah Alam Sekitar - SLAAS*) was launched in conjunction of the Environmental Education Symposium for National Level School Principles. The event was co-organized by DOE and College of Technical Education, Ministry of Education. SLAAS programme is also supported by of the Institute of Environment and Development (*Institut Alam Sekitar dan Pembangunan - LESTARI*), Universiti Kebangsaan Malaysia. The purpose of SLAAS programme is to create a school environment in Malaysia that fosters the conservation and preservation of the environment. In 2005, the programme was implemented by schools throughout Malaysia.

Way Forward



1. Environmental Sustainability Roadmap

RECYCLING RATE FOR SCHEDULE WASTE

(Increase from
2020 level in %)

17%
recycling
rate

30%

35%

50%



2. Regulate E-Waste Management

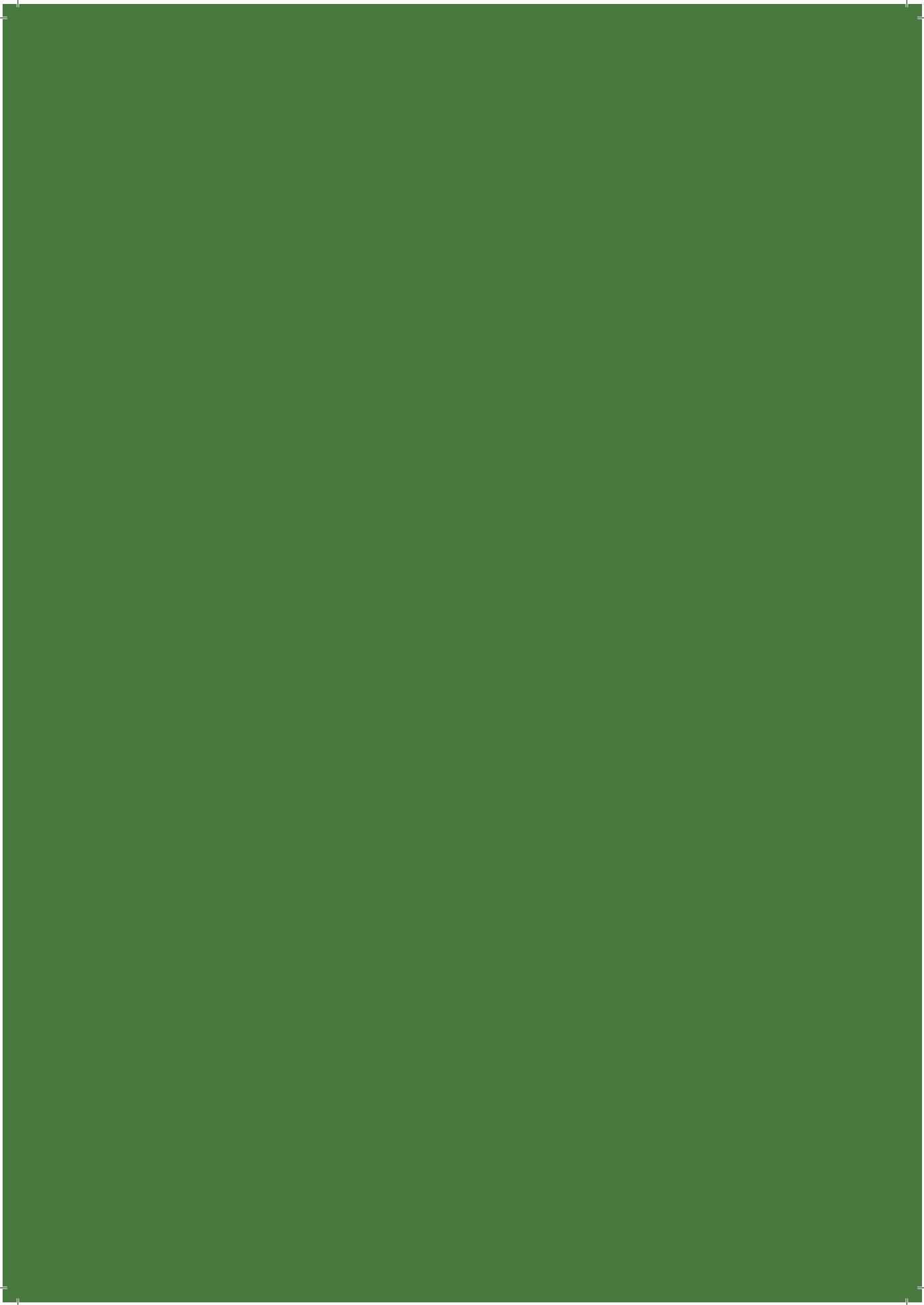


3. Reinforce Environmentally Hazardous Substances (EHS) Regulations



4. Cleaner Production Audit for Industry





CHAPTER 06

SDG



**Take Urgent Action
to Combat Climate
Change and its Impacts**

THE SDG 13 ON CLIMATE ACTION

emphasizes on strengthening the resiliency and adaptive capacity to climate-related hazards and natural disasters in all countries. It integrates climate change measure into national policies, planning, and strategies. Additionally, it also aims to improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaption, impact reduction and early warning. Moreover, the SDG 13 also promotes mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing states, including focusing on women, youth, local, and marginalized communities.



Take Urgent Action to Combat Climate Change and its Impacts



SDG 13 Target & Where We are in Achieving the Target

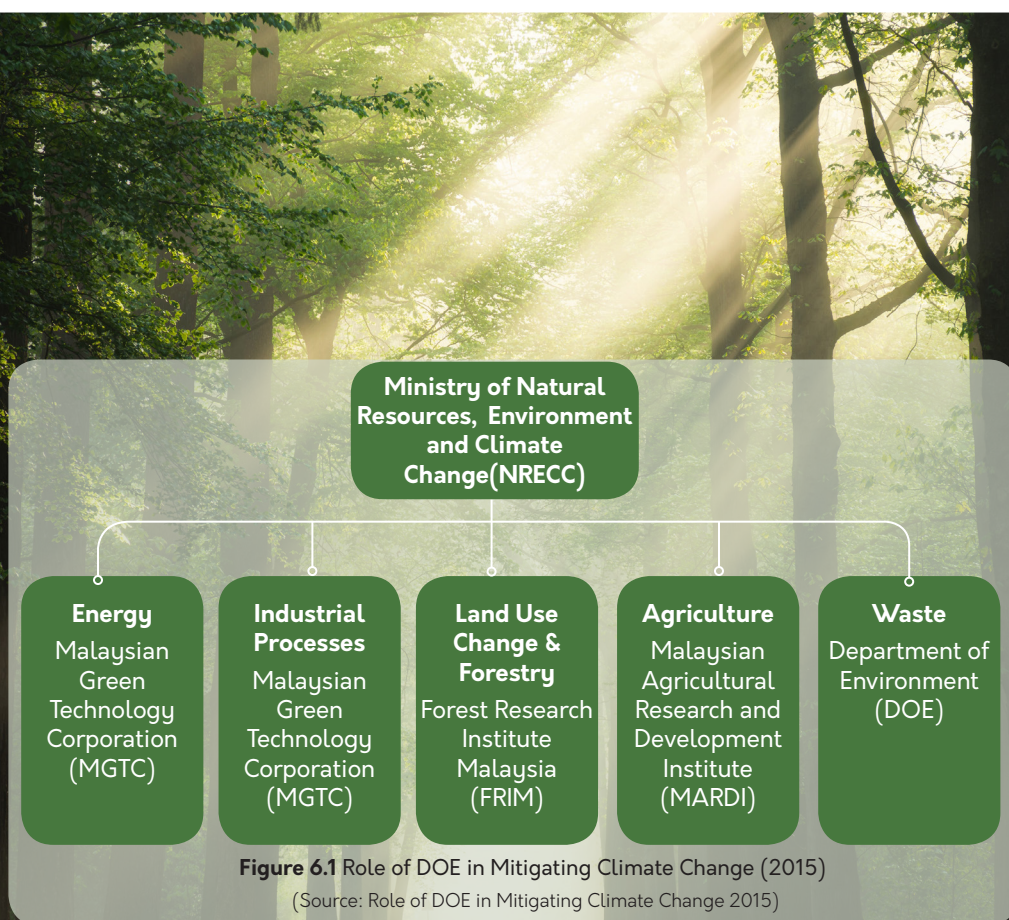


TARGET 6.1

Integrate climate change measures into national policies, strategies and planning

In achieving Target 13.2, DOE role in reducing mitigating climate change impacts is in line with the department's vision and mission. For instance, DOE works towards phasing out global warming agent such as HCFC and CFC. Other activities include green industry initiative, prevention and control of haze due to land and forest fires and open burning activities as well as commitment to various international agreements. The role of DOE in mitigating climate change is shown in **Figure 6.1**.





a. HCFC and CFC Phase Out Management Plan

The hydrofluorocarbons (HFCs) and hydrochlorofluorocarbons (HCFCs) contribute to anthropogenic global warming. These substances are up to 10,000 times more powerful greenhouse gases than carbon dioxide. There are presently restrictions on HFCs under the Montreal Protocol, which calls for the complete phase-out of HCFCs

in Malaysia by 2040. The simple substitution of HFCs for chlorofluorocarbons (CFC) does not considerably increase the rate of anthropogenic global warming because CFCs themselves are equally potent as greenhouse gases. However, over time, a steady rise in their use might constitute a potential threat to the climate. The strategy laid out by DOE in achieving total ban of HCFC by 2040 is illustrated in **Figure 6.2**.

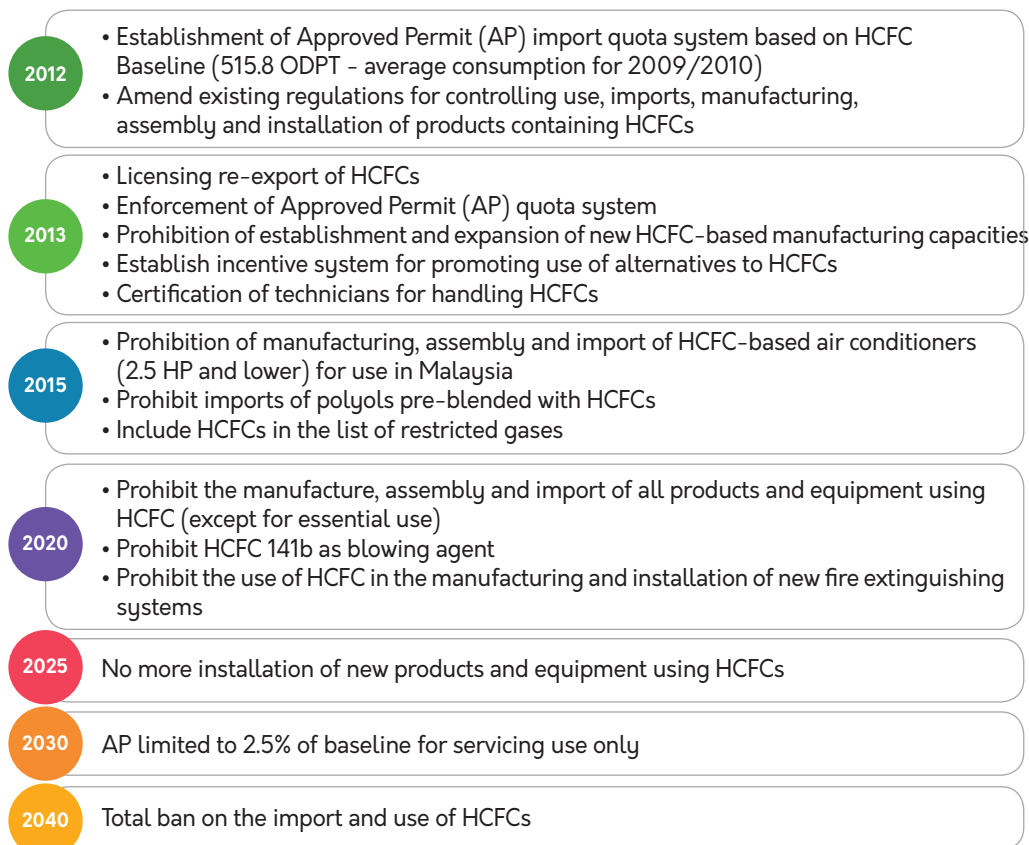


Figure 6.2: Strategy to Phase-Out HCFC

Source: Malaysia HCFC Phase-Out Management Plan (HPMP Stage-1) For Compliance with the 2013 And 2015 Control Targets For Annex-C, Group-I Substances 2012)

b. Green Industry Initiative

Through the Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977, DOE regulates the palm oil mill effluent (POME). In several states with ecologically sensitive regions, such as Sabah and Sarawak, the formerly applicable discharge limit of 100 mg/L Biochemical Oxygen Demand (BOD) has now been cut to 20 mg/L, further tightening the need for BOD level.

Therefore, in order to comply with the effluent restrictions, palm oil mills are required to

install a more advanced and efficient effluent treatment system. Anaerobic digestion is frequently used in the palm oil industry to treat POME's BOD content because of the high concentration of BOD. Consequently, the digester produces methane gas. Methane gas may be utilised as a biogas to produce energy and is one of the main causes of global warming. In order to utilise biogas and generate additional energy for internal or external usage while lowering the GHG emissions from the palm oil sector, methane has been gaining popularity.

The palm oil business is anticipated to expand over time, and POME has the potential to develop into a sustainable supply of biogas to support the renewable energy industry. It is predicted that if all palm oil mills build biogas facilities, more than 500 thousand tonnes of methane may be generated in a year which is equivalent to 3.2 million MWh of power. This can lower annual GHG emissions by over 10,000 MT CO₂ eq.



Potential Generation of Biogas from Palm Oil Mills

c. Prevention and Control of Haze due to Land and Forest Fires and Open Burning Activities

The main cause of haze, which can be local or transboundary, includes burning of biomass. Motor vehicle emissions and industry emissions are secondary sources. People's health is negatively impacted by haze pollution brought on by land and forest fires, notably respiratory illnesses and economic hardships. Additionally, forest fires have harmed peat soils, eroded biodiversity, destroyed species and habitats, and accelerated climate change. There are several methods to stop and manage haze pollution at local and regional level as shown in **Figure 6.3**. This has been regulated in the EQA 1974 Section 29A, showing Malaysian government serious participation in environmental issue pertaining to haze pollution.

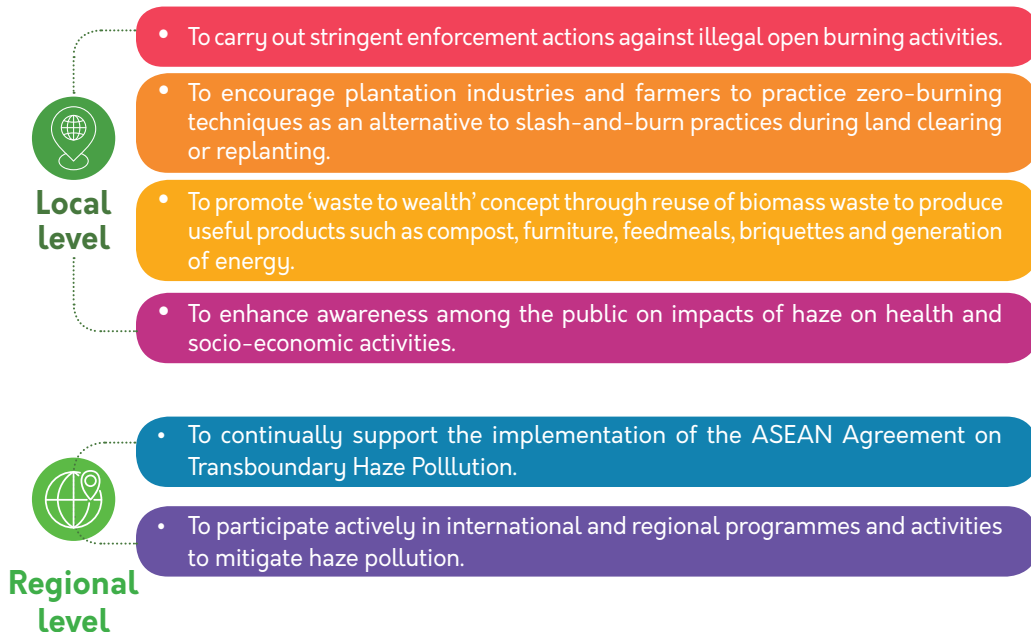


Figure 6.3 Methods to Manage Haze Pollution at Local and Regional Level

d. Montreal Protocol and Protection of the Ozone Layer

On 29 August 1989, Malaysia ratified the Montreal Protocol on Substances that Deplete the Ozone Layer and the Vienna Convention for the Protection of the Ozone Layer. Malaysia, a signatory to the Montreal Protocol, has fulfilled its responsibility to stop importing carbon tetrachloride (CTC), halon, and chlorofluorocarbons (CFC) by 2010.

Other ozone-depleting compounds, such as methyl bromide, are permitted to be used for pre-shipment and quarantine procedures starting from January 2015. Hydrochlorofluorocarbons (HCFC) are being phased out under a current plan, and imports will be completely banned by 2040 with only 2.5% permitted in the servicing industry beginning 2030.

According to the Montreal Protocol, starting in 2013, Malaysia must gradually phase out HCFC by 2040. The HCFC Phase out Management Plan (HPMP), describes the long-term strategies for the phase-out of HCFC from 2012 to 2040. Malaysia has successfully achieved the reduction target every year since 2013 which marked the beginning of the HCFC Phase Out Management Plan. The consumption reported in recent year reveals a reduction of 58% compared to the baseline which is 515.8 ODPT (Ozone Depleting Potential Tonne).

Malaysia began using a quota system for HCFC imports on 1st January 2013. Using an online "e-Permit" system, Department of Environment (DOE) processes applications for approval permits (APs), allocating the overall HCFC quota based on the baseline level or freeze limit of 515.8 ODPT (ozone depleting potential tonnes) or 7,900 metric tonnes. To process and subsequently authorise the import and export from registered importers

and exporters, the "e-Permit" online system was created. The online portal serves as a link between the DOE, HCFC importers and exporters and the Custom Information System.

e. Kigali Amendment (Montreal Protocol)

Malaysia ratified the Kigali Amendment under the Montreal Protocol on substances that deplete the ozone layer under the Vienna Convention for protecting the ozone layer in October 2020. The ratification indicates the country's commitment in protecting the environment from damaging factors of the ozone layer and climate change. The Kigali Amendment came into force on 1 January 2019. Until now, there are 123 countries which have ratified Kigali Amendment. It also serves as an obligation to the Montreal Protocol in reducing the use of Hydrofluorocarbons (HFCs), a substance with high Global Warming Potential (GWP) that is used as an alternative to HCFCs.

The Kigali Amendment mentions Malaysia as a state party under Article 5 (Group 1). This translates to the requirement that Malaysia is required has to reduce 80% of HFC consumption from the 2045 baseline. The calculation of HFC baseline freeze limit is based on the average HFC consumption in 2020 and 2022 with an addition of 65% of the HFC baseline usage. It is aimed that total ban on the use of HFC at baseline in Malaysia to begin on 1 January 2024.

f. ASEAN Agreement on Transboundary Haze Pollution (AATHP)

The ASEAN Agreement on Transboundary Haze Pollution (AATHP) was initiated to monitor and prevent transboundary haze pollution which is caused by land and/or forest fires. This is achieved by concerted

national efforts as well as intensified regional and international cooperation. The Agreement contains measures on monitoring and assessment, prevention, preparedness, national and joint emergency response, procedures for deployment of people,

materials, and equipment across borders, and technical cooperation and scientific research.

Among the commitments shown by DOE as host for the meetings in regard to AATHP are shown below:

11 August
2016

12th Meeting of the Conference of the Parties (COP-12) in Kuala Lumpur, Malaysia.

During this meeting, the Parties had agreed to adopt the Roadmap on ASEAN Cooperation towards Transboundary Haze Pollution Control with Means of Implementation. The strategic roadmap is an action-oriented, and time-bound framework to implement the collaborative actions in controlling transboundary haze pollution in the ASEAN region. The Parties also unanimously agreed to the vision of Transboundary Haze-free ASEAN by 2020.

5 Jun
2022

23rd Meeting of The Sub Regional Ministerial Steering Committee Transboundary Haze Pollution (23rd MSC)

The meeting which aimed to obtain a resolution on cross-border haze issues and cooperation implemented between ASEAN countries was chaired by Dato Seri Tuan Ibrahim Tuan Man, then Minister of Environment and Water. The Chief of Malaysian Delegation was Dato' Mansor Haji Othman, then Deputy Minister of Environment and Water. It was attended by Minister of Environment from 5 ASEAN countries, Heads of Department from agencies such as NADMA, MET Malaysia, KLN, MYSA, DOA, KETSA, JPSM, and AGC.



TARGET 13.3

Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

DOE conducted awareness programme on climate change mitigation which aims to achieve knowledge enhancement, and public awareness to achieve Target 13.3. Apart from these contributions, DOE takes numerous approaches towards climate change mitigation in their efforts to help Malaysia move towards a low-carbon and developed society.

a. World Ozone Day

The United Nations declared 16 September as International Ozone Day for the Preservation of the Ozone Layer to commemorate the date of the Montreal Protocol Agreement on the Control of Ozone Depleting Substances which was signed on 16 September 1987.



Celebration of World Ozone Day 2021 via Online

In 2021, DOE organized the celebration online for the first time in the country's history. The theme for World Ozone Day 2021 was "Montreal Protocol-Keeping Us, Our Food and Vaccines Cool" which represents the effectiveness of the Montreal Protocol in ensuring that the ozone layer is always preserved. It is also to appreciate Montreal

Protocol's impact on the betterment of life, especially in regards to the process of food storage and vaccines.

b. Ozone Bulletin

Apart from organizing World Ozone Day, the DOE also publishes an Ozone Bulletin to continue efforts to educate the public



in Malaysia. This publication discusses the current issues happening in this country related to the issue of climate change. DOE also successfully organized a series of trainings, workshops, and briefings for the related parties where these training sessions and briefings were also presented in the Ozone Bulletin.

In fact, the content of the Ozone Bulletin also highlights current statistics on ozone activities to give awareness to the public about the status of HCFC reduction and others.

Way Forward



1. National commitment to Montreal Protocol & Kigali Amendment



2. Total ban of HCFC by 2040

CHAPTER 07

SDG



**Conserve and Sustainably
Use the Oceans, Seas and
Marine Resources for
Sustainable Development**

A full-page background image of a sunset over the ocean. The sky is a mix of orange, yellow, and grey, with some clouds. The ocean is dark with white-capped waves. In the center, there is a white rectangular box containing text.

THE SDG 14 ON LIFE BELOW WATER

highlights the prevention and reduction of marine pollution of all kinds, in particular from land-based activities, including marine debris and nutrient pollution. Moreover, the target of this goal is to sustainably manage and protect marine and coastal ecosystems to avoid significant adverse impacts, including by strengthening their resilience, and take action for their restoration in order to achieve healthy and productive oceans.

Conserve and Sustainably Use the Oceans, Seas and Marine Resources for Sustainable Development



A vital role has been played by DOE in monitoring the marine water quality since 1978 in Peninsular Malaysia and since 1985 in Sabah and Sarawak. The monitoring programme's main goal is to evaluate the state of the marine water quality to determine how much pollution is derived from both land and sea-based sources. Both the sustainability of ecosystem health and the biodiversity of the marine environment are under threat from the sources of pollution.

a. Malaysian Marine Water Quality Standard (MMWQS)

The Malaysian Marine Water Quality Standards (MMWQS) are ambient standards that place an emphasis on the preservation and sustainability of the aquatic ecosystem as well as the significance of ecosystems for

society. The Standard also aims to achieve this goal in a way that is economical, practical, and relevant to society.

MMWQS application is based on pre-determined classification of the marine waters of interest as described in **Figure 7.1**.

MALAYSIAN MARINE WATER QUALITY STANDARDS (MMWQS)						
PARAMETER (µg/l) unless otherwise stated	CLASSIFICATION					
	CLASS 1	CLASS 2	CLASS 3	INTERIM CLASS E1	INTERIM CLASS E2	INTERIM CLASS E3
	Sensitive Marine Habitats	Fisheries (including Mariculture)	Industry, Commercial Activities & Coastal Settlements	Estuaries		
				Coastal Plain	Lagoon	Complex Distributary Network
Dissolved Oxygen (mg/l)	>6.0	>5.0	>3.0	>5.0	>5.0	>5.0
Total Suspended Solids (mg/l)	25.0	50.0	100.0	30.0	30.0	30.0
Phosphate	5.0	75.0	670.0	100.0	180.0	180.0
Nitrate	10.0	60.0	700.0	200.0	570.0	430.0
Ammonia	35.0	50.0	320.0	5.0	10.0	10.0
Mercury	0.04	0.04	0.04	0.04	0.04	0.04
Cadmium	0.50	2.00	3.00	1.00	1.00	1.00
Chromium (VI)	0.14	10.00	20.00	10.00	10.00	10.00
Copper	1.30	2.90	8.00	1.00	1.00	1.00
Cyanide	2.00	7.00	14.00	5.00	5.00	5.00
Lead	2.20	8.50	12.00	1.30	2.00	2.00
Zinc	7.00	50.00	100.00	16.00	5.00	5.00
Arsenic (III)	1.00	3.00	3.00	3.00	1.00	1.00
Aluminium	27.00	27.00	55.00	27.00	27.00	27.00
TBT	0.001	0.010	0.050	0.002	0.002	0.002
PAH	100.0	200.0	1000.0	5.0	5.0	5.0
Total Phenol	1.0	10.0	100.0	10.0	10.0	10.0
Oil & Grease mg/l	0.01	0.14	5.00	1.00	1.00	1.00
Faecal Coliform (Cfu/100ml)	70	70	70	70	70	70
Temperature (°C)	≤ 2°C increase over maximum ambient					
pH	6.5 - 9.0					
Marine litter	Free from marine litter					

Figure 7.1 Classes of MMWQS

(Source: Malaysian Marine Water Quality Standards and Index 2021)

The predeterminant of marine water classification based on its environmental use forms the basis of MMWQS application. A marine water quality status is described by the MMWQS as an amalgamation of the most important marine water quality

metrics. six (6) water quality parameters which are dissolved oxygen, faecal coliform, unionised ammonia, nitrate, phosphate, and total suspended solid are used to calculate the index as shown in **Figure 7.2**.

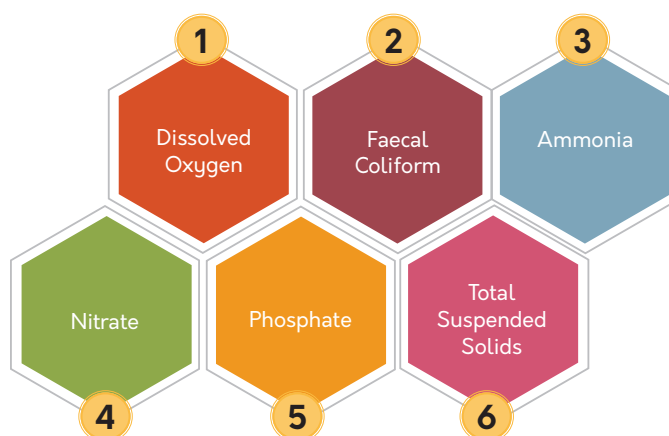


Figure 7.2 Water Quality Parameters for MMWQS
(Source: Malaysian Marine Water Quality Standards and Index 2021)

The MMWQS is graded from 0 to 100, whereas 100 signifying excellent water quality and 0 representing poor water quality.

The marine water quality monitoring component of the Environmental Quality Monitoring Program (EQMP) consists of 368 manual marine water quality monitoring (MMWQM) stations located throughout the country. Out of the marine water quality monitoring stations that are located in coastal, estuarine, and island locations around the country, 188 coastal stations, 85 estuary stations, and 95 island stations were monitored. Each monitoring station had 6 different sampling frequencies, totaling 1127 samples for coastal stations, 509 samples for estuary stations, and 565 samples for island stations. Based on the MMWQS, the samples were analysed, and the findings were concluded as either excellent, good or moderate quality in most of the marine water quality monitoring stations. Malaysian marine water quality index (MMWQI) category is as described in **Figure 7.3**.

CATEGORY	INDEX VALUE
Excellent	90 - 100
Good	80 - <90
Moderate	50 - <80
Poor	0 - <50

Figure 7.3 MMWQI Classification
(Source: Malaysian Marine Water Quality Standards and Index 2021)

b. Marine Water Quality Monitoring

Marine water quality monitoring is conducted in 2 methods which are continuous, and manual monitoring. For manual monitoring method, there are 3 classified groups of monitoring stations established under the Marine Water Quality Monitoring Programme which is described in **Figure 7.4**.



Figure 7.4 Classified Groups of Manual Monitoring Stations
(Source: Malaysian Marine Water Quality Standards and Index 2021)

Coastal station's possible point source must be at least 500 meters distant from coastal stations, which are situated along the shoreline roughly 100 meters from the water's edge. Estuary stations are situated in an estuary setting where freshwater and

seawater combine. Riverine ecosystems have an effect on estuarine stations. Island stations are further broken down into four groups: Island (Protected Area), Island (Marine Park), Island (Development) and Island (Resorts) as shown in **Figure 7.5**.

Classified Groups of Island Stations

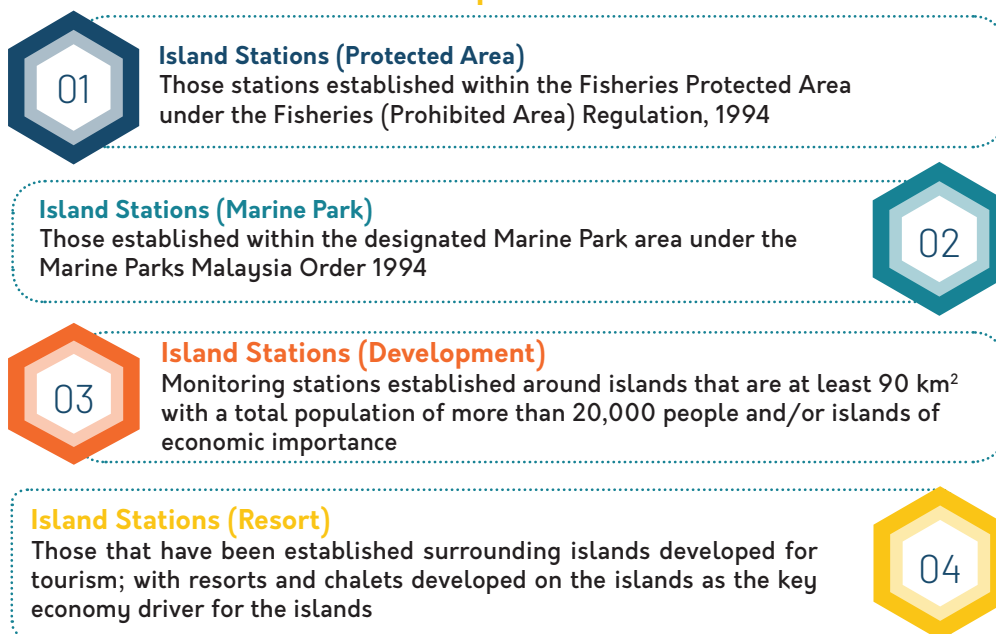


Figure 7.5 Classified Groups of Island Stations
(Source: Malaysian Marine Water Quality Standards and Index 2021)



c. Straits of Malacca and Singapore Revolving Fund Committee (RFC)

Straits of Malacca and Singapore Revolving Fund Committee (RFC) was established on 11 February 1981 to combat oil spills from ships that pass through the Straits of Malacca and Singapore. The Fund is administered based on a rotation among the 3 littoral countries which are Malaysia, Singapore and Indonesia. In each sequence, the country will be responsible for managing the RFC fund for 5 years, before handing over the management of the fund to the next country after the sequence period ends. RFC fund was administered by DOE and chaired by the Director General of DOE for a duration of 5 years.

On 6 July 2021, DOE Deputy Director General (Operation) officiated the Virtual Revolving Fund Brainstorming Workshop of Oil Spill Response Exercise which was attended by representatives from 3 littoral states – Indonesia, Malaysia and Singapore.

The online workshop discussed on storyline of Oil Spill Response Exercise as well as brainstorming session among the participants. Based on this workshop, the 3 littoral states came to decide on hybrid program of Oil Spill Response Exercise on 5 – 6 October 2021 which comprised seaward and landward activities, as well as mobilization and response at the National Level according to respective National Contingency Plan.

Other important decisions on the Joint Oil Spill Exercise were:

- a) Activation of Standard Operating Procedure (SOP) for Joint Oil Spill Combat in the Straits of Malacca and Singapore, in particular testing notification and response
- b) Exercise plan such as location, scenario, Oil Spill Response Equipment (OSRE) and related agencies involved to be developed by appointed Person in Charge (PIC)
- c) Confirmation of operation area at respective territorial water which indicates no activities across the border of other Littoral States
- d) Provision of expenditure of RM100,000 to each Littoral States. Respective Littoral States are to provide the list of expenditure and advise transfer arrangement.
- e) Exercise report must be submitted to RFC Malaysia Secretariat prior to the RFC Technical Meeting.

d. Malaysia Oil Spill Contingency Plan (MOSCoP)

National Oil Spill Contingency Plan (NOSCP) was initially set up to combat oil spills in the Straits of Malacca in 1975. The Plan was improved in 1989 and 2000 to also cover the East Coast of Peninsular Malaysia and Borneo (Sabah, Sarawak, and Federal Territory of Labuan). The NOSCP has been rebranded as Malaysia Oil Spill Contingency Plan (MOSCoP) in 2021. DOE has been appointed as lead agency for maritime disasters involving oil spill incident at sea while Malaysia Marine Department (MARDEP) as On Scene Commander at Tier 2 and Tier 3. MARDEP is responsible for providing technical advice related to vessels involved in oil spill incident and lead the task

of collecting oil spill waste in the incident area. In the event of a transboundary oil spill or any oil spill incidents beyond the control of state capability, the National Oil Spill Operation Committee (NOSC) is responsible to coordinate the relevant actions. NOSC comprises of representatives from 23 government agencies and private sectors related to maritime disaster lead by DG of DOE. MOSCoP consists of 3 Tier Response System as shown in **Figure 7.6**.

Tier 1

• Local Response

Small spill within the port/facilities limit.

Local resources and equipments are utilized

Tier 2

• State Response

Spill that has gone beyond the control of local response and requires resource support from neighbouring states

Tier 3

• Regional Response

Major spill which requires assistance from neighbouring countries or when spill spreads to waters of neighbouring country

e. Reclamation Project Monitoring

Like any other nations, the greatest way to increase coastal areas in Malaysia for economic expansion is through land reclamation. The need to construct infrastructure, residential areas, recreational areas, tourist attractions, and the hub of commerce and business is driven by the growing population as well as the reclamation process. The coastal of Malaysia is estimated to be 510,510 km², with various types of shoreline structure and characteristics. Peninsular Malaysia's east coast is mostly made up of sandy beaches, whereas the west coast features a coastal plain mostly of marine clay that is dotted with sandy beaches and rocky shore line. Since Peninsular Malaysia's develop regions are largely situated along the shore, reclaiming the coastal areas that are characterised by sandy beach and mud flats as one way to expand the available land.



Environmental Impact Assessment (EIA) was introduced in Malaysia as a mandatory legislative requirement in 1988 by DOE. The main goal of EIA is to describe the important effects that might result from any activity and to keep an eye on how development activities are being prepared.

Figure 7.6 MOSCoP 3 Tier Response System

Before any project begins, the Director-General of the DOE will formally evaluate the EIA report. A coastal reclamation project covering more than 50 hectares is required by Section 34A (2) to submit an EIA report, which is a planning tool used to assess the environmental effects of big projects or development activities. To prevent further environmental deterioration, DOE has introduced EIA guidelines for Coastal Land Reclamation 2008. In contrast to the advantages of the long-term sustainability of the coastal resources and the quality of human habitation for the local community, the report must give a full evaluation of the costs and benefits of the planned development area.

In addition, Environmental Management Plan (EMP) must be prepared before starting of any reclamation works. All recommendations in the EMP with relation to monitoring and auditing should also be implemented and reported to the DOE. To ensure compliance with all environmental standards and to prevent negative environmental effects, the monitoring programme must be carried out in accordance with the EIA approval conditions.

f. National Physical Plan-3 (NPP 3)

Coastal area is considered as part of environmentally sensitive area which calls for protection due to its high natural heritage value. Although the coastline is known as an important part for various uses in this country, the area is often exposed to high risk of erosion as well as rising of sea level due to global warming impacts. Realizing the necessity of conserving the coastal area, Malaysian government shows its commitment by putting together National Physical Plan-

3 (NPP 3). Thrust 2 of the NPP 3 mentions about Spatial Sustainability and Climate Change Resilience while the Action KD2.2b in the Plan highlights on the Conservation of Coastal Areas.

g. Plan Malaysia for Coastal Areas: The National Asset

Coastal area is defined as an area with a coastline as far as 5km inland from the high tide and 3 nautical miles seaward from the lowest low tide line. **Figure 7.7** illustrates the major land uses in coastal areas all over Malaysia.

Major Land Uses In Coastal Areas

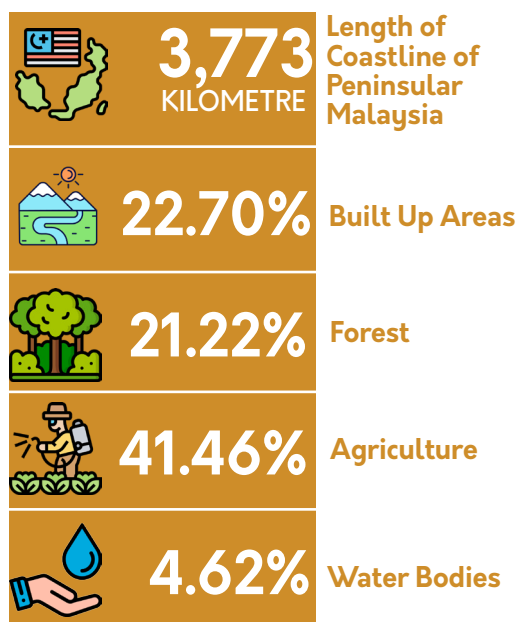


Figure 7.7 Major Land Uses in Malaysian Coastal Areas (Source: PLANMalaysia, Coastal Areas: The National Asset)



► Way Forward



1. Strengthening marine enforcement

CHAPTER 08

SDG



Protect, Restore, and Promote Sustainable Use of Terrestrial Ecosystem, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss

A photograph of a small, vibrant green plant with several long, thin leaves growing out of a patch of dry, cracked, and textured brown soil. The background is a vast, flat, arid landscape under a clear, bright blue sky. The lighting suggests a sunny day, with shadows cast on the cracked earth.

THE SDG 15 A FLOURISHING LIFE ON LAND

is the foundation for our life on this planet. Human beings have all contributed to the destruction of the planet's ecology via deforestation, destruction of natural ecosystems, and land degradation. The solution lies in promoting the sustainable use of ecosystems and safeguarding biodiversity. More than 80% of all land-based species reside in the forests, and thanks to the remarkable ecosystems, human beings can all breathe, eat, and live. However, the planet and all its life is steadily being destroyed through deforestation and global warming.

Protect, Restore, and Promote Sustainable Use of Terrestrial Ecosystem, Sustainably Manage Forests, Combat Desertification, and Halt and Reverse Land Degradation and Halt Biodiversity Loss



The SDG 15 on Life on Land underlines the various targets to be achieved by 2030. The main focus of SDG 15 is working together to preserve, restore, and promote the forests, plants, animals and insects that make up the world. The human populations across the world can sustainably manage forests, reduce biodiversity loss, fight desertification, and reverse land degradation by concentrating on the improvements that can be done today to benefit the future.

SDG 15 Target & Where We are in Achieving the Target



TARGET 15.3

By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world



TARGET 15.5

Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species

In order to achieve Target 5.3 and 5.5, DOE has implemented several activities such as proper waste management, enforcement of EIA, and Contaminated Land Management and Control Guidelines

a. Environmentally Sound Management

To date, overconsumption has become the norm, therefore the rising amount of waste is no longer a novelty. The growing amount of waste also has negative impact on forests and animals along with the major cities and residential areas. The quality of the forest and ecosystem should not be neglected. Oftentimes, human beings overlook the possible negative effects that polluted natural resources could have on everyone.

Waste management had been handled in a cradle-to-grave concept in yesteryears – which refers to the handling hazardous waste from the point it is generated to its disposal. The cradle-to-grave concept states that every

waste generator should be held responsible when the waste is produced and ensure that it is disposed of in the right way so that the waste will not give adverse effect to human beings as well as the environment. However, the concept of cradle-to-cradle was introduced and later used in waste management to ensure sustainable life style – hence making sure that every generation of waste in the industry is reused, and recycled wherever possible so as to make a complete cycle of a product's life. By doing so, the amount of waste generated will tremendously reduce, hence it will not pollute the environment.

In accordance to EQA 1974, DOE is responsible to ensure that waste processes are being strictly followed by all applicable environment protection laws and guidelines. DOE has also increased its efforts to reduce all hazardous waste. Based on Environment Quality Act 1974, the main focus of hazardous waste management law is to reduce the waste



generation and improve waste management practices. DOE has brought together MyEwaste application aligned with commitment to raise the quality of services provided to people. This application helps individual and organizations to understand the sense of waste management to protect the environment. Along with other agencies, DOE also plays its vital role towards zero single use plastic for cleaner and healthier environment which will assist to protect our ecosystem in Malaysia by 2030.

b. Enforcement of Environmental Impact Assessment (EIA)

The Environmental Impact Assessment (EIA) has been in practise in Malaysia since 1988 as a measurement tool for industries to achieve sustainable development. EIA reports are to be submitted to DOE by project developer.

In Malaysia, EIA is required under Section 34A, Environmental Quality Act (EQA) 1974 Sect 34A. EQA 1974 empowers the Minister of Environment, to prescribe the activities that have significant impact on the environmental as a Prescribed Activity.

Activities subject to EIA in First and Second Schedule are prescribed under Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015 with categories of projects are listed as Prescribed Activities. The First Schedule project categories are agriculture, aerodrome, drainage and irrigation, fisheries, forestry, industry, land reclamation, mining, petroleum, port, power generation and transmission, coastal and hill area development, development in slope areas, waste treatment and disposal, dredging, housing, industrial estate development, new town, quarries, road, and water supply.

Meanwhile, under the Second Schedule are projects such as agriculture, aerodrome, drainage and irrigation, fisheries, forestry, industry, land reclamation, mining, petroleum, port, power generation and transmission, development in coastal areas, national parks and state parks, development in slope areas, waste treatment and disposal, dam construction, transportation, and radioactive materials and radioactive waste.

c. Contaminated Land Management and Control Guidelines

No 1: Malaysian Recommended Site Screening Levels for Contaminated Land

DOE also conduct the enforcement of contaminated land whereby the provision of law is conducted through Contaminated Land Management and Control Guidelines No 1. The Guideline ensures consistent framework in the management of contaminated lands in Malaysia. The framework of contaminated land management is shown in **Figure 8.1**. There are 3 Guideline documents that have been published by the DOE to ensure the effectiveness of the implementation of contaminated land management in this country.

- Contaminated Land Management and Control Guidelines No. 1: Malaysian Recommended Site Screening Levels for Contaminated Land
- Contaminated Land Management and Control Guidelines No. 2: Assessing and Reporting Contaminated Sites
- Contaminated Land Management and Control Guidelines No. 3: Remediation of Contaminated Sites

DOE adheres to strict requirement of the

consultants or individuals involved in the assessment and remediation of the contaminated land management. Qualified personnel required in this field are Registered Environmental Site Assessor (RESA), Registered Qualitative Risk Assessor (RQRA),

Registered Risk Assessment Specialist (RRAS), Registered Remediation Specialist (RRS), Registered Remediation Project Manager (RRPM), and Registered Contaminated Land Manager (RCLM).

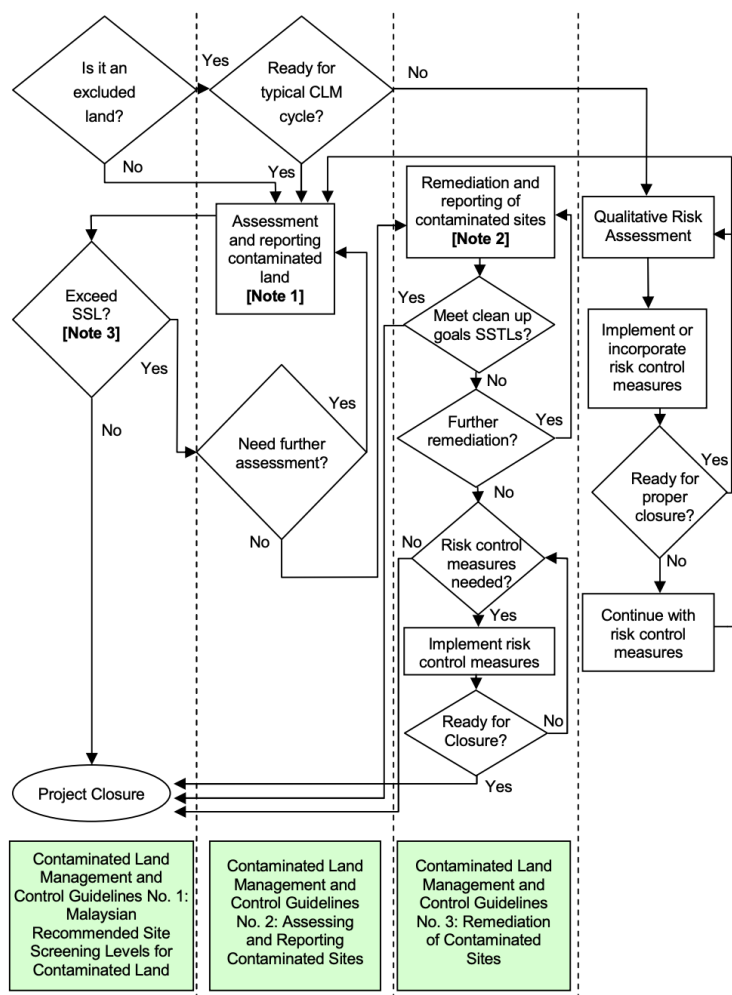


Figure 8.1 Flowchart of the Contaminated Land Management Framework

Source: Contaminated Land Management and Control Guidelines No. 1: Malaysian Recommended Site Screening Levels for Contaminated Land 2009)

CHAPTER 09

SDG

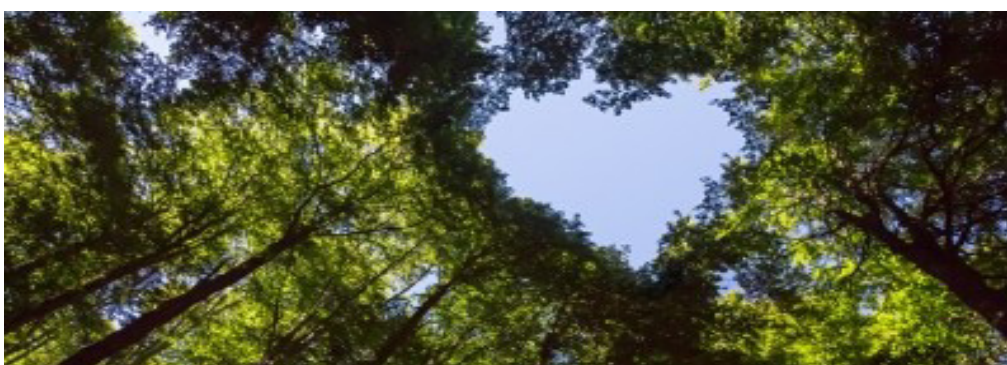


Promote Peaceful and Inclusive Societies for Sustainable Development, Provide Access to Justice for All and Build Effective, Accountable, and Inclusive Institutions at All Levels



THE AIM OF SDG 16 is to provide peace, justice and strong institutions to the World by 2030. Its goal mainly focuses to significantly reduce all forms of violence and related death rates everywhere to end abuse, exploitation, trafficking and all forms of violence against and torture of children, to promote the rule of law at the national and international levels and ensure equal access to justice for all. Apart from that, SDG 16 also significantly reduce illicit financial and arms flows, strengthen the recovery and return of stolen assets and combat all forms of organized crime. It also aims to substantially reduce corruption and bribery in all forms, develop effective, accountable and transparent institutions at all levels, as well as to ensure responsive, inclusive, participatory and representative decision-making at all levels. It is also targets to broaden and strengthen the participation of developing countries in the institutions of global governance.

Promote Peaceful and Inclusive Societies for Sustainable Development, Provide Access to Justice for All and Build Effective, Accountable, and Inclusive Institutions at All Levels



Further to that, SDG 16 also aims to strengthen relevant national institutions, through international cooperation to build capacity at all levels, particularly in developing countries, to prevent violence and combat terrorism and crime. It also ensure public access to information and protect fundamental freedoms, in accordance with national legislation and international agreements, promotes and enforces non-discriminatory laws and policies for sustainable development.

SDG 16 Target & Where We are in Achieving the Target



TARGET 16.3

Promote the rule of law at the national and international levels and ensure equal access to justice for all



TARGET 16.6

Develop effective, accountable and transparent institutions at all levels





TARGET 16.7

Ensure responsive, inclusive, participatory and representative decision-making at all levels



TARGET 16.B

Promote and enforce non-discriminatory laws and policies for sustainable development

As a sovereign country, Malaysia supports the rule of law where responsible agencies will always ensure that the law is implemented to safeguard the country's prosperity. In this regard, DOE is responsible as a national agency to maintain the sustainability of the country's environment through the effective implementation of the Environmental Quality Act (EQA) 1974.

a. Enforcing Environmental Quality Act (EQA) 1974 and Its Regulations for Sustainable Environmental Development

There are many environmental related legislations controlled by few ministries

and departments in Malaysia. However, Environmental Quality Act (EQA) 1974 is the most important environmental law in the country. Malaysia faced environmental pollution in exploration of natural resources through logging and mining activities in the late 1950s. Despite the speedy development, environmental problems were growing and required to be highlighted efficiently through the legislation. To discourse numerous environmental issues that arise, the government of Malaysia introduced the EQA 1974 on 15th April 1975. Department of Environment (DOE) was established to enforce the EQA 1974 as illustrated in **Figure 9.1**.

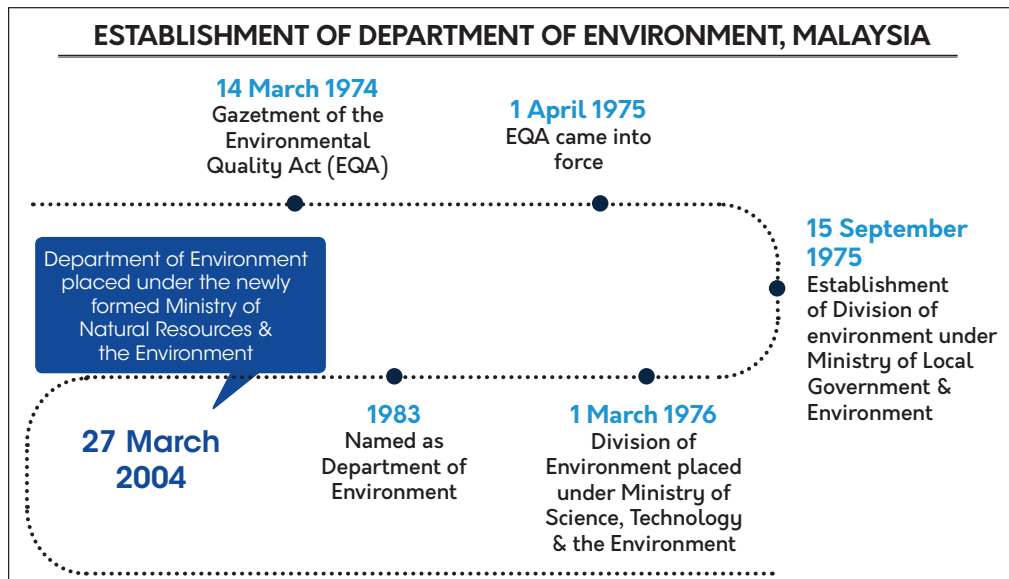


Figure 9.1 Establishment of DOE
(Source: DOE Strategic Plan 2021 - 2030)

The objectives of this Act are to prevent, eliminate, control pollution, and improve the environmental quality through the enforcement of Environmental Quality Act

(EQA) 1974 and its subsidiary legislations. List of subsidiary Environment Regulations and Order under EQA 1974 is as below (**Figure 9.2**):

Air Pollution Control

- Environmental Quality (Control of Lead Concentration in Motor Gasoline) Regulations 1985
- Environmental Quality (Motor Vehicle Noise) Regulations 1987
- Environmental Quality (Prohibition on The Use of Chlorofluorocarbons and Other Gases as Propellants and Blowing Agents) Order 1993
- Environmental Quality (Control of Emission from Diesel Engines) Regulations 1996
- Environmental Quality (Control of Emission from Petrol Engines) Regulations 1996
- Environmental Quality (Halon Management) Regulations 1999
- Environmental Quality (Compounding of Offences) (Open Burning) Rules 2000
- Environmental Quality (Delegation of Powers) (Investigation of Open Burning) Order 2000
- Environmental Quality (Delegation of Powers) (Halon Management) Order 2000
- Environmental Quality (Declared Activities) (Open Burning) Order 2003
- Environmental Quality (Control of Emission from Motorcycles) Regulations 2003
- Environmental Quality (Control of Petrol and Diesel Properties) Regulations 2007
- Environmental Quality (Refrigerant Management) Regulations 2020
- Environmental Quality (Clean Air) Regulations 2014
- Environmental Quality (Refrigerant Management) Regulation 2020
- Environmental Quality Regulations (Petrol and Diesel Content Control) (Amendment 2021)

Figure 9.2 List of Subsidiary Environment Regulations and Order under EQA 1974



Water Pollution Control

- Environmental Quality (Delegation of Powers on Marine Pollution Control) Order 1993
- Environmental Quality (Delegation of Powers on Marine Pollution Control) Order 1994
- Environmental Quality (Prohibition on The Use of Controlled Substance in Soap, Synthetic Detergent and Other Cleaning Agents) Order 1995
- Environmental Quality (Sewage) Regulations 2009
- Environmental Quality (Control of Pollution from Solid Waste Transfer Station and Landfill) Regulations 2009
- Environmental Quality (Industrial Effluent) Regulations 2009
- Environmental Quality (Delegation of Powers) (Investigation on Erosion and Sediment Control) Order 2012

Figure 9.2 List of Subsidiary Environment Regulations and Order under EQA 1974

Scheduled Waste Management

- Environmental Quality (Licensing) Regulations 1977
- Environmental Quality (Prescribed Conveyance) (Scheduled Wastes) Order 2005
- Environmental Quality (Scheduled Wastes) Regulations 2005
- Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Order 1989
- Environmental Quality (Prescribed Premises) (Scheduled Wastes Treatment and Disposal Facilities) Regulation 1989

Others

- Environmental Quality (Prescribed Premises) (Crude Palm Oil) Order 1977
- Environmental Quality (Prescribed Premises) (Crude Palm Oil) Regulations 1977
- Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Order 1978
- Environmental Quality (Prescribed Premises) (Raw Natural Rubber) Regulations 1978
- Environmental Quality (Compounding of Offences) Rules 1978
- Environmental Quality (Appeal Board) Regulations 2003
- Environmental Quality (Delegation of Powers) Order 2005
- Environmental Quality (Prescribed Activities) (Environmental Impact Assessment) Order 2015

Figure 9.2 List of Subsidiary Environment Regulations and Order under EQA 1974

b. Public involvement during EIA process

The EIA process helps to identify the environmental impact that is likely to occur as a result of the proposed activity and how certain parties can reduce the impact on the environment. EIA aims to inform decision makers and the public about the environmental consequences of the implementation of proposed projects.

From this EIA process, it can be seen that DOE takes into account the interests of the public in matters related to the impact on the environment that will occur as a result of a project. Through the application that has been introduced by DOE, the public can find out near real time environmental quality data through public display such as Air Pollutant

and Marine Water Quality Index Management System (MQIMS).

c. Enforcement Actions

DOE has brought a number of offenders to justice who were involved in directly or indirectly in harming the environment by violating this Act through number of enforcement actions and penalties under the Environmental Quality Act (EQA) 1974. DOE has significantly increased the penalty fines as high as RM500,000 and imprisonment term has also been increased from 2 years to 5 years or both. Scope of enforcement conducted by DOE is as shown in **Figure 9.3**.

Guided Self-Regulation (GSR)

Guided Self-Regulation (GSR) has been identified and proposed by DOE as a new



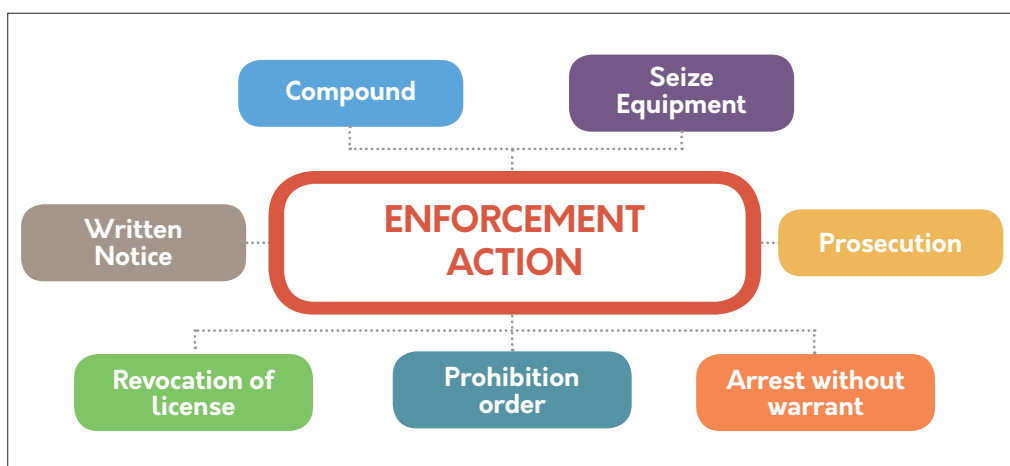


Figure 9.3 Flowchart of enforcement actions by DOE

approach to monitor motor vehicles' emission in Malaysia. Thus far, DOE has been practising GSR in controlling point source pollution. The industrial sector has been given the responsibility of maintaining pollution control equipment in which the industry needs to closely monitor the compliance of their emission standards. Existing standard operating procedures (SOP) have been improved to adopt the GSR approach as the best available way to control pollution from motor vehicles. The GSR approach targets greater responsibility on the part of the vehicles' owner to do maintenance and inspection (M&I) of their own vehicles.

Environment Mainstreaming Tools (EMT)

Environmental mainstreaming translates to the infusion of environmental agenda at all levels in organizational structure of the industrial sector. In achieving required results from environmental management, collaborative efforts from organization's top management to general workers are needed.

All key personnel should carry out their task and roles successfully.

To date, infusion of environmental mainstreaming in Malaysian industries to promote and instil selfregulation has been successfully translated into regulatory requirements on performance monitoring of pollution control measures, scheduled reporting, record-keeping, appointments of competent persons and involvement of environmental professionals playing specific roles in pursuing environmental excellence. The EMT implementation has managed to control the pollution in industrial sector. Positive results have been shown in operation of pollution control system, prevention of pollution control failures, cost saving in pollution control operation, systematic performance monitoring data management, and improved regulatory compliance.

To achieve the main objective of self-regulation, DOE has formulated a set of EMT to be

implemented in organizations and industrial premises. The EMTs include Environmental Policy, Environmental Budgeting, Environmental Monitoring Committee, Environmental Facility, Environmental Competency, Environmental Reporting and Communication, and Environmental Transparency.

Rigorous implementation of EMTs by industries has shown the desired result to achieve organizational role in pollution control. EMT's inclusion in project planning as well as its implementation is key in achieving the self-regulation goal. There are 7 elements of EMTs tools under the GSR approach as shown in **Figure 9.4**.

Smart Enforcement through Drones' Usage

DOE's current monitoring activities are further strengthened by the use of drones. Surveys using drones facilitate the work of DOE officers to get a clear picture of areas that are difficult to access, especially when monitoring at night.

The concept of smart enforcement through drones' usage proves that DOE is constantly improving the efficiency and skills of its officers through the mastery of the latest technology.

Electronic Scheduled Waste Information Systems (eSWIS)

Electronic Scheduled Waste Information Systems (eSWIS) is an online portal developed by DOE which allows users to fill up the scheduled waste consignment and inventory details. Apart from that it is also used by registered users to review the submitted consignment note for transfer and receiving. There are 2 types of users for eSWIS which are private agency with approved DOE file number and government agency. eSWIS helps to track scheduled waste so that it is easier to find out about the culprit of schedule waste's illegal dumping.

There are 4 primary roles in eSWIS: Admin, Waste Generator (WG), Waste Transporter

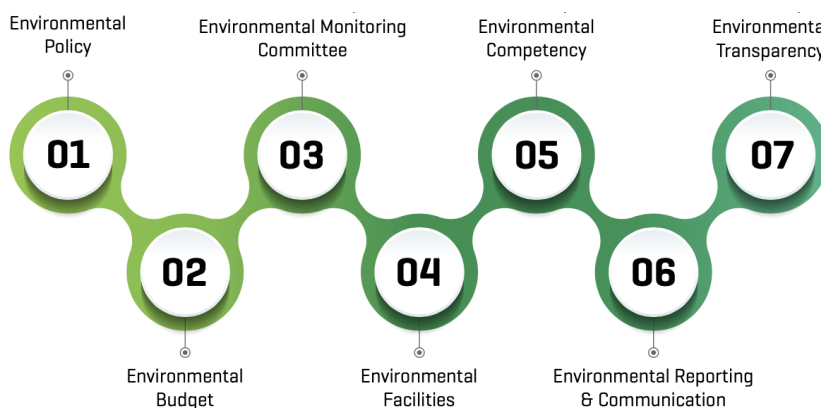


Figure 9.4 EMTs tools under the GSR approach
(Source: DOE Annual Report 2021)

(WT) and Waste Receiver (WR) as shown in **Figure 9.5**.



Figure 9.5 Primary Roles in eSWIS (Source: Electronic Scheduled Waste Information System eSWIS 2015)

► Way Forward



1. Identify and develop an inventory of pollution concentration areas (hot spots) in the form of GIS mapping – 3 hot spots per state



2. Create a forensic team to carry out investigations based on the Forensic Investigation PTO for environmental pollution cases



3. Implement a program to improve the skills and expertise of the forensic team at DOE through outreach programs to other agencies and overseas training



4. Carry out the functions and roles of the environmental forensics team



5. Mobile forensic laboratory acquisition



6. Amendment of the Act to a more stringent especially the revision of compounds to be in line with current rates



CHAPTER 10

SDG

17 PARTNERSHIPS
FOR THE GOALS



**Strengthen the Means
of Implementation
and Revitalize the
Global Partnership
for Sustainable
Development**



The SDG 17 PARTNERSHIP FOR THE GOALS

accentuates on enhancement of the global partnership for sustainable development complemented by multistakeholder partnerships that mobilize and share, expertise, knowledge scientific, technological, and financial resources. Moreover, this goal encourages and promotes effective public, private and civil society partnerships, building on the experience and resourcing strategies of partnerships. It also supports the achievement of the Sustainable Development Goals (SDG) in all countries, in particular developing countries.

Strengthen the Means of Implementation and Revitalize the Global Partnership for Sustainable Development



SDG 17 Target & Where We Are In Achieving The Target



TARGET 17.17

Encourage and promote effective public, public-private and civil society partnerships, building on the experience and resourcing strategies of partnerships

In an endeavor to create a community that appreciates and cares about the environmental sustainability, DOE continues to execute a variety of environmental sustainability programmes, actions as

well as convey information to all levels of society. DOE has created an ingenious and strategic partnership with higher educational institutional, governmental organizations, non-governmental organizations, private and government-linked companies for the implementation of awareness programmes through a Memorandum of Understanding (MoU). These initiatives are the contributions towards Target 17.17 in SDG 17 for achieving the 2030 Agenda. This SDG emphasizes on the importance of effective (internationally/ domestically) partnerships with private/ public/ civil societies to implement the sustainable developments among communities by providing them proper resources.

a. Friends of Environment (*Rakan Alam Sekitar – RAS*)

The Friends of the Environment (*Rakan Alam Sekitar – RAS*) programme is one of the measures taken to deal with environmental problems. It engages members of the community in a "hands-on" approach that serves as "eyes and ears" to provide assistance to government agencies who are accountable for preventing practices that damage or contaminate the environment. The programme was initiated on 4 June 2009 to increase the community participation in environmental conservation and preservation efforts and to raise awareness of environmental issues. The objective of RAS is indicated in **Figure 10.1**.



Figure 10.1 Objectives of RAS

Regardless of age, all Malaysians are eligible to join the programme as members including school students, university students, employees of the public and private sectors, members of the general public, and others. The membership registration form is available at the Secretariat of RAS located at DOE Headquarters, as well as at the state DOE.

The programme membership can also be done via online system on i.e. MyRAS.



QR code for MyRAS System

RAS MOTTO AND LOGO

The motto of the programme is “We Want a Sustainable Lifestyle”, which is exhibited in the logo of this programme as shown in **Figure 10.2**. The logo displays the following meaningful explanations:

- ▶▶ The green human animation indicates a community that supports environmental preservation and conservation efforts.
- ▶▶ The blue human animation signifies the community that leads the efforts to preserve and conserve the environment.
- ▶▶ The leaves represent the ecosystem we protect.
- ▶▶ The earth in the logo represents the environment we love.



Figure 10.2 Motto and Logo of RAS

(Source: Rakan Alam Sekitar (RAS) Official Portal)

PROGRAMMES INITIATED BY DEPARTMENT OF ENVIRONMENT

Department of Environment (DOE) has also initiated various accomplishments through the RAS programme for environmental awareness.



01

Earth Day Programme (In conjunction with Earth Day on 22 April annually)

02

World Environment Day Programme (In conjunction with World Environment Day on 5 June annually)



03

World Ozone Day Programme (In conjunction with World Ozone Day which falls on 16 September annually)



04

National Environment Day Celebration Programme (In conjunction with National Environment Day which falls on 21 October annually)





05

International E-Waste Day Programme (In conjunction with International E-Waste Day on 14 October annually)



06

Sustainable Pre-School Programme
(Coloring Contents)



07

Environmental Debate Programme
Between Higher Educational Institutional

08

Anugerah Langkawi
Kelestarian Alam Sekitar



09

Environmental Award Sustainable Schools Program (SLAAS)



10

Partnership in Organizing Environmental Awareness Programmes (Green Cycling @ Kayuhan Hijau)

11

Environmental Exhibition



12

Environmental Awareness Programme (Tree planting programme: 1 RAS, 1 POKOK)



13

Seminar and Talks on Environment Quality Act 1974 to the Public and Industry



b. Communication, Education, and Public Awareness (CEPA) on Environment

Communication, Education and Public Awareness (CEPA) programme is an accepted tool to move stakeholders towards understanding and adopting sustainable use of natural resources. It is aimed at raising the level of environmental awareness, knowledge and skills among nations through a range of education and training activities focused at supporting community action and behavioural change. Having an environmentally friendly outlook and behaviour accompanied by relevant skills will drive society towards a lifestyle characterized by sustainable living spaces and workplaces. This will also foster a collective responsibility towards environmental protection and biodiversity conservation through building of ethical partnerships between stakeholders. It is anticipated that greater public awareness of environmental protection would contribute to its inclusion in the national development agenda.

DOE has enhanced smart and strategic partnerships in the implementation of environmental awareness programmes as one of the proactive measures to address environmental issues. Based on the objectives of the awareness programme, the DOE organised various environmental related programmes aimed at various target group such community leaders, children, primary and secondary school students, students of institutions of higher learning, industries, private sector, non-governmental organizations, public and local communities and government agencies.

Awareness programmes on environmental preservation and conservation in Malaysia have been introduced as early as pre-school years among children. This early introduction

is an effort to nurture and cultivate the love for the environment in children from an early age. DOE has conducted and designed various awareness programmes at pre-school and school levels as one of the Department's ongoing commitment efforts in ensuring environmental awareness is achieved among children and students nationwide.

Numerous types of awareness activities were conducted by DOE throughout the country in recent years. These activities include Environmental Awareness Camps (KEKAS), pre-school/ autism joint activities, e-waste collection activities, Sustainable Schools Environmental Awards (SLAAS), and various invention competitions. There are also Environmental Awards Programme, Nature Hero Project Programme, Environmentally Friendly Trail Tour, Programme, seminars, workshops, forums, dialogues, public talks, environmental exhibitions, earth greening and tree planting activities, plogging, enviro-hikings, runs, and walks to which is organized by the DOE to encourage the community to understand issues related to the environment and then they can together mobilize energy to preserve the sustainability of the environment in this country.



Webinar
CAKNA "DEBAT ALAM SEKITAR"
KALI KE-28 TAHUN 2022"

DEBAT ALAM SEKITAR

PANEL
TAN KONG CHAN
Ketua Pengarah Jabatan Alam Sekitar

PANEL
TAN KONG CHAN
Ketua Pengarah Jabatan Alam Sekitar

PANEL
TAN KONG CHAN
Ketua Pengarah Jabatan Alam Sekitar

UCAP TAMBAH
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

5 OGOS 2022
JUMAAT
9.30 - 11.30 PAGI

SECARA LANGSUNG

JABATAN ALAM SEKITAR

"ALAM SEKITAR TANGJUNJAWAB BERSAMA"

CAKNA DEBAT ALAM SEKITAR BERSAMA
ALUMNI DEBAT ALAM SEKITAR

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

11 OGOS 2022
KHAMIS
10.00 PAGI

SECARA LANGSUNG

BICARA EKSEKUTIF:
E-WASTE :
MEMUPUK KESEDARAN SEISI RUMAH
"INVEST IN OUR PLANET"

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

22 APRIL 2022
JUMAAT
3.00 PTG

SECARA LANGSUNG

Webinar
ALAM SEKITAR MALAYSIA
KE ARAH MATLAMAT
PEMBANGUNAN LESTARI

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

22 APRIL 2022
JUMAAT
3.00 PTG

SECARA LANGSUNG

WEBINAR:
WANITA TONGGAK
KELESTARIAN ALAM SEKITAR

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

30 MAC 2022
RABU
10.00 PAGI

SECARA LANGSUNG

WEBINAR:
CABARAN PENGURUSAN
KUALITI AIR SUNGAI

PANEL
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

7 APRIL 2022
KHAMIS
10.00 PAGI

SECARA LANGSUNG

HANYA SATU BUMI
5 Jun 2022

MODERATOR
YKS ABDUL LATIF PHIN WANG JAFFAR
Menteri Pembangunan Alam Sekitar

SECARA LANGSUNG

Webinars Conducted by DOE to Promote Environmental Awareness

c. Langkawi Awards Environmental Sustainability (*Anugerah Langkawi Kelestarian Alam Sekitar – ALKAS*)

The Langkawi Awards are given out by annually to honour the outstanding achievements of individuals and organisations that have made significant contributions of knowledge, ideas, energy, and time to the field of environmental protection and sustainability. Started in year 2015, this award were given out bi-annually.

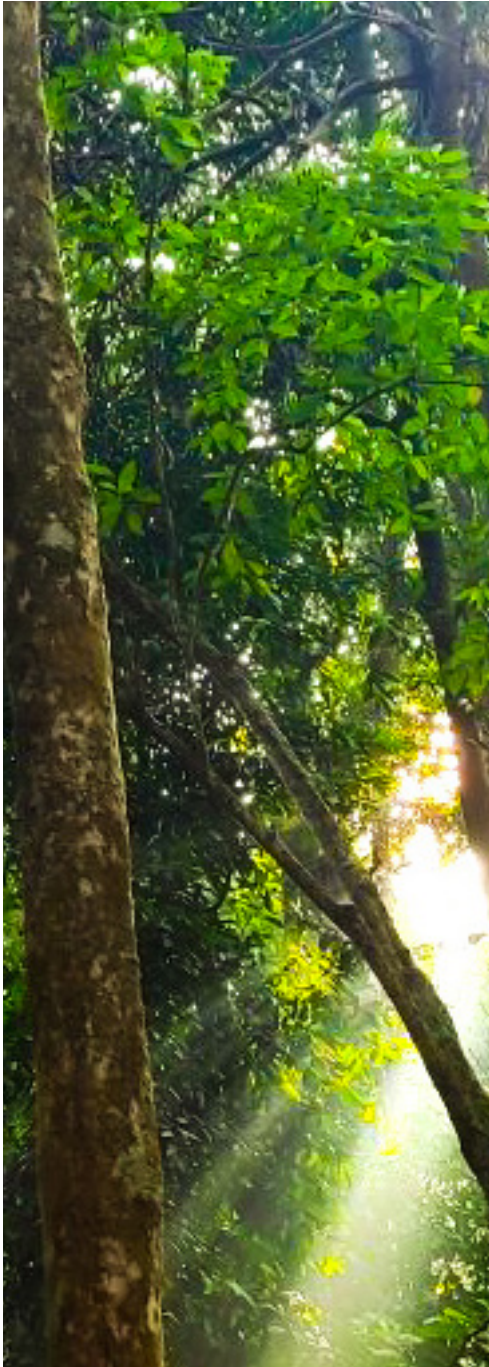
In addition, the award serves as motivation for other individuals and organizations to keep working for the protection and conservation of the environment. The Langkawi Award is presented to Malaysian citizens as part of an annual programme that is organised by DOE in conjunction with the celebration of National Environment Week (MASM). The purpose of this programme is to honour the Langkawi Declaration, which was signed by the Commonwealth Heads of State in 1989.

The award was initially presented for the first time in 1991 to demonstrate the dedication of Malaysians in general and the country in particular in achieving the goals of sustainable development as embodied in the Langkawi Declaration. Individuals and organizations that have made significant contributions in the field of environment, whether in management, business, scientific research, academia, writing, and other areas related to environmental issues are eligible to receive the Langkawi Award.

This award is the highest recognition and honour that can be bestowed in the country. It is also given to people as well as organisations that have made significant contributions of ideas and experiences in the subject of environment and are actively working towards it.



Langkawi Award Certificate



LOGO OF ALKAS

The yellow colour in ALKAS logo is symbolizes as the prestigious award recognized by DYMM SPB YDPA. The use of the bee as a mascot reflects the bee which apparently takes nectar from the flowers, but it does not damage the flowers and instead becomes an agent of pollination.

This means that the environment, even though used by humans, must be well taken care of without damaging it, in fact humans need to be responsible for preserving and conserving the environment. The logo of ALKAS is presented in **Figure 10.3**.



Figure 10.3 Logo of Anugerah Langkawi Kelestarian Alam Sekitar (Source: Rakan Alam Sekitar (RAS) Official Portal)

It is also given to people as well as organisations that have made significant contributions of ideas and experiences in the subject of environment and are actively working towards:

Recipient Individuals of Langkawi Award



Dato' Dr. Salleh Mohd Nor
President, Malaysia Nature Society
ALKAS 1991



Tan Sri Razali Ismail
Country Representative to the United Nations
ALKAS 1992



Ir. Gurmit Singh K.S
Executive Director, Centre for Environment Technology Development Malaysia
ALKAS 1993



Prof. Dato' Dr. Sham Sani
Former Vice Chancellor, Universiti Kebangsaan Malaysia
ALKAS 1994



Tan Sri Khir Johari
President, World Wide Fund for Nature - Malaysia
ALKAS 1995



Ir. K. Kumarasivam
Former Deputy Chairman, KTA Tenaga Sdn. Bhd.
ALKAS 1997



Prof. Dato' Dr Zakri A. Hamid
Former Deputy Vice Chancellor, Universiti Kebangsaan Malaysia
ALKAS 1998



Y. M. Tengku Datuk Dr. Zainal Adlin Tengku Mahamud
Executive Chairman, Lintasan Mayang Sdn. Bhd.
ALKAS 1999



Prof. Dr. Muhammad Awang
Former Deputy Vice Chancellor, Universiti Pertanian Malaysia
ALKAS 2000



Datuk Amar James Wong Kim Min
Former Minister of Environment and Public Health Sarawak
ALKAS 2001



Tan Sri Dato' Lee Lam Thye
Advisory Board Member, Dewan Bandaraya Kuala Lumpur
ALKAS 2002



Puan Khatijah Abdul Rahman
Executive Director, Yayasan Anak Warisan Alam
ALKAS 2003



Prof. Dato' Dr. Abdul Latiff Mohamad
Professor,
Universiti Kebangsaan
Malaysia
ALKAS 2004



Dato' Dr. Hashim Abdul Wahab
Vice President,
Malaysia
Nature Society
ALKAS 2005



Tuan Bisan Singh a/l Ram Singh
Chairman, MENO's
ALKAS 2006



Dato' Dr. Mohammed Anwar a/l Fazal Mohammed
Director, Citizen
International
ALKAS 2007



Prof. Dato' Dr. Ibrahim Komoo
Vice Chancellor,
Universiti Kebangsaan
Malaysia
(Research and
Innovation Affairs)
ALKAS 2008



Prof. Dato' Dr. Sharifah Mastura Syed Abdullah
Director at
Climate Change,
Universiti Kebangsaan
Malaysia
ALKAS 2009



Prof. Datuk Dr. Azizan Baharuddin Director
General of
Institute of Islamic
Understanding
Malaysia
ALKAS 2015-2016



Prof. Dato' Dr. Mazlin Mokhtar
Principle Fellow,
Institute of
Environment
and Development
ALKAS 2017-2018

Recipient of Langkawi Award (Organisations)



The Frangipani Langkawi Resort & Spa
ALKAS 2011



Malakoff Corporation Bhd
ALKAS 2011



Majlis Bandaraya Shah Alam (MBSA)
ALKAS 2015-2016



Sime Darby Plantation Berhad
ALKAS 2017-2018

d. Public Private Partnership (PPP)

There are several projects to control and supervise data related to the environment that are handed over to the operation of private sectors based on the special expertise possessed by the private agencies involved. Through this public private partnership (PPP) joint venture, DOE can further strengthen the data collection process where the data can be used in the best way to preserve and conserve the environment in this country. It is accomplished through the Environmental Quality Monitoring Program (EQMP) to monitor air, river, and marine water quality throughout the country by way of collecting data from monitoring stations network. The monitoring stations that are located throughout the country generate environmental quality data that is needed by DOE. The EQMP is an essential programme to create an effective and sustainable environmental management.

The systematic monitoring of Malaysia's air quality and water resources has essentially been the responsibility of DOE although several other

government agencies are also responsible for the environmental monitoring accordingly to respective agencies' roles and responsibilities.

Close cooperation to supervise environmental data between government agencies and the private sector began in 1995 when the nation-wide monitoring program to assess air and river water quality was contracted out to the private sector. Data generated by the EQMP enable macro, mid and long-term action plans as well as management strategies to be constructed and assessed. The data are also used by DOE for day-to-day operations' decision-making process.



Environmental Data Center

► Way Forward

DOE has various future plans that have been planned and will be carried out to continue the existing efforts.



1. Enhancing the engagement between DOE and various stakeholder such as government agencies, government listed companies (GLC), NGOs, private sector as well as community.



2. Knowledge transfer collaboration with industries (local and international) e.g., palm mill, power generation, and attachment program

Conclusion



Out of the **17 Sustainable Development Goals (SDG)** outlined by the United Nations, there are **10 SDGs** that are closely related to the tasks being assigned to DOE

The Department of Environment Malaysia (DOE) has embarked on a journey towards sustainable environment since the enactment of its first environmental legislation framework in 1974 in the form of the Environmental Quality Act (EQA) 1974. Despite facing various challenges, as the environmental issues in Malaysia are becoming more complex over the years, DOE has made its best effort to play its role in preventing and controlling pollution through the enforcement of the EQA 1974. In the effort to achieve the Sustainable Development Goals (SDG) 2030 Agenda, DOE has also conducted environmental quality monitoring program for air and water, and scheduled waste management, apart from enforcing legislations. Numerous initiatives and programs have also been introduced by DOE to support the Communication, Education and Public Awareness (CEPA) on environment.

The DOE workforce is truly committed to the mandate that has been assigned by the country and all Malaysians so that we can together achieve the SDG goals for a sustainable environment. Out of the

17 SDGs outlined by the United Nations, there are 10 SDGs that are closely related to the tasks being assigned to DOE.

Through this Sustainable Development Goals: Mainstreaming Environmental Agenda book, DOE has summarized the association between each SDGs, namely SDG 4 (Quality Education), SDG 6 (Clean Water and Sanitation), SDG 7 (Affordable and Clean Energy), SDG 11 (Sustainable Cities and Communities), SDG 12 (Responsible Consumption and Production), SDG 13 (Climate Action), SDG 14 (Life Below Water), SDG 15 (Life on Land), SDG 16 (Peace, Justice, and Strong Institutions) as well as SDG 17 (Partnership for the Goals) and the tasks that have been carried out by the DOE to achieve each goals.

It is DOE's aspiration to mobilize its workforce's energy to continuously commit to the existing pollution control and environmental quality monitoring efforts, as well as to further strengthen and improve its operation throughout Malaysia for a better environment for future generations of Malaysia Madani.

Acknowledgment

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LAYOUT & DESIGN:

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